DATA CONNECT ENTERPRISE

INDUSTRIAL NETWORK SOLUTIONS

Call 1.888.4WANLAN
www.dataconnectus.com

Headquartered in Olney, Maryland, near Washington, DC, Data Connect manufactures reliable networking and communications products. We have offices serving major metropolitan areas throughout the country as well as substantial international penetration with distributors around the world. Specializing in networking and communications technologies, Data Connect provides a wide range of solutions to wire-line and wireless applications in data, voice and video transmission.

Data Connect specializes in industrial grade, temperature rated, and hardened communications solutions. We produce a wide range of industrial Ethernet, industrial wireless, and industrial modem products used extensively in both trailing-edge and leading-edge applications. Data Connect is well equipped to help businesses, VARs, and systems integrators looking for reliable networking solutions. Ask Data Connect for help in both your existing legacy network applications and in your new networks using state-of-the-art integrated solutions.

SYSTEMS SOLUTIONS: All Data Connect recommendations are made with system integrity in mind. We may ask a few more questions about your application, but this is done to ensure the right solution for your requirement.

MAINTENANCE AND REPAIR SERVICES: Data Connect offers repair services, warranty enhancements, installation services, site surveys, and consulting services for wireless, wire-line, voice, data, video, and converged network products and applications. We offer fixed price maintenance contracts for a wide range of equipment. Maintenance contracts and exclusive programs help you control downtime and budgets. Maintenance contracts and exclusive money saving programs can lower your costs while saving you time.

TOTAL PREMISE SOLUTIONS: We are able to recommend, design, deliver, implement and service a broad range of network and connectivity solutions within specific and unique environments. In addition to supplying premise equipment and wiring, Data Connect provides a full range of data and voice premise services. These services include custom patch cabling, wiring upgrades, dressing of existing cabling and cabinets and complete computer room relocations-all within applicable code and cutover deadlines

EXPRESS DELIVERY: In addition to traditional freight services, Data Connect provides personal delivery for emergency requirements whenever possible. Orders for stock items are rushed and filled the day they are placed. Special order and custom terms are expedited to meet customer deadlines.

GUARANTEE: All standard stock products are backed by Data Connect's reliability guarantee. Any DOA unit will be exchanged from Data Connect's stock for an immediate brand new replacement unit. In addition, if the item ordered does not completely satisfy your requirement, simply notify us within 15 days of purchase and we will swap out the unit for the correct product. Most Data Connect products come with 1-year, 2-year, or 5-year as well as lifetime warranties.

WARRANTIES: Please ask about extended warranty options.

NO SALES ARE FINAL: Since NO SALES ARE FINAL, you can return any item that you have purchased from DATA CONNECT. Returns of items after 30 days from the date of shipment should, but may not necessarily, result in a credit. The determination of the restocking fee to be applied will be made by the DATA CONNECT RMA Department based upon the age of the unit, its condition, the unit's state of obsolescence, product.

TABLE OF CONTENTS

MODEL	MAX. DISTANCE	MAX. SPEED	DISTANCE AT MAX. SPEED	RACK MOUNT	DIN MOUNT	PHOTO	PAGE
2178EE	6,232 FEET (Copper Wire)	50MBPS	900 FEET	YES	YES		6
2178HEE (Hardened)	6,232 FEET (Copper Wire)	50MBPS	900 FEET	YES	YES		7
2178MDEE (Multi-Drop)	6,232 FEET PER DROP (Copper Wire)	50 MBPS	900 FEET	YES	YES		8
2178MPEE (Multi-Point)	6,232 FEET (Copper Wire)	50 MBPS	900 FEET	YES	YES		10
2178LRE-1 (Long Reach)	4.9 MILES (Copper Wire)	5 MBPS	1.8 MILES	NO	NO		11
2178LRE-2 (Long Reach)	4.9 MILES (Copper Wire)	11 MBPS	1.8 MILES	NO	NO		11
2178LRE-4 (Long Reach)	4.9 MILES (Copper Wire)	22 MBPS	1.8 MILES	NO	NO		11
2178HSEE (High Speed)	4,593 FEET (Copper Wire)	100 MBPS	900 FEET	YES	NO		12
2178CEE (Coax)	7,784 FEET (Coax or Telephone Wire)	100 MBPS	655 FEET	NO	NO		15
2178FEE (Fiber)	74.5 MILES (MM, SM, or WDM Fiber)	100 MBPS	UNLIMITED	NO	NO		16
2178WEE (Wireless)	5,000 FEET (Wireless N)	150 MBPS	900 FEET	NO	NO		17
2178HPWEE (High Power Wireless)	25 MILES LINE OF SITE (LOS) (Wireless N & HP Antenna)	300 MBPS	.5 MILES	NO	NO		19

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ETHERNET / LAN EXTENSION

The Technology

Ethernet extension allows users to expand their Ethernet connections beyond the 328-foot (100-meter) Ethernet distance limitations. Ethernet extenders can establish long-range, high-speed data communication links between geographically separated LANs or LAN devices. Ethernet extenders are often employed to connect workgroups on different floors within a building.

One benefit of Ethernet extenders is they can eliminate the need for installing expensive Switches and CAT5 cable. Ethernet extenders can use fiber-optic, coax, wireless, or copper twisted-pair cables to transparently send packets at full-line rate to a peered LAN up to twenty-five miles away. While networks typically deploy Ethernet extenders within a limited geographical area, this area need not be limited to one building. Ethernet extenders can create effective bridged-Ethernet connections across streets or over a college or enterprise campus and between Ethernet LANs up to twenty-five miles apart.

Ethernet extenders are cost-effective alternatives to more complicated and pricey wiring installations such as CAT5 cable. Ethernet extenders are plug-and-play devices that you can install quickly to take advantage of existing copper twisted-pair network infrastructure. Depending on the required data rate, some Wireless Ethernet extender models can increase the distance of an Ethernet link up to twenty-five miles with Line Of Site (LOS).

At Data Connect, we offer a wide range of award-winning Ethernet Extenders to serve your networking needs, including copper, coax, fiber, and wireless models. Our auto-rate adaptation feature ensures the highest speed possible across great distances. Unlike many LAN extenders, Data Connect extenders with auto-rate adaptation can be set for multiple data rates and require no difficult configuration when connecting to LANs at different distances.

DCE 2178EE

DISTANCE CHART

NOTE: All speed selections are Symmetrical on the DSL and Full-duplex on the Ethernet.

	LED	SPEED	DISTANCE
1	Green	1Mbps	1,900m (6,232 ft)
	Amber	3Mbps	1,800m (5,904 ft)
2	Green	5Mbps	1,600m (5,249 ft)
	Amber	10Mbps	1,400m (4,593 ft)
3	Green	15Mbps	1,200m (3,936 ft)
	Amber	20Mbps	1,000m (3,280 ft)
4	Green	25Mbps	800m (2,624 ft)
	Amber	30Mbps	700m (2,296 ft)
4&2	Amber	40Mbps	600m (1,968 ft)
4&3	Amber	50Mbps	300m (984 ft)

The 2178EE is a point-to-point Industrial Ethernet Extender that efficiently extends 10/100 Ethernet circuits up to 6,232 feet and supports speeds from 1Mbps to 50Mbps using existing straight pair copper wire. The 2178EE will allow Ethernet connectivity in existing facilities without pulling extra cable.

This is the perfect solution to Ethernet on the factory floor where systems have been upgraded from slower serial communications to Ethernet networking. Applications are endless; all that is needed is access to copper pairs. Installation is easy with a single switch setting; one end is set for local and the other remote. The 2178EE is used in pairs to extend Ethernet connectivity over existing voice grade copper wire.

FEATURES

- Operates transparent to higher layer protocols such as TCP/IP
- Ethernet Port: 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Ethernet Extender (RJ-11) Port: Symmetrical on the VDSL
- High speed Full-duplex 50Mbps communications link over existing copper facilities
- Support DIP switch to select Local or Remote side
- Ten speeds with speed indicator LEDs on top of unit,
- Up to 50 Mbps @ about 300 meters (984 ft) & down to 1 Mbps @ about 1,900 meters (6,232 ft)
- -20°C to 60°C (-4°F to 140°F) operating temperature range
- Industrial Hardened aluminum case
- Supports DIN-Rail, Wall Mounting installation or expansion use with our media converter chassis system

SPECIFICATIONS

Technology
Standards: IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3x, Ethernet over VDSL
Protocols: Transparent to higher layer protocols
Processing Type: Half-duplex back-pressure and IEEE802.3x Full-duplex flow control
Power
Input: Input Voltage: 12VDC
Power Consumption: 2.4W Max._ 0.2A@12VDC
Mechanical
Casing: Aluminum case
Dimensions: 80.3mm (W) x 109.2mm (D) x 23.8mm (H); (3.16" (W) x 4.30" (D) x 0.94" (H))
Weight: 150g (0.33lb.)
Installation: DIN-Rail, Wall Mounting
Interface
Ethernet Port: Port: One RJ-45 port, 10/100Base-TX Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
Speed: 10/100Mbps
Distance: 100meters (328ft.)
Cable: 10Base-T: UTP CAT. 3, 4, 5 (2-pair wire) & 100Base-TX: UTP CAT. 5 (2 -pair wire)
Ethernet Extension Port
Port: One RJ-11 Port
Speed: 1/3/5/10/15/20/25/30/40/50mbps
Distance: 1900meters (6,232ft.)
Cable: Telephone line 24 AWG (0.5mm diameter, 1-pair wire) or larger
DIP Switch: One DIP switch: Local (CO) or Remote (CPE)
LED Indicators: Per Unit: Power Status (Power), 10/100TX: Link/Activity, Full-duplex & Line: Error, Link, Local, Remote
Environment
Operating Temperature: -20°C to 60°C (-4°F to 140°F)
Storage Temperature: -20°C to 70°C (-4°F to 158°F)
Ambient Relative Humidity: 5% to 95% (non-condensing)

ODERING INFORMATION

DCE/2178EE	Data Connect 10/100Base-TX Industrial Ethernet Extender
DCE/2178EE-2PK	Data Connect 10/100Base-TX Industrial Ethernet Extender, 2-Pack
DCE/2178EE-DIN	Data Connect DIN rail mount kit

APPLICATION

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DCE 2178HEE

The Data Connect 2178HEE is a point-to-point Industrial Ethernet Extender designed to operate in harsh environments that efficiently extends 10/100   Ethernet circuits up to 6,232 feet and supports speeds from 1Mbps to 50Mbps using existing crossover pair copper wire. The 2178HEE function sat temperatures ranging from -40°C to 75°C (-40°F to 167°F) and is tested for functional operation @ -40°C to 85°C (-40°F to 185°F). The 2178HEE-will allow Ethernet connectivity in existing facilities without pulling extra cable. This is the perfect solution to Ethernet on the factory floor where systems have been upgraded from slower serial communications to Ethernet networking.

REGULATORY APPROVALS

Regulatory Approvals ISO: Manufactured in an ISO9001 facility
Safety: UL60950-1, EN60950-1, IEC60950-1EMI: FCC Part 15, Class A   EN61000-6-3   EN55022   EN61000-3-2   EN61000-3-3EMS: EN61000-6-2   EN61000-4-2 (ESD Standards)
Contact: + / - 4KV; Criteria B   Air: + / - 8KV; Criteria B
EN61000-4-3 (Radiated RFI Standards) 10V/m, 80 to 1000MHz; 80% AM Criteria A
EN61000-4-4 (Burst Standards)   Signal Ports: + / - 4KV; Criteria B   D.C. Power Ports: + / - 4KV; Criteria B   A.C. Power Ports: + / - 4KV; Criteria B
EN61000-4-5 (Surge Standards)   Signal Ports: + / - 1KV; Line-to-Line; Criteria B   D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B   A.C. Power Ports: + / - 2KV; Line-to-earth; Criteria B
EN61000-4-6 (Induced RFI Standards)
Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
D.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
A.C. Power Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A
EN6100030A/m @ 50, 60Hz; Criteria A
EN61000-4-11 (Voltage Dip Standards)
A.C. Power Ports: 30% Reduction for 0.5 period; Criteria B
Environmental Test Compliance:
IEC60068-2-6 Fc (Vibration Resistance) 5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport)
IEC60068-2-27 Ea (Shock)   25g @ 11ms (Half-Sine Shock Pulse; Operation)   50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)

FEATURES

- Complies with NEMA TS1 & TS2 Environmental requirements for Traffic control equipment
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment
- Operates transparent to higher layer protocols such as TCP/IP Support DIP switch to select Local or Remote side
- Redundant power inputs with Terminal Block and DC Jack
- Ten speeds with speed indicator LEDs on top of unit
- Ethernet Port: 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Ethernet Extender(RJ-11 and Terminal Block) Port
- Hardened aluminum case
- Supports DIN-Rail or Panel Mounting installation

SPECIFICATIONS

Technology
Standards: IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3x, Ethernet over VDSL
Protocols: Transparent to higher layer protocols
Processing Type: Half-duplex back-pressure and IEEE802.3x Full-duplex flow control
Power
Input: Input Voltage: 12-30VDC
Power Consumption: 2.4W Max._ 0.2A@12VDC
Mechanical
Casing: Aluminum case
Dimensions: 50mm (W) x 110mm (D) x 135mm (H); (1.97" (W) x 4.33" (D) x 5.31" (H))
Weight: .8kg (1076lbs.)
Installation: DIN-Rail, Wall Mounting
Interface
Ethernet Port: Port: One RJ-45 port, 10/100Base-TX Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
Speed: 10/100Mbps
Distance: 100meters (328ft.)
Cable: 10Base-T: UTP CAT. 3, 4, 5 (2-pair wire) & 100Base-TX: UTP CAT. 5 (2-pair wire)
Ethernet Extension Port
Port: One RJ-11 Port
Speed: 1/3/5/10/15/20/25/30/40/50mbps
Distance: 1900meters (6,232ft.)
Cable: Telephone line 24 AWG (0.5mm diameter, 1-pair wire) or larger
DIP Switch: One DIP switch: Local (CO) or Remote (CPE)
LED Indicators: Per Unit: Power Status (Power), 10/100TX: Link/Activity, Full-duplex & Line: Error, Link, Local, Remote
Environment
Operating Temperature: -20°C to 60°C (-4°F to 140°F)
Storage Temperature: -20°C to 70°C (-4°F to 158°F)
Ambient Relative Humidity: 5% to 95% (non-condensing)

ORDERING INFORMATION

2178HEE	10/100Base-TX Industrial Hardened Ethernet Extender
2178HEE-2PK	10/100Base-TX Industrial Hardened Ethernet Extender. 2-Pack
2178HEE-DIN	DIN Rail Mount Kit

APPLICATION

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DCE 2178MDEE

The Data Connect DCE/2178MDEE Industrial Grade Multi Drop Ethernet Extender is an one 8-port 10/100Base-TX switch and two 2- wire Ethernet ports used to extend Ethernet up to 300 meters (984 feet) at 50Mbps over two existing voice grade copper wires. A simple single switch allows for a choice between local or remote setting. Thus select local for side A of the circuit and select remote for side B of the circuit. The DCE/2178MDEE is fully managed via SNMP, Web Browser, Telnet or Console port and is designed to integrate 10/100 Mbps networks into VDSL backbone. The DCE/2178MDEE supports advance features such as 802.1Q VLAN, MAC-based Trunking, IPMulticast IGMP Snooping, Rapid Spanning Tree for Redundancy, QOS foe Priority Queuing, and Port Mirroring. The DCE/2178MDEE functions at temperatures ranging from -40 Degrees Celsius to 75 Degrees Celsius (-40 Degrees Fahrenheit to 167 Degrees Fahrenheit) and tested for functional operation at -40 Degrees Celsius to 85 Degrees Celsius (-40 Degrees Fahrenheit to 185 Degrees Fahrenheit). The DCE/2178MDEE complies with NEMA TS1 & TS2 that meets with Environmental requirements for Traffic Control equipment and complies with IEC61000-6-2 EMC, a Generic Standard Immunity for the industrial environment.

Regulatory Approvals

ISO: Manufactured in an ISO9001 facility

EMI: FCC Part 15, Class A, EN61000-6-4, EN55022, EN61000-3-2, EN61000-3-3

EMS: EN61000-6-2, EN61000-4-2 (ESD Standards), Contact: + / 6KV; Criteria B, Air: + / - 8KV; Criteria B

EN61000-4-3 (Radiated RFI Standards), 10V/m, 80 to 1000MHz; 80% AM Criteria A

EN61000-4-4 (Burst Standards), Signal Ports: + / - 4KV; Criteria B D.C. Power Ports: + / - 4KV; Criteria B

EN61000-4-5 (Surge Standards), Signal Ports: + / - 1KV; Line-to- Line; Criteria B, D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B

EN61000-4-6 (Induced RFI Standards) Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A D.C. Power Ports: 10Vrms @ 0.15~80MHz;30A/m @ 50, 60Hz; Criteria A

Environmental Test Compliance: IEC60068-2-6 FC (Vibration Resistance) 5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport) IEC60068-2-27 Ea (Shock) 25g @ 11ms (Half-Sine Shock Pulse; Operation) 50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport) IEC60068-2-32 Ed (Free Fall), 1M (3.281ft)

FEATURES

➤ Complies with NEMA TS1 & TS2 Environmental requirements for Traffic Control equipment

➤ Complies with IEC61000-6-2 EMC Generic Standard Immunity for industrial environment

➤ Ethernet Port: 10/100Mbps-Full/Half duplex, Auto-Negotiation, Auto-MD/MDX

➤ Ethernet Extender (RJ11 and Terminal) Port: Symmetrical on the VDSL, High speed, Full-duplex, 50Mbps communications link over existing copper Telephone Line

➤ -40 Degrees Celsius to 75 Degrees Celsius (-40 Degrees Fahrenheit to 167 Degrees Fahrenheit) operating temperature range

➤ 1000Mbps-Full Duplex, 10/100Mbps-Full/Half duplex, Auto-Negotiation, Auto-MD/MDX

➤ RS232 console, Telnet, SSL/SSH, SNMP V1, V2C, & V3, RMOM, Web Browser, and TFTP Management

➤ Data Connect proprietary 'a-ring' support for Network Redundancy; recovery time <15ms

➤ IEEE802.1w RSTP, IEEE802.1S MSTP and IEEE802.1D STP compatible

➤ Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP

➤ IP Multicast Filtering through IGMP Snooping V1, V2, & V3

➤ IEEE802.1P QOS with four priority queues

➤ Mac-based trunking with automatic link fail-over

➤ Supports Command Line Interface in RS232 Console

➤ Supports IEEE802.1X Security

➤ Bandwidth Rate Control

➤ Per-port programmable MAC address locking

➤ Up to 24 Static Secure MAC addresses per port

➤ Port-Mirroring

➤ Full wire-speed forwarding rate

➤ Redundant Power Inputs with Terminal Block and DC Jack

➤ Hardened aluminum

➤ Supports NTP

SPECIFICATIONS

Technology Standards: IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX, Ethernet over VDSL, IEEE802.3x, IEEE802.1p, IEEE802.1Q, IEEE802.1w, IEEE802.1x

Forward and Filtering Rate: 14,880pps for 10Mbp, 148,810pps for 100Mbps Packet Buffer Memory: 2M bits

Processing Type: Store-and-Forward, Half-duplex back-pressure and IEEE802.3x full-duplex flow control

Address Table Size: 8192 MAC addresses

Power Input: Input Voltage: 12 to 48VDC (Terminal Block); 12VDC (DC Jack) Power Consumption: 11W Max. 0.92A@12VDC, 0.46A@24VDC

Overload Current Protection: Present

Reverse Polarity Protection: Present

Mechanical Casing: Aluminum case, IP 30

Dimensions: 60mm (W) x 125mm (D) x 145mm (H), (2.36" (W) x 4.92" (D) x 5.7" (H))

Weight: 1.1Kg (2.42lbs.)

Installation: DIN-Rail

Interface Ethernet Port: 10/100BASE-TX: 8 ports

Ethernet Extender Ports: RJ-11 and Terminal Block port: 2 ports

Speed: 1/3/5/10/15/20/25/30/40/50 Mbps

Distance: 1900meters (6,232ft.)

Cable: Telephone line 24 AWG (0.5mm diameter, 1-pair wire) or larger

Console Port: Port: One DB9 RS-232 port

Per Unit: Power Status (Power 1, Power 2, Power 3)

Per Port: 10/100TX: Link/Activity, Speed Extender Port: Link :DIP switch: Two DIP switches: Local (CO) or Remote (CPE)

Alarm Contact: One relay output with current 1A@24VDC

Environment Operating Temperature -40°C to 75°C (-40°F to 167°F)

Tested @ -40°C to 85°C (-40°F to 185°F)

Storage Temperature: -40°C to 85°C (-40°F to 185°F)

Ambient Relative Humidity: 5% to 95% (non-condensing)

ORDERING INFORMATION

DCE/2178MDEE

DCE/2178MDEE-DC12J

DCE/2178MDEE-DC12TB

DCE/2178MDEE-DC48TB

APPLICATION

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DCE 2178MDEE

MULTI-DROP ETHERNET EXTENDER

APPLICATION

DCE 2178MPEE

MULTI-PORT POINT-TO-POINT

APPLICATION

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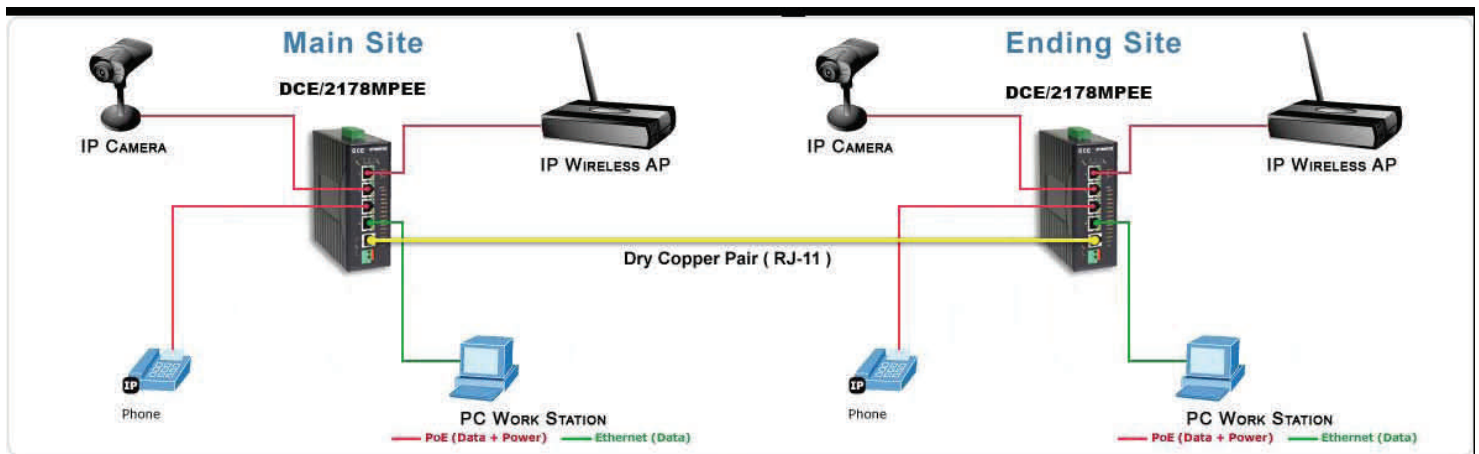
DCE 2178MPEE

The Data Connect DCE/2178MPEE Industrial Grade Multi Port Ethernet Extender is an one 4-port 10/100Base-TX switch and one 2- wire Ethernet port used to extend Ethernet up to 300 meters (984 feet) at 50Mbps over two existing voice grade copper wires. A simple single switch allows for a choice between local or remote setting. Thus select local for side A of the circuit and select remote for side B of the circuit. The DCE/2178MPEE is fully managed via SNMP, Web Browser, Telnet or Console port and is designed to integrate 10/100 Mbps networks into VDSL backbone. The DCE/2178MPEE supports advance features such as 802.1Q VLAN, MAC-based Trunking, IPMulticast IGMP Snooping, Rapid Spanning Tree for Redundancy, QOS foe Priority Queuing, and Port Mirroring. The DCE/2178MPEE functions at temperatures ranging from -40 Degrees Celsius to 75 Degrees Celsius (-40 Degrees Fahrenheit to 167 Degrees Fahrenheit) and tested for functional operation at -40 Degrees Celsius to 85 Degrees Celsius (-40 Degrees Fahrenheit to 185 Degrees Fahrenheit). The DCE/2178MPEE complies with NEMA TS1 & TS2 that meets with Environmental requirements for Traffic Control equipment and complies with IEC61000-6-2 EMC, a Generic Standard Immunity for the industrial environment.

Regulatory Approvals

ISO: Manufactured in an ISO9001 facility
EMI: FCC Part 15, Class A, EN61000-6-4, EN55022, EN61000-3-2, EN61000-3-3
EMS: EN61000-6-2, EN61000-4-2 (ESD Standards), Contact: + / 6KV; Criteria B, Air: + / - 8KV; Criteria B
EN61000-4-3 (Radiated RFI Standards), 10V/m, 80 to 1000MHz; 80% AM Criteria A
EN61000-4-4 (Burst Standards), Signal Ports: + / - 4KV; Criteria B D.C. Power Ports: + / - 4KV; Criteria B
EN61000-4-5 (Surge Standards), Signal Ports: + / - 1KV; Line-to-Line; Criteria B, D.C. Power Ports: + / - 0.5KV; Line-to-earth; Criteria B EN61000-4-6 (Induced RFI Standards) Signal Ports: 10Vrms @ 0.15~80MHz; 80% AM Criteria A D.C. Power Ports: 10Vrms @ 0.15~80MHz;30A/m @ 50, 60Hz; Criteria A Environmental Test Compliance: IEC60068-2-6 FC (Vibration Resistance) 5g @ 10~150KHz, Amplitude 0.35mm (Operation/Storage/Transport) IEC60068-2-27 Ea (Shock) 25g @ 11ms (Half-Sine Shock Pulse; Operation) 50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport) IEC60068-2-32 Ed (Free Fall), 1M (3.281ft)

FEATURES

- Complies with NEMA TS1 & TS2 Environmental Requirements for Traffic Control equipment
- Complies with IEC61000-6-2 EMC Generic Standard Immunity for industrial environment
- Ethernet Port: 10/100Mbps-Full/Half duplex, Auto-Negotiation, Auto-MD/MDX
- Ethernet Extender (RJ11 and Terminal) Port: Symmetrical on the VDSL, High speed, Full-duplex, 50Mbps communications link over existing copper Telephone Line
- -40 Degrees Celsius to 75 Degrees Celsius (-40 Degrees Fahrenheit to 167 Degrees Fahrenheit) operating temperature range
- 1000Mbps-Full Duplex, 10/100Mbps-Full/Half duplex, Auto-Negotiation, Auto-MD/MDX
- RS232 console, Telnet, SSL/SSH, SNMP V1, V2C, & V3, RMOM, Web Browser, and TFTP Management
- Data Connect proprietary 'a-ring' support for Network Redundancy; recovery time <15ms
- IEEE802.1w RSTP, IEEE802.1S MSTP and IEEE802.1D STP compatible
- Supports port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IP Multicast Filtering through IGMP Snooping V1, V2, & V3
- IEEE802.1P QOS with four priority queues
- Mac-based trunking with automatic link fail-over
- Supports Command Line Interface in RS232 Console
- Supports IEEE802.1X Security
- Bandwidth Rate Control
- Per-port programmable MAC address locking
- Up to 24 Static Secure MAC addresses per port
- Port Mirroring
- Full wire-speed forwarding rate
- Redundant Power Inputs with Terminal Block and DC Jack
- Hardened aluminum
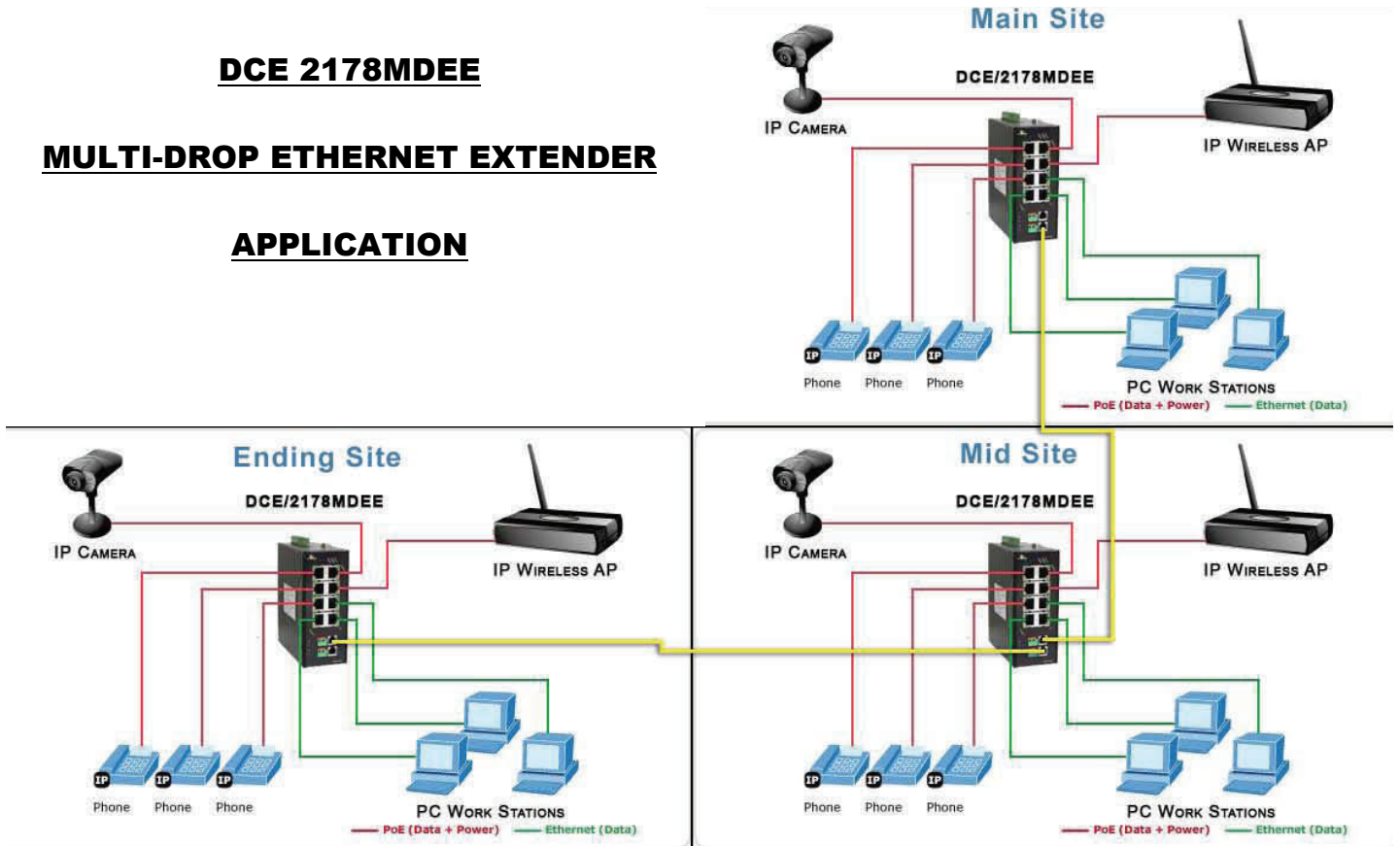- Supports NTP

SPECIFICATIONS

Technology Standards: IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX, Ethernet over VDSL, IEEE802.3x, IEEE802.1p, IEEE802.1Q, IEEE802.1w, IEEE802.1x
Forward and Filtering Rate: 14,880pps for 10Mbp, 148,810pps for 100Mbps Packet Buffer Memory: 2M bits
Processing Type: Store-and-Forward, Half-duplex back-pressure and IEEE802.3x full-duplex flow control
Address Table Size: 8192 MAC addresses
Power Input: Input Voltage: 12 to 48VDC (Terminal Block); 12VDC (DC Jack) Power Consumption: 11W Max. 0.92A@12VDC, 0.46A@24VDC
Overload Current Protection: Present
Reverse Polarity Protection: Present
Mechanical Casing: Aluminum case, IP 30
Dimensions: 60mm (W) x 125mm (D) x 145mm (H), (2.36" (W) x 4.92" (D) x 5.7" (H))
Weight: 1.1Kg (2.42lbs.)
Installation: DIN-Rail
Interface Ethernet Port: 10/100BASE-TX: 4 ports
Ethernet Extender Ports: RJ-11 and Terminal Block port: 2 ports
Speed: 1/3/5/10/15/20/25/30/40/50 Mbps
Distance: 1900meters (6,232ft.)
Cable: Telephone line 24 AWG (0.5mm diameter, 1-pair wire) or larger
Console Port: Port: One DB9 RS-232 port
Per Unit: Power Status (Power 1, Power 2, Power 3)
Per Port: 10/100TX: Link/Activity, Speed Extender Port: Link :DIP switch: Two DIP switches: Local (CO) or Remote (CPE)
Alarm Contact: One relay output with current 1A@24VDC
Environment Operating Temperature -40°C to 75°C (-40°F to 167°F)
Tested @ -40°C to 85°C (-40°F to 185°F)
Storage Temperature: -40°C to 85°C (-40°F to 185°F)
Ambient Relative Humidity: 5% to 95% (non-condensing)

ORDERING INFORMATION

DCE/2178MPEE
DCE/2178MPEE-DC12J
DCE/2178MPEE-DC12TB
DCE/2178MPEE-DC48TB

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2178LRE2/4/8

The DCE 2178LRE is a Long Reach Ethernet Network Extender (LER) designed to provide bonded, high-speed services over SHDSL on existing copper infrastructure using standards based on EFM (Ethernet in the First Mile) technology (2Base-TL). EFM, also known as IEEE 802.3ah, is a collection of protocols specified in IEEE 802.3, defining Ethernet in access networks, i.e. first or last mile. With Wide, Metro and Local Area Networks already standardized, EFM allows a continuou s Ethernet network across the globe, eliminating non-native transports such as Ethernet over ATM from access networks. EFM also addresses other issues, required for mass deployment of Ethernet services, such as operations, administration & management (OAM) and spectral compatibility with existing technologies such as voice, ASDL, VDSL and SHDSL. The DCE/2178LRE is a bridge mode modem that delivers Ethernet services with symmetrical bandwidth at rates up to 22.8Mbps with four bonded copper pairs. This "Pure Ethernet" solution provides a seamless integration into today and tomorrow's networks. The modem operates in point-to-point connections between remote office and enterprise headquarters, providing business-class Ethernet service at symmetrical high-speed connectivity that is ideal for small-to-medium enterprises.

DATA RATE	1-PAIR		2-PAIR		4-PAIR	
[KBPS]	[KM]	[MI]	[KM]	[MI]	[KM]	[MI]
192	8	4.9	8	4.9	8	4.9
512	6.4	3.9	6.7	4.1	6.7	4.1
1536	5.7	3.5	6	3.7	6.5	4
2048	5.1	3.1	5.7	3.5	6.4	3.9
4096	3.9	2.4	5.1	3.1	5.7	3.5
4608	3.5	2.1	5	3	5.5	3.4
5696	2.9	1.8	4.6	2.8	5.1	3.1
11392			2.9	1.8	4.6	2.8
17088					3.5	2.1
22784					2.9	1.8

SPECIFICATIONS

- **Connector : RJ45, 8 pins**
- **SHDSL.bis: ITU-T G.991.2 (2004) Annex AF/BG**
- **Encoding scheme: 16-TCPAM, 32-TCPAM• 2BASE-TL, 64/65-octet encoding**
- **EFM bonding (IEEE 802.3ah PAF)**
- **Maximum date rate is 22.8Mbps for 8-wire mode   (5.7Mbps/Port x 4Ports=22.8Mbps)**
- **Impedance: 135 ohms**
- **Four RJ45 Connectors• 4-ports switching hub• 10/100 Base-T auto-sensing and auto-negotiation**
- **Auto-MDI/MDIX (Auto-Crossover)**
- **802.1d Transparent Bridging**
- **ingress Rate control**
- **Egress Traffic shaping**
- **Classification based on Port Base / VLAN Tag / DSCP• 4 Priority Queues**
- **WRR (Weighted round-robin) / BE (Best Effort) / SP (Strictly Priority)**
- **802.1Q Tag-Based VLAN**
- **Port-Based VLAN• Port-Based Q-in-Q**
- **Priority Re-mapping• VLAN Trunk mode**
- **Easy to use web-based GUI for quick setup,   configuration and man-agement**
- **Menu-driven interface/Command line interface (CLI) for local con-sole and telnet access**
- **Password protected management and access control list   for ad-ministration**
- **SNMP v1/v2 (RFC1157/1901/1905) agent and MIB ll   (RFC1213/1493)• EFM OAM (IEEE 802.3ah)**
- **Software upgrade via web-browser/TFTPWAN Link/Activity, LAN Link/Act/Speed System: Power, Alarm and Management2MB Flash Memory , 4MB SDRAM**
- **ITU-T G.991.2, IEEE802.3, 802.3u, 802.3ah, 802.3ad**
- **DC 9V via AC power adapter 9W**
- **168 x 195 x 48mm1.3Kg**
- **0~50°C (Operating), 0~70°C (Storage), 10~90% non-condensing**
- **CE, FCC, RoHS35,000 hours**

FEATURES

- Extends Ethernet services to sites with existing copper infrastructure
- EFM Bonding (PAF, PME Aggregation Function) up to 22.8Mbps (4 pairs)
- Flexible configuration as CPE or CO
- Supports EFM OAM complying with IEEE 802.3ah
- Low Delay, Jitter and Packet Loss for delay sensitive applications
- Comprehensive and easy OAM&P functions for provisioning and management
- QoS feature for guaranteed Ethernet service
- Web-based GUI for setup, configuration and management
- Menu-driven interface for local control via console or telnet
- Password protected management and access control list for administration
- Supports firmware upgrade via web

ORDERING INFORMATION

DCE/2178LRE2-2PK   **4 port LAN extender, 2 wire, 5.7Mbps, 120VAC**

DCE/2178LRE4-2PK   **4 port LAN extender, 4 wire, 11.4Mbps, 120VAC**

DCE/2178LRE8-2PK   **4 port LAN extender, 8 wire, 22.8Mbps, 120VAC**

APPLICATION

4-WIRE BANDWIDTH AGGREATION
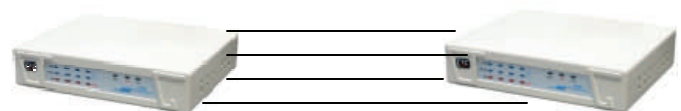
DCE 2178HSEE

The Data Connect 2178HSEE is a high speed 100/100Mbps Downstream / Upstream, over Ethernet extension. The DCE 2178HSEE is designed based on two core networking technology, Ethernet and the latest Very-high-data-rate Digital Subscriber Line. Our technology offers absolutely fastest data transmission speed over existing copper telephone lines without the need of rewiring.   The DCE 2178HSEE supports ultra-high performance to the pervasive telephone line network with up to 100/100Mbps symmetric data rate within 300m and 50/2Mbps for 1.4km long range connections.

The Data Connect 2178HSEE functions over existing telephone copper wires. In addition the DCE 2178HSEE is a Long Reach Ethernet (LRE) extender providing one RJ-45 Ethernet port and one RJ-11 phone jack for VDSL2 connection. By using the additional Splitter from the DCE 2178HSEE-2PK (two pack), the splitter can allow POTS and Ethernet to share the existing phone line; therefore, there is no need to replace existing copper wiring. Just plug the DCE 2178HSEE with an additional splitter into the existing RJ-11 telephone jack and a high-performance Ethernet extender network can be connected. The DCE 2178HSEE is ideal to be used as an Ethernet extender to an existing Ethernet network.

The Data Connect 2178HSEE can deliver High-Demand service connectivity for ISP Triple Play devices. The DCE2178HSEE provides excellent bandwidth to satisfy the triple play devices for home entertainment and communication. With the capability of 100/100Mbps symmetric data transmission, the DCE 2178HSEE enables many Multi-Media services to work on local Internet services, such as VOD (Video on Demand), Voice over IP, Video phone, IPTV, Internet caching server, distance education, and many more.

The Data Connect 2178HSEE is a plug-and-play design and is fully compatible with all kinds of network protocols. Moreover, the operating status of each individual port and the whole system can be easily viewed via the diagnostic LEDs on the front panel. The DCE 2178HSEE offers two modes, CPE and CO, for application: CPE mode is used at client side and CO mode is at central side. The CPE or CO mode can be selected by using a built-in DIP switch. In a point-to-point configuration, there must be a CPE mode on one side and a CO mode on the other side to perform a seamless Ethernet connection.

The Data Connect 2178HSEE features a symmetric Band-Plan for the transmission of upstream and downstream signals. The band plan performs higher transmission quality in short range for central side (CO) in symmetric mode. When the DCE 2178HSEE is in profile 17a operation mode, it provides long distance Ethernet transmission with ultra high performance to the pervasive telephone line network. When the DCE 2178HSEE is in 30a operation mode, it provides short distance Ethernet transmission with higher speed performance in upstream and downstream traffic.

• 17a Profile	
DISTANCE	SPEED
300m	86/65Mbps
400m	86/52Mbps
600m	81/36Mbps
800m	72/19Mbps
1000m	60/9Mbps
1200m	59/6Mbps
1400m	50/2Mbps
• 30a profile	
DISTANCE	SPEED
300m	100/100Mbps
400m	90/90Mbps
600m	61/40Mbps
800m	54/8Mbps

SPECIFICATIONS

10/100Base-TX :   1 RJ-45, Auto-Negotiation and Auto-MDI/MDI-X

VDSL :   1 RJ-11, female Phone Jack

PHONE :   Additional Splitter for POST connection

• 4 position DIP switch
• CO / CPE mode select
• Selectable fast and interleaved mode
• Selectable target 17a / 30a profiles
• Selectable target SNR mode

• VDSL-DMT
  - ITU-T G.993.1 VDSL
  - ITU-T G.997.1
  - ITU-T G.993.2 VDSL2 (Profile 17a/30a Support)

• One Power
• 3 for RJ-11/VDSL2
• 2 for per RJ-45 10/100Base-TX port

• Ethernet
    10Base-T: 2-pair UTP Cat.3,4,5 up to 100m (328ft)
    100Base-TX: 2-pair UTP Cat.5, up to 100m (328ft)
• VDSL
    Twisted-pair telephone wires (AWG24 or better) up to 1.4km

5V DC, 2A

6.6 Watts / 22 BTU

Dimensions: 3-13/16 x 2-3/4 x 1 (inches)

Weight: .44 Pound

Operating Temperature
Temperature: 0 ~ 50 Degree C
Relative Humidity: 10 ~ 90% (non-condensing)

Storage Temperature
Temperature: -10 ~ 70 Degree C
Relative Humidity: 10 ~ 90% (non-condensing)
Switch Processing Scheme: Store-and-Forward
Address Table: 1K entries
Flow Control: Back pressure for half duplex, IEEE 802.3x Pause Frame for full duplex

Switch Fabric: 0.2Gbps
Throughput (Packet per second): 0.14Mpps

10/100Base-TX:
2-Pair UTP Cat. 3,4, 5 (100meters, max.)
EIA / TIA-568 100-ohm STP (100meters, max.)

Regulation Compliance: FCC Part 15 Class A, CE

IEEE Standards: IEEE 802.10Base-T, IEEE 802.3u 100Base-TX

ITU-T Standards: G.993.1 (VDSL), G.997.1, G993.2 VDSL2 (Profile 17A/30A)

ORDERING INFORMATION

DCE/2178HSEE-2PK	High Speed Ethernet Extender 2-Pack
DCE/2178HSEE	High Speed Ethernet Extender

Point-to-Point Ethernet Extender

Two DCE 2178HSEE acting as a standalone pair is good for Ethernet distance extension over existing telephone wires. With just one pair of AWG-24 copper wire, you can easily connect two Ethernet networks together with the data rate of maximum 100/100Mbps. With the additional splitter, the telephone service can still be used while the DCE2178HSEE is in operation. The two solutions listed below are typical applications for the Ethernet over VDSL2 Converter.

Multi-Dwelling Units / Multi-Tenant Units / Hospitality Solution

The DCE 2178HSEE is a perfect solution to quickly provide cost-effective yet high speed network services to multi-unit buildings such as residential buildings (multi-dwelling units), commercial (multi-tenant units) buildings, hotels or hospitals. By utilizing the existing telephony infrastructure, network installation is straightforward and requires no new wiring. With up to 100/100Mbps transmission, Video on Demand, IP telephony and various broadband services can be easily provided.

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2178HSEE APPLICATION

Last Mile of FTTx Deployment The DCE2178HSEE is an ideal solution for FTTx (Fiber to the Building, Fiber to the Campus or Fiber to the Node) applications. It supports high bandwidth over existing telephone wires in the "last mile" from the ISP / Telecom / Service provider's fiber node to the buildings and customers' houses. The 10/100Mbps port of DCE 2178HSEE can be directly connected to a PC or to Ethernet devices such as Ethernet Switches or Broadband Routers. It is excellent for phone line network built under Internet because every room or house could use the existing phone line to transmit data through the Internet and the whole building can share Internet to the wide area network with minimum cost.
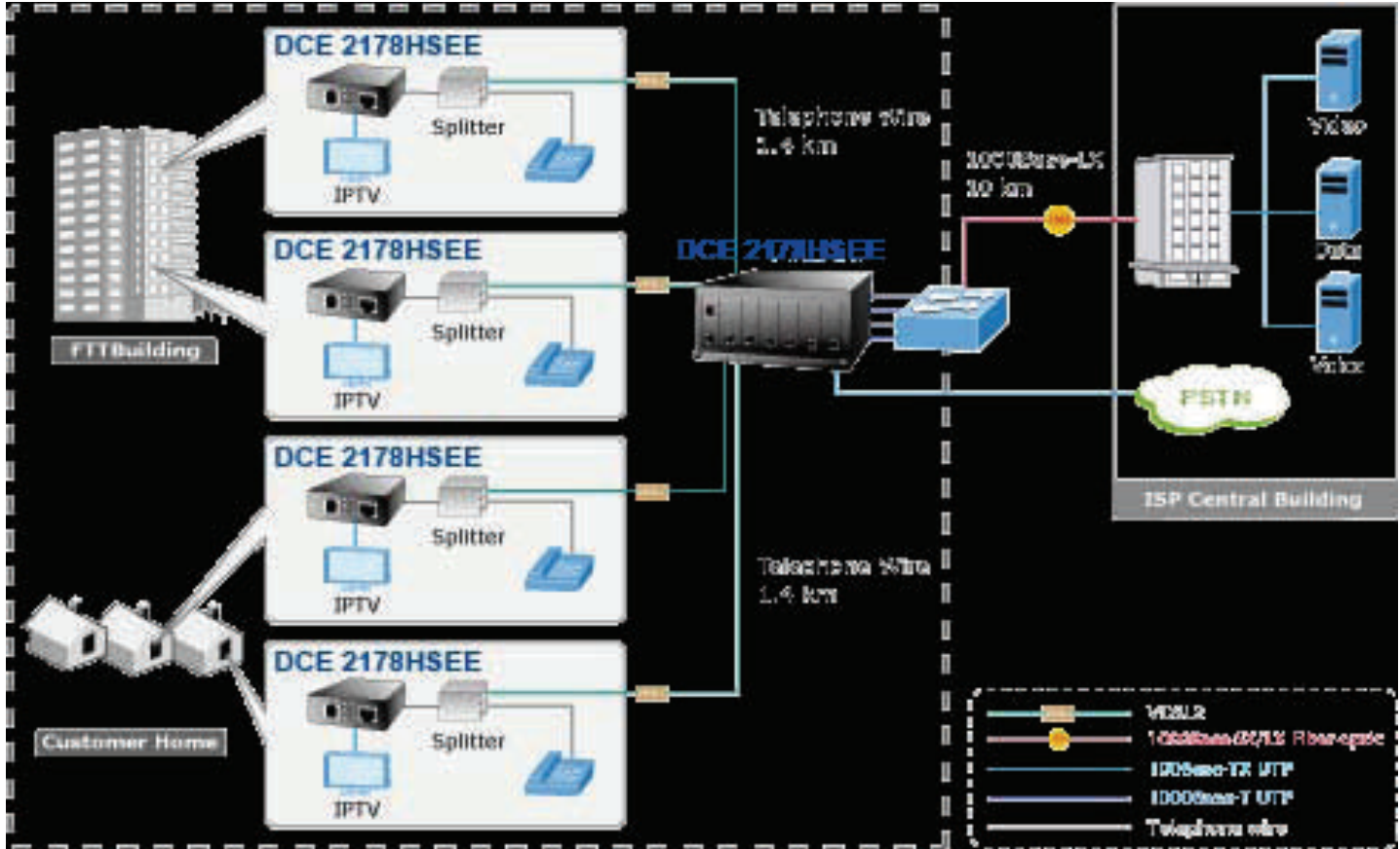
DCE 2178CEE PERFORMANCE CHART & APPLICATION

METERS	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400
PHONE LINE ASYMMETRICAL	99/63 Mbps	91/48 Mbps	71/32 Mbps	53/18 Mbps	38/8 Mbps	33/5 Mbps	28/2 Mbps					
PHONE LINE SYMMETRICAL	91/99 Mbps	74/79 Mbps	54/51 Mbps	38/34 Mbps	27/21 Mbps	24/15 Mbps	21/10 Mbps					
BNC ASYMMETRICAL	100/65 Mbps	99/64 Mbps	97/59 Mbps	94/51 Mbps	84/45 Mbps	73/37 Mbps	61/28 Mbps	54/20 Mbps	48/13 Mbps	38/9 Mbps	35/6 Mbps	31/4 Mbps
BNC SYMMETRICAL	95/99 Mbps	92/97 Mbps	81/82 Mbps	71/70 Mbps	60/57 Mbps	50/44 Mbps	42/33 Mbps	37/27 Mbps	29/22 Mbps	23/21 Mbps	19/17 Mbps	19/13 Mbps

14
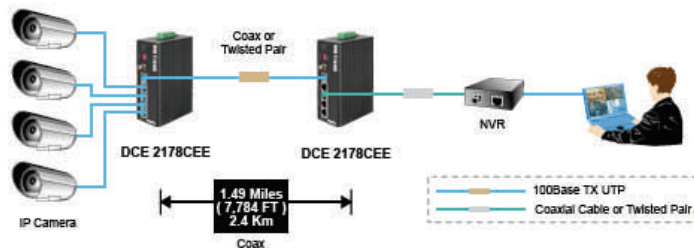
DCE 2178CEE

The Data Connect 2178 Coax Ethernet Extender is designed for an Industrial Coax Ethernet Extender application. The DCE 2178CEE has a switching architecture with 4 RJ-45 10/100Mbps Ethernet ports and one asymmetric or symmetric High Speed Ethernet port that can be RJ-11 or BNC Connector. Installation can use either BNC or RJ-11 for network deployment and achieve the absolutely fastest data transmission speed possible over existing coaxial cable and telephone wire without the need of rewiring.

   The Data Connect 2178 Coax Ethernet Extender provides a high level of immunity to electromagnetic interference and heavy electrical surges typical of environments like plant floors or in curb side traffic control cabinets. The DCE 2178CEE can operate in a wide temperature range of -40 to 75 Degree Celsius, so it can be placed in almost any location. The DCE 2178CEE is packaged in a compact, IP-30 metal case that allows either DIN or panel mounting for efficient use of cabinet space. The DCE 2178CEE has an integrated power supply with a wide range of voltages (12 ~ 48VDC) that allows for worldwide operability or for dual-redundancy with reversible polarity and an additional switching high voltage option of 100-240VAC and 85-400VDC.

   The Data Connect 2178 Coax Ethernet Extender incorporates Ethernet over VDSL2 to transmit the Ethernet formatted data by using VDSL signaling over the existing coaxial cable or telephone wire. Therefore, the DCE 2178CEE is very good for deploying in networks that can use existing coaxial cable and telephone wire to transmit data to the Internet with minimum cost. The DCE 2178CEE can adjust to Master or Slave mode via a DIP switch. When the DCE 2178CEE master is connected via telephone cable with the other DCE 2178CEE slave device, the performance will be up to 99/63Mbps for asymmetric data rate within 200m and up to 28/2Mbps for asymmetric data rate at 1.4km. When the DCE 2178CEE master is connected via coax to DCE 2178CEE slave devices, the performance is up to 99/65Mbps for asymmetric data rate within 200m and up to 31/4Mbps for asymmetric data rate at 2.4km. This capability is ideal for use as an Ethernet extender for your existing Ethernet network.

FEATURES

- Cost-effective VDSL2 Master / Slave Ethernet extension
- Selectable BNC and RJ-11 mode for the data transmission • -40 to 75 Degree C operating temperature
- Redundant Power Design: 12~48V DC redundant power with polarity reverse protect function
- IP-30 metal case protection
- One box design, Master / Slave selectable via DIP Switch
- Defines Asymmetric (Band Plan 998) and Symmetric band plans for transmission of Upstream and Downstream signals
- Complies with IEEE 802.3, IEEE 802.3u and IEEE 802.3x Standards
- DMT (Discrete Multi-Tone) line coding
- Half Duplex Back Pressure and IEEE 802.3x Full Duplex Pause Frame Flow Control
- Supports up to 1536 bytes packet size, 802.1Q VLAN tag transparent
- Integrated address look-up engine, supports 2K absolute MAC addresses
- VDSL2 Standalone transceiver for simple bridge modem application
- Selectable Target Band Plan and Target SNR Margin
- Supports extensive LED indicators for network diagnostics
- DIN Rail and Wall Mount Design

ORDERING INFORMATION

DCE/2178CEE Data Connect 2178 Coax Ethernet Extender
DCE/2178CEE-2PK Data Connect 2178 Coax Ethernet Extender 2-Pack

SPECIFICATIONS

10/100 Base-TX: 4 RJ-45, Auto-Negotiation & Auto-MDI / MDI-X

Coaxial: 1 BNC, Female Connector

Phone-Line: 1 rj-11, Female Connector

4 Position DIP Switch
Master / Slave Mode Select

Selectable BNC & RJ-11 Mode

Selectable Target Band Plan

Selectable Target SNR Mode

DMT (Discrete Multi-Tone) Line Coding

ITU-T G.997.1

ITU-T G.993.1

ITU-T G.993.2 (Profile 17a Support

LED INDICATORS

System: P1 (Green), P2 (Green), Fault (Green)

VDSL2: Master (Green), Slave (Green), ACT (Green), Sync. (Green)

10/100Mbps Port: LINK/ACT (Green)

Ethernet: 10Base-T - 2-Pair, UTP Cat.3, 4, & 5 up to 100m (328ft)

Ethernet: 100Base-T - 2-Pair, UTP Cat.5, 5e, & 6 up to 100m (328ft)

Coaxial Cable: 50ohm, RG58A/U, RG58C/U, RG58/U, or Equivalent; 75ohm, RG-6 (Distance Up to 2.4Km

Twisted-Pair Telephone Wires (AWG24 or Greater) Distance Up to 1.4Km

DIMENSION (H x W x D): 5-5/16 x 3-15/16 x 1-5/16

WEIGHT: 1.1 pounds

12-48VDC, 100-240VAC, 85-400VDC

5.64Watts / 19BTU

OPERATING TEMPERATURE: -40 TO 75 Degrees Celsius

OPERATING HUMIDITY: 5 to 90%, Relative Humidity, Non-condensing

STORAGE TEMPERATURE: -40 to 85 Degrees Celsius

STORAGE HUMIDITY: 5 TO 90%, Relative Humidity, Non-condensing

REGULATION COMPLIANCE: FCC Part 15 Class A, CE

STABILITY TESTING: IEC6008-2-32 (Free Fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX, IEEE 802.3x Full Duplex Frame Flow-Control

ITU-T: G.993.1, G.997.1, G993.2 (Profile 17a Support)

DCE 2178FEE

The DCE 2178FEE is a 10/100Base Ethernet to 100Base-FX fiber Ethernet extender designed for extending 10/100 Base T Ethernet over fiber. The DCE 2178 Fiber Ethernet Extender supports auto-negotiation and manual mode on the twisted pair (TP) copper Ethernet side. With advanced features like LLP (Link Loss Pass-thru), FEF (Far-End Fault), Switch mode (store & forward, 1600 Bytes maximum frame size) or Ethernet extender mode (100/Full to 100/Full, low latency, 9K Bytes packet support); the DCE 2178FEE is designed for customer premises equipment in metro LAN, campus, enterprise, and fiber to the building, curb, cabinet, house, neighborhood, and premise applications. By offering simple DIP switch settings, this Ethernet Extender can provide complete control over all Ethernet Extender settings including duplex and speed configuration. The DCE 2178FEE is completely transparent to Layer 2 and Layer 3 protocols including IEEE 802.1q, VLAN tag, Q in Q, STP, IPX, IP, etc.

FEATURES

- Ethernet Extender with auto-change-forward (Switch) function
- Auto-Cross over MDI/MDX in TP port
- Supports far end fault (FEF) function.
- Auto-Negotiation or Manual mode in TP port
- Supports link fault pass through (LFP) function.
- Supports LED indicators.
- Packet lengths up to 1600 bytes in Switch mode
- Packet length is not limited in Ethernet Extender mode.

SPECIFICATIONS

LAN INTERFACE SPECIFICATIONS
One RJ-45 female connector for straight or cross-over connection
Supports 10/100Base-T/TX, Full, Half duplex n-way (Auto-Negotiation)
Supports Full, Half duplex, 10/100 speed manual selections.
Transmission Packet Rate for 10/100Base-T/TX: 14880 per second /148800 per second.
Copper TP cable 4 pair Cat. 3 or 5 UTP

OPTICAL INTERFACE SPECIFICATIONS
Transceiver Connector type: ST, SC, WDM
Wavelength (typical): Multi-mode 850nm
Single-mode: (<50 Km): 1310nm/1550nm up to 120Km
WDM: 1310/1550nm or 1550/1310nm (A/B type) up to 60Km

GENERAL SPECIFICATIONS
Complies with: IEEE 802.3 10Base-T, 802.3u 100Base-TX and 100Base-FX standards
Temperature: 0 - 50o C (Operating); 0 - 70 o C (Storage).
Humidity: 20-80% non-condensing (Operating); 10-90% (Storage).
Power: Input: (AC adaptor) 90-250VAC, 24VDC Input, 18-36VDC, 48VDC Input, 36-72VDC
Dimensions: 178.7mm x 251.6mm x 88mm (L x W x H)
Power Consumption: < 40W (8-slot full load)
Compliance: FCC part 15, Subpart B, Class A, ANSI C63.4:2003, CE EN55022:2006, Class A, EN55024:1998+A1:2001+A2:2003, LVD: EN 60 950-1:2001, & MTBF: 65,000 h (25oC)

ORDERING INFORMATION

DCE/2178FEE-2PK	FIBER ETHERNET EXTENDER 2-PACK
DCE/2178FEE	FIBER ETHERNET EXTENDER SINGLE
DCE/2178FEE-RM	FIBER ETHERNET EXTENDER RACK MOUNT

APPLICATION

Multi-mode: 850nm 2Km
Single-mode: 1310/1550nm to 120Km
WDM: 1310/1550nm or 1550/1310nm (A/B type) to 60Km
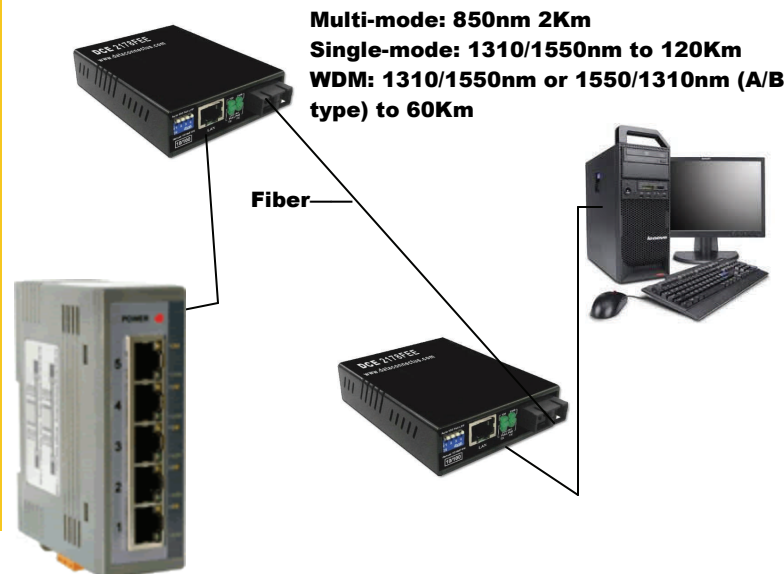
Fiber

DCE 2178WEE

The Data Connect 2178WEE Wireless Ethernet Extender is an ideal and inexpensive way to extend Ethernet when no fiber or copper wiring is available. This means any computer or wireless–enabled network device such as camera, security, and phone can connect to LAN without an additional cable via the DCE 2178WEE Wireless Ethernet Extender. In addition the DCE 2178WEE offers a four port switch with physical LAN ports for any server, switches or network device.

The DCE 2178WEE Wireless Ethernet Extender allows speed at up to 150 mbps by utilizing the new 802.11n wireless network capability. The radio coverage is doubled from the standard and high speed wireless connections twice as far as non-Ethernet Extender Wireless networks. The DCE 2178WEE can also communicate with the 802.11n, 802.11g and 802.11b standards.

In addition, for maximum network security, the DCE 2178WEE Wireless Ethernet Extender supports the most up to date encryption including WEP, WPA-PSK AND WPA2-PSK. In order to simplify the security settings, the DCE 2178WEE also supports WPS configuration with PBC/PIN type for users to connect to a secured wireless network easily.

The Data Connect 2178WEE Wireless Ethernet Extender has user-friendly management interfaces so that it can be managed by workstations running standard web browsers. The DCE 2178WEE provides DHCP server, NAT, Virtual Server, DMZ, Access Control, IP Filter, PPTP/IPSec passthrough, DDNS, and UPnP capability. Furthermore for VPN tunnel, the DCE 2178WEE supports PPTP/IPSec tunneling.

The Data Connect 2178WEE Wireless Ethernet Extender can also be configured to function as a Wireless ADSL2/2+ Router compliant with 802.11n and features 1T1R MIMO antenna technology. This allows your office to have both wireless Ethernet extension and a high speed ADSL2/2+ broadband internet connection. The DCE 2178WEE supports PPPoA (RFC 2364 – PPP over ATM adaption layer 5), RFC2684 encapsulation over ATM (bridged or routed), PPP over Ethernet (RFC 2156) and IPoA (FRC1483) to establish a connection with an ISP.

The Data Connect 2178WEE Wireless Ethernet Extender provides the security of an internet firewall to protect the network from being accessed by unauthorized users. The DCE 2178WEE offers Network Address Translation (NAT). All the incoming and outgoing IPs can be monitored and filtered and it can block internal users from accessing the internet, identified websites and content. This is wireless Ethernet extension – the way it is meant to be, fast, easy, flexible and secure.

ORDERING INFORMATION

DCE/2178WEE   WIRELESS N ETHERNET EXTENDER

FEATURES

• 4-Port Switch
• DHCP Server Support
• Supports IEEE 802.11b, g and 802.11n Wireless Standard
• 802.11n Technology
• WEP Support
• WPS Push Button Control
• WPA-PSK Support
• Wireless MAC Access Control

SPECIFICATIONS

STANDARDS
Compliant with ADSL Standard:
Full-rate ANSI T1.413 Issue 2
G.dmt (ITU G.992.1) / G.lite (ITU G.992.2) / G.hs, Multimode (ITU G.994.1)
Capable of ADSL2 Standard: G.dmt.bis (ITU G.992.3)
Capable of ADSL2+ Standard: G.dmt.bis plus (ITU G.992.5)
Reach Extended ADSL (RE ADSL)
Supports Annex A, B, M, L
PROTOCLS: RFC 2364 - PPP over ATM (LLC/VCMUX)
RFC 2516 - PPP over Ethernet (LLC/VCMUX)
RFC 1483 - Classic IP over ATM (LLC/VCMUX)
RFC 2684 - Bridged IP over ATM (LLC/VCMUX)
RFC 2684 - Routed IP over ATM (LLC/VCMUX)
AAL & ATM SUPPORT: Supports up to 8 PVC
ATM Forum UNI 3.1/4.0 PVC
VC and LLC Multiplexing
Integrated ATM AAL5 support (UBR,CBR,VBR-rt, and VBR-nrt)
0~255 VPI plus 1~65535 VCI address range, OAM F4 & F5 Segment end-to-end loop-back, AIS, and RDI OAM cells
PORTS LAN - 4 x Ethernet (10/100Mbps, Auto-Negotiation, Auto MDI/MDI-X
WLAN - 1 x 802.11b/g/n Access Point with one 2dBi dipole antennas, WAN - 1 x RJ-11
LED INDICATORS - PWR, Link, Data, LAN 1~4, WLAN, WPS
BUTTON - WLAN, Reset, WPS, Power
MAX. CONCURRENT SESSIONS – 2048
WIRELESS STANDARD - IEEE 802.11b, g and 802.11n
WIRELESS FREQUENCY - 2.4 to 2.4835GHz (Industrial Scientific Medical Band)
WIRELESS CHANNELS - Maximum 14 Channels, depending on regulatory authorities
WIRELESS DATA ENCRYPTION - 64 bit / 128 bit WEP, WPA-PSK / WPA2-PSK, and WPS PBC
WIRELESS DATA RATE – Maximum up to 150Mbps
IEEE 802.11b - 1 / 2 / 5.5 / 11Mbps
IEEE 802.11g - 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54Mbps
IEEE 802.11n 20MHz - 14 / 29 / 43 / 58 / 87 / 116 / 130 / 144Mbps
IEEE 802.11n 40MHz - 30 / 60 / 90 / 120 / 150Mbps
PROTOCOLS / FEATURES
NAT supports PAT and multimedia applications
NAT, Static Routing, and RIPv1/2
Transparent Bridging
Dynamic Domain Name System (DDNS), SNTP
DNS relay and IGMP proxy
DMZ and Virtual Server
Quality of Service (QoS) for Traffic Prioritization
TR-069 Ready, UPnP
SECURITY: PPP over PAP (Password Authentication Protocol, RFC1334), PPP over CHAP (Challenge Authentication Protocol, RFC1994), DoS Protection, Access Control ACL (Access Control), IP/MAC /Application/URL Filter, Stateful Packet Inspection (SPI) Firewall, Password protection for system management, VPN, VPN pass through, PPTP VPN, IPSec VPN
MANAGEMNET
Web-Based configuration
Embedded Telnet server for remote and local management
Firmware upgraded and configuration data upload/download via WEB
SNMP v1/v2 MIB supported Support DHCP Server/Client/Relay
Built-in Diagnostic tool and IP Ping
DIMENSION (W X D X H) - 6-15/16 x 4-7/8 x 1-3/8 (inches)
POWER - 12V DC, 0.8A
OPERATING ENVIRONMENT Operating temperature: 0 ~ 50 Degree C
Storage temperature: -10 ~ 70 Degree C Humidity: 10 ~ 95% non-condensing EMISSION - FCC, CE

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DCE 2178WEE APLICATION
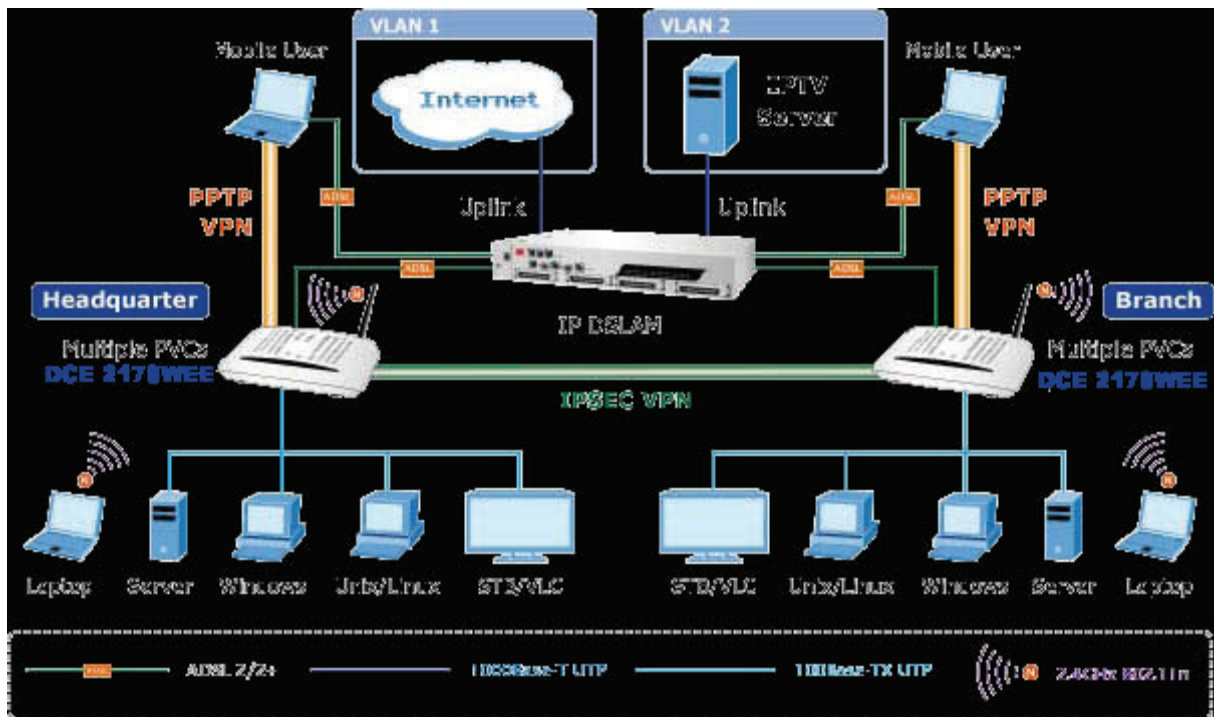
DCE 2178HPWEEHigher coverage & long distance between LAN connections

   The DCE 2178HPWEE is a cost-effective outdoor wireless Ethernet extension solution for open space applications. It is best applied in outdoor wireless Ethernet extension connections between buildings.

   With multiple antenna choices and adjustable output power controller, the DCE 2178HPWEE provides higher coverage and long distance wireless Ethernet extension also allows CPE users to easily install and adjust the suitable value in appropriate locations. The WISP mode supported also enables CPE users to connect to internet via local WISP provider.

***We suggest matching the same model in outdoor wireless Ethernet extension application for getting best performance

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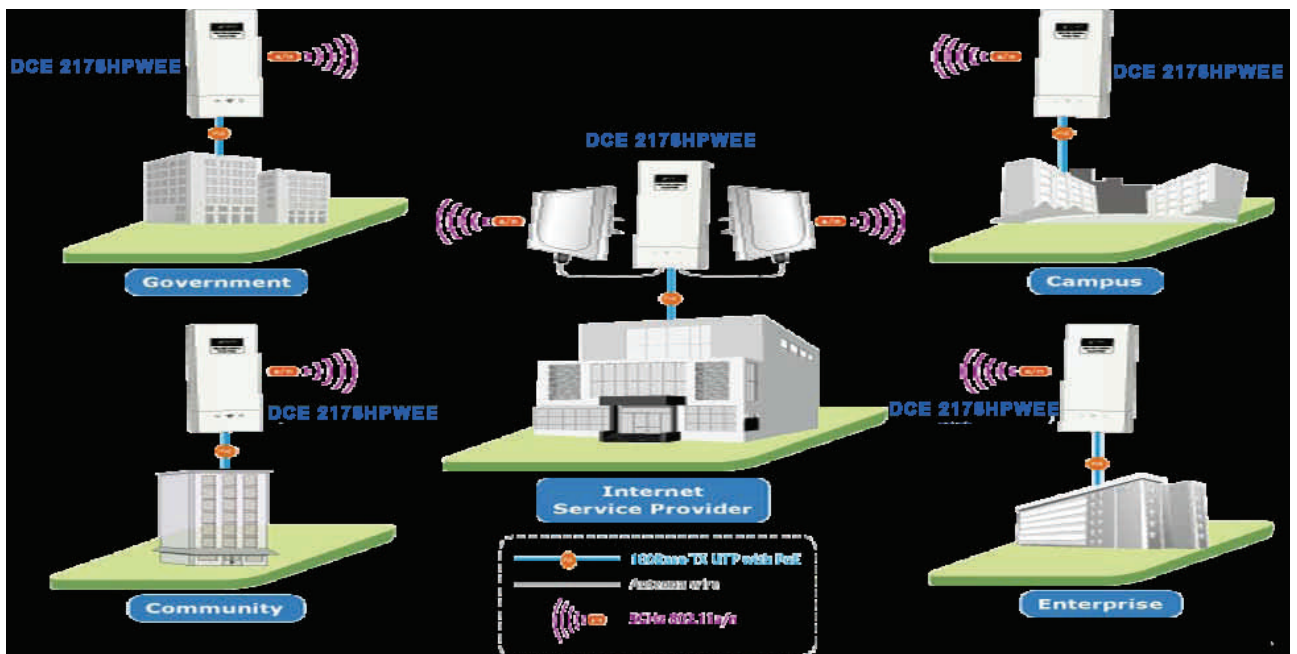
DCE 2178HPWEE

The Data Connect 2178 High Power Wireless Ethernet Extender provides higher transmitting power that translates to better performance and less interference with your wireless network when setting up wireless Ethernet extension. The DCE HPWEE is compatible with IEEE 802.11a/n, and the data rate is up to 300Mbps with the 802.11n mode. The DCE HPWEE not only has built-in 16dBi dual-polarity Antenna plus two External Antenna Connectors to allow stronger antenna upgrades. Therefore, the DCE HPWEE is quite suitable for widely open space wireless applications.

The DCE 2178HPWEE supports multiple operation modes: AP, AP Client, and WDS to conveniently configure versatile solutions in a wide range of wireless scenarios. It also supports WISP mode so that CPE users could easily connect to internet via a WISP provider or connect to a wired network.

In aspect of security, besides 64/128/152 bits WEP encryption, the DCE 2178HPWEE integrates WPA / WPA2, WPA-PSK / WPA2-PSK and 802.1x authority, to secure and protect your wireless Ethernet extender. Furthermore, with user-friendly Web and SNMP based management interface, the DCE 2178HPWEE is easily managed and can be configured remotely.

The DCE 2178HPWEE is perfectly suitable to be installed in outdoor environments and exposed locations. With its IP-55 casing protection, the DCE 2178HPWEE can perform normally under rigorous weather conditions including heavy rain and wind. With our unique Power over Ethernet (PoE) design, the DCE 2178HPWEE can be easily installed in the areas where power outlets are not available. The best way of using the DCE 22178HPWEE, is to build outdoor wireless Ethernet extension between buildings on campuses, business parks, rural areas and across highways for example.

ORDERING INFORMATION

DCE 2178HPWEE-2PK	Data Connect 2178 High Power Wireless Ethernet Extender 2-Pack
DCE 2178HPWEE	Data Connect 2178 High Power Wireless Ethernet Extender
DCE 2178HPWFA	Data Connect 2178 High Power Wireless Flat Antenna
DCE 2178HPWOA	Data Connect 2178 High Power Wireless Omni-Directional Antenna
DCE 2178HPWSA	Data Connect 2178 High Power Wireless Sector Antenna

FEATURES
WIRELESS ETHERNET EXTENSION EXTENDS YOUR ETHERNET TO OTHER LOCATIONS NEARBY!!!

- IEEE 802.11 a/n standards compliant
- 5GHz wireless networks deliver widely and connections with less interference
- Multiple Antenna choices: Built-in 16dBi dual-polarity Antenna, and two External Connectors (Reverse SMA connector)
- Adopts 2T2R MIMO Technology for higher performance up to 300Mbps with 802.11 n mode
- IP-55 case protection against rigorous weather conditions
- Wide range of temperature tolerance for low or high temperature environment
- High Transmit Output Power up to 400mW with multiple adjustable transmit power control
- Power over Ethernet design (with proprietary injector)
- Multiple Wireless Access Modes: AP, Client, Client CPE (WISP), WDS, AP&WDS
- Supports 64/128/152-bit W#EP and 802.1X, WPA, WPA2, WPA&WPA2, WPA-PSK, WPA2-PSK, and WPA-PSK&WPA2-PSK

Receiver Sensitivity

IEEE 802.11a:	
	-89 dBm @ 6 Mbps
	-88 dBm @ 9 Mbps
	-87dBm @ 12 Mbps
	-86 dBm @ 18 Mbps
	-83 dBm @ 24 Mbps
	-79 dBm @ 36 Mbps
	-75 dBm @ 48 Mbps
	-73 dBm @ 54 Mbps
IEEE 802.11n:	HT20 MCS0-MCS7<= -89dBm
	HT40 MCS0-MCS7<= -85dBm
	HT20 MCS8-MCS15<= -83dBm
	HT40 MCS8-MCS15<= -80dBm

Data Rate

IEEE 802.11a:	54/48/36/24/18/1/29/6 Mbps

SPECIFICATIONS

Standard Support
IEEE 802.11a/n
IEEE 802.3u

Interface
Wireless: IEEE802.11a/n
LAN: 2 x 10/100Base-tx, Auto-MDI/MDIX

Modulation
OFDM with BPSK, QPSK, 16-QAM, 64-QAM

Antenna
Internal (default) - 16dBi dual-polarity Antenna
*Vertical Port HPBW
(YZ Plane / H-Plane): 36 Degree
(XZ Plane / E-Plane): 15 Degree
*Horizontal Port HPBW
(YZ Plane / E-Plane): 38 Degree
(XZ Plane / H-Plane): 17 Degree
External: RP-SMA Connector x 2
*Internal & external Antenna switchable by software

Max. Output Power
802.11a: 24 +/- 2dBm
802.11n: 23 +/- 2dBm (HT20/40)
5 levels adjustable (Full, 50%, 25%, 12.5%, Min.)

Frequency Range
FCC 5725 to 5850 MHz
CE: 5470 to 5725 MHz (DFS band)

Wireless Security
64/128/152-bits WEP, WPA, WPA-PSK, WPA2, WPA2-PSK, 802.1X

Wireless Access Mode
AP, Client, Client CPE (WISP), WDS, AP+WDS

Environmental Protection Rating: IP-55

Dimension: 110.98 x 255.6 x 47.65 mm

Power Adapter
15V DC, 0.8A (passive PoE)

Operating Environment
Temperature: –20 to 70 Degree Celsius
Humidity: 10 to 95% non-condensing

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DCE 2178HPWFA / DCE 2178HPWOA / DCE 2178HPWSA

The Data Connect High Power Wireless **5GHz 18dBi** Flat Antenna operates unidirectional outdoor at 5100-5900MHz with Beam-width Degree of 10 degrees horizontal and 10 degrees vertical.

The Data Connect 2178 High Power Wireless **5GHz 10dBi** Omni-directional Antenna for use outdoor with a 360 degree Horizontal Spread & a 6 degree Vertical Spread.

The Data Connect 2178 High Power Wireless 5GHz 16.5dBi Sector Antenna for use outdoor with a 120 degree Horizontal Spread & a 10 degree Vertical Spread.

ORDERING INFORMATION

DCE 2178HPWFA DATA CONNET 2178 HIGH POWER WIRELESS FLAT ANTENNA
DCE 2178HPWOA DATA CONNET 2178 HIGH POWER WIRELESS OMNI-DIRECTIONAL ANTENNA
DCE 2178HPWSA DATA CONNET 2178 HIGH POWER WIRELESS SECTOR ANTENNA

FEATURES

DCE 2178HPWFA (FLAT)

- 10 degree Horizontal Spread & 10 degree Vertical Spread
- Connector: N-female
- Operating Environment: Outdoor

DCE 2178HPWOA (OMNI)

- 360 degree Horizontal Spread & 6 degree Vertical Spread
- Connector: N-female
- Operating Environment: Outdoor

DCE 2178HPWSA (SECTOR)

- 120 degree Horizontal Spread & 10 degree Vertical Spread
- Connector: N-female
- Operating Environment: Outdoor

SPECIFICATIONS

MODEL:	DCE 2178HPWFA (FLAT)
FREQUENCY:	5100 to 5900MHz
ANTENNA TYPE:	Unidirectional. Flat Panel
GAIN DBI:	18
SWR:	<=2.0
BEAMWIDTH DEGREE:	Horizontal 10, Vertical 10
MOUNTING TYPE:	Pole or Wall-mount
OPERATING TEMPERATURE:	-40 to 70 degrees Celsius
MODEL:	DCE 2178HPWOA (OMNI)
FREQUENCY:	5500 to 5825MHz
ANTENNA TYPE:	Omni-directional
GAIN DBI:	10
SWR:	<=2.0
BEAMWIDTH DEGREE:	Horizontal 360, Vertical 6
MOUNTING TYPE:	Pole or Wall-mount
OPERATING TEMPERATURE:	-40 to 70 Degrees Celsius
MODEL:	DCE 2178HPWSA (SECTOR)
FREQUENCY:	5150 to 5875MHz
ANTENNA TYPE:	Unidirectional, Sector
GAIN DBI:	16.5
SWR:	<=2.0
BEAMWIDTH DEGREE:	Horizontal 120, Vertical 10
MOUNTING TYPE:	Pole or Wall-mount
OPERATING TEMPERATURE:	-40 to 70 Degrees Celsius

FLAT & OMNI

DCE 2178HPWFA
DCE 2178HPWOA
DCE 2178HPWEE

OMNI

DCE 2178HPWOA
DCE CABLE N-6
DCE 2178HPWEE

SECTOR & OMNI

DCE 2178HPWSA
DCE 2178HPWOA
DCE 2178HPWEE
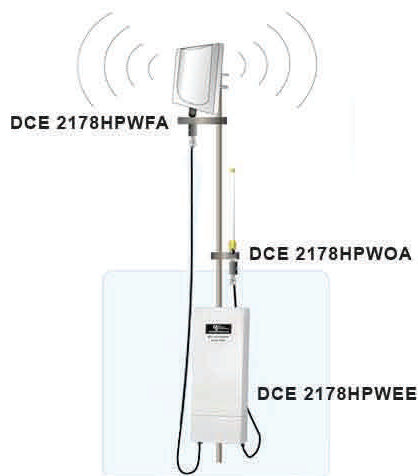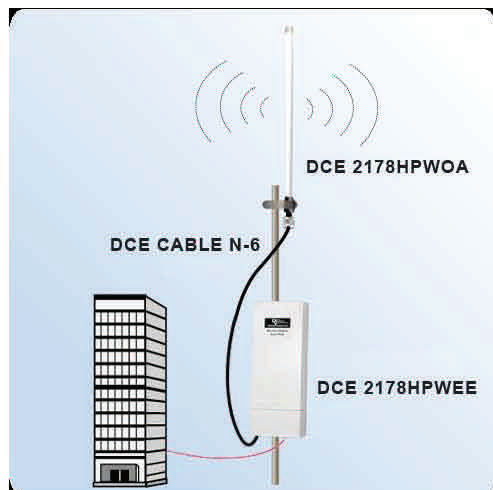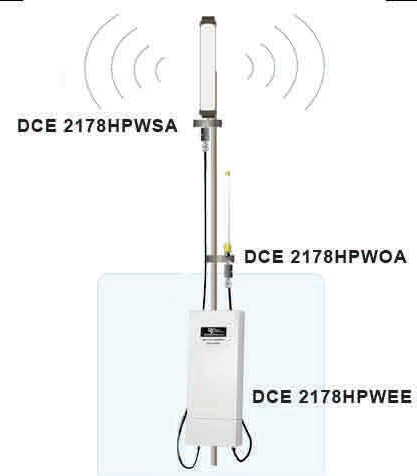
NOTES:

MODEL	MAX. DIS-TANCE	MAX. SPEED	DISTANCE AT MAX. SPEED	RACK MOUNT	DIN MOUNT	PHOTO	PAGE
5201V-BM VDSL 2 BRIDGE MODEM	4,593 FEET Copper Wire	100MBPS	900 FEET	YES	NO		24
5204V-BM VDSL 2 BRIDGE MODEM	4,593 FEET Copper Wire	100MBPS	900 FEET	YES	NO		27
5204V-MR VDSL 2 MODEM ROUTER	4,593 FEET Copper Wire	100MBPS	900 FEET	YES	NO		28
5204V-NRD VDSL 2 802.11N ROUTER	4,593 FEET Copper Wire & Wireless N	100MBPS	900 FEET	YES	NO		30
5208V-SMS VDSL 2 SWITCH SNMP 2-SFP	4,593 FEET Copper Wire	100MBPS	900 FEET	YES	NO		32
5224V-DSG VDSL2 DSLAM 120VAC	4,593 FEET Copper Wire	100MBPS	900 FEET	YES	NO		35
5248V-DSG VDSL2 DSLAM 48VDC	4,593 FEET Copper Wire	100MBPS	900 FEET	YES	NO		35
5201A-BM ADSL 2/2+ BRIDGE MODEM	20,000 FEET POTS Line	UP TO 24/3MBPS UP/DOWN STREAM	2,000FT	NO	NO		38
5201A-MR ADSL 2/2+ MODEM ROUTER	20,000 FEET POTS Line	UP TO 24/3MBPS UP/DOWN STREAM	2,000FT	NO	NO		39
5204A-GRD ADSL 2/2+ 802.11G ROUTER	20,000 FEET POTS Line Wireless N	UP TO 24/3MBPS UP/DOWN STREAM	2,000FT	NO	NO		40
5224A-DSG ADSL 2/2+ DSLAM 120VAC	20,000 FEET POTS Line	UP TO 24/3MBPS UP/DOWN STREAM	2,000FT	YES	NO		42
5248A-DSG-48 ADSL 2/2+ DSLAM 48VDC	20,000 FEET POTS Line	UP TO 24/3MBPS UP/DOWN STREAM	2,000FT	YES	NO		44

VDSL & ADSL 2/2+ SOLUTIONS

The Technology

Both VDSL2 and ADSL2+ were developed with the same idea, the ability to provide the internet, in a cost efficient way, to millions of users worldwide. Both technologies have their good points as well as their limitations. Both VDSL2 and ADSL2+ use existing telephone wire to bring high speed internet contractions to business and homes. Finding the correct solution for each deployment can be a challenge, we are here to assist you in making those choices.

VDSL2 is a modification of the previous VDSL standard. This was created to allow a greater increase in bandwidth, up to 100Mbps, at a distance up to 900 feet. The increase in bandwidth allows VDSL2 to be the perfect medium to provide triple-play technologies (Voice, Video, and Data) to end users. Like ADSL2+, VDSL2 allows both voice and data to be transported over the dame telephone line currently installed at most customer locations, without the need for expensive cabling to be done.

ADSL2+ is a modification of the ADSL standard first developed in the 1990's. ADSL allows both voice and data to be delivered on the same POTS line (Plain Old Telephone Line). The use of filters and splitters help separate the voice and the data at the customer's location. ADSL2+ can be deployed up to 20,000ft. but is usually limited to 14,000ft.; and, speeds can go as high as 24Mbits downstream and 3Mbits upstream. The data is delivered asymmetrically both to provide consumers with a higher downstream bandwidth, to provide internet content faster, as well as a lower upstream limit to prevent attenuation issues as the CO (DSL DSLAM location).

At Data Connect, we offer a wide range of products to suite your network needs. We can assist you in finding a solution that maximizes your investment while providing the solutions that will benefit your customers both now and for years to come. With the ability to reuse and preserve the current infrastructure at your customer's locations, DSL is a wise choice to assist you in providing broadband services to your customers.

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DCE 5201V-BM

The Data Connect 5201V-BM is a high speed 100/100Mbps Down-stream / Upstream, over VDSL2 solution. The DCE 5201V-BM is de-signed based on two core networking technology, Ethernet and the latest Very-high-data-rate Digital Subscriber Line. Our technology of-fers the absolute fastest data transmission speed over existing copper telephone lines without the need of rewiring.   The DCE 5201V-BM sup-ports ultra-high performance to the pervasive telephone line network with up to 100/100Mbps symmetric data rate within 384ft and 50/2Mbps for 4,593ft long range connections.

The Data Connect 5102V-BM functions over existing telephone cop-per wires. In addition the DCE 5201V-BM is a Long Reach Ethernet (LRE) extender providing one RJ-45 Ethernet port and one RJ-11 phone jack for VDSL2 connection. By using the additional Splitter from the DCE 5201V-BM-2PK (two pack), the splitter can allow POTS and Ethernet to share the existing phone line; therefore, there is no need to replace existing copper wiring. Just plug the DCE 5201V-BM with an additional splitter into the existing RJ-11 telephone jack and a high-performance Ethernet extender network can be connected. The DCE 5201V-BM is ideal to be used as an Ethernet extender to an existing Ethernet network.

The Data Connect 5201V-BM can deliver High-Demand service con-nectivity for ISP Triple Play devices. The DCE 5201V-BM provides ex-cellent bandwidth to satisfy the triple play devices for home entertain-ment and communication. With the capability of 100/100Mbps symmet-ric data transmission, the DCE 5201V-BM enables many Multi-Media services to work on local Internet services, such as VOD (Video on Demand), Voice over IP, Video phone, IPTV, Internet caching server, distance education, and many more.

The Data Connect 5201V-BM is a plug-and-play design and is fully compatible with all kinds of network protocols. Moreover, the operating status of each individual port and the whole system can be easily viewed via the diagnostic LEDs on the front panel. The DCE 5201V-BM offers two modes, CPE and CO, for application: CPE mode is used at client side and CO mode is at central side. The CPE or CO mode can be selected by using a built-in DIP switch. In a point-to-point configura-tion, there must be a CPE mode on one side and a CO mode on the other side to perform a seamless Ethernet connection.

The Data Connect 5201V-BM features a symmetric Band-Plan for the transmission of upstream and downstream signals. The band plan per-forms higher transmission quality in short range for central side (CO) in symmetric mode. When the DCE 5201V-BM is in profile 17a operation mode, it provides long distance Ethernet transmission with ultra high performance to the telephone line network. When the DCE 5201V-BM is in 30a operation mode, it provides short distance Ethernet transmis-sion with higher speed performance in upstream and downstream traf-fic.

• 17a Profile	
DISTANCE	SPEED
300m	86/65Mbps
400m	86/52Mbps
600m	81/36Mbps
800m	72/19Mbps
1000m	60/9Mbps
1200m	59/6Mbps
1400m	50/2Mbps
• 30a profile	
DISTANCE	SPEED
300m	100/100Mbps
400m	90/90Mbps
600m	61/40Mbps
800m	54/8Mbps

SPECIFICATIONS

PORTS
10/100BASE-TX - 1 RJ-45, Auto-Negotiation and Auto-MDI/MDI-X
VDSL - 1 RJ11, Female Phone Jack
PHONE - Additional Splitter for POTS Connection

DIP SWITCH & FUNCTIONALITY
4-Position DIP Switch
CO / CPE Mode Select
Selectable Fast and Interleaved Mode
Selectable Target 17A / 30A Profiles
Selectable Target SNR Mode

ENCODING
VDSL-DMT
ITU-T G.993.1 VDSL
ITU-T G.997.1
ITU-T 993.2 VDSL2 (Profile 17a/30a Support)

LED INDICATORS
One Power
Three for RJ-11/VDSL2
Two for each RJ-45 10/100Base-TX port

CABLING
Ethernet – 10Base-T: 2-Pair UTP Cat.3, 4, & 5 up to 100m (328ft)
         - 100 Base-T: 2-Pair UTP Cat. 5 up to 100m (328ft)
VDSL – Twisted-Pair telephone wires (=> AWG24) up to 1.4km

POWER
Requirement – 5VDC, 2A
Consumption – 66.6 Watts / 22 BTU

DIMENSION (W x D x H) – 97x70x26mm, 3-13/16x2-3/4x1 (inches)
WEIGHT – 199grams, 44lbs.

ENVIRONMENT
Temperature   – Operating: 0 to 50 Degrees Celsius
                -Storage: -10 to 70 Degrees Celsius
Relative Humidity – Operating: 10 to 90% (non-condensing)
                -Storage: 10 to 90% (non-condensing)

SWITCH SPECIFICATIONS
Switch Processing Scheme – Store-and-Forward
Address Table – 1K Entries
Flow Control – Back Pressure for Half Duplex, IEEE 802.3x
            -Pause Frame for Full Duplex

SWITCH FABRIC – 0.2Gbps
THROUGHPUT (Packet per Second) – 0.14Mbps

NETWORK CABLES
10/100Base-TX
2-Pair UTP Cat. 3, 4, 5 (100meters, max.)
EIA/TIA-568, 100-Ohm STP (100meters, max.)

REGULATORY COMPLIANCE
FCC Part 15 Class A
CE

STANDARDS COMPLIANCE
IEEE 802.3 10Base-T
IEEE 802.3U 100Base-TX
ITU-T G.993.1 VDSL
ITU-T G.997.1
ITU-T 993.2 VDSL2 (Profile 17a/30a Support)

ORDERING INFORMATION
DCE/5201V-BM-2PK	VDSL2 Bridge Modem 2-Pack
DCE/5201V-BM	VDSL2 Bridge Modem
DCE/5201V-BM-RM	VDSL2 Bridge Rackmount

FEATURES & APPLICATIONS NEXT PAGE ————>

DCE 5201V-BM KEY FEATURES

Cost-Effective VDSL2 Profile 17a/30a CO / CPE Bridge Solution
One Box Design, CO / CPE selectable via Dip Switch
Defines symmetric band plan for the transmission of upstream and downstream signals
Complies with IEEE 802.3, 10Base-T, !EEE802.3u, 100Base-TX, and IEEE 802.3x, Flow Control Ethernet Standards
DMT (Discrete Multi-Tone) Line Coding
Half-Duplex Back Pressure and IEEE.3x Full-Duplex Pause Frame Flow Control
One RJ-11 Connector for VDSL port with VDSL Connection, additional Splitter for POTS Connection
Voice and Data Communication can be Shared Simultaneously Dases on the Existing Telephone Wire
One 10/100Mbps RJ-45 Port, Auto-Negotiation, and Auto-MDI/MDI-X
Supports up to 1536Bytes Packet Size, IEEE 802.1Q VLAN Tag Transparent
VDSL2 Stand-alone Transceiver for Simple Bridge Modem Application
Advantage of Minimum Installation Time (Simply as Plug-and-Play)
Selectable Target Profile and Target SNR margin
Supports Extensive LED Indicators for Network Diagnosis
Rackmount Version Available
Compact in Size, Easy Installation

DCE 5201V-BM APPLICATION

Last Mile of FTTx Deployment The DCE2178HSEE is an ideal solution for FTTx (Fiber to the Building, Fiber to the Campus or Fiber to the Node) applications. It supports high bandwidth over existing telephone wires in the "last mile" from the ISP / Telecom / Service provider's fiber node to the buildings and customers' houses. The 10/100Mbps port of DCE 2178HSEE can be directly connected to a PC or to Ethernet devices such as Ethernet Switches or Broadband Routers. It is excellent for phone line network built under Internet because every room or house could use the

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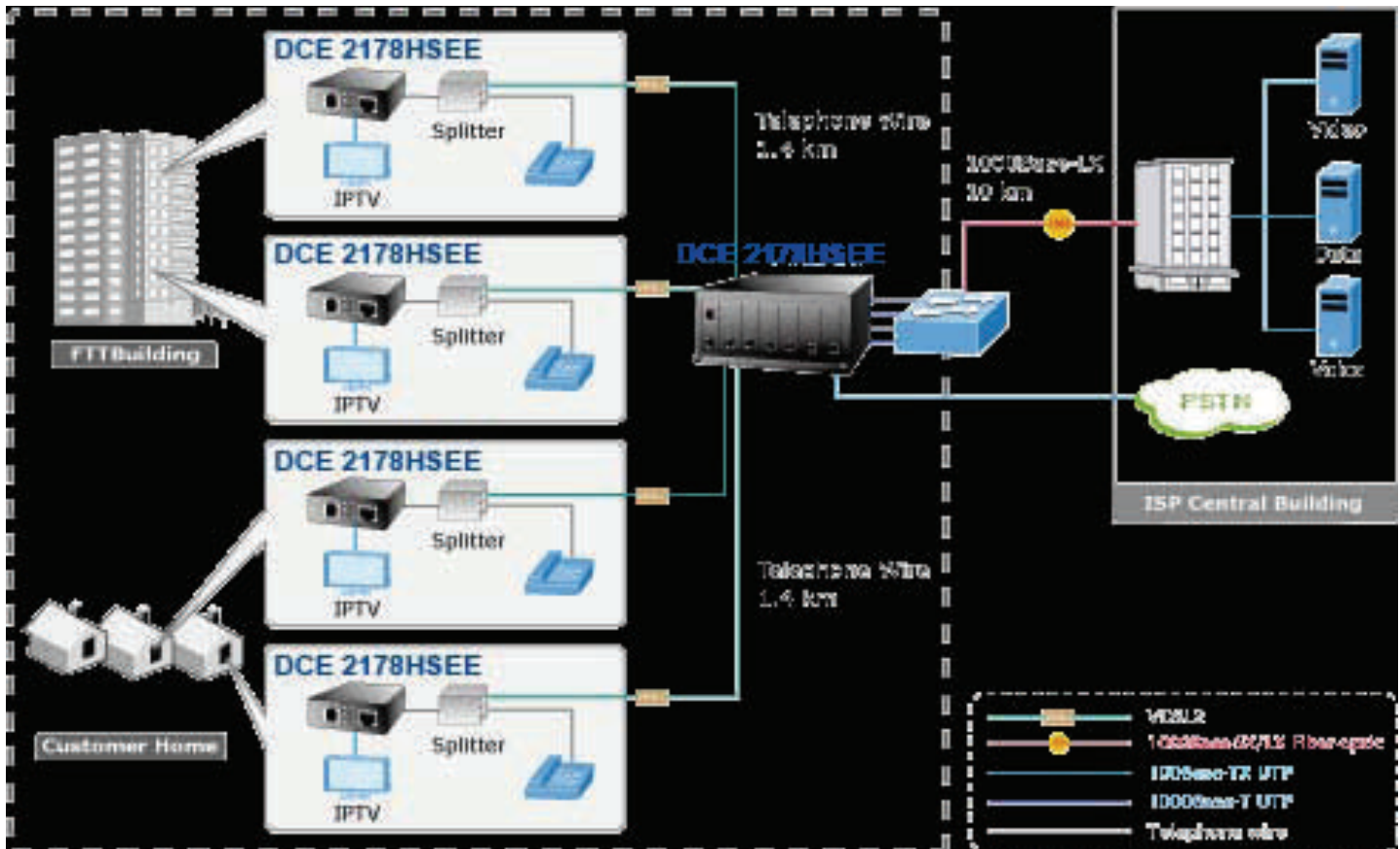
Point-to-Point VDSL2 Solution

Two DCE 2178HSEE acting as a standalone pair is good for Ethernet distance extension over existing telephone wires. With just one pair of AWG-24 copper wire, you can easily connect two Ethernet networks together with the data rate of maximum 100/100Mbps. With the additional splitter, the telephone service can still be used while the DCE2178HSEE is in operation. The two solutions listed below are typical applications for the Ethernet over VDSL2 Converter.

Multi-Dwelling Units / Multi-Tenant Units / Hospitality Solution

The DCE 2178HSEE is a perfect solution to quickly provide cost-effective yet high speed network services to multi-unit buildings such as residential buildings (multi-dwelling units), commercial (multi-tenant units) buildings, hotels or hospitals. By utilizing the existing telephony infrastructure, network installation is straightforward and requires no new wiring. With up to 100/100Mbps transmission, Video on Demand, IP telephony and various broadband services can be easily provided.

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DCE 5204V-BM

The Data Connect 5204V-BM is a four port high speed 100/100Mbps Downstream / Upstream, over VDSL2 solution. The DCE 5204V-BM is designed based on two core networking technology, Ethernet and the latest Very-high-data-rate Digital Subscriber Line. Our technology offers the absolute fastest data transmission speed over existing copper telephone lines without the need of rewiring.   The DCE 5204V-BM supports ultra-high performance to the pervasive telephone line network with up to 100/100Mbps symmetric data rate within 384ft and 50/2Mbps for 4,593ft long range connections.

The Data Connect 5204V-BM functions over existing telephone copper wires. In addition the DCE 5204V-BM is a Long Reach Ethernet (LRE) extender providing four RJ-45 Ethernet port and one RJ-11 phone jack for VDSL2 connection. By using the additional Splitters from the DCE 5204V-BM-2PK (two pack), the splitter can allow POTS and Ethernet to share the existing phone line; therefore, there is no need to replace existing copper wiring. Just plug the DCE 5204V-BM with an additional splitter into the existing RJ-11 telephone jack and a high-performance Ethernet extender network can be connected. The DCE 5204V-BM is ideal to be used as an Ethernet extender to an existing Ethernet network.

The Data Connect 5204V-BM can deliver High-Demand service connectivity for ISP Triple Play devices. The DCE 5204V-BM provides excellent bandwidth to satisfy the triple play devices for home entertainment and communication. With the capability of 100/100Mbps symmetric data transmission, the DCE 5204V-BM enables many Multi-Media services to work on local Internet services, such as VOD (Video on Demand), Voice over IP, Video phone, IPTV, Internet caching server, distance education, and many more.

The Data Connect 5204V-BM is a plug-and-play design and is fully compatible with all kinds of network protocols. Moreover, the operating status of each individual port and the whole system can be easily viewed via the diagnostic LEDs on the front panel. The DCE 5204V-BM offers two modes, CPE and CO, for application: CPE mode is used at client side and CO mode is at central side. The CPE or CO mode can be selected by using a built-in DIP switch. In a point-to-point configuration, there must be a CPE mode on one side and a CO mode on the other side to perform a seamless Ethernet connection.

The Data Connect 5204V-BM features a symmetric Band-Plan for the transmission of upstream and downstream signals. The band plan performs higher transmission quality in short range for central side (CO) in symmetric mode. When the DCE 5204V-BM is in profile 17a operation mode, it provides long distance Ethernet transmission with ultra high performance to the telephone line network. When the DCE 5204V-BM is in 30a operation mode, it provides short distance Ethernet transmission with higher speed performance in upstream and downstream traffic.

• 17a Profile	
DISTANCE	**SPEED**
300m	86/65Mbps
400m	86/52Mbps
600m	81/36Mbps
800m	72/19Mbps
1000m	60/9Mbps
1200m	59/6Mbps
1400m	50/2Mbps
• 30a profile	
DISTANCE	**SPEED**
300m	100/100Mbps
400m	90/90Mbps
600m	61/40Mbps
800m	54/8Mbps

SPECIFICATIONS

PORTS
10/100BASE-TX - 4 RJ-45, Auto-Negotiation and Auto-MDI/MDI-X
VDSL - 1 RJ11, Female Phone Jack
PHONE - Additional Splitter for POTS Connection

DIP SWITCH & FUNCTIONALITY
4-Position DIP Switch
CO / CPE Mode Select
Selectable Fast and Interleaved Mode
Selectable Target 17A / 30A Profiles
Selectable Target SNR Mode

ENCODING
VDSL-DMT
ITU-T G.993.1 VDSL
ITU-T G.997.1
ITU-T 993.2 VDSL2 (Profile 17a/30a Support)

LED INDICATORS
One Power
Three for RJ-11/VDSL2
Two for each RJ-45 10/100Base-TX port

CABLING
Ethernet – 10Base-T: 2-Pair UTP Cat.3, 4, & 5 up to 100m (328ft)
            - 100 Base-T: 2-Pair UTP Cat. 5 up to 100m (328ft)
VDSL – Twisted-Pair telephone wires (=> AWG24) up to 1.4km

POWER
Requirement – 5VDC, 2A
Consumption – 66.6 Watts / 22 BTU

DIMENSION (W x D x H) – 97x70x26mm, 3-13/16x2-3/4x1 (inches)
WEIGHT – 199grams, 44lbs.

ENVIRONMENT
Temperature   – Operating: 0 to 50 Degrees Celsius
                         -Storage: -10 to 70 Degrees Celsius
Relative Humidity – Operating: 10 to 90% (non-condensing)
                         -Storage: 10 to 90% (non-condensing)

SWITCH SPECIFICATIONS
Switch Processing Scheme – Store-and-Forward
Address Table – 1K Entries
Flow Control – Back Pressure for Half Duplex, IEEE 802.3x
                    -Pause Frame for Full Duplex

SWITCH FABRIC – 0.2Gbps
THROUGHPUT (Packet per Second) – 0.14Mbps

NETWORK CABLES
10/100Base-TX
2-Pair UTP Cat. 3, 4, 5 (100meters, max.)
EIA/TIA-568, 100-Ohm STP (100meters, max.)

REGULATORY COMPLIANCE
FCC Part 15 Class A
CE

STANDARDS COMPLIANCE
IEEE 802.3 10Base-T
IEEE 802.3U 100Base-TX
ITU-T G.993.1 VDSL
ITU-T G.997.1
ITU-T 993.2 VDSL2 (Profile 17a/30a Support)

ORDERING INFORMATION
DCE/5204V-BM-2PK   VDSL2 4-Port Bridge Modem 2-Pack
DCE/5204V-BM   VDSL2 4-Port Bridge Modem
DCE/5204V-BM-RM   VDSL2 4-Port Bridge Rackmount Modem

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DCE 5204V-MR

The DCE 5204V-BR is a Hyper Extend VDSL2 Bridge/Router is based on two core networking technologies, VDSL2 and Ethernet. VDSL2 is known as Very High Digital Subscriber Line 2. The DCE 5204V-BR provides very high performance access to the internet with speed up to 100Mbps for both downstream and upstream data transmission. The DCE 5204V-BR offers hyper extend the fastest data transmission speeds over existing copper telephone lines without the need for rewiring.

The DCE 5204V-BR complies with ITU-T G993.2 standard that is defined as a very high speed transceiver that converts Ethernet to VDSL2 and from VDSL2 back to Ethernet. The DCE 5204V-BR offers two modes of operation, bridge or router. With built in 4-Port 10/100 Ethernet switch the DCE 4204V-BR allows for Triple Play (Data, Voice, & TV) for both residential and small to large Enterprise.

There are selectable operating modes in the DCE 5204V-BR, CO and CPE. Users can setup Point-to-Point application by connecting two DCE 5204V-BR hyper extenders, one in CO mode and another in CPE mode. This allows High Speed data, voice and video (TV) transmission between two networks over existing copper telephone lines.

Via the user-friendly management interface, the DCE 5204V-BR is managed easily through standard web browsers. Furthermore, the DCE 5204V-BR not only provides basic router functions such as DHCP Server, Virtual Server, DMZ, QoS, and UPnP; but also, full firewall functions such as Network Address Translation (NAT), IP/Port/MAC Filtering and Content Filtering. The DCE 5204V-BR serves as an Internet Firewall to protect your network from being accessed by unauthorized users.

FEATURES

Shared Internet Access
Built-in VDSL2 Modem
Multiple WAN Connection
CO & CPE Support
Bridge & Router Application
Virtual Servers
Simple Firewall with NAT Technology
Universal Plug & Play (UPnP)
Selectable VDSL2 Profiles (30a, 17a, 12a, 12b, 8a, 8b, 8c, & 8d)
User Friendly Interface Web UI
DMZ Support
RIP1/2 Routing
VPN Pass-through Support
4-Port Switch
DHCP Server Support

SPECIFICATIONS

STANDARDS
VDSL2-DMT
Compliant with VDSL2 ITU-T G.993.2
(8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a)
G997 / G998 Band Plan Support
Supports up to 100Mbps Upstream & Downstream
Compliant with IEEE802.3 / 802.3u
U0 Band Support (25KHz to 276KHz)
Packet Transfer Mode Ethernet in the First Mile (PTM-EFM)
PORTS
Four 10/100Base-TX, Auto-Negotiation, Auto MDI/MDI-X
One RJ-11 and built-in splitter for POTS connection
One RJ-11 VDSL2 connection
LED INDICATORS - PWR, DSL, LAN1-4
BUTTON - RESET
MAX IMUM SESSIONS - 4,096
VPN - VPN Pass-through
MANAGEMENT - Web-Based Configuration
VDSL2 FUNCTIONALITY
CO / CPE Mode Selection
Selectable Fast & Interleave Mode
Selectable VDSL2 Profiles
Bandwidth Limitation Support
PROTOCOL / FEATURE
Router & Bridge Mode
Static Routing & RIP V1/2
DMZ & Virtual Server
802.1D
QOS
SNTP
DHCP Server / Client
IGMP Proxy & DNS Proxy
UPnP & DDNS
SNMP v1/v2c (Enhanced with Future FW upgradeable)
TR-069 (Enhanced with Future FW upgradeable)
SECURITY
Built-in NAT Firewall
MAC / IP / Port Filtering
Content Filtering
SPI Firewall Support
Password Protection for System Management
TEMPERATURE
Operating - 0 to 50 Degrees Celsius
Storage -20 to 70 Degrees Celsius

HUMIDITY
Operating - 5 to 90% (Non-condensing)
Storage – 0 to 95% (Non-condensing)

EMISSION – FCC, CE

DIMENSION (W x H x H) – 186mm x 143mm x 35mm
POWER - 12VDC, 1A

ORDERING INFORMATION

DCE/5204V-MR   4-PORT VDSL2 30a MODEM ROUTER

APPLICATIONS NEXT PAGE ————————————>

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PEER-TO-PER NETWORK CONNECTION

A pair of the DCE 5204V-BR, one CO and the other one CPE is good for Ethernet distance extension over existing telephone wires. With just one pair of AWG-24 copper wire, you can easily connect two Ethernet Networks together with the data rate of maximum 100/100Mbps. Telephone Service can still be used while the modems are in operation.

VERY HIGH-SPEED INTERNET CONNECTION WITH WIRED

The DCE 5204V-BR is the perfect solution for a small group of users who require Very high-speed broadband Internet connection It allows multiple users to access the Internet simultaneously.   The DCE 5204V-BR is compliant with VDSL2 standard that allows downstream and upstream rates up to 100mbps. The DCE 5204V-BR also incorporates a 4-Port 10/100Base-TX switching hub to easily create or extend your LAN, and prevent the attacks from the Internet.

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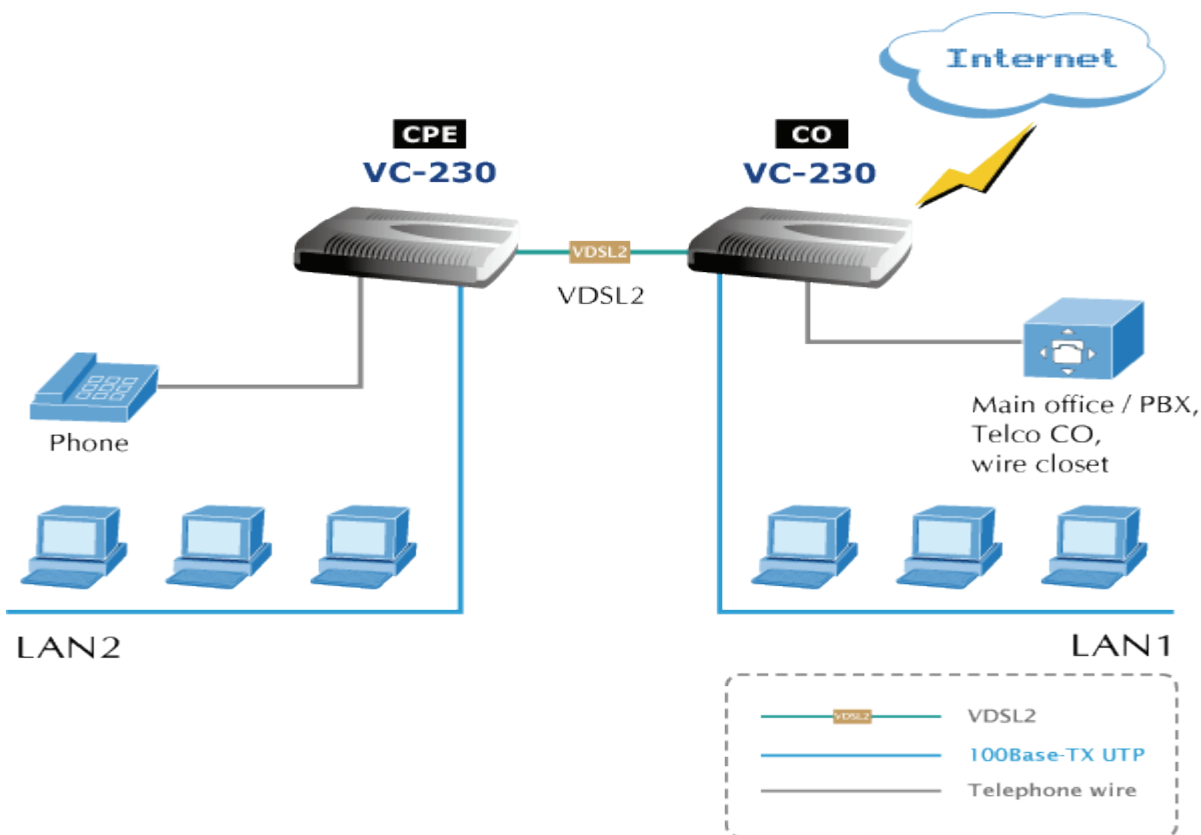
DCE 5204V-NRD

The DCE 5204V-NRD is an IEEE 802.11n wireless VDSL2 Router that utilizes 2T2R MIMO antenna technology and allows residential and corporate users the ideal solution for sharing a high-speed & hyper extended VDSL2 connection and four physical 10/100Mbps Fast Ethernet backbone. The DCE 5204V-NRD is based on three technologies IEEE 802.11b/g/n, Ethernet, and VDSL2 (Very High Digital Subscriber Line 2). Via VDSL2 technology, the DCE 204V-NRD offers very high performance access to the Internet, up to 100Mbps for both downstream and upstream data transmission. VDSL2 offers the absolute fastest data transmission speed over existing copper telephone lines without the need for rewiring.

The DCE 5204V-NRD complies with ITU-T G993.2 standard that is defined as a very high speed transceiver that converts Ethernet to VDSL2 and from VDSL2 back to Ethernet. The DCE 5204V-NRD offers two modes of operation, bridge or router. With built in 4-Port 10/100 Ethernet switch the DCE 4204V-NRD allows for Triple Play (Data, Voice, & TV) for both residential and small to large Enterprise. The DCE5204V-NRD incorporates IEEE 802.11b/g and 802.11n that allows any computer and wireless-enabled network device connect to it without additional cabling. The IEEE 802.11n (Draft 2.0) wireless capability brings users the highest speed of wireless ever experienced with data transmission rates as high as 300Mbps. The radio coverage is also doubled to offer high speed wireless connection wide-open space. To secure wireless communication, the DCE5204V-NRD supports the most up to date encryption, WEP, WPA-PSK, and WPA2-PSK. In addition the DCE5204V NRD supports WPS configuration with PBC/PIN type for users. This feature allows users to easily connect to a secured wireless network.

There are selectable operating modes in the DCE 5204V-NRD, CO and CPE. Users can setup Point-to-Point application by connecting two DCE 5204V-NRD hyper extenders, one in CO mode and another in CPE mode. This allows High Speed data, voice and video (TV) transmission between two networks over existing copper telephone lines.

Via the user-friendly management interface, the DCE 5204V-NRD is managed easily through standard web browsers. Furthermore, the DCE 5204V-NRD not only provides basic router functions such as DHCP Server, Virtual Server, DMZ, QoS, and UPnP; but also, full firewall functions such as Network Address Translation (NAT), IP/Port/MAC Filtering and Content Filtering. The DCE 5204V-NRD serves as an Internet Firewall to protect your network from being accessed by unauthorized users.

FEATURES

- Shared Internet Access
- Built-in VDSL2 Modem
- Multiple WAN Connection
- CO & CPE Support
- Bridge & Router Application
- Virtual Servers
- Simple Firewall with NAT Technology
- Universal Plug & Play (UPnP)
- Selectable VDSL2 Profiles (30a, 17a, 12a, 12b, 8a, 8b, 8c, & 8d)
- User Friendly Interface Web UI
- DMZ Support
- RIP1/2 Routing
- VPN Pass-through Support
- 4-Port Switch
- DHCP Server Support
- Support IEEE 802.11b, g and 802.11n Wireless Stations
- Two External Antennas with MIMO Technology
- WPS Push Button Control
- WEP Support
- WPA-PSK Encryption Support
- Wireless MAC Access Control

SPECIFICATIONS

STANDARDS
VDSL2-DMT
Compliant with VDSL2 ITU-T G.993.2
(8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a)
G997 / G998 Band Plan Support
Supports up to 100Mbps Upstream & Downstream
Compliant with IEEE802.3 / 802.3u
U0 Band Support (25KHz to 276KHz)
Packet Transfer Mode Ethernet in the First Mile (PTM-EFM)
PORTS
Four 10/100Base-TX, Auto-Negotiation, Auto MDI/MDI-X
One 802.11b/g/n Access Point, Two Antennas
One RJ-11 and built-in splitter for POTS connection
One RJ-11 VDSL2 connection
LED INDICATORS - PWR, DSL, LAN1-4
BUTTON – RESET
WIRELESS STANDARD – IEEE 802.11b, g & 802.11n (Draft 2.0)
FREQUENCY – 2.4 TO 2.4835GHz (Industrial Scientific Medical Band)
CHANNELS – Maximum 14 Channels, depending on regulatory authorities
ANTENNA CONNECTOR – Two 2dBi detachable Antenna
WIRELESS DATA ENCRYPTION – 64bit / 128bit WEP, WPA-PSK, WPA, WPA2, 802.11x ENCRYPTION, and WPS PBC
WIRELESS DATA RATE
IEEE 802.11b: 1/2/5.5/11Mbps
IEEE 802.11g: 6/9/12/18/24/36/48/54Mbps
IEEE 802.11n: 14/29/43/58/87/116/130/144Mbps in 20MHz
30/60/90/120/150/180/240/270/300Mbps in 40MHz
MAX IMUM SESSIONS - 4,096
VPN - VPN Pass-through
MANAGEMENT - Web-Based Configuration
VDSL2 FUNCTIONALITY
CO / CPE Mode Selection
Selectable Fast & Interleave Mode
Selectable VDSL2 Profiles
Bandwidth Limitation Support
PROTOCOL / FEATURE
Router, Bridge, & WISP Mode
WDS & WPS
Static Routing & RIP V1/2
DMZ & Virtual Server
802.1D
QOS
SNTP
DHCP Server / Client
IGMP Proxy & DNS Proxy
UPnP & DDNS
SNMP v1/v2c (Enhanced with Future FW upgradeable)
TR-069 (Enhanced with Future FW upgradeable)
SECURITY
Built-in NAT Firewall
MAC / IP / Port Filtering
Content Filtering
SPI Firewall Support
Password Protection for System Management
TEMPERATURE
Operating - 0 to 50 Degrees Celsius
Storage -20 to 70 Degrees Celsius
HUMIDITY
Operating - 5 to 90% (Non-condensing)
Storage – 0 to 95% (Non-condensing)
EMISSION – FCC, CE

## ORDERING INFORMATION

DCE 5204V-NRD 4-PORT VDSL2 30a WIRELESS ROUTER DEVICE

PEER-TO-PER NETWORK CONNECTION

A pair of the DCE 5204V-NRD, one CO and the other one CPE is good for Ethernet distance extension over existing telephone wires. With just one pair of AWG-24 copper wire, you can easily connect two Ethernet Networks together with the data rate of maximum 100/100Mbps. Telephone Service can still be used while the modems are in operation.

VERY HIGH-SPEED INTERNET CONNECTION WITH WIRED / WIRELESS

The DCE 5204V-NRD is the perfect solution for a small group of users who require Very high-speed broadband Internet connection It allows multiple users to access the Internet simultaneously.   The DCE 5204V-NRD is compliant with VDSL2 standard that allows downstream and upstream rates up to 100mbps.

The DCE 5204V-NRD is compliant with IEEE 802.11n technology. The DCE 5204-NRD provides a better wireless signal, higher data rate, and performance than 802.11g compliant routers. Furthermore, the DCE 5204-NRD features the latest security and firewall functions to prevent unauthorized access or invasion. There are simple, step by step, set up instructions within the Wizard that allows you immediate access to the wireless network and high speed Internet transmission in your home or office.

The DCE 5204V-NRD also incorporates a 4-Port 10/100Base-TX switching hub to easily create or extend your LAN, and prevent the attacks from the Internet.

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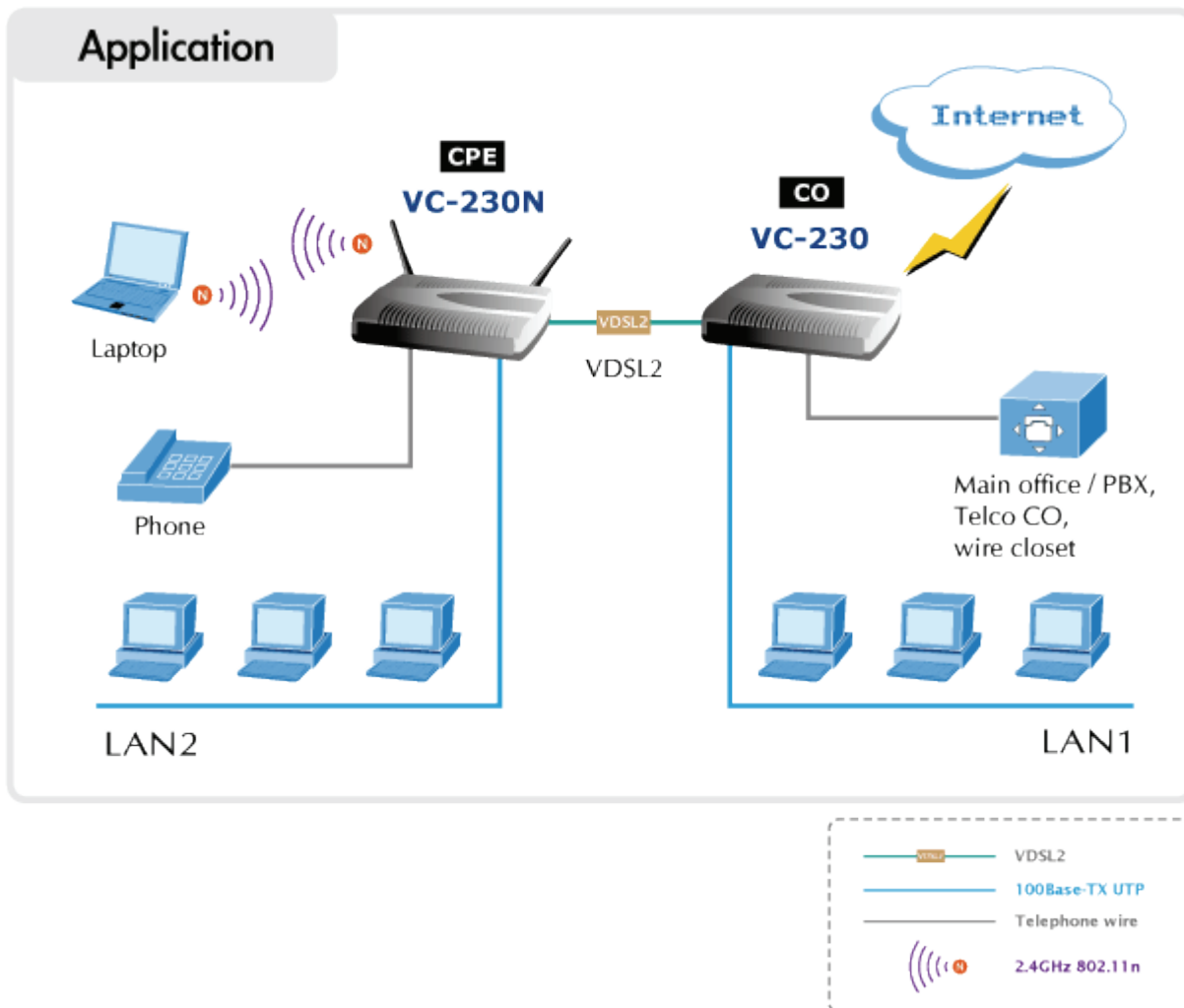
DCE 5208V-SMS

DCE 5208V-SMS with Hyper Extend is an 8-Port VDSL managed CO (Central Office) switch with 2-Port Gigabit TP / SFP combo interfaces. The VDSL2 CO switch is perfectly designed for the networking applications of a Community Network Service Provider, SI (System Integration), IP Surveillance Provider, and many other applications. DCE 5208V-SMS is based on two core networking technology, Ethernet and VDSL2 (Very-high-data-rate Digital Subscriber Line 2). By networking with the DCE 5201V-BM, DCE 5204V-BM, DCE 5204V-MR, and DCE 5204V-NRD CPE (Customer Premises Equipment) with the DCE 5208V-SMS, Data Connect offers the absolutely fastest data transmission speeds over existing copper telephone lines that provides the ideal solution in the last mile.

Each VDSL2 interface of the DCE 5208V-SMS provides two copper phone ports, one for VDSL2 connection and the other one for POTS (Plain Old Telephone Service) connection. The DCE 5208V-SMS has a unique built-in splitter that allows voice, data, and streaming video (TV) to operate simultaneously over each VDSL2 2-Wire interface with no interruption.

FEATURES

- Delivers High-Demand Services Connectivity for ISP / Triple Play Devices
- Traffic Flow QoS Ensuring for Application Services
- Selectable VDSL2 Data Rate for Service Differentiation
- Console & Telnet CLI (Command Line Interface) and Advance WEB & SNMP management interfaces.
- Link Aggregation, 802.1Q, Rapid Spanning Tree, IGMP Snooping & Bandwidth Control
- Access Control List (ACL), RADIUS, 802.1X, MAC Filter,

ORDERING INFORMATION

DCE 5208V-SMS25   8-PORT VDSL SNMP SWITCH 2-SFP

SPECIFICATIONS

VDSL INTERFACE
8-Port VDSL2, RJ-11 Connector
8-Port POTS Telephone, RJ-11 Connector

1000MBPS COPPER PORTS
Two 10/100/1000Mbps RJ-45 Auto- negotiation, Auto MDI/MDI-X

SFP/MINI-GBIC SLOTS
Two 1000Base-SX/LX/BX, shared with Port -9 & Port-10

CONSOLE - One RS232 Serial Port (DB9, 57600, N, 8, 1)
SURGE PROTECTION – 3KV
SWITCH ARCHITECTURE – Store –and-Forward
SWITCH FABRIC – 5.6Gbps / non-blocking
SWITCH THROUGHPUT – 4.16mbps @ 64Bytes
ADRESS TABLE – 8K Entries
SHARED DATA BUFFER – 256Kbps
MAXIMUM FRAME SIZE – 9K Bytes

SPECIFICATIONS (CONT'D)

FLOW CONTROL
Back pressure for Half – Duplex
IEEE 802.3x Pause Frame for Full – Duplex

LED
System: Power, Status
Alert: Fan 2, Fan 3 alert
VDSL: VDSL Link/Sync
Gigabit Port: 1000 Link/Active, 100 Link/Active

RESET BUTTON
< 5sec: System Reboot
>10sec: Factory Default

DIMENSION (W x D x H) – 440 x 200 x 44mm, 1U height
WEIGHT – 2.9kg
POWER REQUIREMENT – 100-240vac, 50-60Hz
POWER CONSUMPTION – 58Watts
DISSIPATION - 184 BTU/hr maximum
OTHER - Reset Button for system reset & Reset to factory default

VDSL2 STANDARD
Comply with ITU-T G.993.1 & G.993.2
Supports provisioning the VDSL optional band (25K to 138K Hz) usage

BAND PLAN
Selectable band plan for each VDSL line on a per port basis
Band Plan A: Profile 998, Annex A of G.993.1; Optimized for Symmetrical Services
Band Plan B: Profile 997, Annex A of G993.1; Optimized for Asymmetrical Services

PROFILE
Selectable spectrum profile of 8a/b/c/d, 12a/b, 17a, & 30a for frequency bands (Annex A, B, & C) defined in G.993.2

ENCODING – VDSL-DMT

VDSL2 FEATURES
Selectable Rate Limit Control
Selectable Target SNR (Signal to Noise Ratio) mode
POTS voices pass through

MANAGEMENT INTERFACE
Console, Telnet, Web Browser, SSL, SNMPv1 / v2c / v3

GIGABIT PORT CONFIGUATION
Port disable / enable
Auto-negotiation
10/100/1000Mbps Full & Half Duplex mode selection
Flow Control disable / enable

GIGABIT PORT STATUS
Display port's speed duplex mode, Link & Flow Control Status
Auto-negotiation status & trunk status

SPECIFICATIONS(CONT'D)

PORT MIRRORING – TX / RX / Both, 1 to 1 Monitor

BANDWIDTH CONTROL
Ingress / Egress rate limit control
Gigabit Port – Allow to configure per 128Kbps
VDSL2 Port – Allow to configure per 5Mbps

VLAN
IEEE 802.1Q Tag-based VLAN, up to 256 VLANs groups, out of 4041 VLAN IDs
Port-based VLAN
GVRP, up to 128 dynamic VLAN groups
Q-in-Q tunneling
Private VLAN Edge (PVE / Protected port) with two protected port groups

LINK AGGREGATION
Static Port Trunk
IEEE 802.3ad LACP (Link Control Protocol)
Supports 13 groups of 8–Port trunk support

QOS
4 priority queue
Traffic classification based on
    Port priority
    802.1p priority
    DSCP/TOS field in IP Packet
VoIP QoS by application protocol number

IGMP SNOOPING
IGMP (v1/v2) Snooping, up to 256 multicast Groups

ACCESS CONTROL LIST
IP-Based Layer 3 / Layer 4 ACL
Up to 220 ACL rule entries

SECURITY
Port Security (Disable Per Port of MAC Address Learning)
Status MAC, MAC filter, IPMAC Binding

SNMP MIBS
RFC-1213 MIB-II
RFC-2863 Interface MIB
RFC-2665 Ether-Like MIB
RFC-1493 Bridge MIB
RFC-2819 RMON MIB (Group 1, 2, 3, & 9)
RFC-2737 Entity MIB

SPECIFICATIONS (CONT'D)

REGULATION COMPLIANCE
FCC Part 15 Class A, CE

IEEE 802.3	10Base-T
IEEE 802.3u	100Base-TX
IEEE 802.3z	1000Base-SX/LX
IEEE 802.3ab	1000Base-T
IEEE 802.3x	Flow Control & Back Pressure
IEEE 802.3ad	Port trunk with LACP
IEEE 802.1D	Spanning Tree Protocol
IEEE 802.1w	Rapid Spanning Tree Protocol
IEEE 802.1p	Class of Service
IEEE 802.1Q	VLAN Tagging

STANDARDS COMPLIANCE

IEEE 802.1x	Port Authentication Network Control
ITU-T	G.993.1 (VDSL)
	G.997.1
	G993.2 VDSL2 (Profile 30a Support), Annex A
RFC-768	UDP
RFC-793	TFTP
RFC-791	IP
RFC-792	ICMP
RFC-2068	HTTP
RFC-1112	IGMP VERSION 1
RFC-2236	IGMP VERSION 2

CABLES
VDSL2: Twisted –Pair telephone wires (AWG24 or better) up to .87 miles
10/100Base-TX: 2-Pair UTP Cat.5, up to 328ft
1000Base-T: 4-pair UTP Cat.5E, up to 328ft
1000Base-SX: 50/125μm & 62.5/125μm fiber optic cable up to 1,084ft
1000Base-LX: 9/125μm fiber optic cable, up to 6.3 miles, 50/125μm & 62.5/125μm fiber optic cable, up to 1,805ft

ENVIRONMENT
OPERATING TEMPERATURE – 0 to 50 ºC
OPERATING RELATIVE HUMIDITY – 10 to 90% (non-condensing)
STORAGE TEMPERATURE – -10 to 70ºC
STORAGE RELATIVE HUMIDITY – 10 to 90% (non-condensing)

DCE 5208V-SMS APPLICATIONS

MTU / MDU / HOSPITALITY SOLUTION
IPV, VOD, and digital message broadcasting services are the worldwide hot trends. More and more services providers have gradually upgraded the client side devices from analog system to digital system. The DCE 5208V-SMS is a VDSL2 CO Switch and DCE 5201V-BM, DCE 5204V-BM, and the DCE5204V-NRD CPEs provide cost-effective and high speed network services by utilizing the existing telephone wire infrastructure. The IP network installation is straight forward and requires no new wiring. With the capability of 100/100Mbps symmetric, the 5208V-SMS enables Video on Demand (VOD), Voice over IP (VOP), Video Phone, IPTV, and Distance Education. The DCE 5208V-SMS provides excellent bandwidth to satisfy the triple play devices for education, entertainment, and communication.

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DCE 5208V-SMS APPLICATIONS CONT'D
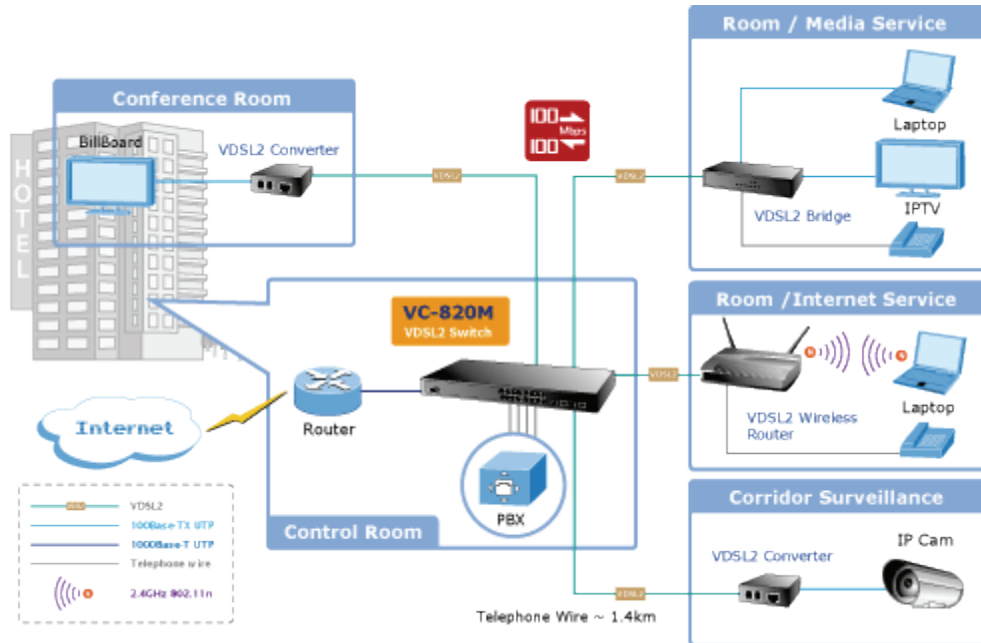
LAST MILE OF FTTs DEPLOYMENT

The DCE 5208V-SMS provides up to 100/100Mbps symmetric data rate up to 984 feet and in long range connections, the DCE 5208V-SMS provides ultra-high performance to the telephone line network. With the two built-in mini-GBIC 1000Base-SX/LX SFP (Small Form-Factor Pluggable) interfaces, the deployed distance of the DCE 5208V-SMS can be extended from 1,815 feet (Multi-mode fiber) up to 74.5 mile Single-mode fiber. The long distance capability of the DCE 5208V-SMS allows for FTTB (Fiber to the Building), FTTC (Fiber to the Campus), and FTTH (Fiber to the Home). The DCE 5208V-SMS provides high bandwidth via VDSL over existing telephone wires in the "last mile" from the ISP, Telecom, or Service provider's fiber node to commercial buildings and customers' homes.

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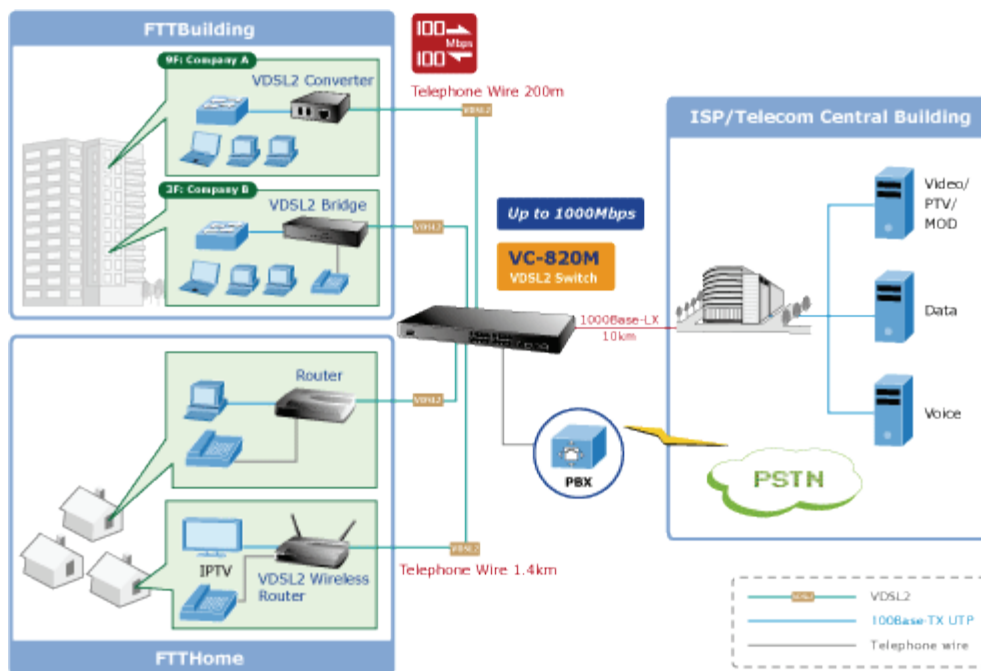
DCE 5224V-DSGSFP & DCE5248V-DSGSFP

DCE 5224V-DSGSFP & 5248V-DSGSFP with Hyper Extend are 24-Port VDSL2 managed CO (Central Office) switches with two TP and SFP shared combo Ethernet Interfaces. The VDSL2 CO switches arre perfectly designed for the networking applications of Telecom, ISP (Internet Service Provider), SI (System Integration), IP Surveillance Provider, and many other applications. DCE 5224V-DSGSFP & 5248V-DSGSFP are based on two core networking technology, Ethernet and VDSL2 (Very-high-data-rate Digital Subscriber Line 2). By networking with the DCE 5201V-BM, DCE 5204V-BM, DCE 5204V-MR, and DCE 5204V-NRD CPE (Customer Premises Equipment) with the DCE 5224V-DSGSFP & DCE 5248V-DSG-SFP, Data Connect offers the absolutely fastest data transmission speeds over existing copper telephone lines that provides the ideal solution in the last mile.

   Each VDSL2 interface of the DCE 5224V-DSGSFP provides two copper phone ports, one for VDSL2 connection and the other one for POTS (Plain Old Telephone Service) connection. The DCE 5224V-DSGSFP has a unique built-in splitter that allows voice, data, and streaming video (TV) to operate simultaneously over each VDSL2 2-Wire interface

FEATURES

- Delivers High-Demand Services Connectivity for ISP / Triple Play Devices
- Traffic Flow QoS Ensuring for Application Services
- Selectable VDSL2 Data Rate for Service Differentiation
- Console & Telnet CLI (Command Line Interface) and Advance WEB & SNMP management interfaces.
- Link Aggregation, 802.1Q, Rapid Spanning Tree, IGMP Snooping & Bandwidth Control
- Access Control List (ACL), RADIUS, 802.1X, MAC Filter, Static MAC, IPMAC, IP/MAC Binding, & Port Security

ORDERING INFORMATION

DCE/5224V-DSGFP	24 PORT VDSL2 SFP DSLAM 120VAC
DCE,5248V-DSGFP	24 PORT VDSL 2SFP DSLAM 48VDC

APPLICATIONS

LAST MILE OF FTTs DEPLOYMENT

The DCE 5224V-DSGSFP & DCE 5248V-DSGSFP provide up to 100/100Mbps symmetric data rate up to 984 feet and in long range connections, the DCE 5224V-DSGFP provides ultra-high performance to the telephone line network. With the two built-in mini-GBIC 1000Base-SX/LX SFP (Small Form-Factor Pluggable) interfaces, the deployed distance of the DCE 5208V-DSGSFP & DCE 5248V-DSGSFP can be extended from 1,815 feet (Multi-mode fiber) up to 74.5 mile Single-mode fiber. The long distance capability of the DCE 5224V-DSGSFP & DCE 5248V-DSGSFP allow for FTTB (Fiber to the Building), FTTC (Fiber to the Campus), and FTTH (Fiber to the Home). The DCE 5224V-DSGSFP & DCE 5248V-DSGSFP provide high bandwidth via VDSL over existing telephone wires in the "last mile" from the ISP, Telecom, or Service provider's fiber node to commercial buildings and customers'

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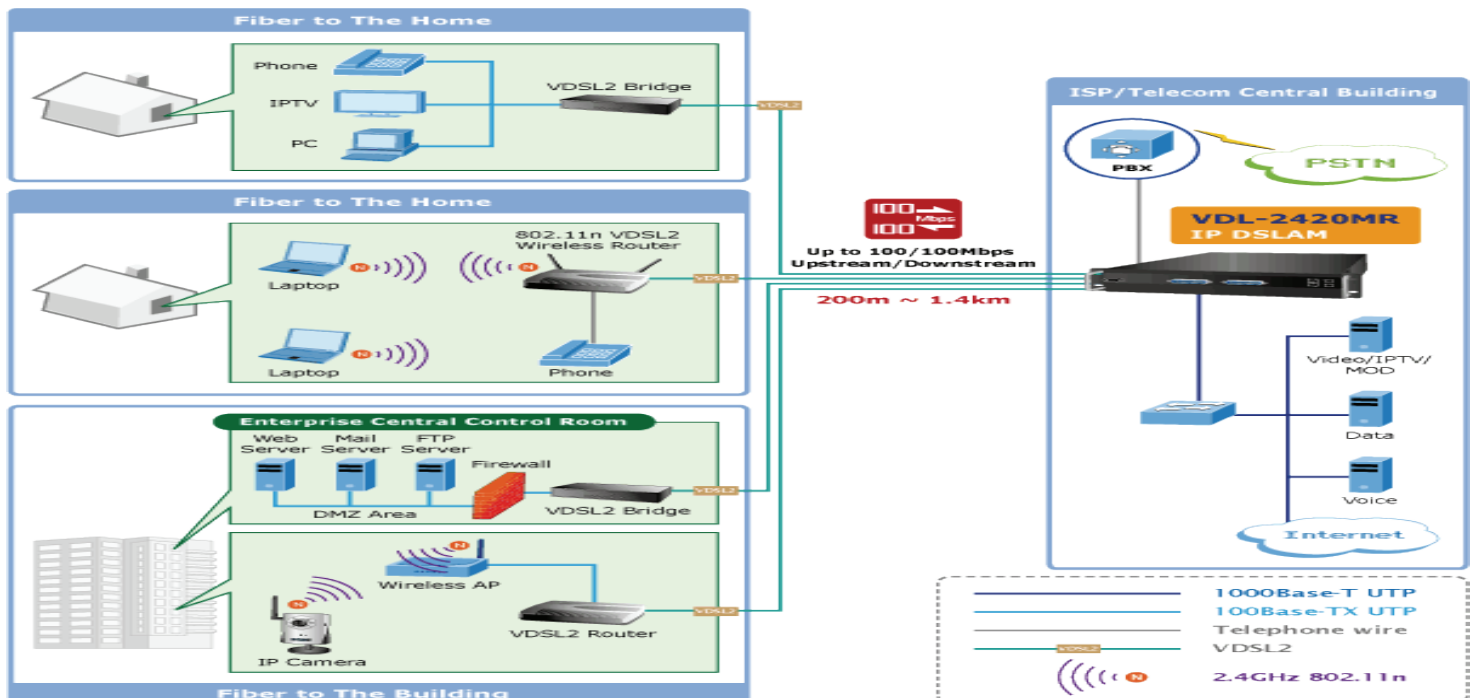
DCE 5224/48V-DSGFP APPLICATIONS CONT'D

MTU / MDU / HOSPITALITY SOLUTION

IPV, VOD, and digital message broadcasting services are the worldwide hot trends. More and more services providers have gradually upgraded the client side devices from analog system to digital system. The DCE 5224V-DSGSFP & DCE 5248V-DSGSFP is a VDSL2 CO Switch and DCE 5201V-BM, DCE 5204V-BM, and the DCE5204V-NRD CPEs provide cost-effective and high speed network services by utilizing the existing telephone wire infrastructure. The IP network installation is straight forward and requires no new wiring. With the capability of 100/100Mbps symmetric, the DCE 5224V-DSGSFP & DCE 5248V-DSGSFP enable Video on Demand (VOD), Voice over IP (VOP), Video Phone, IPTV, and Distance Education. The DCE 5224V-DSGSFP & DCE 5248V-DSGSFP provide excellent bandwidth to satisfy the triple play devices for education, entertainment, and communication.
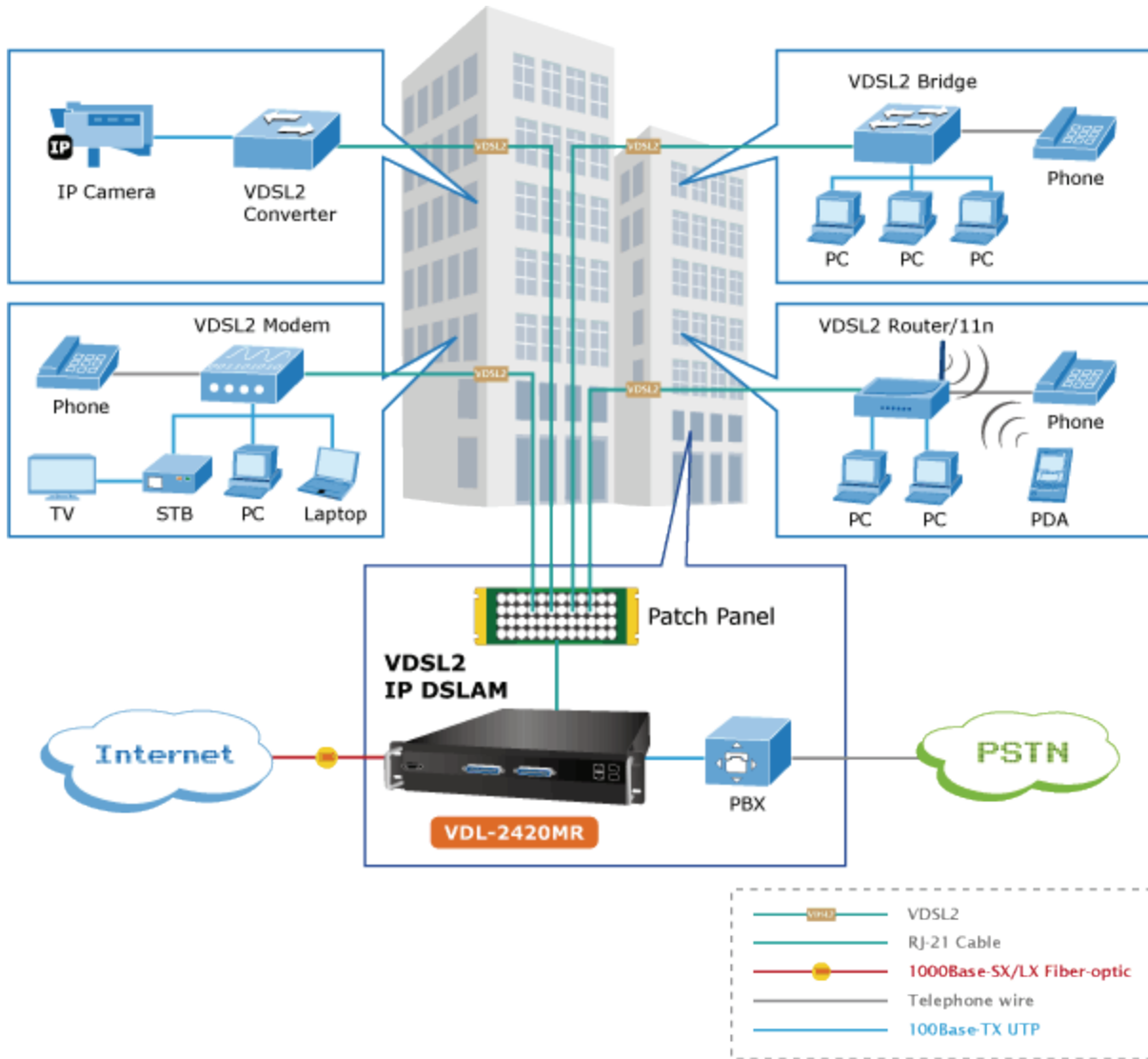
DCE 5224V-DSGSFP & DCE 5224V-DSGSFP SPECIFICATIONS

CABLES
VDSL2: Twisted –Pair telephone wires (AWG24 or better) up to .87 miles
10/100Base-TX: 2-Pair UTP Cat.5, up to 328ft
1000Base-T: 4-pair UTP Cat.5E, up to 328ft
1000Base-SX: 50/125μm & 62.5/125μm fiber optic cable up to 1,084ft
1000Base-LX: 9/125μm fiber optic cable, up to 6.3 miles, 50/125μm &

ENVIRONMENT
OPERATING TEMPERATURE – 0 to 40 ºC
OPERATING RELATIVE HUMIDITY – 10 to 90% (non-condensing)
STORAGE TEMPERATURE – -10 to 70ºC
STORAGE RELATIVE HUMIDITY – 10 to 90% (non-condensing)

DATA CONNECT ENTERPRISE   3405 OLANDWOOD CT   OLNEY, MD 20832   USA
PHONE: 301.924.7400 EXT 17   FAX: 301.924.7403   www.data-connect.com

DCE 5224V-DSGSFP & DCE 5248V-DSGSFP SPECIFICATIONS CONT'D

VDSL INTERFACE
24-Port VDSL2 via 1-RJ-21 (TELCO-50) connector
24-Port POTS Telephone via 1-RJ-21 (TELCO-50) connector

1000MBPS COPPER PORTS
Two 10/100/1000Mbps RJ-45 Auto- negotiation, Auto MDI/MDI-X

SFP/MINI-GBIC SLOTS
Two 1000Base-SX/LX/BX, shared with Port-25 & Port-26

CONSOLE - One RS232 Serial Port (DB9, 57600, N, 8, 1)
SURGE PROTECTION – 3KV
SWITCH ARCHITECTURE – Store –and-Forward
SWITCH FABRIC – 8.8Gbps / non-blocking
SWITCH THROUGHPUT – 6.547Mbps @ 64Bytes
ADRESS TABLE – 8K Entries
SHARED DATA BUFFER – 512Kbps
MAXIMUM FRAME SIZE – 9K Bytes

FLOW CONTROL
Back pressure for Half – Duplex
IEEE 802.3x Pause Frame for Full – Duplex

LED
System: Power, SYS Status
Alert: Fan 1, Fan 2, Power 1, Power 2
VDSL: VDSL Link/Sync

RESET BUTTON
< 5sec: System Reboot
>10sec: Factory Default

DIMENSION (W x D x H) – 440 x 200 x 44mm, 2U height
WEIGHT – 6.4kg
POWER REQUIREMENT – 100-240vac, 50-60Hz
POWER CONSUMPTION – 130Watts maximum
DISSIPATION - 404 BTU/hr maximum
OTHER - Reset Button for system reset & Reset to factory default

VDSL2 STANDARD
Comply with ITU-T G.993.1 & G.993.2
Supports provisioning the VDSL optional band (25K to 138K Hz) usage

BAND PLAN
Selectable band plan for each VDSL line on a per port basis
Band Plan A: Profile 998, Annex A of G.993.1; Optimized for Symmetrical Services

PROFILE
Selectable spectrum profile of 8a/b/c/d, 12a/b, 17a, & 30a for frequency bands (Annex A, B, & C) defined in G.993.2

GIGABIT PORT STATUS
Display port's speed duplex mode, Link & Flow Control Status
Auto-negotiation status & trunk status

ENCODING – VDSL-DMT

VDSL2 FEATURES
Selectable Rate Limit Control
Selectable Target SNR (Signal to Noise Ratio) mode
POTS voices pass through

MANAGEMENT INTERFACE
Console, Telnet, Web Browser, SSL, SNMPv1 / v2c / v3

GIGABIT PORT CONFIGUATION
Port disable / enable
Auto-negotiation
10/100/1000Mbps Full & Half Duplex mode selection
Flow Control disable / enable

PORT MIRRORING – TX / RX / Both, 1 to 1 Monitor

BANDWIDTH CONTROL
Ingress / Egress rate limit control
Gigabit Port – Allow to configure per 128Kbps
VDSL2 Port – Allow to configure per 5Mbps

VLAN
IEEE 802.1Q Tag-based VLAN, up to 256 VLANs groups, out of 4041 VLAN IDs
Port-based VLAN
GVRP, up to 128 dynamic VLAN groups
Q-in-Q tunneling
Private VLAN Edge (PVE / Protected port) with two protected port groups

ACCESS CONTROL LIST
IP-Based Layer 3 / Layer 4 ACL
Up to 220 ACL rule entries

SECURITY
Port Security (Disable Per Port of MAC Address Learning)
Status MAC, MAC filter, IPMAC Binding

SNMP MIBS
RFC-1213 MIB-II
RFC-2863 Interface MIB
RFC-2665 Ether-Like MIB
RFC-1493 Bridge MIB
RFC-2819 RMON MIB (Group 1, 2, 3, & 9)
RFC-2737 Entity MIB

REGULATION COMPLIANCE
FCC Part 15 Class A, CE

IEEE 802.3	10Base-T
IEEE 802.3u	100Base-TX
IEEE 802.3z	1000Base-SX/LX
IEEE 802.3ab	1000Base-T
IEEE 802.3x	Flow Control & Back Pressure
IEEE 802.3ad	Port trunk with LACP
IEEE 802.1D	Spanning Tree Protocol
IEEE 802.1w	Rapid Spanning Tree Protocol
IEEE 802.1p	Class of Service
IEEE 802.1Q	VLAN Tagging

STANDARDS COMPLIANCE

IEEE 802.1x	Port Authentication Network Control
ITU-T	G.993.1 (VDSL)
	G.997.1
	G993.2 VDSL2 (Profile 30a Support), Annex A
RFC-768	UDP
RFC-793	TFTP
RFC-791	IP
RFC-792	ICMP
RFC-2068	HTTP
RFC-1112	IGMP VERSION 1
RFC-2236	IGMP VERSION 2

DCE 5201A-BM

DCE5201A-BM single port Ethernet ADSL2/2+ Bridge Modem connects an "Always-On" high speed Asymmetric Digital Subscriber Line (ADSL) connection, to one 10/100Base-T Ethernet port connection for a PC or other Ethernet device to enable internet connectivity.

It is fully compliant with ADSL, ADSI2, ADSL2+, Annex M, and RE-ADSL2/2+ specifications. This rate-adaptive solution is especially designed for enterprise telecommuters, home, or SOHO users supporting ADSL2/2+ downstream and upstream data rates up to 24Mbps and 2.5Mbps

FEATURES

- Default/Pre-configured in RFC1483 Bridge Mode
- Compliant to the most updated ADSL2/2+ standards
- Support ADSL2+ downstream data rate of up to 24Mbps
- ATM Layer with Traffic Shaping QoS support
- Built-in Quick Setup Wizard to easily establish ADSL connection
- Embedded Firewall (SPI) feature for secure data communication
- Support up to 8 PVCs
- Support IP/Bridge Filtering functionality
- RFC 1483 Bridge/Routing over ATM over ADSL
- PPPoE and PPPoA Routing ATM over ADSL
- Hardware Reset button for fast default setting recovery

APPLICATION

ORDERING INFORMATION

DCE 5201A-BM   I-PORT ADSL2+ BRIDGE MODEM

SPECIFICATIONS

ADSL
ANSI T1.413 i2, G.992.1 and G.992.2 ADSL standard compliant
G.992.3 and G.992.5 ADSL and ADSl2+ standard compliant
Downstream/Upstream data rate up to 24Mbps / 2.5Mbps with Annex M.

ATM
Support up to 8 distinct PVCs
Support VC and LLC Multiplexing
Support UBR, CBR, VBR-rt and VBR-nrt Traffic Shaping QoS
Support Hardware ATM AAL0 and AAL5 adaptation functionality
Support F4/F5 OAM cells

BRIDGING / ROUTING
RFC2684 (RFC1483) – Bridged/Routed
RFC2364 – PPPoA
RFC2516 – PPPoE
Support IEEE 802. 1d Transparent Bridging
NAT with extensive ALGs support
Dynamic and Static Routing
Support RIP v1 and v2
Support DHCP Server/Client/Relay
Support DNS Proxy
Support IGMP Proxy
Support Port Mapping/Forwarding
Support Port Triggering
Support 1483MER, IP over Ethernet over ATM

SECURITY
Support IP Filtering
Support Port Filtering
Support DMZ
Support MAC/Bridge Filtering
Support URL Blocking
Embedded firewall functionality

NETWORK MANAGEMENT
Support IP QoS
Web-based Control/Management
Remote Access Control
Remote Telnet
SNMP v@ (Support TRAP)
ATM PVC Remote Management
Firmware upgrade via HTTP/TFTP/FTP
Built-in diagnostic function
System Log
TR-69 support with 2M16M

PHYSICAL
Dimension: 4.125 Inches (L) X 3.5 Inches (W) X 1 Inch (H)

HARDWARE INTERFACE
One RJ-11 ADS2/2+L connector
One RJ-45 LAN Connector
One Reset Button for Factory default setting recovery
One Power adaptor connector
4 Status LED Indicators

ENVIRONMENTAL
Temperature: +0 ~ +60 °C
Humidity: 10% ~ 90% RH

APPROVALS
FCC, CE Mark, EN60950 (LVD)
RoHS/WEEE compliance

DCE 5201A-MR

DCE5201A-BM single port Ethernet ADSL2/2+ Modem Router connects an "Always-On" high speed Asymmetric Digital Subscriber Line (ADSL) connection, to one 10/100Base-T Ethernet port connection for a PC or other Ethernet device to enable internet connectivity.

It is fully compliant with ADSL, ADSl2, ADSL2+, Annex M, and RE-ADSL2/2+ specifications. This rate-adaptive solution is especially designed for enterprise telecommuters, home, or SOHO users supporting ADSL2/2+ downstream and upstream data rates up to 24Mbps and 2.5Mbps

FEATURES

- **Default/Pre-configured in RFC1483 Bridge Mode**
- **Compliant to the most updated ADSL2/2+ standards**
- **Support ADSL2+ downstream data rate of up to 24Mbps**
- **ATM Layer with Traffic Shaping QoS support**
- **Built-in Quick Setup Wizard to easily establish ADSL connection**
- **Embedded Firewall (SPI) feature for secure data communication**
- **Support up to 8 PVCs**
- **Support IP/Bridge Filtering functionality**
- **RFC 1483 Bridge/Routing over ATM over ADSL**
- **PPPoE and PPPoA Routing ATM over ADSL**
- **Hardware Reset button for fast default setting recovery**

APPLICATION

ORDERING INFORMATION

DCE 5201A-MR   I-PORT ADSL2+ MODEM ROUTER

SPECIFICATIONS

ADSL
ANSI T1.413 i2, G.992.1 and G.992.2 ADSL standard compliant
G.992.3 and G.992.5 ADSL and ADSl2+ standard compliant
Downstream/Upstream data rate up to 24Mbps / 2.5Mbps with Annex M.

ATM
Support up to 8 distinct PVCs
Support VC and LLC Multiplexing
Support UBR, CBR, VBR-rt and VBR-nrt Traffic Shaping QoS
Support Hardware ATM AAL0 and AAL5 adaptation functionality
Support F4/F5 OAM cells

BRIDGING / ROUTING
RFC2684 (RFC1483) – Bridged/Routed
RFC2364 – PPPoA
RFC2516 – PPPoE
Support IEEE 802. 1d Transparent Bridging
NAT with extensive ALGs support
Dynamic and Static Routing
Support RIP v1 and v2
Support DHCP Server/Client/Relay
Support DNS Proxy
Support IGMP Proxy
Support Port Mapping/Forwarding
Support Port Triggering
Support 1483MER, IP over Ethernet over ATM

SECURITY
Support IP Filtering
Support Port Filtering
Support DMZ
Support MAC/Bridge Filtering
Support URL Blocking
Embedded firewall functionality

NETWORK MANAGEMENT
Support IP QoS
Web-based Control/Management
Remote Access Control
Remote Telnet
SNMP v@ (Support TRAP)
ATM PVC Remote Management
Firmware upgrade via HTTP/TFTP/FTP
Built-in diagnostic function
System Log
TR-69 support with 2M16M

PHYSICAL
Dimension: 4.125 Inches (L) X 3.5 Inches (W) X 1 Inch (H)

HARDWARE INTERFACE
One RJ-11 ADS2/2+L connector
One RJ-45 LAN Connector
One Reset Button for Factory default setting recovery
One Power adaptor connector
4 Status LED Indicators

ENVIRONMENTAL
Temperature: +0 ~ +60 °C
Humidity: 10% ~ 90% RH

APPROVALS
FCC, CE Mark, EN60950 (LVD)
RoHS/WEEE compliance

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DCE 5204A-GRD

Data Connect DCE 5204A-GRD is an economical four port ADSL2+ Firewall Router Device with 802.11g Wireless AP ideally designed for home and SOHO users to enjoy rich firewall security, mobility, and faster speed when using ADSL Internet connection. With integrated Wireless 802.11g AP, the router enables you to surf the Internet anywhere in your home. The router lets you share high-speed ADSL Internet connection, ever faster with advanced ADSL2+ capability of downstream rate up to 24 Mbps. The powerful SOHO Firewall feature protects against 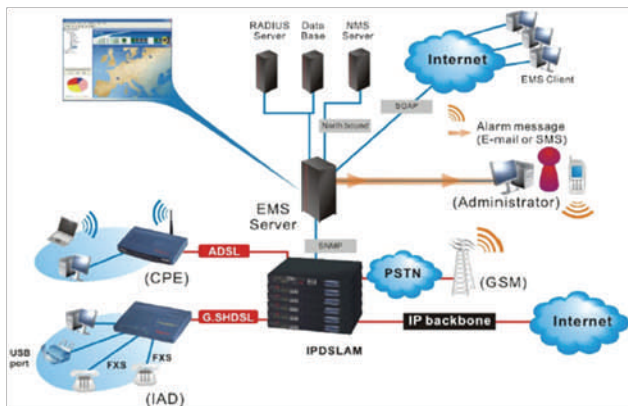hackers' attacks when you surf the Internet. VPN pass-through is also built-in for secure access. In addition, the web-based Graphic User Interface allows you to install and manage your network easily. The DCE 5204A-GRD makes fast wireless net surfing affordable and easy – Going online is just 'plug & play'.

This router complies with the worldwide ADSL standards. It supports downstream rates of up to 12/24 Mbps with ADSL2/2+, 8 Mbps with ADSL, and upstream rates of up to 1 Mbps. With this technology, users enjoy not only high-speed ADSL service but also broadband multimedia applications such as interactive gaming, video, video streaming and real-time audio much more quickly and easily than ever. In particular, by doubling the upstream data rate, the Annex M standard included in the DCE 5204A-GRD model supports the latest ADSL2/2+ for higher uploaded speeds.

With an integrated 802.11g Wireless Access Point, the router offers quick and easy access and mobility to the users of wired networks, wireless networks, and broadband connections (ADSL). In addition to supporting the 54Mbps 802.11g data rate, it is also backward compatible with existing 802.11b equipment. The Wireless Protected Access (WPA-PSK/WPA2-PSK) and Wireless Encryption Protocol (WEP) features enhance the level of data protection and access control via a Wireless LAN. The router further supports the WI-FI Protected Setup (WPS) standard, allowing users to establish a secure wireless network by simply pushing a button.

Along with the built-in NAT natural firewall feature, the router's advanced anti-hacker pattern-filtering protection feature automatically detects and blocks Denial of Service (DoS) attacks. In addition to the NAT technology, the DCE 5204A-GRD supports Packet Filtering for high-level security control.

Triple play functionality is provided by the ability to configure both 802.1Q port bases VLANS and LANE (LAN Emulation) assuring that packets get routed to the correct port in a timely manner.

The Web-based User Interface makes the DCE 5204A-GRD extremely easy for users to install and manage the network. The router supports DHCP client and server, enabling system administrators to easily fit this security router into existing network environment and manage the IP assignment without re-configuring other stations. Furthermore, future firmware upgrade can be downloaded via the user-friendly Web-based Interface.

ORDERING INFORMATION

DCE/5204A-GRD   4-PORT ADSL2+ WIRELESS G ROUTER DEVICE

SPECIFICATIONS

ATM & PPP PROTOCOLS
ATM adaptation layer type 5 (AAL5)
Multiple Protocol over AAL5 (RFC 2684, formerly RFC 1483)
Bridged or routed Ethernet encapsulation
VC and LLC based multiplexer
PPP over Ethernet (PPPoE) (RFC 2516)
PPP over ATM (RFC 2364)
OAM F4/F5 Loop back
ATM QoS: UBR, CBR, VBR-rt, VBR-rnt

MANAGEMENT
Web-based configuration
Firmware upgrade and configuration data upload and download via HTTP/FTP
SNMP V2 MIB supported
Supports DHCP server/client/relay
Supports SNMP, ICMP
Supports TR-069 client (CWMP

PHYSICAL INTERFACE
LINE: ADSL port
LAN: 4port 10/100M auto-crossover (MDI/MDI-X) switch
Factory default reset button
Power Jack

PHYSICAL SPECIFICATIONS
Dimensions: 5.20" x 3.70" x 1.38"
(132mm x 94mm x 35mm)

POWER REQUIREMENTS
(DCE 5204S-GRD) Input: 12VDC, 1A
Power Range: 180~230VAC/50Hz

MODELS & STANDARDS SUPPORT
DCE 5204S-GRD (A): Annex A & Annex M
DCE 5204A-GRD (U): Annex B & U-R2
Annex A and Annex M: ADSL over POTS
Annex B and ANNEX U-R2: ADSL over ISDN

FEATURES

- 802.11g Wireless Access Point with WPA-PSK/WPA2-PSK support
- High speed Internet access with ADSL2/2+; backward compatible with ADSL
- Integrated with 4-port Ethernet Switch
- SOHO Firewall Security with DoS Prevention and Packet Filtering
- Universal Plug and Play (UPnP) Compliant
- Dynamic Domain Name System (DDNS)
- Supports Virtual Private Network (VPN) pass-through
- Easy Network Management
- Ideal for Home and SOHO Users
- Supports TR-069*2
- 802.1Q VLAN tagging and LANE (LAN Emulation)

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DATA CONNECT ENTERPRISE
PHONE: 301.924.7400 EXT 17

3405 OLANDWOOD CT
FAX: 301.924.7403

OLNEY, MD 20832   USA
www.data-connect.com

SPECIFICATIONS (CONT'D)

ADSL COMPLIANCE
Compliant with ADSL Standard
Full-rate ANSI T1.413 Issue 2
G.dmt (ITU G.992.1)
G.lite (ITU G.992.2)
G.hs (ITU G.994.1)
ADSL over ISDN/U-R2
Compliant with ADSL Standard
G.dmt.bisplus (ITU G 992.3)
G.lite.bixx (ITU G992.4)
ADSL2 Annex M (ITU G.992.3 Annex M)
Compliant with ADSL+ Standards
G.dmt.bisplus (ITU G.992.5)
Downstream: 24Mbps Upstream: 1Mbps

NETWORK PROTOCOLS & FEATURES
Supports 8PVCs
IGMP Snooping, IGMP Multicast
NAT, static routing and RIP-1/2
NAT supports PAT and multimedia application
Multi-to-multi NAT
Transparent Bridging
Dynamic Domain Name System (DDNS)
802.1Q VLAN Tagging and LANE support
SNTP
DNS relay
Supports PAP, CHAP, MS-CHAP PPP
IPoA Routing ATM over ADSL (RFC2225/1577)
Supports IGMP v1/v2/v3
Support IEE 802.1D
Supports Web, FTP, TFTP, Telnet, Ping, and E-mail

FIREWALL & VIRTUAL PRIVATE NETWORK
Built-in NAT firewall
Prevent Dos attacks including Land Attacks, Ping of Death, etc.
Anti probe function
Packet IP, MAC, Web filter
Password protection for system management
VPN pass-through

ENVIRONMENTAL
Operation temperature: 0 ~40˚C
Storage temperatures -20 ~ 70˚C
Humidity: 20 ~95% non-condensing

APPLICATION

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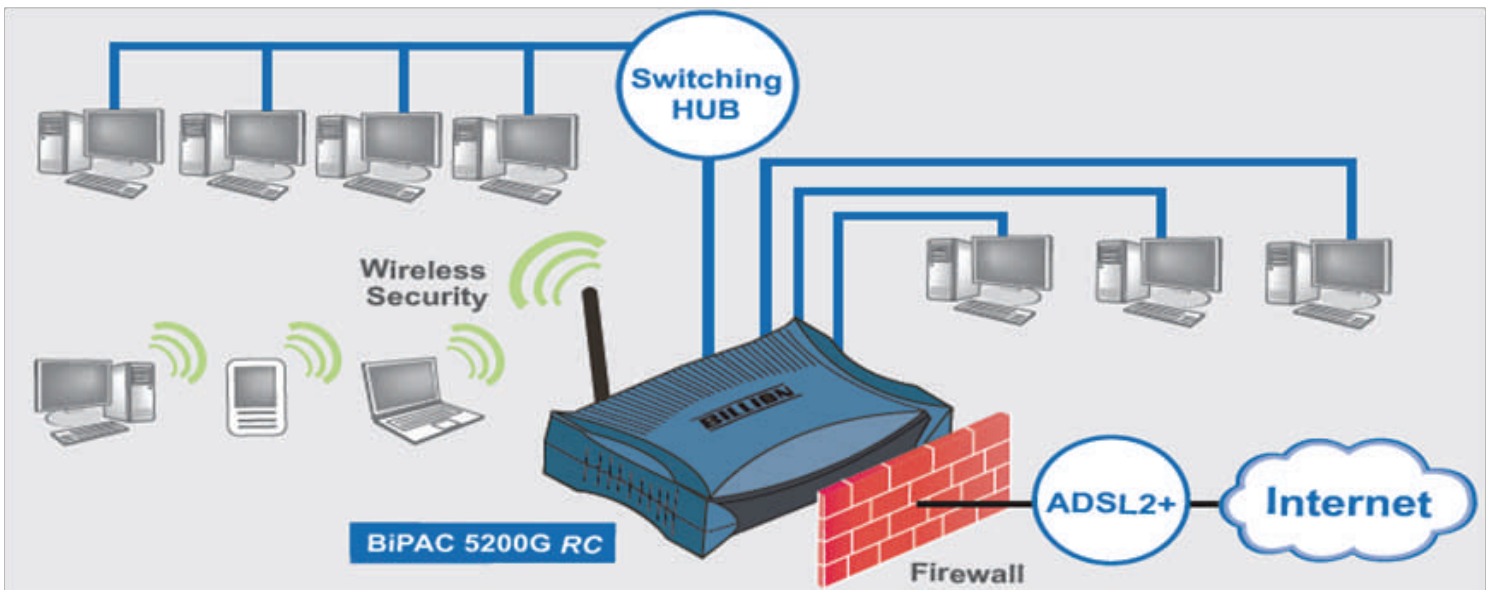
DCE 5248A-DSG

The DCE 5248A-DSG is a 48-Port ADSL/ADSL2/ADSL2+ IP DSLAM with one 1000Base-Tor 1000Base-LX uplink interfaces. The DCE 5248A-DSG offers scalable and easy deployment for the network with an ADSL environment. With the built-in POTS splitter subscriber ports, the DCE 5224-DSG performs a cost-effective solution for network service providers who can offer multiple subscribers excellent services.

The DCE 5248A-DSG supports local and remote managed capabilities of CLI, SNMP, Telnet via RS-232 CID, and Ethernet management ports. Via the user-friendly Web GUI, the DCE 5248A-DSG can be managed by workstations running standard web browsers that provide the easy-to-use operation and convenient maintenance.

To enhance the network security, the DCE 5248A-DSG also provides features such as QOS, VLAN, Multicast, Bandwidth Management, Traffic Prioritization, and Data Flow Security Control. With the advance QoS features, the DCE 5248A-DSG is an ideal solution for the Network Service Providers to deliver rich triple play (data, voice, and video) to their subscribers.

FEATURES

- **48-Port ADSL/ADSL2/ADSL2+ subscriber interface with built-in POTS splitter**
- **DMT data rate: Downstream up to 25Mbps / Upstream up to 3 Mbps**
- **1000Base-T or 1000Base-LX uplink interface**
- **Stackable support**
- **Web GUI based management based on Microsoft Windows**
- **Local RS-232 CLI & Ethernet SNMP / Telnet management**
- **Firmware upgradeable via FTP**
- **Configuration backup & restoration via TFTP**
- **Supports 6K MAC address &256 Multicast MAC Address Support**
- **Supports Static VLAN & Port Based on VLAN**
- **VLAN / MAC / IP Filtering**
- **Access Control List by MAC / IP Address**
- **Traffic prioritization (802/1p)**

ORDERING INFORMATION

DCE 5248A-DSG   48-PORT ADSL2+ D-SLAM WIRELESS G

SPECIFICATIONS

PORTS-UPLINK 1
1 x RJ-45 (10/100/1000Base-T)

PORTS-UPLINK 2
1 x RJ-45 (10/100/1000Base-T)

PORTS-MGNT
1 x RJ-45 (10/100/1000Base-T)

PORTS-CONSOLE
1 x RS-232

PORTS-LINE
2 x Telco-50

PORTS-PHONE
2 x Telco-50

LED INDICATORS
1 x Power LED
1 x MAINT LED
1 x Alarm LED
1 x Master LED
48 x ADSL LEDs
2 x 1000 / Act LEDs
3 x 100 / Act LEDs

STANDARD SOFTWARE
Compliant with ADSL standard
-ANSI T1.413 issue 2
-G.dmt (ITU G.992.1)
-G.lite (ITU G.992.2)
-G.hs (ITU G.994.1)
Capable of ADSL2 standard
-G.dmt.bis (ITU G.992.3)
-Capable of ADSL2+ standard
-G.dmt.bisplus (ITU G.992.5)

PROTOCOL
STP
IGMP snooping
GMRP
GVRP
LACP
SNMP/ UDP / IP / MAC / Ethernet
MULICAST

SYSTEM
Subscriber interface with built-in POTS splitter
Downstream DMT data rate 32 kbps up to 25 Mbps
Upstream DMT data rate 32 kbps up to 1 Mbps
Extended power managed capabilities to optimize power consumption for each application
Distance up to 18kft
1000Base-T / 1000Base-LX uplink interface via model
Stackable support
Centronic 50 pin connector fro Telco line in and out
8 VCs per x DSL port
128 MAC address per x DSL port
6k MAC address Ethernet Bridging: Broadcast, Flooding/Dropping
VLAN Bridging: 512 VLAN, Static VLAN, VLAN Stacking / Trucking
Packet size 64 byte to 1522byte
PPPoE Intermediate Agent
DHCP Relay Agent
IPOA to IPOE Tunneling
PPPoA to PPPoE inter-working
Input Rate Limiting (IRL) on a per-AAL5 interface
Output Rate Limiting (ORL) on per ATM-port and Ethernet basis
Rate Limiting
Multiple mechanisms of prioritizing traffic

SECUIRTY
VLAN filtering
MAC filtering
IP filtering
Access control list by MAC address
Access control list by IP address
Throttling Control
Sticky Bridge Ports

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SPECIFICATIONS (CONT'D)

SECUIRTY
VLAN filtering
MAC filtering
IP filtering
Access control list by MAC address
Access control list by IP address
Throttling Control
Sticky Bridge Ports

MANAGEMENT
GUI management based on Microsoft Windows
Local RS-232 CLI, and Ethernet SNMP / Telnet management
Remote in-band SNMP / Telnet management
Upgradable firmware via FTP or TFTP
SNMP v1, v2c

POWER REQUIREMENTS
90~240VAC, 2.5A, 50~60Hz

DIMENSIONS (W x D x H)
440 x 400 x 44mm

ENVRONMENTAL
Temperature: 0~50 ˚C
Humidity: 5~90% (non-condensing)

EMISSION
CE, FCC

APPLICATION
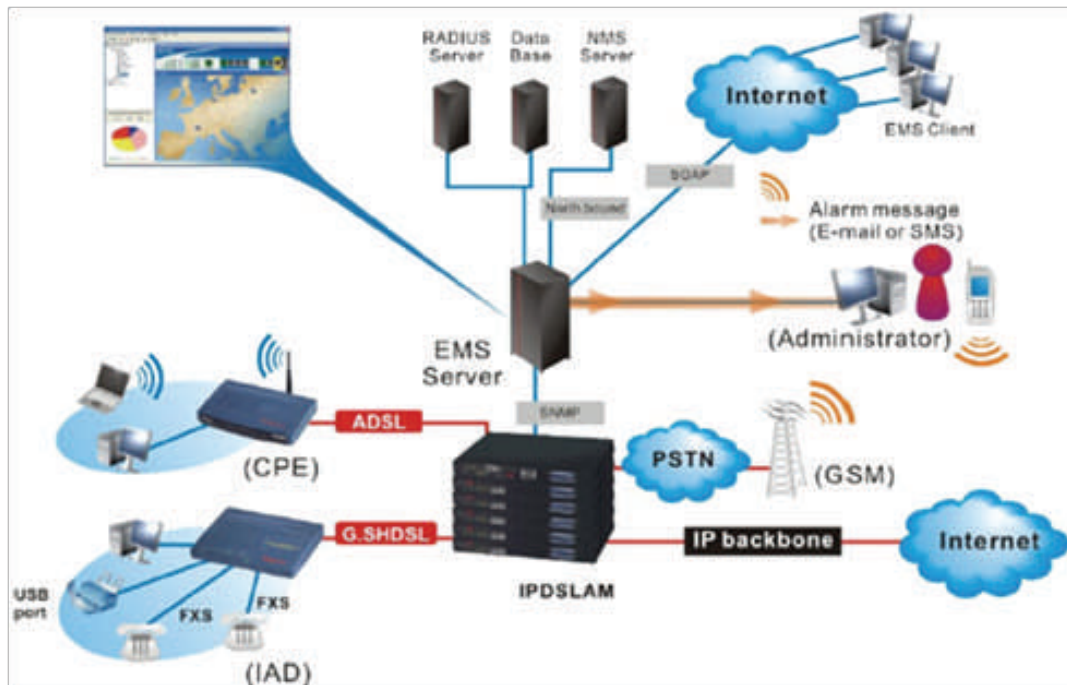
DCE 5224A-DSG

The DCE 5224A-DSG is a 24-Port ADSL2/ADSL2+ mini IP DSLAM with one 1000Base-T uplink interface. The DCE 5224A-DSG offers scalable and easy deployment for the network with a small ADSL environment. With the built-in POTS splitter subscriber ports, the DCE 5224-DSG performs a cost-effective solution for network service providers who can offer multiple subscribers excellent services.

The DCE 5224A-DSG supports local and remote managed capabilities of CLI, SNMP, Telnet via RS-232 Console Port, and Web GUI management interface. Via the user-friendly Web GUI, the DCE 5224A-DSG can be managed by workstations running standard web browsers that provide the easy-to-use operation and convenient maintenance.

To enhance the network security, the DCE 5224A-DSG also provides features such as QOS, VLAN, Multicast, Bandwidth Management, Traffic Prioritization, and Access Control List. With the advance QoS features, the DCE 5224A-DSG is an ideal solution for the next generation broadband network to deliver rich video contents, DSL, POTS, and VoIP service over ADSL2+ connection.

FEATURES

- 24-Port ADSL/ADSL2/ADSL2+ subscriber interface with built-in POTS splitter
- DMT data rate: Downstream up to 25Mbps / Upstream up to 3 Mbps
- 1000Base-T uplink interface
- Web GUI based management
- Local RS-232 CLI & Ethernet SNMP / Telnet / SSH management
- Firmware upgradeable via FTP
- Configuration backup & restoration via TFTP
- Supports 4K MAC address
- Supports IEEE 802.1q Tag-based VLAN & Protocol-based VLAN
- Layer 2 / 3 filtering based on MAC, IP, Protocol, Port

ORDERING INFORMATION

DCE 5224A-DSG   24-PORT ADSL2+ DSLAM WIRELESS G

SPECIFICATIONS

CASE
1.5U high box-type with a rack-mountable enclosure

PORTS
Uplink - One RJ-45 (10/100/1000Base-T)
Console – One RS-232 Serial Port (9600, 8, N, 1)
Line – One RJ-21 Connector
Phone – One RJ-21 Connector

LED INDICATORS
One SYS
One ALM
One Uplink
24 ADSL

COMPLIANT WITH ADSL STANDARD
ANSI t1.413 issue 2
G.dmt (ITU G.992.1)
G.lite (ITU G.992.2)
G.hs (ITU G.994.1)

COMPLIANT WITH ADSL2 STANDARD
G.dmt.bis (ITU G.992.3)

COMPLIANT WITH ADSL2 STANDARD
G.dmt.bisplus (ITU G.992.5)

SYSTEM
Subscriber interface with built-in POTS splitter
Downstream DMT data rate up to 25Mbps
Upstream DMT data rate up to 3Mbps (Annex M)
Distance up to 18,000ft
8 PVCs per xDSL port
DHCP forward
DHCP relay agent
PPPoE relay
IPSec/L2TP/PPTP VPN pass-through function
PPPoA to PPPoE inter-working

BRIDGE FUNCTION
Supports IPv4 packet
Supports IEEE802.1d Ethernet bridge function between trunk Ether port & ATM VCs
Supports static source MAC table provisioning, automatic source MAC learning, & block duplicate ones
Supports 4K static MAC address table
128 MAC address per xDSL port

VLAN FUNCTION
IEEE 802.1q Port-based / Protocol-based VLAN
512 non-stacked VLAN VLAN-ID simultaneously ranging from 1 to 4095
VLAN stacking & VLAN cross-connect
IP Spoofing prevention
MAC anti-Spoofing
Port isolation functionality
Static VLAN group & membership provisioning

MULTICAST FUNCTION
IP multicasting forwarding
Complies with RFC2684 bridged payload encapsulation mode
Up to 256 multicast groups & 512 copies simultaneously
Up to 48 profile-based Multicast Access Control
Limit maximum number of IGMP groups joined per bridge port
IGMP snooping / proxy per IGMP v1, v2, & v3
IGMP proxy & IGMP snooping Selection

SECURITY
Supports Layer-2 frame filtering based on MAC & Ether Type
Supports Layer-3 filtering based on IP, Protocol, & Port number

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SPECIFICATIONS (CONT'D)

QOS
Control the bandwidth , occupied by broadcast, multicast, & unknown unicast (flooding)
Rate-limit profile binding per bridge port
Three Color Marking (TCM) policer
Ethernet Rate limit per bridge port
ToS (type of service) / DiffServ (differentiated services) stripping & priority Queuing
DSCP mapping to 802.1p
Selectable adopted priority Queue mechanisms according to Strict Priority Queue (SPQ) & Weighted Fair Queue (WFQ)
Configurable mapping function between ATM, PVC, & 802.1p priority queue
Supports IP CoS technology

MANAGEMENT
Web based GUI management
Local RS-232 CLI, & Ethernet SNMP / Telnet / SSH management
Remote in-band SNMP / Telnet / SSH management
Firmware upgradeable via FTP
SNMP v1, v2c
POWER REQUIREMENT
90-240VAC, 2.5A, 50-60Hz

DIMENSION (W x D x H)
440 x 400 x 33mm

ENVIRONMENTAL
Temperature - 0-50ºC
Humidity – 5-90% (non-condensing)

APPLICATION
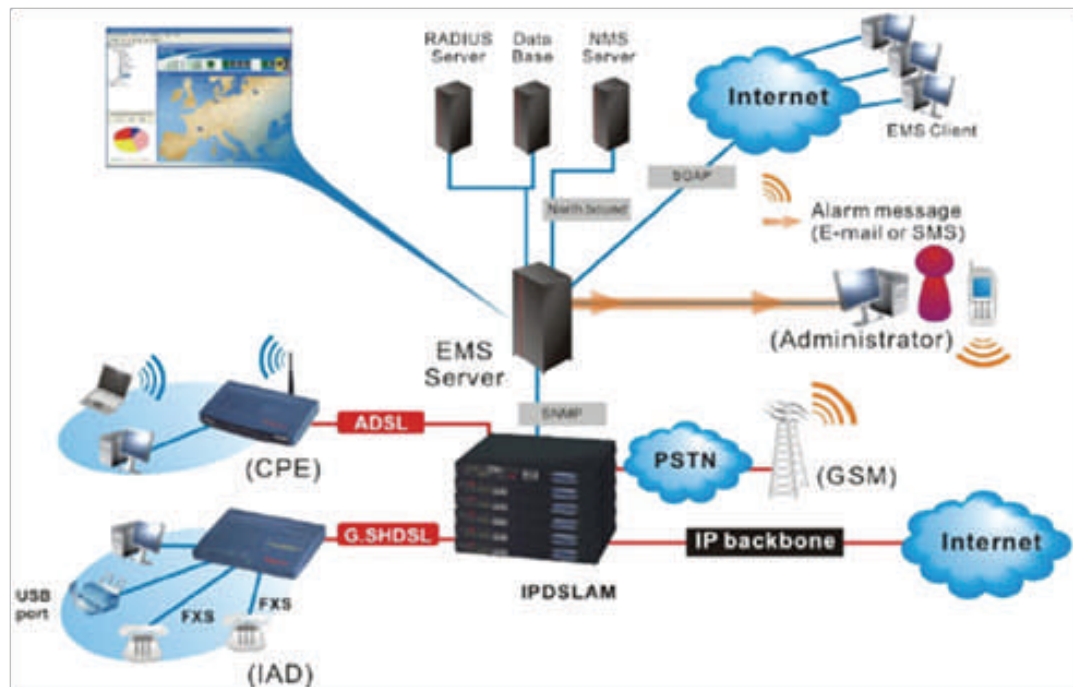
DCE DSL FILTER

Not all DSL filters are created equal. Be careful of cheap imitations that don't follow along with regulated standards or meet proper telephone impendence requirements. The Data Connect DSL FILTER can eliminate the harmonic noise on the voice signal transmitted in the telephone line. The DCE DSL-FILTER allows the analog telephone to operate over DSL circuit. The analog telephone signal is converted to DSL. The DCE DSL-FILTER cable plugs into the Telephone Wall Jack and the phone plugs into the other side.
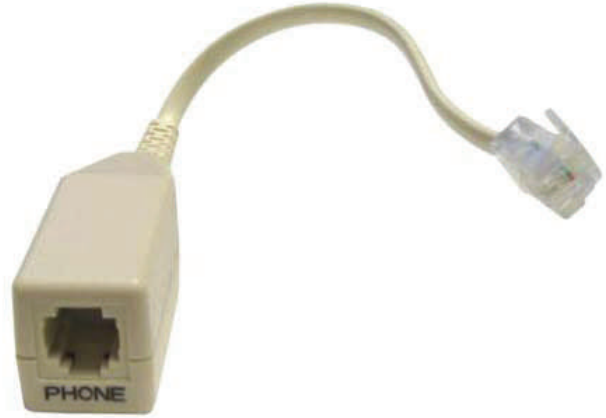
APPLICATION
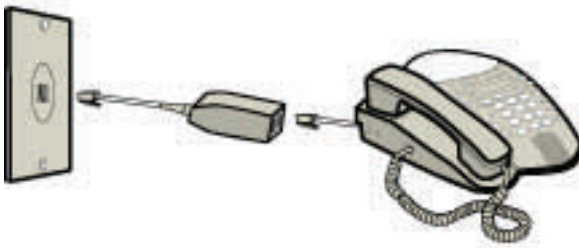
ODERING INFORMATION

DCE/DSL-FILTER	DSL FILTER
DCE/DSL-FILTER-25PK	DSL FILTER 25-PACK
DCE/DSL-FILTER-50	DSL FILTER 50-PACK
DCE/DSL-FILTER-100	DSL FILTER 100-PACK
DCE/DSL-FILTER-250	DSL FILTER 250-PACK
DCE/DSL-FILTER-500	DSL FILTER 500-PACK
DCE/DSL-FILTER-1000	DSL FILTER 1000-PACK

SPECIFICATIONS

POST PORT IMPEDANCE		Zr=600Ω
Modem impedance	25KHz to 2208KHz	100Ω
insertion loss	@ 1004Hz	<0.3dB
With 5 filters	200 to 3.4kHz	<2.5dB
	3.4kHz to 4 kHz	<4dB
Attenuation distortion between	200Hz<f<3.4 kHz	<0.3dB
600 ohms resistive single filter	3.4kHz to 4 kHz	<0.75dB
(relative to 1004Hz)		
Return Loss (LINE to PHONE)	SRL-L	>=30dB
	ERL	>=17dB
	SRLH	>=20dB
Return loss (phone to line)	SRL-L	>=25dB
	ERL	>=15dB
	SRLH	>=7.0dB
Longitudinal convention loss	LCL 200 Hz TO 1 kHz	>58Db
	1kHz to 3kHz	>53Db
DC resistance		<12Ω
delay distortion	200Hz to 4k	<100u/sec
isolation resistance	tip to ring	>10MΩ
stop band attenuation	30kHz<f<300kHz	>26 Db
	300kHz<f<2208KHz	>65Db

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DCE DSL SPILTTER

Not as splitters are created equal. Be careful of cheap imitations that don't follow along with regulated standards or meet proper ADSL impendence requirements. The Data Connect DSL- SPLITTER can eliminate the interference between the data signal, and voice signal transmitted in the telephone line. The DCE DSL- splitter allows the internet and telephone to operate over simultaneously at the same time. The data signal for the internet and the voice signal for telephone are separated and shielded from each other. The DCE DSL–SPLITTER has one telephone RJ jack at one end of the DSL line two RJ11 at the other end of the phone and modem.

APPLICATION
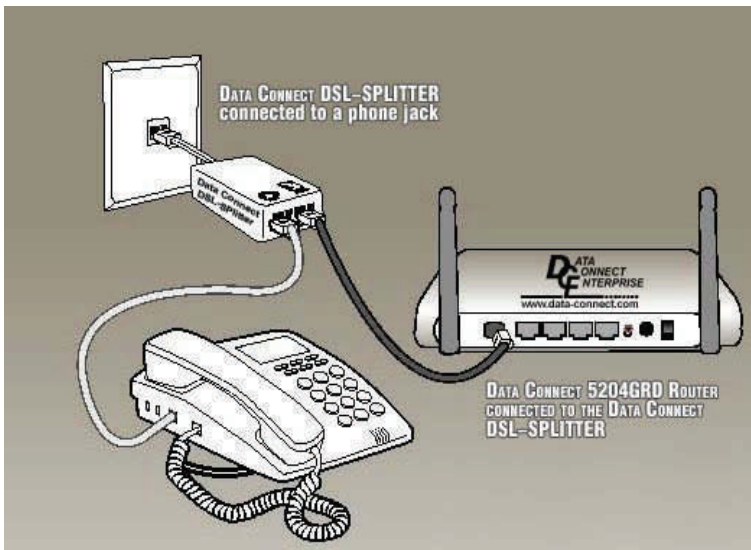
SPECIFICATIONS

POST PORT IMPEDANCE		Zr=600Ω
Modem impedance	25 kHz to 2208 kHz	100Ω
Insertion loss	@ 1004 Hz	<0.3dB
with 5 filters	200Hz to 3.4 kHz	<2.5dB
	3.4 kHz to 4 kHz	<4dB
Attenuation distortion	200 Hz <f <3.4 kHz	0.3dB
between 600 ohms resistive single filter relative to 1004 Hz	3.4 kHz to 4 kHz	<0.75dB
Return loss	SRL-L	>=30dB
	ERL	>=17dB
	SRL-H	>=20dB
with 5 filters	SRL-L	>=25dB
	ERL	>=15dB
	SRL-H	>=7.0dB
Longitudinal conversion loss LCL	200 Hz to 1 kHz	>58 dB
	1kHz to 3 kHz	>53 dB
DC resistance		>12Ω
Delay distortion	200Hz to 4 kHz	<100 u sec
Isolation resistance	Tip to Ring	>10MΩ
Stop band attention	30 kHz <f<300 kHz	>26 dB
	300 kHz<f<2208 kHz	>65dB

ORDERING INFORMATION

DCE DSL-SPLITTER	DSL SPLITTER
DCE DSL-SPLITTER-25PK	DSL SPLITTER 25-PACK
DCE DSL-SPLITTER-50PK	DSL SPLITTER 50-PACK
DCE DSL-SPLITTER-100PK	DSL SPLITTER 100-PACK
DCE DSL-SPLITTER-250PK	DSL SPLITTER 250-PACK
DCE DSL-SPLITTER-500PK	DSL SPLITTER 500-PACK

MODEL	VOLTAGE	MAX SPEED	ETHER.	FIBER	STAND ALONE	RACK MOUNT	WALL MOUNT	PHOTO	PAGE
48V-POEI	48VDC	100MBITS	X		X				50
48V-POEI-GB	48VDC	1GIGABIT	X		X				51
DCE/48V-ATA1000	48VDC	100MBITS	X		X				52, 53
DCE/POEI-12PH	48VDC	100MBITS	X		X	X			54
DCE/48V-POF-GB	48VDC	1GIGABIT	X	X	X				55
DCE 60V-POE	UP TO 60VDC				X				56, 57

802.3af Standards A and B				
PINS on Switch	10/100 DC on Spares (mode B)	10/100 Mixed DC & Data (mode A)	1000 (1 Gigabit) DC & Bi-Data (mode B)	1000 (1 Gigabit) DC & Bi-Data (mode A)
Pin 1	Rx +	Rx + DC +	TxRx A +	TxRx A + DC +
Pin 2	Rx -	Rx - DC +	TxRx A -	TxRx A - DC +
Pin 3	Tx +	Tx + DC -	TxRx B +	TxRx B + DC -
Pin 4	DC +	unused	TxRx C + DC +	TxRx C +
Pin 5	DC +	unused	TxRx C - DC +	TxRx C -
Pin 6	Tx -	Tx - DC -	TxRx B -	TxRx B - DC -
Pin 7	DC -	unused	TxRx D + DC -	TxRx D +
Pin 8	DC -	unused	TxRx D - DC -	TxRx D -

IN This Section

The Technology

Power over Ethernet or PoE passes electrical power safely along with data on Ethernet cabling. The original IEEE 802.3af PoE standard provides up to 15.4 Watts of DC power (minimum 44VDC and 350mA) to each device. The updated IEEE 802.3at PoE standard also known as PoE+ provides up to 25.5 Watts of DC power.

PoE requires Category 5 cable or higher for high power levels, but can operate with Category 3 cable for low power levels. PoE utilizes (pins 4 & 5) or (pins 7 & 8) for DC voltage. A Power over Ethernet injector injects DC Voltage to power equipment while simultaneously supplying data to the same piece of equipment.

The Power over Ethernet technology is especially useful for powering IP telephones, wireless LAN access points, IP cameras with pan tilt and zoom (PTZ), remote Ethernet switches, embedded computers, thin clients, and LCDs.

At Data Connect, we offer a wide range of products to suite your network needs. We can assist you in finding a solution that maximizes your investment while providing optional network design to benefit your customers both now and for years to come. With the ability to reuse and preserve the current infrastructure at your customer's locations, Power over Ethernet technology is a wise choice for providing IP services to your customers.

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DCE 48V-POEI

The Data Connect 48V-POEI is a 802.3af Power Over Ethernet PoE Injector that works with any and all access point that are also 802.3af PoE complaint. The 48V POEI is self contained with both a power over Ethernet PoE injector adapter and a power supply all in one, this makes it much easier to deal with when keeping a clean cable room. The 48V-POEI also has 100/240VAC support and supplies 48VDC to all units.

The Data Connect 48V-POEI Power over Ethernet PoE Injector Adapter puts power over pairs 4, 5, and 7, 8. This unit can also be used with Cisco PoE equipment using an altered Pin Out on the RJ-45 cable. The 48V-POEI also provides Auto-Recover, Over-Voltage and Short Circuit protec-

FEATURES

19 watts
CISPR 22'B, VCC 'B', FCC 'B' compliances
Light Weight: 145g
Efficiency over 75%
Over-voltage protective installation
Short-circuit protective installation
Protection type: auto recover
802.3af standard
Operating temperature, 0ºC - 40ºC

DATA_IN & P+ DATA_OUT PIN DEFINITION

Pin	Input SK1	Output SK2
1	Tx (+)	Tx (+)
2	Tx (-)	Tx (-)
3	Rx (+)	Rx (+)
4	N.C	+48 V
5	N.C	+48 V
6	Rx (-)	Rx (-)
7	GND	GND
8	GND	GND
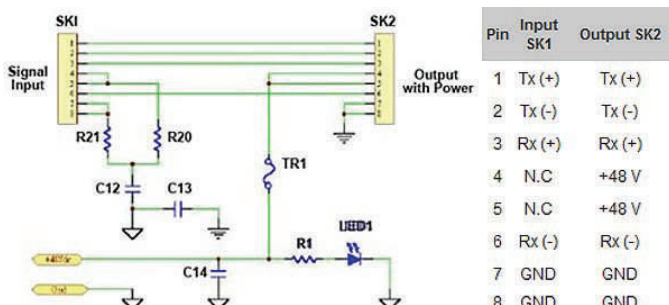
ORDERING INFORMATION

DCE/48V-POEI   **48VDC POWER over ETHERNET**

SPECIFICATIONS

Output voltage	48v
Output rating	0.4 A
Input voltage	90 - 264 VAC
Input frequency	47 & 63 Hz
Input current	0.5 A maximum
Inrush current	40 A maximum
Line regulation	2% maximum
Load regulation	±5%
Ripple and noise	1% typical
Efficiency	83% typical
Temperature coefficient	0.05% / ºC
Over-voltage coefficient	96 V maximum
Operating temperature	0 – 40ºC
Storage temperature	-20 - 85ºC
Safety description	I/P

DCE 48V-POEI-GB

The DCE 48V POEI – GB is an IEEE 802.3af power over Ethernet Injector which provides DC 48V over the Ethernet cables. The DCE 48V POEI – GB IEEE 802.3af power over Ethernet Injector inserts DC voltage into Cat.5 cable, allowing the cable between the injector (DCE 48V – POEI – GB) and splitter is 100 meters. The DCE48V - POEI – GB combines the Ethernet digital data with power over the twisted pair of cables as an IEEE 802.3af power over Ethernet Injector. The IEEE802.3af power over Ethernet splitter separates the digital data and the power into two outputs.

Unlike existing power over Ethernet Injectors, the DCE 48V – POEI – GB also provides **1000 Mbps Gigabit Ethernet connection** ability, as well as the 10 / 100 Mbps Fast Ethernet connection ability.

With IEEE.3af Power over Ethernet devices installed, the system administrator only has to use a single RJ-45 Ethernet cable to carry both power and data to each device. Additional benefits include cost saving, ease of networking planning and high network reliability. The DCE 48V -POEI-GB makes network connection while migrating or splitting the power and the Ethernet digital packets. This allows the DCE 48V-POEI-GB to connect to any IEEE 802.3af compliant device AP or IP phone.

FEATURES

Compliant with IEEE 802.3-10BaseT, IEEE 802.3u, 100BaseTX, IEEE 802.3ab – 1000BaseTX, and IEEE 802.3z, 1000BaseSX/LX Gigabit Ethernet Standards

One 10/100/1000BaseTX TP Port and one 1000Base SX/LX Ethernet Fiber Port providing one gigabit SFP open slot.

Compliant with IEEE-802.3af

Compliant with IEEE-802.3x flow control and back pressure

TP Port can support Half/Full-Duplex, Auto-MDI/MDI-X and Auto-Negotiation

Diagnostic LED Indications, Link/Act: 1000M, POE and Power Safety & EMI Certificates: CE & FCC

Smart plug & play

ORDERING INFORMATION

DCE/48V-POEI   48VDC GIGABIT POWER over ETHERNET

SPECIFICATIONS

STANDARDS
IEEE 802.3AB 1000BASE
IEEE 802.3Z 1000 BASESX/LX
IEEE 802.3X FLOW CONTROL

IEEE 802.3AF
FEATURES
NUMBER OF PORTS:
1 1000BaseT withRJ-45 Connector
1 1000BaseSX/LX with fiber SFP Slot
DATA TRANSFER RATE
2000Mbps/full duplex
TRANSMISSION MEDIA
TP: 1000Base T Cat. 5, 5E, 6 UTP/STP, up to 100 m
1000Base SX:
50/125μm Multi Mode Fiber optic cable, up to 220 m 62.5/125μm Multi Mode Fiber optic cable up to 550 m
1000BaseLX:9/125μm Single Mode Fiber optic cable
LED INDICATORS
Per port:
(TX): Link, TX
(FX): Link, RX
Per Unit: Power, Link/ACT, 1000M, PoE
POWER SUPPLY
18 watts
POWER CONSUMPTION
3 Watts (MAX)

DCE ATA-1000

Based on the flexible VoIP technology platform, the Data Connect DCE ATA-1000 Analog Telephone Adapter products are standards-based SIP (RFC 3261) communication devices. The DCE ATA-1000 is widely deployed by VoIP providers of the emerging VoIP managed voice services. The DCE ATA-1000 also supports the most popular local services market to ensure the compatibility and IP devices cost-effectively.

The DCE ATA-1000 is easy to install and simple to use and eliminates the time and effort associated with complicated installation procedures. The DCE ATA-1000 supports Web-based configuration, TFTP Auto-Provisioning, and TFTP Auto-Firmware up-grade. The ATA-1000 offers an enhanced traditional telephony communication services to home users via the existing broadband connection in the Internet or corporation network with very low cost.

With the DCE ATA-1000, SOHO users are able to save the installation cost and extend their past investments of telephones, conference and speaker-phones. The DCE ATA-1000 can be bridged between traditional analog systems and the IP network with an extremely affordable investment.

FEATURES

-Feature-rich telephone service over home Internet / Intranet   connection
-Cost-effective, easy-to-use solution for Analog Telephone Adapter
-Web-based utility and machine configuration
-Remote administrator authentication
-SIP 2.0 (RFC3261) compliant
- G.729a and G.711 voice codec
-Auto-provisioning
-STUN for NAT traversal
-DHCP / PPPoE / Fixed IP allocation
-SIP proxy / Peer-to-Peer communications
-VAD / CNG / Echo Cancellation / DTMF tone detection and regeneration

ORDERING INFORMATION

DCE/ATA-1000   Analog Telephone Adapter

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SPECIFICATIONS

LAN: One 10/100Mbps RJ-45 port
FXS: One RJ-11 connection
STANDARD:
SIP 2.0 (RFC3261), STUN (RFC 3498), UPnP, MDS for SIP authentication (RFC 2069 / 2617)
VOICE CODEC: G.729a, & G.711
VOICE SANDARDS:
Voice activity detection (VAD)
Comfort noise generation (CNG)
G.168: Line Echo canceller (LEC)
Jitter Buffer
DTMF Detection & Generation
In-Band & Out-of-Band (RFC 2833), (SIP INFO)
PROTOCOLS:
TCP/IP, UDP, DHCP, RTP, HTTP, ICMP, ARP, DNS, TFTP, PPP, PPPoE
ACCESS MODE: Static IP, DHCP, PPPoE
MANAGEMENT: Web, Utility, Auto-provisioning (TFIP)
DIMENSION (W x D x H): 73 x 55 x 24mm
OPERATING ENVIRONMENT: 0-40ºC
RELATIVE HUMIDITY: 10-95%
POWER REQUIREMENT: 5VDC
EMC / EMI: CE, FCC Class B

APPLICATION NEXT PAGE ——-————>

DCE ATA-1000 APPLICATION
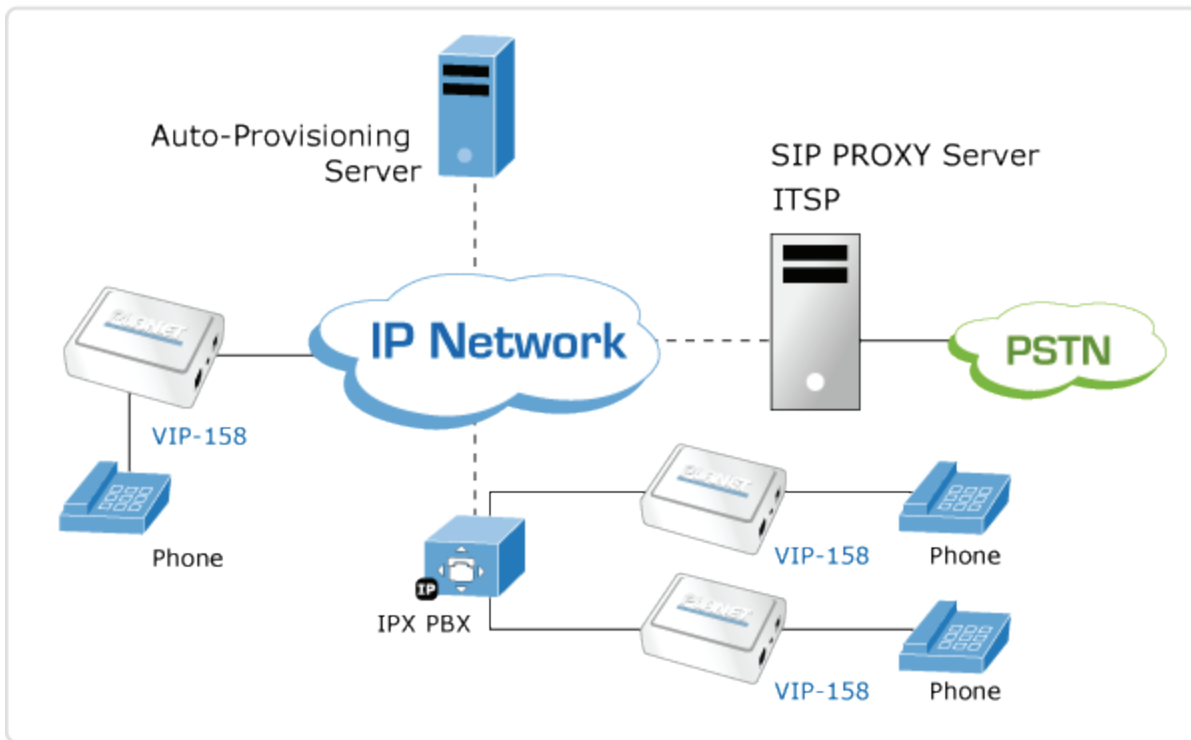
DEC 48POEI-12PH APPLICATION

53
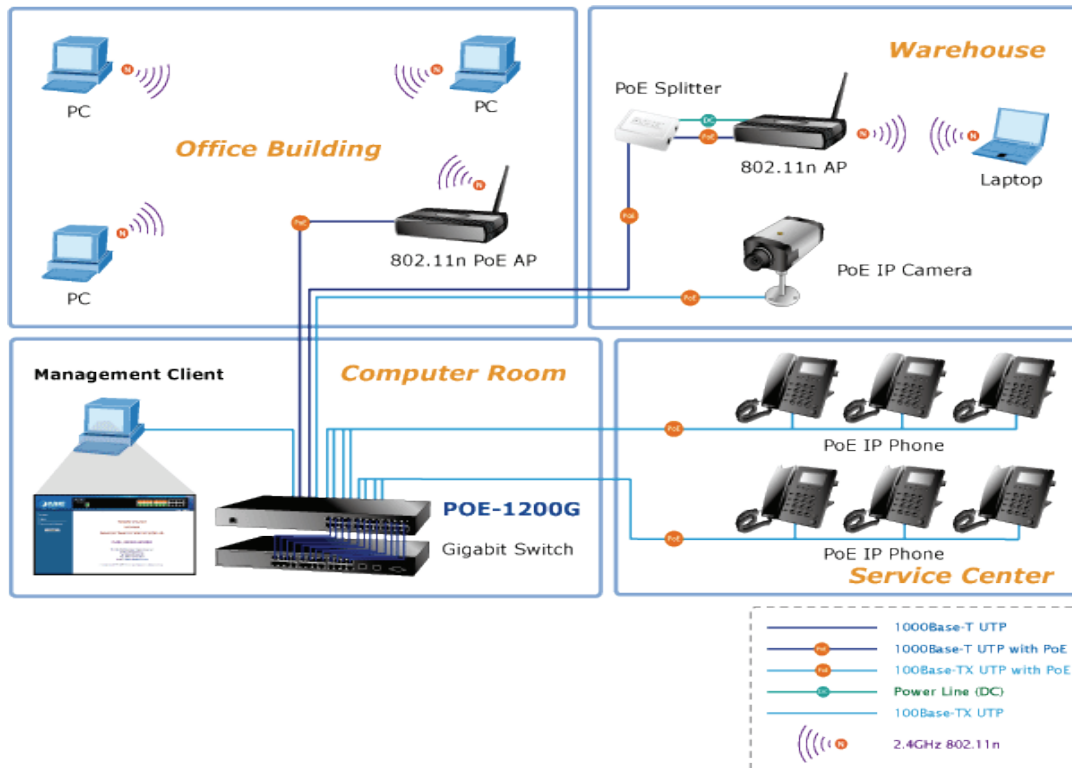
The Data Connect DCE 48V POEI-12PH is 12-Port IEEE 802.3af Power over Ethernet Web Management injector Hub and complies with the IEEE 802.3, IEEE 802.3u and IEEE 802.3af standards. With 12 10/100Base-TX Fast Ethernet ports, DCE 48V POEI-12PH support full 48V DC power for any remote IEEE 802.3af powered device (PD) like Wireless LAN Access Point, IP phone and IP Camera. Supporting PoE power budget of 190 watts, DCE 48V POEI-12PH provides sufficient 15.4 watts PoE power to 12 remote PD devices.

The DCE 48V POEI-12PH is installed between a regular Ethernet Switch and the powered devices, injecting power without affecting the data transmission. They offer a cost effective and quick solution to upgrade network system to IEEE 802.3af Power over Ethernet system without replacing the existing Ethernet switch. There are 24 RJ-45 STP ports on the front panel of PoE Injector Hub, in which the 12 ports on the lower stack function as "Data Input" and the other 12 ports on the upper stack function as "PoE (Data and Power) output". Each of the "PoE output" port on the upper stack operates as a power injector which transmits DC Voltage to the CAT5 cable so as to transfer data and power simultaneously between the Injector and Splitter.

To efficiently manage the powered devices, DCE 48V POEI-12PH provide Web management interface in which administrators can use the functions including port Enable/Disable, port priority, system configuration, and Username/Password changing and with smart features for powered device. The PoE injector hub can auto-detect the power status of each port and show massages on its Web management interface. These features also provide a cost-effective way to manage the device via from Internet whenever you are at work or home.

KEY FEATURES

INTERFACE:
24-Port RJ-45 STP
12-Port "Data input"
12-Port "PoE (Data + Power) output"
1 10/100Base-TX Management port with Auto MDI / MDI-X feature
POE:
Complies with IEEE 802.3af Power over Ethernet Mid-Span PSE
Up to 12 IEEE 802.3af devices powered
Support PoE Power up t 15.4 watts for each PoE ports
Auto detect powered device (PD)
Circuit protection prevent power interference between ports
Remote power feeding up to 100m
POE MANAGEMENT:
Total PoE power budget control
Pert port PoE function enable/disable
PoE Port Power feeding priority
Per PoE port power limit
PD classification detection
MANAGEMENT:
Web interface for remote management
Firmware upgrade through Web interface
Smart Discovery utility automatically finds DCE devices n the network
SNMP Trap for alarm notification of events
HARDWARE:
19-inch rack mountable; 1U height
Reset button for reset to default setting and system reboot
LED indicators for PoE ready and PoE activity
STANDARD COMPLIANCE:
IEEE 802.3 10Base-T
IEEE 802.3u 100Base-TX
IEEE 802.af Power over Ethernet
FCC Part 15 Class A, CE

SPECIFICATIONS

INTERFACE:
"Data" Input Ports: 12 x RJ-45 STP
"PoE (Data + Power)" Output Ports: 12 x RJ-45 STP
MANAGEMENT PORT: 1 x RJ-45; 0/100Base-TX, auto negotiation, auto-MDI / MDIX
LED: System: Power x 1 (Green)
MANAGEMENT PORT 2X:
10/100 (Green/Orange)
Per PoE Port: PoE in Use x 1 (Green)
NETWORK CABLE:
10Base-T: 2-Pair UTP Cat 3, 4, 5, up to 100m (328ft)
100Base-TX: 2-Pair UTP Cat, 3, 4, 5, up to 100m (328ft)
EIA/TIA-568 100-ohm STP (100m)
DIMENSION (W x D x H): 440 x 200 x 44 mm (1U height)
WEIGHT: 7.2kg
POWER REQUIREMENT: 100-240V AC, 50/60 Hz
POWER CONSUMPTION: 200 watts max
OPERATING TEMPERATURE: 0 - 50ºC
STORAGE TEMPERATURE: -40 - 70ºC
HUMIDITY: 5 - 95% (Non-condensing)
COOLING: Fan x 1
POE STANDARD: IEEE 802.3af Power over Ethernet / Mid-Span PSE
POE POWER SUPPLY TYPE: Mid-Span
POE POWER OUTPUT: Per Port DC 48V 15.4 Watts
POWER PIN ASSIGNMENT: 4/5(+) 7/8(-)
POE POWER BUDGET: 190 Watts
POE MANAGEMENT:
Power Limit by Priority and Total Limit
Per port power enable/disable
Power feeding priority
Current usage and status
Total power consumption
MANAGEMENT FEATURE:
System/Management functions setup
Web firmware upgrade
SNMP Trap for alarm notification of events
STANDARDS COMPLIANE:
IEEE 802.3 10Base-T Ethernet
IEEE 802.3 100Base-TX Fast Ethernet
IEEE 802.3af Power over Ethernet
REGULATION COMPLIANCE: FCC Part 15 Class A, CE

ORDERING INFORMATION

DCE/48V-POEI-12PH   48V POE INJECTOR 12 PORT

DCE 48V-POF-GB

DCE/48VPOF-GI

The DCE 48V POFI – GB is an IEEE 802.3af cables. The DCE 48V POFI – GB IEEE 802.3af power over Ethernet Injector inserts DC voltage into Cat.5 cable, allowing the cable between the injector (DCE 48V – POFI – GB) and splitter is 100 meters. The DCE48V - POFI – GB combines the Ethernet digital data with power over the twisted pair of cables as an IEEE 802.3af power over Ethernet Injector. The IEEE802.3af power over Ethernet splitter separates the digital data and the power into two outputs.

Unlike existing power over Ethernet Injectors, the DCE 48V – POFI – GB also provides 1000 Mbps Gigabit Ethernet connection ability, as well as the 10 / 100 Mbps Fast Ethernet connection ability.

With IEEE.3af Power over Ethernet devices installed, the system administrator only has to use a single RJ-45 Ethernet cable to carry both power and data to each device. Additional benefits include cost saving, ease of networking planning and high network reliability. The DCE 48V-POFI-GB makes network connection while migrating or splitting the power and the Ethernet digital packets. This allows the DCE 48V-POFI-GB to connect to any IEEE 802.3af compliant device AP or IP phone.

FEATURES

Compliant with IEEE 802.3-10BaseT, IEEE 802.3u, 100BaseTX, IEEE 802.3ab – 1000BaseTX, and IEEE 802.3z, 1000BaseSX/LX Gigabit Ethernet Standards
One 10/100/1000BaseTX TP Port and one 1000Base SX/LX Ethernet Fiber Port providing one gigabit SFP open slot.
Compliant with IEEE-802.3af
Compliant with IEEE-802.3x flow control and back pres sure
TP Port can support Half/Full-Duplex, Auto-MDI/MDI-X and Auto-Negotiation
Diagnostic LED Indications, Link/Act: 1000M, POE
Power Safety & EMI Certificates: CE & FCC

SPECIFICATIONS

STANDARDS
IEEE 802.3AB 1000BASE
IEEE 802.3Z 1000 BASESX/LX
IEEE 802.3X FLOW CONTROL

IEEE 802.3AF
FEATURES
NUMBER OF PORTS:
1 1000BaseT withRJ-45 Connector
1 1000BaseSX/LX with fiber SFP Slot
DATA TRANSFER RATE
2000Mbps/full duplex
TRANSMISSION MEDIA
TP: 1000Base T Cat. 5, 5E, 6 UTP/STP, up to 100 m
1000Base SX:
50/125µm Multi Mode Fiber optic cable, up to
220 m 62.5/125µm Multi Mode Fiber optic
cable up to 550 m
1000BaseLX:9/125µm Single Mode Fiber optic cable
LED INDICATORS
Per port:
(TX): Link, TX
(FX): Link, RX
Per Unit: Power, Link/ACT, 1000M, PoE
POWER SUPPLY
18 watts
POWER CONSUMPTION
3 Watts (MAX)
DIMESIONS

WEIGHT
50g
OPERATION TEMPERATURE
0 to 60ºC
STORAGE TEMPERATURE
-20 TO 90ºC
HUMIDITY
10 to 90% RH (non condensing)
CERTIFICATIONS
FCC Class A, CE

DCE/48VPOF-GB
DCE/48VPOF-GB
IP CAMERA
IP WIRELESS AP
FIBER PATCH PANEL
IP Phone Phone Phone
PC WORK STATIONS
— PoE (Data + Power) — Ethernet (Data)

ORDERING INFORMATION

DCE/48V-POF-GB 48V POE GB INJECTOR OVER FIBER

The Data Connect Surge Protected Registered Jacks protect devices against a wide range of transient surges from any source including lightening induced transient surges and the frequent daily sags in electricity that are followed by transient surges induced when the electricity is restored to the original level. Most dangerous surges are incidental in nature and can be attributed to: turning on the florescent lights, microwave, toaster oven, space heaters, computers, and machinery; and use of printers, copiers, and or faxes. Of course the more obvious is manufacturing and welding shops on your electrical grid, restoration of power, and lightening.

Unfortunately, transient surges can enter communication equipment and inflict damage through any connection, not just the AC power lines. Facilities with reliable AC power protectors can still experience surge-related downtime. The transient AC surges are clamped to the shared common ground that can result in damage to expensive communication hardware; as these surges pass through other grounded connections and into sensitive electronic equipment, particularly network communication equipment.

The DCE SPRJ series of Surge Protected Registered Jacks cover a broad range of infrastructure requirements. From single-line dial-up devices to Category 6 Ethernet devices, the DCE SPRJ series of surge protectors can insure that your infrastructure is protected.

FEATURES

-Compact form factor
-Extremely fast 5 nanoseconds response time
-High Energy handling capability
-Ability to protect almost all devices that transmits data over copper

ORDERING INFORMATION

DCE/60V-POE 60 VOLT POE SURGE SUPPRESSOR

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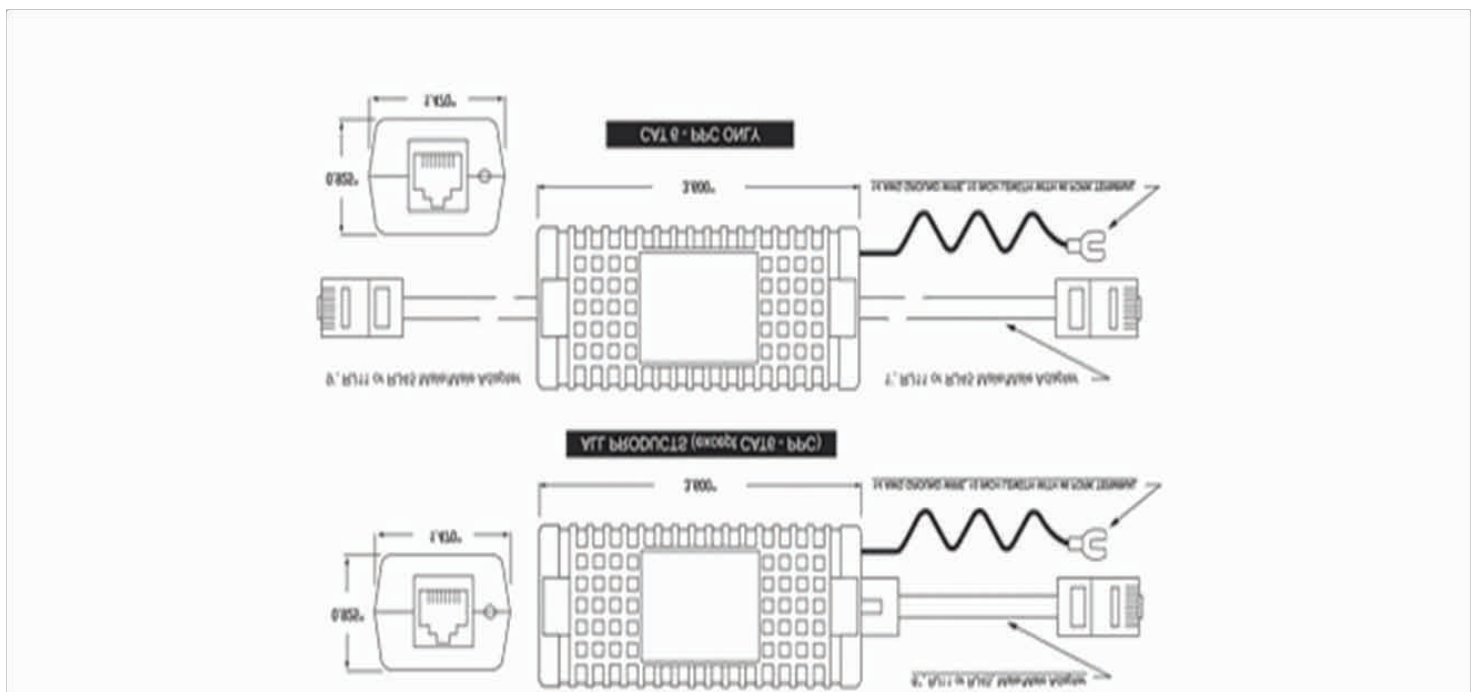
SPECIFICATIONS

	10 BASE T RS422, RS423	100 BASE T ETHEER-NET CAT5/5E	1000 BASE T ETHERNET CAT 6	POWER OVER ETHERNE T (MODE A)	POWER OVER ETHERNET (MODE B) PINS 1, 2, 3, & 6 -7.5 VOLTS	RS232	DIGITAL ISDN DDS, T1/E1 CSU/ DSU, DSL	ANALOG DIAL-UP / MODEM, FAX
STD CLAMP VOLTAGE	7.5 VOLTS	12 VOLTS	7.5 VOLTS	60 VOLTS	PINS 1, 2, 3, & 6 -60 VOLTS	18 VOLTS	60 VOLTS	246 VOLTS
PEAK PULSE CURRENT 10/1000 US S.C. WAVE-FORM @Vcl	132 AMPS	97 AMPS	100 AMPS	50 AMPS	PINS 1, 2, 3, & 6 -132 AMPS	60 AMPS	50 AMPS	75 AMPS
RESPOSE TIME	<5 NANO-SECONDS	<5 NANO-SECONDS	<5 NANO-SECONDS	<5 NANO-SECONDS	<5 NANO-SECONDS	<5 NANO-SECONDS	<5 NANO-SECONDS	<5 NANO-SECONDS
MAXIMUM SHUNT CA-PACITANCE	<40pF	<25pF	MTJ C6 <8pF CAT 6 -PPC <5pF (DEVICE ONLY)	<75pF	<25pF (ETHERNET LINES ONLY)	<40pF	<75pF	<95pF

ORDERING INFORMATION

DCE/SPRJ-08E/RJ45	10BASE T ETHERNET, 8 WIRE, ALL PINS
DCE/SPRJ-04E/RJ45	10BASE T ETHERNET, WIRES 1, 2, 3, AND 6 PROTECTED
DCE/SPRJ-C5E/RJ45	100BASET ETHERNET, 8 WIRE, ALL PINS
DCE/SPRJ-045-C/RJ45	RS422, 4 WIRE, 4 CENTER PINS
DCE/SPRJ-08E/RJ45	RS422, 8 WIRE, ALL PINS
DCE/SPRJ-04T/RR45	RS232, 4 WIRE,4 CENTER PINS
DCE/SPRJ-08T/RJ45	RS232, 8 WIRE, ALL PINS
DCE/SPRJ-ISDN	CSU/DSU OR ISDN, 4 WIRE, 4 CENTER PINS
DCE/SPRJ-DIGITAL	CSU/DSU, DIGITAL, OR T1, 8 WIRE, ALL PINS
DCE/SPRJ-DDS	DDS WIRES 1, 2, 7, 8 PROTECTED
DCE/SPRJ-T1	T1, PINS 1, 2, 4, 5 PROTECTED
DCE/SPRJ-08G/RJ45	DIA-UP MODEM / FAX, 8 WIRE, ALL PINS
DCE/SPRJ-C6/RJ45	1000BASE T ETHERNET, CAT6, 8 WIRE, ALL PINS
DCE/SPRJ-POE-A	**POWER OVER ETHERNET, (MODE A) 8 WIRE, ALL PINS 48,24, 12VDC**
DCE/SPRJ-POE-B	**POWER OVER ETHERNET, (MODE B) 8 WIRE, ALL PINS 48, 24, 12VDC**
DCE/SPRJ-04E-RJ11	RS422/423, 4 WIRE, 4 CENTER PINS
DCE/SPRJ-06E-RJ11	RS422/423, 6 WIRE, ALL PINS
DCE/SPRJ-DSL	DSL, 6 WIRE, ALL PINS
DCE/SPRJ-02G/RJ11	DIA-UP MODEM / FAX, 2 WIRE, 2 CENTER PINS
DCE/SPRJ-04G/RJ11	DIA-UP MODEM / FAX, 4 WIRE, 4 CENTER PINS
DCE/SPRJ-06G/RJ11	DIA-UP MODEM / FAX, 6 WIRE, ALL PINS

DIAL LINE & DEMARC EXTENSION CHART

MODEL	VOLT-AGE	MAX SPEED	T1	E1	T3	E3	STA-TION	STAND-ALONE	RACK-MOUNT
FIBER-TEL	100-240VAC	64 KBPS					√	√	√
FIBER-TEL/FAX	100-240VAC	14,4KBPS					√	√	√
FIBER-TEL/DIAL	100-240VAC	14.4KBPS					√	√	√
COPPER-T	100-240VAC	1.544 MBPS	√					√	
COPPER-E	100-240VAC	2.048 MBPS		√				√	
FIBER-T	100-240VAC	1.544 MBPS	√					√	√
FIBER-E	100-240VAC	2.048 MBPS		√				√	√
QUADFIBER-T	100-240VAC	6.176 MBPS	√					√	√
QUADFIBER-E	100-240VAC	8.192 MBPS		√				√	√
FIBER-T3	100-240VAC	45 MBPS			√				√
FIBER-E3	100-240VAC	34 MBPS				√			√
RM20UI	100-240VAC	CHASSIS	√	√					
RM16UI	100-240VAC	CHASSIS	√	√			√		
RM1UI	100-240VAC	CHASSIS			√	√			

DIAL LINE & DEMARC EXTENSION SOLUTIONS

In This Section

The Technology

In recent years it has become apparent that fiber-optics are steadily replacing copper wire as an appropriate means of communication signal transmission. They extend the long distances between local phone systems as well as providing the backbone for many network systems. Other system users include cable television services, university campuses, office buildings, industrial plants, and electric utility companies.

A fiber-optic system is similar to the copper wire system that fiber-optics is replacing. The difference is that fiber-optics use light pulses to transmit information down fiber lines instead of using electronic pulses to transmit information down copper lines. Looking at the components in a fiber-optic chain will give a better understanding of how the system works in conjunction with wire based systems.

At one end of the system is a transmitter. This is the place of origin for information coming on to fiber-optic lines. The transmitter accepts coded electronic pulse information coming from copper wire. It then processes and translates that information into equivalently coded light pulses. A light-emitting diode (LED) or an injection-laser diode (ILD) can be used for generating the light pulses. Using a lens, the light pulses are funneled into the fiber-optic medium where they travel down the cable. The light (near infrared) is most often 1,300nm on Multi-mode fiber and 1300nm for single-mode fiber and 1,500nm is used for longer extensions.

In fiber optic communications, wavelength-division multiplexing (WDM) is a technology which multiplexes a number of optical carrier signals onto a single optical fiber using different wavelengths (colors) of laser lights. This technique enables bidirectional communications over one strand of fiber, as well as multiplication of capacity.

At Data Connect, we offer a wide range of products to suite your network needs. We can assist you in finding a solution that maximizes your investment while providing the solutions that will benefit your customers both now and for years to come. With the ability to use copper or fiber at your customer's locations, Dial Line & DEMARC extension becomes a wise choice and made easy.

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DCE FIBER TEL / FAX / DIAL

DCE/Fiber-Tel is a fiber dial line and telephone converter extender that is used to connect PSTN voice, fax and modem signals to distant Plain Old Telephone (POTS) devices such as analog phones, faxes, and dial modems. DCE/Fiber-Tel is required to implement an end to end system. FXS mode is the reciprocal unit and has ability to act as PSTN and connects to a telephone device. When the DCE/Fiber-Tel card is placed in the DCE/RM16 rack with SNMP management, in-band management allows viewing the card and remote converters status, type, version, fiber link status, on hook status and alarms. Both card and remote can be configured to enable or disable the port, reset the port and set the FXO (CO) and FXS (CPE) mode.

FEATURES

Extend voice, fax and modem transmission from 2km to120km over fiber
Network management via terminal, web or SNMP in
DCE/RM20 chassis
Supports telephone voice transmission
Support caller ID pass through
Selectable FXO or FXS mode
Supports FXS to FXS hot line

APPLICATIONS

Loop Extender Application
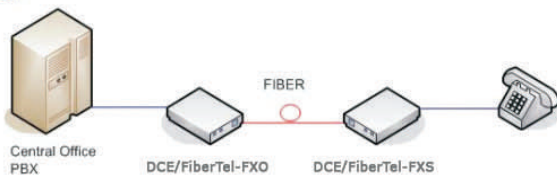
Automatic Ring Down Application
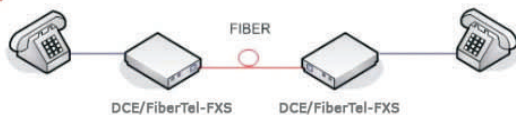
SPECIFICATIONS

Connector:	1x (SC, ST, FC) or SFP LC
Cable Type:	MM 62.2/125µm, 50/125µm.
	SM 9/125µm
Cable Length:	MM 2km,
	SM 15/30/50/80/120km
	WDM 20/40/60/80km
Wavelength:	MM1310nm, SM 1310
	1550nmRx WDM
	1310Tx/1550Rx (type A),
	1550Tx/1310Rx (type B)
Connector:	RJ-11
Impedance:	600 ohms
Coding:	16bits liner
loop Current:	10~100mA
Ring Frequency:	Acceptable 20~50Hz
Insertion Loss:	0.0 ± 1.0db at 1000Hz
Impedance:	600 ohms
Coding:	16bits liner
Dial:	DTMF and Dial Paul
Battery source:	48VDC ±4V
Ringing Waveform: Sine Wave
Ringing Frequency: 20/25/30/50 Hz selectable
FXS to FXs:	On/1 sec, off /2 sec
FXO to FXS:	Reproduces the cadence detected by FXO Insertion Loss: 0.0±1.0dB at 1000Hz
REN:	4.0B (Ring Equivalence Number)
LEDs:	Power, FX Link, Phone Act, Test
Power:	DC in 12V
Power Consumption: <5W
Dimensions:	155 x 88 x 23 (D x W x H) mm
Weight:	120g
Temperature:	0~50˚C (operation), 0~70˚C (storage)
Humidity :	10~90% non condensing
Certification:	CE, FCC, LVD, and RoHS

ORDERING INFORMATION

DCE/FIBER-TEL   Fiber Telephone Line Extension
DCE/FIBER-TEL/FAX   Fiber Fax Line Extension
DCE/FIBER-TEL/DIAL Fiber Dial Modem Extension

DCE COPPER-T

The Data Connect Copper-T and Copper-E are 4-wire repeaters for use on customer owned lines or to extend telephone company demarcs. The Extenders are used to extend in-house T1 and E1 lines in campus and high rise environments.

Each pair of T1 and E1 Extenders may be located up to 5000 feet apart. The Extenders circuitry is rated to -36 dB dynamic range the T1 rate of 1.544 Mbps and -43 dB dynamic range at an E1 rate of 2.048 Mbps.   As implemented, the parts are slightly de-rated to provide long life at extended temperature range. Therefore the distances specified in this document are only 5000 feet solid copper 22 AWG, two twisted pair is the preferred cable for connection between the Extenders. Connection to the Extenders is made through RJ-45 modular connectors or 4-wire screw down barrier stripes. Each Extender come standard with two screws down barrier strips and one RJ-45 connector. If only RJ-45 connections are desired extra RJ-45 adaptors (part number 9502122) can be ordered.

The DCE Copper-T and Copper-E are powered by a small wall-mount transformer. The Extenders are designed for connections between T1 equipment such as PBXs, T1/E1 multiplexers, T1/E1 line drivers, CSUs, routers or any other T1/E1 equipment requiring long customer owned cable runs. The T-Extenders/ E-Extenders are transparent to the type of data sent over the T1/E1

The T-Extenders are most often used in pairs to extend a telephone company demarc. For example, if a CSU or DSU is limited at 655 feet and is connecting to a phone company smart jack demarc which is limited to 655 feet, the T-Extenders are used in pairs to extend that distance up to 5000 feet.

SPECIFICATIONS

GENERAL
T1 repeater or E1 repeater
Extends T1 or E1 bi-polar signals
Up to 5000 feet between T-extenders
Up to 4000 feet between E-extenders
INDICATORS
Power
ACCESSORIES
RJ-45 wiring adaptor p/n 9502122
Customer to demarc RJ-45 cable p/n 9500095
Customer to customer RJ-45 crossover cable p/n 9500099
Rack shelf, 1 U for 1 to 3 T1/E1
EXTENDERS
20 slot, 4U high 19" rack mount chassis
PHYSICAL / ELECTRICAL
5.5" x &.5 x 1.5"
100 ohm T1, 120 ohm E1 interface
2 lbs including wall transformer
120 VAC external wall transformer supply
Optional 220 VAC, 12, 24, 48, 125 VDC 30 ma
Operating Temperature: -40˚C to +70˚C
Operating Humidity: <98% non- considering
WIRE
Two twisted pair solid copper
other types will affect operational distance
CONNECTORS
RJ-45 modular 8-conductor connectors
       Pin 1 = Receive
       Pin 2 =Receive
       Pin 4 =Transmit
       Pin 5 =Transmit
4-Wire barrier strip
       Pin 1 = Receive
       Pin 2 =Receive

FEATURES

Extend Phone Company Demarc
T1 or E1 4-wire repeater
Extends T1 or E1 lines
Up to 5000 feet between units
RJ-45 or screw down connectors
Simple connection to 4-wire circuits
Inexpensive solution to long cable runs
120/220 VAC, 12, 24, 48, or 125 VDC available
1U high rack mountable, 1, 2, or 3x19" rack
20 slot rack chassis option

Connect the transmit pair of one extender to the receive pair of the other extender. Pairs are not polarity sensitive. Units supplied with 2 screw downs, 1 RJ-45.

Note! This product is NOT for 10BaseT or Ethernet

ODERING INFORMATION

DCE/COPPER-T   **T-1 Copper Extender**
DCE.COPPER-E   **E1 Copper Extender**

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DCE FIBER-T/E

The DCE/Fiber-E is a media E1 extender for G.703 transmission. The BNC model provides unbalanced 75 Ohm coaxial connections while the RJ-45 model provides balanced 120 Ohm connections over twisted pair wiring. The DCE/Fiber-T is a fiber media T1 extender for G.703 T1 transmission and features an RJ-45 connector for connection to 100 Ohm twisted pair wiring. When the DCE/Fiber-T/E card is placed in the DCE/Fiber-T/E-SA-KIT with SNMP management the card status, type, version, fiber link status, E1 or T1 link status and alarms can all be displayed. Configuration is also available to enable or disable the port, reset the port, do far end fault setting, and initiate local or far end loop-back tests.

FEATURES:

Network management via Terminal or SNMP in FRM301 Chassis
T1/E1 RJ-45(USOC RJ-48C) or Coax (BNC) to Fiber Converter
Support AMI or B8ZS/HDB3 line codes
Unframed (transparent clear channel)
User selectable line code setting
Far End Fault (FEF) setting
Loop back test

SPECIFICATIONS

STANDARD
E1: ITU-T G.703, G.704, G.706, G.732, G.823
T1: ITU-T G.703, G.704, AT&T TR-62411, ANSI T.403

LEDs
PWR, Fiber Link, Line (e1 or T1) Link, Test Mode

DCE/FIBER-T/E-LP
External AC Adapter
9VDC@ 1A

DCE/FIBER-T/E-UI
AC Model: 100-240 VAC
± 10%
Frequency 50-60 Hz
DC Model: 24-72 VDC ± 10%

ENVIRONMENT
Temperature:
0-50°C (Operating)
0-70°C (Storage)

HUMIDITY
20-80% non condensing (Operating)
10-90% (Storage)

POWER CONSUMPTION
DCE/Fiber-T/E-LP: < 5W
DCE/Fiber-T/E-UI: < 2W

DIMENSIONS
DCE/Fiber-T/E-LP: 85.6mm x 122.6mm x 20mm
DCE/Fiber-T/E-UI: 85.6mm x 191.7mm x 30mm

WEIGHT
DCE/Fiber-T/E-LP: 300g
DCE/Fiber-T/E-UI:
AC model: 500g
DC model: 550g

COMPLIANCE
CE, FCC Class

MTBF
65000 Hours

ORDERING INFORMATION

PRODUCT	POWER	INTERFACE TYPE	CONNECTOR TYPE	CONNECTIVITY: DISTANCE
___/_____-_	__	___	__	___
DCE/FIBER-T	UI	E1R	ST	002: 2km
DCE/FIBER-E	LP	E1B	SC	015: 15km
		T1R	LC	030: 30km
				050: 50km
				080: 80km
				120: 120km
				*20A: 20km
				*20B: 20km
				[WDM only]
				*40A: 40km
				*40B: 40km
				[WDM only]

*20A must use couple with 20B
*40A must use couple with 40B

APPLICATIONS

DATA CONNECT ENTERPRISE   **3405 OLANDWOOD CT**   **OLNEY, MD 20832   USA**
PHONE: 301.924.7400 EXT 17   FAX: 301.924.7403   www.data-connect.com

DCE-QUADFIBER-T/E

The DCE/QuadFiber-T/E is a 1U half 19" stand-alone or rack mountable T1/E1 Extender featuring a point-to-point multiplexer for 4*E1 or 4*T1 (selectable) transmissions over a single fiber optic link. Its half-rack format make it ideal for low cost multiplexing applications that require up to 4-channel. All channels provide completely transparent transmission of E1 or T1 regardless of frame mode, clock source or timeslot assignment. Available in either AC or DC models, the AC supplies operate from 100~240VAC while DC supplies operate from 18~72VDC. A Wide range of transceiver selection provides fiber connection with SC, FC or ST type connectors in multimode or single mode and at distance from 2 to 120km as well as BiDi (single fiber) at distances of 20, 40, 60, or 80km. Additional options include "Order Wire" phone connectors (FXS port) and a SNMP management.

SPECIFICATIONS

Connector: 1x9 (SC, ST, FC)
Data rate: 38Mbps
Bit Error Rate: Less then 10^{-11}
Cable Type: MM 62.2/125µm, 50/125µm. SM 9/125µm
Distance: MM 2km, SM 15/30/50/80/120km, WDM 20/40/60/80km
Wavelength: 1310, 1550nm

Consol: RS232 (DB9F) Async
SNMP: RJ45
Order wire: RJ11
E1: BNC 75 Ω, RJ45 Ω, T1 RJ45 100 Ω, 100 Meters Ω
E1:ITU-T, T1:ITU-T, ATT&T, ANSI

LEDs: PWR, Alarm, Far End /Near End Error, System Failure, E1/T1 status

Power: 100~240VAC, DC24: 18 ~ 36V, DC48: 36 ~ 72V
Power Consumption: < 20W

Dimensions (D x W x H) mm: 235 x 195 x 45mm
Weight: 850g

Temperature: 0~50°C (Operating), 0~70°C (Storage)
Humidity: 10~90% non-condensing

Certification: CE, FCC, RoHS
MTBF: 57350 hours

FEATURES

1U stand-alone unit
Channel service setting and remote loop-back setting via front panel
DIP switch or serial console
Far End Fault (FEF) on fiber link, selectable
On-line Bit Error Rate monitor feature with four error-rate classes
Dual color LEDs indicators
Optional dedicated Order Wire phone port (FXS, RJ-11 port)
Console port and one alarm relay
Optional SNMP management, Telnet, and Web Based local and re-

ORDERING INFORMATION

PRODUCT	POWER	INTERFACE TYPE	CONNECTOR TYPE	CONNECTIVITY: DISTANCE
___/_____-_	__	___	__	___
DCE/QUADFIBER-T	UI	E1R	ST	002: 2km
DCE/QUADFIBER-E	DC	E1B	SC	015: 15km
		T1R	LC	030: 30km
				050: 50km
				080: 80km
				120: 120km
				*20A: 20km
				*20B: 20km
				[WDM only]
				*40A: 40km
				*40B: 40km
				[WDM only]

*20A must use couple with 20B
*40A must use couple with 40B

APPLICATIONS

DCE FIBER-T3/E3

The DCE/Fiber-T3, STM-1 Based Multi-Service provisioning platform is used to extended T3/E3/DS3 networks over fiber connection, features an advanced compact Add Drop Multiplexer which can transmit up to 63 E1 and/or data service such as V.35 and Ethernet via an SMT-1 ring the optical interface complies with international telecommunication standards, such as ITU-T G.655, 652, and G.653. By utilizing a modular design for aggregate and low speed tributaries, the SDH01A can meet your network demands with flexible combination of services at a lower cost. All of the pluggable modules are designed to be hot swapped without an interruption to traffic when plugging in or out. In addition to the E1 tributaries, other data interfaces are also provided for data communications such as V.35 and 10/100M Ethernet. Users can select any combination of modules according to their requirements. With its full function and multi-access capability, the DCE/Fiber-T3 is your best choice for optical SDH networks.

FEATURES

Standalone and rack-mount in 19 or 23 inch EIA rack
Up to 32 E1 (4, 8, 12, 16 & 32) (*T1 optional also)
Flexible ADM (add/drop multiplexer) with 63 available VC12 resources
Up to 4 tributary cards per unit
Every module hot swappable
Backup configuration in flash for system restart of power failure
Various service, such as E1, V.35 and 10/100M Ethernet
Ethernet traffic is encapsulated and transported over SDH using Generic Framing Procedure (GFP) & Virtual Concatenation (VCAT)
E1 transparent transmission with HDB3 or AMI line coding
EoS (Ethernet over SDH) for ELAN. Support Ethernet traffic in all nodes of rings
Single-ended network management
1+1 APS for optical line and module (optical redundancy)
Three timing synchronization modes
Alarm relays
Alarm and performance monitoring
Administration security with login by username and password assigned by supervisor
Menu-driven and SNMP management interfaces
Local and remote loop back functions for optical and E1 I/Fs
Dual power AC + DC

SPECIFICATIONS

Connector:	1x9 (SC, FC)
Data Rate:	155.52Mbpbs (STM-1)
Cable type:	SM9/125µm
Distance:	SM 30/60/120km, WDM 60km
Wavelength:	1310nm, 1550nm
Console:	D-type 9-pin female
SNMP, LAN:	RJ45
Alarm:	D-type 9-pin male
Frame Ground:	Screw
STM1:	ITU-T G.707, G841, G.783, G.803, G.652
E1:	ITU-T G.703 G.704, G.706, G.732, G.823
Ethernet:	TU-T G.7041 GFP-F, G.707 VCAT, IEEE802.3x, 802.1p, 802.1q, 802.3ad, 801.1w, 802.1d
V35:	ITU-T V.35, ITU-T G703
LEDs:	PWR, WK, FLT-fault, Alarm, ACO, RDI, LBK, Channels, Ethernet
Power:	AC: 90~264V DC: -36~-72V
Pwr. Consumptn.:	<15W
Dimensions:	312 x 440 x 44mm (D x W x H)
Weight:	3.6kg
Temperature	0~50˚C (Operating), 0~70˚C (Storage)
Humidity:	10~90% non condensing
Certification	CE, FCC, RoSH
MTBF	55,000 hours

ORDERING INFORMATION

PRODUCT	POWER	INTERFACE TYPE	CONNECTOR TYPE	CONNECTIVITY: DISTANCE
___/____-__	__	___	__	___
DCE/FIBER-T3	UI	E1R	ST	002: 2km
DCE/FIBER-E3	LP	E1B	SC	015: 15km
		T1R	LC	030: 30km
				050: 50km
				080: 80km
				120: 120km
				*20A: 20km
				*20B: 20km
				[WDM only]
				*40A: 40km
				*40B: 40km
				[WDM only]

*20A must use couple with 20B

*40A must use couple with 40B

DCE/FIBER CHASSIS

The DCE/RM_UI Chassis Product line includes various metal chassis sizes, which can hold from one to twenty DCE/FIBER slide-in modules. The DCE/RM1U is one slot chassis, which can be installed with one single width blade card for stand-alone applications. The available power options are external AC adapter, built-in AC, DC power or built-in AC+DC, AC+AC, DC+DC dual power. The DCE//RM1U-M is one slot chassis with DB9 console port for local management, which can be installed with one single width blade card for stand-alone applications. The available power options are built-in AC, DC or built-in AC+DC dual power. The DCE/RM2U is a two slot chassis, which can be installed with one double width blade card for stand-alone applications. The only available Power supply option is an external AC adapter.

SPECIFICATIONS

Temperature: 0 - 50°C (Operating), 0 - 70o C (Storage)
Humidity: 20-80% non-condensing (Operating), 10-90% (Storage)
Power: Input: 1+1 Redundancy mode, Hot-swappable
AC Power Module Input: Universal, 100~240VAC; Freq.: 47~63 Hz
AC Power Consumption: 150W
DC Power Module: Input: 36~72 VDC & 18~-36VDC (option)
DC Power Consumption: 150W
Fan: Removable type for ease maintenance
Dimensions: 440mm x 280mm x 130.6mm (L x W x H).
Weight: 6.2Kg (include 1 AC power modules & two ear panels for rack-mounting)
Compliance: FCC part 15, Subpart B, Class A, ANSI C63.4:2003, CE EN55022:2006, Class A, EN55024:1998+A1:2001+A2:2003
LVD: EN 60 950-1:2001
MTBF: 65,000 h (25°C)

SPECIFICATIONS

One slot chassis with single width blade line cards.
Available in six types: external power adapter or power built-in AC, DC, AC+DC, AC+AC, or DC+DC
No fans
Dimensions:
External adapter: 160 x 88 x 24mm (D x W x H)
Internal power: 180 x 135 x 35mm (D x W x H)
External adapter:
Input voltage 100 ~ 240VAC 50/60Hz
Output voltage 12VDC 1A
AC power 100 ~ 240VAC
DC power 24VDC, 48VDC, 72VDC

The DCE RM16UI is a 3U, 19(23)" fiber media platform rack that features 16 cards capacity. Supported cards include Ethernet copper to fiber converters for 10/100Base-TX or 10/100/1000Base-TX over multimode fiber (up to 2 km), single mode fiber (up to 120

The DCE RM16UI is the complete solution to aggregate standalone fiber extenders into a single chassis, 19" or 23" rack mountable. The chassis can hold DCE FIBER-T/E and FIBER-TEL. FRM301 is the perfect choice to better organize the increasing number of standalone media converter into a single shelf, while keeping a total control and management through the SNMP module. The chassis provides redundant power supply system with "hot swap" feature, to provide continuous smooth operation of the units installed. It can hold both AC (110V) and DC (48V) power supply units, either in mixed or same type of power input.

The FRM220-CH20 is a 2U high 19" Rack, 20 slot modular media converter rack. It provides an economic solution in high density fiber converter installations in enterprises or central offices. All critical components, power, fans, management module and interface cards are hot swappable, allowing online field replacement. The hot-swappable power modules can be chosen from AC 100-240V, DC 18-36 or DC 36-72V. The chassis also has a pair of alarm relays and is able to stack

FEATURES

2U 19" 20-slot Chassis with AC/DC power redundancy
Chassis cascade up to 10 with one IP management
Chassis backplane consists of passive components
All modules and cards support hot-swap function
Two alarm relays
NETWORK MANAGEMENTCONTROLLER:
Supports local / remote monitor and configuration
Supports local / remote online TFTP f/w upgrade
Fiber transceiver status & info display
Supports multiple accesses for SNMP management
Supports Web GUI management, Telnet, Serial console
Supports console RS-232 port and 10/100Base-T Ethernet port
Supports SNMP standard MIB II and proprietary MIB
Supports NTP time synchronization
Supports 100 entries system log

FEATURES

3U 19" 16-slot Chassis with AC/DC power redundancy
All modules and cards support hot-swapping
Two alarm relays
SNMP:
Supports local / remote monitor
Supports local configuration
Supports online TFTP f/w upgrade
Supports multiple accesses for SNMP management
Supports Windows® GUI management, Telnet, Serial console
Supports console RS-232 port and 10/100Base-T Ethernet port
Supports SNMP standard MIB II and proprietary MIB

DCE FIBER CHASSIS (Cont'd)

SPECIFICATIONS

One slot chassis for FRM220 Single width blade line cards.
Available in six types: external power adapter or power built-in
AC, DC, AC+DC, AC+AC, or DC+DC
No fans
Dimensions:
External adapter: 160 x 88 x 24mm (D x W x H)
Internal power: 180 x 135 x 35mm (D x W x H)
External adapter:
Input voltage 100 ~ 240VAC 50/60Hz
Output voltage 12VDC 1A
AC power 100 ~ 240VAC
DC power 24VDC, 48VDC, 72VDC

FIBER CHASSIS ORDERING INFORMATION

DCE/RM1UI	DATA CONNECT ONE SLOT CHASSIS 100-240VAC
DCE/RM1UI-PS	DATA CONNECT ONE SLOT REDUNDANT POWER SUPPLY 100-240VAC
DCE/RM1UI-PSVDC48	DATA CONNECT ONE SLOT REDUNDANT POWER SUPPLY 48VDC
DCE/RM1UI-PSVDC24	DATA CONNECT ONE SLOT REDUNDANT POWER SUPPLY 24VDC
DCE/RM1UI-PSVDC72	DATA CONNECT ONE SLOT REDUNDANT POWER SUPPLY 72VDC
DCE/RM16UI	DATA CONNECT SIXTEEN SLOT CHASSIS 100-240VAC
DCE/RM16UI-PSVAC	DATA CONNECT SIXTTEN SLOT REDUNDANT POWER SUPPLY 100-240VAC
DCE/RM16UI-PSVDC48	DATA CONNECT SIXTEEN SLOT REDUNDANT POWER SUPPLY 36 -72VDC
DCE/RM16UI-PSVDC24	DATA CONNECT SIXTEEN SLOT REDUNDANT POWER SUPPLY 18-36VDC
DCE/RM16UI-FAN	DATA CONNECT SIXTEEN SLOT FAN
DCE/RM20UI	DATA CONNECT TWENTY SLOT CHASSIS 100-240VAC
DCE/RM20UI-PSVAC	DATA CONNECT TWENTY SLOT REDUNDANT POWER SUPPLY 100-240VAC
DCE/RM20UI-PSVDC48	DATA CONNECT TWENTY SLOT REDUNDANT POWER SUPPLY 36 -72VDC
DCE/RM20UI-PSVDC24	DATA CONNECT TWENTY SLOT REDUNDANT POWER SUPPLY 18-36VDC
DCE/RM20UI-FAN	DATA CONNECT TWENTY SLOT FAN

NOTES

The Technology

A channel bank is a multiplexer. A device that puts many slow speed voice or data conversations onto one high speed link; and, controls the flow of those conversations. Typically the device that sits between a digital T1 circuit; and, a couple of dozen voice grade lines coming out of a PBX. One side of the channel bank will be connections for terminating two pairs of wires or coaxial cable that brings in the T1 carrier. On the other side of the channel bank are connections for terminating multiple tip and ring single line analog phone lines or several digital data streams.

Sometimes you need channel banks and sometimes you don't. For example if your shipping a bundle of voice conversations from one local digital PBX to another digital PBX across town you don't need a channel bank but CSU (Commercial Service Unit) on each side to connect and recognize the T1 formatted signal. If one or both of the PBX is analog, you will need a channel bank to recognize the T1 formatted signal.

A channel bank converts a group of FXS or FXO interfaces to higher speed interfaces. When you need to connect multiple analog/ legacy devices like phones and faxes like those found in a MTU/MDU (Multi Tenant Unit/ Multi Dwelling Unit) facility, to a VoIP network. A generic Multiport FXS/FXO gateway is just not good enough. You need a high port density channel bank solution which not only aggregates your legacy analog lines but also allows you configurable IP Routing and Quality of Service based on your specific requirements.

At Data Connect, we offer a wide range of products to suite your network needs. We can assist you in finding a solution that maximizes your investment while providing the solutions that will benefit your customers both now and for years to come. With the ability to use a channel bank at your customer's locations to extend a bundle of simultaneous phone calls becomes a wise choice and made easy.
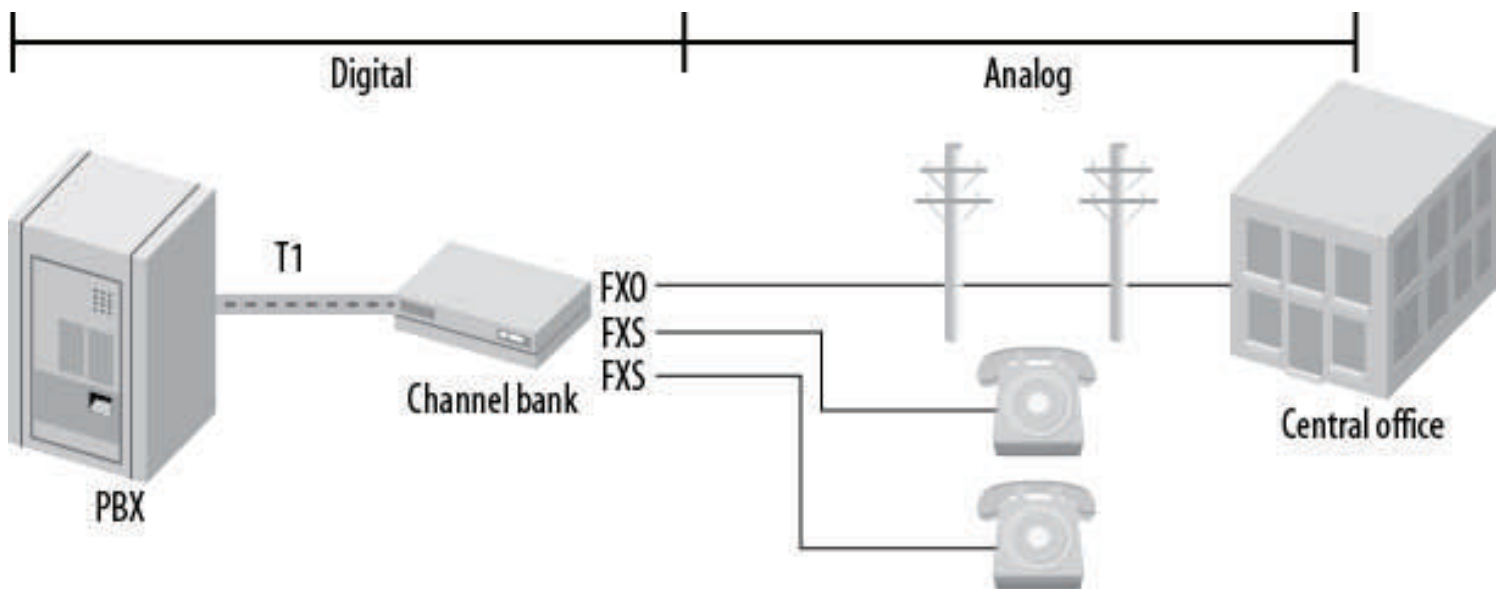
D4 CHANNEL BANK CHART

MODEL	FXS	FXO	CHASSIS	VOICE	IP	CSU
DCE/D4-FXS-FULL	24	0	√	√	0	√
DCE/D4-FXO-FULL	0	24	√	√	0	√
DCE/D4-MOD	0	0	√		24	√
DCE-D4-MOD-4FXS	4	0		√	0	
DCE/D4-MOD-4FXO	0	4		√	0	
DCE/D4-0FXS-4FXO	0	4	√	√	20	√
DCE/D4-0FXS-8FXO	0	8	√	√	16	√
DCE/D4-0FXS-12FXO	0	12	√	√	12	√
DCE/D4-0FXS-16FXO	0	16	√	√	8	√
DCE/D4-0FXS-20FXO	0	20	√	√	4	√
DCE/D4-4FXS-0FXO	4	0	√	√	20	√
DCE/D4-4FXS-4FXO	4	4	√	√	16	√
DCE/D4-4FXS-8FXO	4	8	√	√	12	√
DCE/D4-4FXS-12FXO	4	12	√	√	8	√
DCE/D4-4FXS-16FXO	4	16	√	√	4	√
DCE/D4-4FXS-20FXO	4	20	√	√	0	√
DCE/D4-8FXS-0FXO	8	0	√	√	16	√
DCE/D4-8FXS-4FXO	8	4	√	√	12	√
DCE/D4-8FXS-8FXO	8	8	√	√	8	√
DCE/D4-8FXS-12FXO	8	12	√	√	4	√
DCE/D4-8FXS-16FXO	8	16	√	√	0	√
DCE/D4-12FXS-0FXO	12	0	√	√	12	√
DCE/D4-12FXS-4FXO	12	4	√	√	8	√
DCE/D4-12FXS-8FXO	12	8	√	√	4	√
DCE/D4-12FXS-12FXO	12	12	√	√	0	√
DCE/D4-16FXS-0FXO	16	0	√	√	8	√
DCE/D4-16FXS-4FXO	16	4	√	√	4	√
DCE/D4-16FXS-8FXO	16	8	√	√	0	√
DCE/D4-20FXS-0FXO	20	0	√	√	4	√
DCE/D4-20FXS-4FXO	20	4	√	√	0	√

Your telecommunication needs are made easier to manage with Data Connect Enterprise's T1 Channel Bank products. Data Connect satisfies the needs of any T1 channel bank application, no matter how stringent the requirement. Unique Data Connect features like real-time T1 status on our four-line by 40 character (4x40) LCD display, or automatic, hands-off configuration utilizing artificial intelligence software, and crystal clear audio quality proves that Data Connect T1 products are in a top class of their own. Knowing the T1 Channel Bank is ready to perform means that you can spend more time developing important customer relationships.

Data Connect Enterprise offers you a complete line of low cost T1 channel banks including, FXS, FXO, or mixed mode FXS/FXO analog interfaces. As a bonus, every system comes with our standard fractional V.35 data port. Add the Data Connect Modular; internal power supply system to list and Data connect crushes the competition.

Using Asterisk? Data Connect T1 Channel Bank allows you to utilize analog phones and writing in conjunction with leading-edge Asterisk technology, without having to buy expensive IP telephones. Why go IP when you can save on installations by using existing wiring? With the Data Connect T1 Channel Bank, you can use lower cost analog phones with digital feature and get guaranteed T1 voice quality; all while enjoying Asterisk VoIP technology for off-premise connectivity.

Data Connect T1 Channel Banks are rugged. In the rare case of trouble, our technical staff is ready to give you support you need, when you need it.

FEATURES

Low cost
Fully populated FXS
Fully populated FXO
Modular FXS/FXO mixed mode capability
CSU self-configuration to proper mode
Digital Signal Processor (DSP) monitoring real-time
Field Software upgradable
Distinctive ring in loop start mode
Caller ID enable in loop start mode
FLASH base system configuration

SPECIFICATIONS

Asterisk soft PBX tested and ready.
4x40 LCD real-time status display shows independent AB bit signaling
Automatic T1 configuration using artificial intelligence soft (no configuration switches)
CSU auto detects T1 modes: D4 or ESF, AMI, B8ZS
T1 CSU via RJ48C, with line
V.35 fractional data interface, user selectable to 56K or 64K
Self diagnostic, verbose error reporting, loopback modes
Single channel configuration (Each channel may have a different analog start mode, signaling protocol, line current, or gain.)
Telco network uptime and downtime for T1 history
Remote connection via RS-232C or Ethernet (optional) via windows based graphical user interface
Immediate, Wink, Loop, Ground, RevPol (loop), and three DID start protocols
FSK: Digital DSP · Echo cancellation · Ring Cadence
Control
Line Current Limit—18mA to 45mA ·
TX and RX gain control of -5db to +6db
Power Down Control 1 to3 seconds.
FXO: Digital DSP · Dynamic Impedance Matching
Ring Cadence Monitoring Timer ·
TX and RX gain control of -15db to +12db
Power: 110VAC, 220VAC, and -48VDC modular power a supply models
Size: 3.5" H x 17"W x 8.5"D
Weight: 12lb maximum
19", 23" or wall mounting kit standard
T1 and analog cables included

ORDERING INFORMATION

DCE/D4-FXS-FULL	DATA CONNECT D4 CHANNEL BANK 24 FXS / 0 FXO
DCE/D4-FXO-FULL	DATA CONNECT D4 CHANNEL BANK 0 FXS / 24 FXO
DCE/D4-MOD	DATA CONNECT D4 CHANNEL BANK CHSSIS ONLY
DCE-D4-MOD-AN-4FXS	DATA CONNECT D4 CHANNEL BANKS 4 FXS NO CHASSIS
DCE/D4-MOD-AN-4FXO	DATA CONNECT D4 CHANNEL BANK 4 FXO NO CHASSIS
DCE/D4-0FXS-4FXO	DATA CONNECT D4 CHANNEL BANK 0 FXS / 4 FXO
DCE/D4-0FXS-8FXO	DATA CONNECT D4 CHANNEL BANK 0 FXS / 8 FXO
DCE/D4-0FXS-12FXO	DATA CONNECT D4 CHANNEL BANK 0 FXS / 12 FXO
DCE/D4-0FXS-16FXO	DATA CONNECT D4 CHANNEL BANK 0 FXS / 16 FXO
DCE/D4-0FXS-20FXO	DATA CONNECT D4 CHANNEL BANK 0 FXS / 20 FXO
DCE/D4-4FXS-0FXO	DATA CONNECT D4 CHANNEL BANK 4 FXS / 0 FXO
DCE/D4-4FXS-4FXO	DATA CONNECT D4 CHANNEL BANK 4 FXS / 4 FXO
DCE/D4-4FXS-8FXO	DATA CONNECT D4 CHANNEL BANK 4 FXS / 8 FXO
DCE/D4-4FXS-12FXO	DATA CONNECT D4 CHANNEL BANK 4 FXS / 12 FXO
DCE/D4-4FXS-16FXO	DATA CONNECT D4 CHANNEL BANK 4 FXS / 16 FXO
DCE/D4-4FXS-20FXO	DATA CONNECT D4 CHANNEL BANK 4 FXS / 20 FXO
DCE/D4-8FXS-0FXO	DATA CONNECT D4 CHANNEL BANK 8 FXS / 0 FXO
DCE/D4-8FXS-4FXO	DATA CONNECT D4 CHANNEL BANK 8 FXS / 4 FXO
DCE/D4-8FXS-8FXO	DATA CONNECT D4 CHANNEL BANK 8 FXS / 8 FXO
DCE/D4-8FXS-12FXO	DATA CONNECT D4 CHANNEL BANK 8 FXS / 12 FXO
DCE/D4-8FXS-16FXO	DATA CONNECT D4 CHANNEL BANK 8 FXS / 16 FXO
DCE/D4-12FXS-0FXO	DATA CONNECT D4 CHANNEL BANK 12 FXS / 0 FXO
DCE/D4-12FXS-4FXO	DATA CONNECT D4 CHANNEL BANK 12 FXS / 4 FXO
DCE/D4-12FXS-8FXO	DATA CONNECT D4 CHANNEL BANK 12 FXS / 8 FXO
DCE/D4-12FXS-12FXO	DATA CONNECT D4 CHANNEL BANK 12 FXS / 12 FXO
DCE/D4-16FXS-0FXO	DATA CONNECT D4 CHANNEL BANK 16 FXS / 0 FXO
DCE/D4-16FXS-4FXO	DATA CONNECT D4 CHANNEL BANK 16 FXS / 4 FXO
DCE/D4-16FXS-8FXO	DATA CONNECT D4 CHANNEL BANK 16 FXS / 8 FXO
DCE/D4-20FXS-0FXO	DATA CONNECT D4 CHANNEL BANK 20 FXS / 0 FXO
DCE/D4-20FXS-4FXO	DATA CNNECT D4 CHANNEL BANK 20 FXS / 4 FXO

COMPETITIVE ANALYSIS

Manufacturer:	Adtran	Carrier Access	Carrier Access	DCE/D4-FXS-FULL
Model:	Total Access 750	Adit 600	Access Bank I	24FXS
Web Site Address:	adtran.com	carrieraccess.com	carrieraccess.com	channelbanks.com
Physical size:	2 U	2 U	1 U	2 U
Weight:	8 lbs.	11.8 lbs.	14.5 lbs.	12 lbs.
Mounting:	19" or 23" rack mount	19", 23" or wall	19", 23" or wall	19", 23", desktop or wall
Channel Capacity:	24 FXS	24 FXS	24 FXS	24 FXS
T1 Requirements:	Standard 4 wire T1	Standard 4 wire T1	Standard 4 wire T1	Standard 4 wire T1
Start Protocols:	Immediate, Loop, Ground, and WINK	Immediate, Loop, Ground, and WINK	Loop or Ground, and WINK	Immediate, Loop, Ground, WINK and 3 different DID
Framing Protocals:	D4, ESF or TR08	D4 or ESF	D4, ESF, TR08 or SLC-96	D4 or ESF
Line Coding:	AMI or B8ZS	AMI or B8ZS	AMI or B8ZS	AMI or B8ZS
Analog Output:	FXO or FXS	FXO or FXS	24 Loop start lines	24 Loop start lines
Display of signaling bits?	No	No	No	Yes
Data Output:		Dual V.35 cards	V.34 and V.90	V.35, RS530, RS530A or RS449
Method of configuration:	PC, serial port or modem	PC, serial port or modem	Dip switches	Automatic Plug and Play T1 configuration
Caller ID capable:		Yes		Yes
Power Requirements:	130VAC max.	115VAC	(-)48 VDC	110VAC
Power Usage:		3.5A	1A input	1A
Operating Environment:	(-)40C to 70C	32F-104F/0C-40C	32F-122F/0C-50C	32F-166F/0C-70C
Humidity:	Non-cond. up to 95%	Non-cond. up to 95%	Non-cond. up to 95%	Non-cond. up to 95%
Manufacturers Warranty:	10 year limited warranty	10 year limited warranty	5 year warranty	5 year limited warranty
List Price:	$2,256	$4,375	$2,375	$1,495

Every DCE channel bank will configure itself to the T1 when plugged in and powered up. Also standard with each DCE Channel bank is a 4 line by 40-character LCD display. This display in conjunction with the four menu buttons can be used to manually configure your channel bank if your installation calls for a more specific needs. I

Every system comes with a fractional V.35 data port (for free) that can be used for the IP router connection. If you have unused DS0 time slots you can use that band width for IP connectivity.

The DCE channel banks feature a single CSU (for free) that is software controlled, software programmed and will <u>self boot to the proper mode right out of the box.</u>

Now, with our new modular channel bank, you can custom build a DCE channel bank to your exact specifications. Don't need a full 24 line channel bank? No problem. Build your channel bank in four channel increments. Need to combine FXS and FXO lines into one channel bank? Again, not a problem. You can mix and match FXS and FXO cards also in four line increments into one DCE chassis.

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MODEM SELECTION GUIDE

MODEL #	V92 56K	V90 56K	V34BIS 33.6K	V34 28.8K	V29 HFPS 19.2K 9.6K	V32BIS 14.4K	V27 4.8K	V22 2.4K	V23 1.2K	202T 1.2K	103 .3K	100-240 VAC	LV LOW VDC	HV HIGH VDC	RACK-MOUNT	OEM	DIAL / LEASE / 2/4-WIRE	V.42 / V.42BIS	SECURITY	DIN RAIL	WALL L
			ITU-T STANDARD							BELL		STANDALONE			PCB CARD		KEY FEATURES			MOUNT	
IG56	✓	✓	✓	✓		✓		✓			✓	✓		✓			D	2	✓			
IG56S	✓	✓	✓	✓		✓		✓			✓	✓		✓	✓		D	2	✓	✓	✓	
IM56		✓	✓								✓	✓					D	2	✓			
IML56		✓									✓		✓				L	2	✓			
MM56		✓											✓			✓	D	2				
IG336			✓	✓		✓		✓			✓	✓		✓			D	2	✓	✓	✓	
3600LP			✓	✓		✓		✓			✓	✓			✓		D	2,4	✓			
3342LP			✓	✓		✓		✓			✓	✓			✓		D/L	2,4	✓	✓		
3342E/R			✓	✓		✓		✓			✓	✓			✓		D/L	2,4	✓	✓		
3600UI			✓	✓				✓			✓	✓			✓		D/L	2,4	✓	✓		
MIU28.8				✓		✓		✓				✓				✓	D	2				
IG192HFP					✓	✓	✓			✓	✓	✓			✓		L	2,4	✓	✓	✓	
IG96HFP					✓		✓			✓	✓	✓			✓		L	2,4	✓		✓	
DSP9612					✓		✓			✓	✓				✓		L	2,4	✓			
MIU9.6FPD					✓		✓			✓	✓	✓				✓	L	2,4	✓	✓		
IG144						✓		✓		✓	✓	✓		✓	✓		D	2	✓	✓	✓	
1442E/R						✓		✓		✓	✓	✓					D,L	2,4	✓			
MIU14.4						✓	✓	✓				✓				✓	D,L	2	✓		✓	
2400E/R							✓	✓				✓					D	2	✓			
MIU2.4								✓				✓				✓	D	2	✓			
IGV.23									✓		✓	✓					L	2,4	✓	✓	✓	✓
IG3202T-									✓	✓	✓	✓					L	2,4	✓	✓		
IG202T										✓	✓	✓					L	2,4	✓		✓	✓
202TE/R										✓	✓	✓					L	2,4	✓			✓
MIU202T										✓	✓	✓				✓	L	2,4	✓			

*MULTI-PROTOCOL ITU-T V.21, V.23, R.35, R.37, R.38A, R.38B, & V.29, BELL 202T & 103 CEGELEC 1200/600 BAUD & INDACTIC 33 COMMUNICATION STANDARDS

IN THIS SECTION

The Technology

The word modem is an acronym for MOdulator / DEModulator. Modems are used to send digital data signals over analog circuits. The modem uses the Public Switched Telephone Network (PSTN) and either PSTN for dial or private copper wires for leased line or private wire applications. A 2-Wire Facility is one that supports transmission in two directions simultaneously while mixing signals (Half Duplex) for 2-Wire Leased applications. A 4-Wire Facility is one that supports transmission in two directions but isolates the signals (Full Duplex) by Frequency, Time, and Space division plus other techniques that enable reflections to occur without causing the signals to mix together for 4-Wire Leased applications.

Modems are governed by the International Telecommunications Union – Telecommunications (ITU-T) Service Sector based in Geneva, Switzerland. The ITU-T sets the (V. Series) standards including V.92 / V.90 at 56Kbps, V.34BIS at 33.6Kbps, V.34 at 28.8Kbps, V.29 / V.27 at 19.2, 9.6 & 4.8Kbps, V.32BIS at 14.4Kbps, V.22 at 2.4Kbps, and V.23 at 1.2Kbps. There are also BELL standards still used such as BELL202T at 1.2Kbps and BELL103 at .3Kbps. Most modems today come with built in error correction, data compression technology based on ITU-T Industry Standards and are used in a wide range of applications.

ISDN Terminal Adapter, DDS Unit, T1/FT1 DSU/CSU, T1 CSU, DSL Router, and Cable Router are all called modems but technically don't modulate or demodulate. The modems in this section all modulate and demodulate and meet with the ITU-T and BELL standards. The Security features found in some of the modems offer Password Protection, Call Guard, and Call Back Security Options..

At Data Connect, we offer a wide range of modem products to suite your network needs. We can assist you in finding a solution that maximizes your investment while providing the solutions that will benefit your customers both now and for years to come. With the ability to match all requirements and standards, your choice becomes a wise choice and made easy by Data Connect expertise.

V.92 / V.90 MODEM CHECK LIST

MODEL	MAX. SPEED	HIGH VOLT.	LOW VOLT.	DIAL	LEASED	RACK MOUNT	DIN MOUNT	SECUR- ITY	WALL MOUNT	PHOTO	PAGE
DCE/IG56	56KBPS	X	X	X			X		X		75
DCE/IG56S	56KBPS	x	x	X			x	x	X		76
DCE/1M56	56KBPS	X	X	X					X		77
DCE/IML56	56KBPS	X			X						78
DCE/MM56	56KBPS			X					X		79

DCE IG56

The Data Connect DCE/IG56 high-speed V.92 dial-line modems are designed and manufactured for rugged industrial applications over the Public designed Telephone Network (PSTN). The DCE/IG56 utilizes the industries latest V.92 modem technology to deliver outstanding features, performance and reliability in one cost-effective solution.

   The DCE/IG56 modems are ideally suited for industrial communication applications including SCADA systems, RTs, traffic monitor and control, and industrial automation network. The DCE/IG56 supports TRUs equipped with an EIA RS-232 or RS-485 serial port. Data communications speeds up to 56 kbps are supported.

   The modems incorporate the latest data-compression and error correction standards for improved data transmission and reception over marginal and poor-quality telephone lines.

   The DCE/IG56 modems are powered by a wide range of AC and DC power supply voltages. Its low power consumption and low stand-by current technology design makes the DCE/IG56 ideal for battery-powered system as well as regular AC powered operation.

SPECIFICATIONS

Data modem : ITU-T - V.92: Up to 56kbps /
V.34bis: Up to 33600bps / V.32bis: Up to 14400bps /
V.32: Up to 9600bps / V.22bis: Up to 2400 bps /
V.21: 0-300bps / Bell 212A: 1200bps / Bell 103: 0-300bps
Fax Modem: Send and receive fax up 14.4 kbps
V17, V29, V27ter, and V21 channel 2
EIA / TIA 578 Class 1, T.31 Class 1.0, and Class
Data Format: Asynchronous, 7, 8 or 9 data bits, parity, 10- or 11- bit character with 1 0r 2 stop bits
Modulation: Fully compatible with ITU-T V.92 / V.34 / V.32bis / V22bis / V.21
Bell 212A and Bell 103 compatible modes.
Transmission Line Interface: 2-wire full duplex over PSTN / Connector: RJ-11C
DTE/RTU Interface: the modem provides serial ports to support RS-232 or RS-485 (selectable) interface
RS-232 Interface: Connector : DB9-F
Signals: RTS, CTS, CD, TD, RD, DTR, DSR, and RI
RS-485 Interface: Connector: RJ-11C
Signals: 4-wire full duplex or 2-wire half duplex TX+,TX-,RX+, and RX-
LED Indicators: DTR, TXD, RXD, DCD, DSR, and RI
Three models support various power options:
standalone - 90-264VAC / 100-400VDC / 10-48VDC
Idle mode: 65 mA@12V, 0.78 watts
Normal mode: 75 mA@12V, 0.9 watts, typical
Enclosure dimensions: 4.1"(W) x5.0"(L) x 1.3"(H)
104mm(W) x 127mm(L) x 33mm(H)
Weight: 0.5 pound, without AC power module
Operating Temperature: -40 to +85°C
Storage Temperature: -40 to +85°C
Humidity: up to 95% non-condensing
Dry Contact Detection (Optional):
Two optical isolated dry contact detections are provided for external devices (consult factory for additional information)

FEATURES

Worldwide operation Support: ITU-T - V.92 / V.34BIS / V.34 / V.32bis / V.32 / V.22bis / V.22 / V.23 / V.23 / V.21
V29 Fast POS / V.22bis fast connect
Data Compression: V.44 / V.42bis/MNP 2
Error Correction: V.42/MNP 2/MNP 2
DTE/ Host Interface: EIA RS-232 and RS-485
Embedded AT Command set
63 embedded and upgradeable country profiles for worldwide homologation
NVRAM for configuration and country profile storage
Built-in remote diagnostic and configuration management
Heavy-duty surge protection provided at power supply and phone line interface
Support wide range of AC and DC power supply options
Supports DC power supplied from DTE or DB-9 connector
Wide range of operating temperatures
Optional mounting kits for DIN Rail mounting or wall mount

ORDERING INFORMATION

DCE/IG56: Standalone with security and AC Power Module 90 -264 VAC

DCE/IG56SDC: Standalone with security and DC power 10-48 VDC

DCE/IG56S-HV standalone with security and AC Power module 90-264 VAC or 100-400 VDC

DCE/IG202T-DIN

DCE/IG202T-WM

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DCE IG56S

The Data Connect DCE/IG56S high-speed V.92 security dial-line modems are designed and manufactured or rugged industrial application over the Public Switched Telephone Network (PSTN) with security features such as password log-in and security call-back. The DCEIG56S utilizes the industries latest V.92 modem technology to deliver outstanding features, performance, and reliability in one cost-effective solution.

The DCE/IG56S modems are ideally suited for industrial communication application including SCADA systems, RTs, traffic monitoring and control, and industrial automation networks. The DCE/IG56S supports RTUs equipped with an EIA RS-232 or RS-485 serial port. Data communications speed up to 56 kbps are supported.

The modems incorporate the latest data-compression and error-correction standards for improved data transmission and reception over marginal and poor-quality telephone lines. Multiple levels of security with password verifications and security call back keep your valuable data secure from intruders.

The DCE/IG56S modems are powered by a wide range of AC and DC power supply voltages. Its low power consumption and low stand-by current technology design makes the DCE/IG56S ideal for a battery-powered system as well as regular AC powered operations.

SPECIFICATIONS

ITU-T V.92: Up to 56kbps / V.34bis: Up to 33600bps / V.34: Up to 28800bps / V.32bis: Up to 14400bps / V.32: Up to 9600bps / V.22bis: Up to 2400bps
V.21: 0-300bps / Bell 212A: 1200bps / Bell 103:0-300bps
Send and receive fax up 14.4 kbps / V17 / V29 / V27ter / V21 channel 2 / EIA/TIA 578 Class 1 / T.31 Class 1.0 /
Data Format: Asynchronous, 7, 8 or 9 data bits, parity, 10- or 11-bit character with 1 0r 2 stop bits
Modulation: Fully compatible with ITU-T V.92 / V.34 / V.32bis / V22bis / V.21 / Bell 212A / Bell 103.
Transmission Line Interface: 2-wire full duplex over PSTN Connector RJ-11C
DTE/RTU Interface: the modem provides serial ports to support RS-232 or RS-485 (selectable) interface standards:
RS-232 Interface: Connector : DB9-F
Signals: RTS, CTS, CD, TD, RD, DTR, DSR, and RI
RS-485 Interface: Connector: RJ-11C
Signals: 4-wire full duplex or 2-wire half duplex TX+,TX-,RX+, and RX-
Front panel LED Indicators - DTR, TXD, RXD, DCD, DSR, and RI
Security Options: Password log-in / Security call-back
Three models support various power options:
standalone: 90-264VAC / 100-400VDC / 10-48VDC
Consumption Idle mode: 65 mA@12V, 0.78 watts
Consumption Normal mode: 75 mA@12V, 0.9 watts,
Enclosure dimensions: 4.1"(W) x5.0"(L) x 1.3"(H)
104mm(W) x 127mm(L) x 33mm(H)
Weight: 0.5 pound, without AC power module
Operating Temperature: -40° to +85°C
Storage Temperature: -40°to +85°C
Humidity: up to 95% non-condensing
Dry Contact Detection (Optional): Two optical isolated dry contact detections are provided for external devices (consult factory for additional information)

FEATURES

Worldwide Operation Support:
ITU-T: V.92 / V.34 / V.32bis / V.32 / V.22bis / V.22 / V.23 / V.22 / V.21
V29 Fast POS / V.22bis fast connect /V.44 / V.42bis / MNP 2
Security Options: Password log-in / Security call-back
DTE/Host Interface: EIA RS-232 & RS-485
Embedded AT command set
63 embedded and upgradeable country profiles for worldwide homologation
NVRAM for configuration and country profile storage Built-in remote diagnostics and configuration management
Heavy-duty surge protection provided at power supply and phone line interface
Supports wide range of AC & DC power supply options Support DC power supplied from DTE or DB-9 connector Wide range of operating temperatures
Optional mounting kits for DIN Rail mounting or wall mount

ORDERING INFORMATION

DCE/IG56S - Standalone with security and AC power module 90-264 VAC
DCE/IG56SDC - Standalone with security and DC power 10-48 VDC
DCE/IG56S-HV - Standalone with security and AC power module 90-264 VAC or 100-400 VDC
DCE/IG202-DIN - DIN rail kit
DCE/IG202-WMB – Wall mount bracket kit

DCE IM56

To service the growing need for efficient, reliable data communication in harsh environmental of utility substations and industrial facilities, has developed a 56bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. all this without compromising the performance expected from state-of-the-art communication devices

With the rapid move toward "intelligent" substations, where meters, relay, RTU's, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the field, where the conveniences of 115VAC power outlets and climate control are usually hard to find.

The IM56 (low power industrial modem 56bps) is an industrial grade modem incorporating data compression and error detection techniques for data throughput of up to 230kbps. The modem operates from -20˚C to +65˚C with over 95% relative humidity. Modem configuration is accomplished through the "AT" command set.

USER CONFIGURABLE HARDWARE OPTIONS

AT command set
ATS0=1   modem will answer on first ring
AT&D0   modem will ignore DTR- factory default
              is AT which allows the modem to
              answer only if DTR is high
AT&V   to check the state of the "S" register
              use AT&V
AT&W0   Don't forget to burn the new codes into
              E-PROM by AT&W0
A good configuration for dumb mode operation is
AT&F&C1&D0E0Q1S0=1&w0

FEATURES

Modem Interface Units AC/DC powered substation hardened communication interface units
5600kbps 2-wire dial-up line modem
12 to 400 AC/DC power supply
IEC801-4 surge protection
-20˚C to +65˚C operating temperature
For meters relays, SCADA, etc.

ORDERING INFORMATION

DCE/IM56   **V.90 56k modem 100-240VAC**
DCE/IM56DC-12   **V.90 56k modem 12VDC**
DCE/IM56DC-24   **V.90 56k modem 24VDC**
DCE/IM56DC-48   **V.90 56k modem 48VD DCE/IM56-HV**
                       V.90 56k modem 100-240VAC
                       85-400VDC

DCE IML56

To service the growing need for efficient, reliable data communication in harsh environments of utility substation and industrial facilities, has developed a 56kbps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices. With the rapid move toward "intelligent" substations, where meters, relays, RTU's, SCADA systems, etc. are able to "talk" to a remote operator, communications devices such as modems are moving off the desktop and into the field, where the conveniences of 115VAC power outlets and climate control are usually hard find.

The IML56 (low power industrial modem 56kbps) is an industrial grade modem incorporated data compression and error detection techniques for data throughput of up to 230kbps. The modem operates from -20 C to +65 C with over 95% relative humidity.

For most applications, the modem configuration can be set using the DIP switch located on the right side of the unit without a PC. Typically no familiarity with "AT" command is expected.

SPECIFICATIONS

Modem Line Speeds:
ITU-T V.90 - 56000bps
ITU-T V.34 - 33600bps
ITU-T V.32bis - 14400bps
ITU-T V.32 - 9600bps
ITU-T V.22bis - 2400bps
ITU-T V.21 - 300bps
Asynchronous Data:
ITU-T V.42 error correction
MNP 2-4, MNP 10EC
ITU-T V.42bis data compression, MNP5
Maximum Throughput - 230,400bps
Fax Send/ Receive Speeds - 14400bps (class 1&2)
Voice Capable
DES Encryption
Dial Back
Minimum System Requirements:
RS232 Communications Ports
Communications Software
Power Supply: 12-400VAC/DC
Temperature: -20 C to +65 C
Housing : Plastic casing
Dimensions: 3.5" x 6" x 1"
Network Connection: PSTN via RJ11
Data Connections: RS232/V.24 via DB9F connector
Data Interface: RS232 via DB9F connector
User Configurable Hardware Options:
Via DIP switch settings:
DTE Speed
Auto Answer
Local Echo Enable
Result Code Enable
Result Code Terse
Flow Control
Error Correction
Host DTR Normal
Deep Sleep
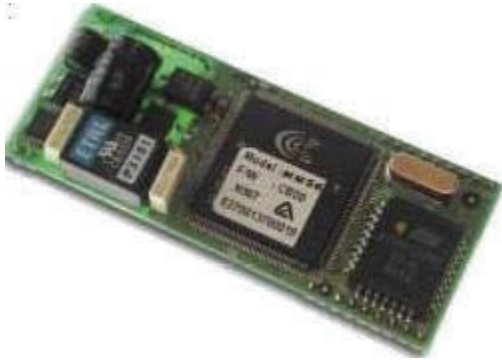
FEATURES

Modem Interface Units AC/DC powered Substation hardened communication Interface units
5600kbps 2-Wire Leased Line modem
12 to 400 AC/DC power supply
IEC801-4 surge protection
-20 C to +65 C operation temperature

ORDERING INFORMATION

DCE/IML56   V.90 56K modem 100-240VAC
DCE/IML56DC-12 V.90 56K modem 12VDC
DCE/IML56DC-24 V.90 56K modem 24VDC
DCE/IML56DC-48 V.90 56K modem 48VDC
DCE/IML56-HV   V.90 56K modem 100-240VAC
          85-400VDC

DCE MM56

To service the growing need for efficient, reliable data communication in harsh environmental of utility substations and industrial facilities, has developed a 56bps OEM modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. all this without compromising the performance expected from state-of-the-art communication devices

With the rapid move toward "intelligent" substations, where meters, relay, RTU's, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as OEM modems are moving off the desktop and into the field, where the conveniences of 115VAC power outlets and climate control are usually hard to find.

The DCE MM56 (Internal OEM industrial modem 56bps) is an industrial grade OEM modem incorporating data compression and error detection techniques for data throughput of up to 230kbps. The modem operates from -20˚C to +65˚C with over 95% relative humidity. Modem configuration is accomplished through the "AT" command set.

SPECIFICATIONS

Modem Line Speeds:
ITU-T V.90 - 56000bps
ITU-T V.34 - 33600bps
ITU-T V.32bis - 14400bps
ITU-T V.32 - 9600bps
ITU-T V.22bis - 2400bps
ITU-T V.21 - 300bps
Asynchronous Data:
ITU-T V.42 error correction MNP 2-4, MNP 10EC
ITU-T V.42bis data compression MNP5
Maximum Throughput: 230, 400bps
Fax Send/Receive speeds: 14400bps
Voice Capability
DES Encryption
Dial Back
Minimum System Requirements
RS232 Communication Port
Communications Software
Power Supply: 12-400VAC/DC
Temperature: -25˚C to +65˚C
Housing: Plastic case
Dimensions: 3.5" x 6" x 1"
Network Connections: PSTN via RJ11
Data Connections: RS232/V.24 via DB connector
Data Interface: RS232 via DB9F connector

FEATURES

Modem Interface Units AC/DC powered substation hardened communication interface units
5600kbps 2-wire dial-up line modem
12 to 400 AC/DC power supply
IEC801-4 surge protection
-20˚C to +65˚C operating temperature
For meters relays, SCADA, etc.

USER CONFIGURABLE HARDWARE OPTIONS

AT command set
ATS0=1   modem will answer on first ring
AT&D0   modem will ignore DTR- factory default
         is AT which allows the modem to
         answer only if DTR is high
AT&V   to check the state of the "S" register
         use AT&V
AT&W0   Don't forget to burn the new codes into
E-PROM by AT&W0
A good configuration for dumb mode operation is
AT&F&C1&D0E0Q1S0=1&w0

ORDERING INFORMATION

DCE/MM56   V.90 56k OEM modem

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V.34BIS MODEM CHECK LIST

MODEL	MAX. SPEED	HIGH VOLT.	LOW VOLT.	DIAL	LEASED	RACK MOUNT	DIN MOUNT	SECUR-ITY	WALL MOUNT	PHOTO	PAGE
DCE/V3600UI	33.6KBPS	X	X	X	X	X					81
DCE/V3600LP+	33.6KBPS	X	X	X	X			X			82
DCE/IG336S	33.6KBPS	X	X	X				x			83
DCE/3342LP	33.6KBPS	X	X	X	X			X			84
DCE/IG336	33.6KBPS			X	X	X					85
DCE/3342E-004-2	33.6KBPS			X	X	X		X			86
DCE/3342R-004-2	33.6KBPS			X				X			87
DCE/3342E-208-4	33.6KBPS	X	X	X	X	X					88

DCE V3600UI

The Data Connect V.36UI series is a series of high performance, synchronous and asynchronous, full-duplex, multi-standard stand-alone or rack mounted modem. They are designed for use on 2-wire dial-up and 2/4-wire leased line circuits.

The Data Connect V.3600UI series is fully compliant with ITU-T V.34 as well as being compatible with ITU-T recommended V.32bis/V.32, V.22bis, V.23 and V.21 international standards while operating at 33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 1200, 9600, 7200, 4800, 2400, 1200 and 300 bits per second.

In V.34 mode the Data Connect V.3600UI series provides full duplex operation at up to 33.6Kbps on a 2/4-wire PSTN line, with features like line probing, symbol rate, and carrier frequency auto-matic selection. a range of performance enhancing techniques are available for V.34 mode, including adaptive pre-coding, adaptive re-emphasis, non-linear encoding (warping), constellation expansion, multi dimensional trellis coding, transmission power back-off (power drop), V.8 standard modem initialization, and shell mapping.

An in-band secondary channel allows the user to monitor and control the remote site unit. The Data Connect V.3600UI series also offers auto callback and leased-line security checks in addition to dial-up security checks.

The Data Connect RM16MUI series can accommodate up to 16 modem cards with 16 ports, control unit and single or dual redundant power unit, it also dual redundant power supply which means if one power does fail the other one is capable of powering the entire rack.

FEATURES

Fully compatible with ITU-T V.34+/V.34/V.32bis/V.32/V.26bis/V.22bis/V.22/V.23/V.21/V.24/V.28/V.25bis/V.54/V.52/V.42/V.42bis/V.14/V.13/V.8 and Bell 212A/103
19" rack accommodates up to 16 modem cards with hot-swap and profile copy functions
Achiever throughput up to 115200bps V.13 simulated carrier in half-duplex
MNP4®, V.42 error correction
MNP5®, V.42bis data compression
Extended AT and ITU-R V.25bis command set
Leased lines dial back-up and restore in manual or auto mode
Auto fallback and fall forward
Remote configuration via secondary channel
Front panel lock and password protect
Password & callback security
Diagnostic capabilities:
Analog loopback and remote, digital loopback (with pattern or not); BERT test pattern using 511
Auto manual dialing/answer
Front panel configuration via rubber switches and LCD
Front panel key reset function
G3FAX send/receive compatible with EIA-578 Class 1 FAX command (optional)

SPECIFICATIONS

Compatibility:
V.34+: 33.6/31.2 Kbps SM (4D TCM)
V.34+: 28.8/ 26.4/24/21.6/19.2/16.8/14.4/12/9.6/7.2/
4. 8/2.4 Kbps SM (4D TCM)
V.32bis: 14400/12000/7200bps TCM
V.32: 9600bps TCM, 9600/4800 bps QAM
V.26bis: 2400/1200bps QAM, 1200bps BPSK
V.22/Bell 212A: 1200bps DPSK
V.23: 1200/75, 600/75bps FSK
V.21/Bell 103:300 bps FSK
Symbol Rate (Baud) and Carrier Frequency(Hz):
2400 Baud- 1600/ 1800 Hz
2800 Baud- 1680/ 1867 Hz
3000 Baud- 1800/2000 Hz
3200 Baud- 1829/ 1920 Hz
3429 Baud- 1959 Hz
Data Format:
Synchronous or Asynchronous
Total bit length: 8, 9, 10, and 11
Data Speed:
Asynchronous- 75/300/600/1200/2400/4800/7200/
12000/14400/168/19200/21600/2400/26400/28800/
31200/33600/38400/57600/76800/115200 bps
Synchronous- 1200/2400/4800/7200/9600/12000/
144400/16800/19200/21600/24000/26400/28800/
31200/33600 bps
DTE Interface: EIA RS-232C, ITU-T V.24/V.28
Line Requirement: Dial-up line, 2/4-wire leased line
Transmit Level:
Dial-up line: 0 to -15dBm; Leased line: 0 to -31dBm
Receive Dynamic Range: -4 to -43/ 0 to -33dBm
Equalization: Automatic adaptive EQ
Call Progress Monitoring:
Dial tone, Ring, Ring-back, Busy and backup dial
Line Status Monitoring:
TX level, RX level, S/N ratio, EQM value, delay, phase jitter, frequency offset, far-end echo, DTE format, retrain count, TX baud rate, RX baud rate, TX carrier, RX carrier, TX speed, RX speed, TX power back-off level, Interface lead monitoring .
Memory:
Non-volatile; 2user profiles and 10 phone numbers with 30 characters each
Line Interface: RJ-11 for dial-up, JM8 (like RJ45) for leased line
Transmit Clock: Internal, Loopback, or External
Dialing Command and Type:
Extended AT and V.25bis using Tone/Pulse/Mixed
Flow Control: RTS/CTS, XON/XOFF, CTS only
Enclosure dimensions: 7.1" W x 10.3"L x 1.9"H; 4.2 lbs
Rack Mount dimensions: 18.9" W x 14.9"L x 8.7"H
Temperature: Operation: 0˚ to +50˚C,   Storage: 0˚ to +50˚C
Humidity: Up to 95% (non-condensing)

ORDERING INFORMATION

DEC/V3600UI	V3600UI STANDALONE 100-240VAC
DCE/V3600UI-48	V3600UI STANDALONE 48VDC
DCE/V3600UI-24	V3600UI STANDALONE 24VDC

DCE/V3600UI-RM	V3600UI RACKMOUNT MODEM
DCE/RM16MUI	16 SLOT CHASSIS 100-240VAC REDUNT. PWR
DCE/RM16M-48	16 SLOT CHASSIS 48VDC REDUNDANT PWR

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DCE LP+ SERIES

Remote access modem offer significant cost savings and reduce network downtimes by eliminating the need to dispatch personnel to remote sites to reconfigure alarm and control systems, phone switches, diagnostic ports, remote access servers, and supervisory channels.

However, these benefits come with the risk that unauthorized access to remote facilities could disrupt your network and cripple your business operation with the Data Connect V.3600LP+ Series family of remote access modems, it is no longer necessary to accept the security risk associated with unprotected remote access installations. Data Connect 's V.3600LP+ series provides the full range of advanced modem features found in our series V.3600LP family, combined with a comprehensive set of security and access control features. The V.300LP+ Series implements the full range of security features defined in the Bellcore Local Access and Requirements (LSSGR) in a cost effective industrial package.

If you are managing highly secure remote access points, The V.3600LP+ series modems offer the most advanced security features available. Now you can access remote configuration, diagnostic, console ports, and supervisory and control channels over secure connections. With the V.3600LP+ Series, password protection, the cornerstone of most security strategies, can augment with a wide range of feature options. These features can be used to implement the multi-faceted type of access control recommended by most security experts. In addition, a comprehensive audit trial provides a historical view of access attempts, allowing

SPECIFICATIONS

Remote Configuration- The remote configuration facilities of V.3600LP+ Series modem will allow you to remotely maintain passwords, review the audit trial or modify any parameter of the device. Additional configuration commands allow you to select DTE bit rate, character length and parity. Remote configuration access may be restricted to specific passwords.
Device Management Software- This optional software automates audit trial data collection and simplifies password management for large, distributed networks.
Feature Overview
Standard 2-wire dial-up
AT Command Set
Standard Error Correction and compression
RS-232 Asynchronous DTE Support Remote Configuration
See LP Series datasheet for a complete description of modem capabilities
Data Compatibility– V.34bis, V.34, V.32bis, V.32, V.22bis, V.22, V.23, V.21, Bell 212A, Bell 103j
DTE Interface- Physical- DB9 connector Electrical-RS-232F (V.24). Asynchronous: Auto baud or selectable formats and rates to 11.2Kbps with V.32bis
Auto Dial Modes- Standard AT compatible dial commands or DTR dial of stored number.
Answer Modes- Standard auto answer or manual answer under DTE control.
Error correction- V.42 and MNP 2-4 error correction
Data Compression- V.42bis and MNP5 data compression
Configuration Control- Standard AT commands for both local and remote configuration
Diagnostic- V54 throughout AT commands
Network Interface- 2-wire, pulse or DTMF dial.
XMT level: -12dBm
RCV sensitivity: -43dBm
Power- Standalone units automatically adjust to 14-54VDC
Standard S1900 Rack mount unit automatically adjust to 85-265VAC, 27-440Hz. Optional 48VDC supply.
Environmental- Operating temperature range:
 -20˚C to 70˚C. Humidity: 90% non-condensing
Approvals- FCC part 68& part 15, class A
Optional: international approvals available

FEATURES

User ID/Password-Capable of storing as many as 400 passwords can be configured to operate with or without a password prompt.
Retry Limits-Designed to foil the conventional trial and error approach to unauthorized access.
Caller ID Verification-The Caller ID feature requires that caller's telephone number present in the modem's database.
Non-registered numbers will not receive modem supervision.
Closed User Groups- Built in challenge response algorithms may be enabled to create closed user groups of DCE security modem
Automatic Call Back-Is configured to initiate a call back to a users modem, insuring that access is originated from known terminal or locations.
Password Aging –Insures that passwords are changed on a specified schedule.
Enforced Syntax- Implements password policies with regards to alpha, numeric and control type characters
Audit Trial with Precision Time Keeping-With the audit trial facilities, there is never a question about who has gained access or who has tried to gain access of your installation. All attempts to access a V.3600LP+ series device are stored in a nonvolatile audit trail along with the date and time.

ORDERING INFORMATION

DCE/V3600LP+   V3600 LOW PROFILE
DCE/3342LP+   V.34BIS LOW PROFILE

DATA CONNECT ENTERPRISE
PHONE: 301.924.7400 EXT 17

3405 OLANDWOOD CT
FAX: 301.924.7403

OLNEY, MD 20832   USA
www.data-connect.com

DCE IG336S

The Data Connect DCE/IG336S high speed V.34bis security dial-line modems are designed and manufactured for rugged industrial applications over the Public Switched Telephone Network (PSTN) with security features such as password log-in and security call-back. The DCE/IG336S utilizes the industries latest V.34bis modem technology to deliver outstanding features, performance and reliability in one cost-effective solution.

The DCE/IG336S modem are ideally suited for industrial communication applications including SCADA systems, RT's, traffic monitor and control, and industrial automation network. The DCE/IG336S supports RTUs equipped with an EIA RS-232 or RS-485 serial port. Data communications speed up to 33.6 kbps are supported.

The modems incorporate the latest data-compression and error-correction standards for improved data transmission and reception over marginal and poor-quality telephone lines. Multiple levels of security with password verification and security call back keep your valuable data secure from intruders.

The DCE/IG336S modems are powered by a wide range of AC and DC power supply voltages. Its low consumption and low stand-by current technology design makes the DCE/IG366S is ideal for battery-powered system as well as regular AC powered operations.

FEATURES

Worldwide Operation Support:
-ITU-T V.34bis/V.34/V.32bis/V.32
-ITU-T V.22bis/V.22/V.23/V.23/V.21
-Bell 212A/Bell 103
-V29 Fast POS
-V.22bis fast connect
-V.44/V.42bis/MNP 2
-V.42/MNP 2/MNP 4
Security Options: Password Log-in & Security Call-back
DTE/ Host Interface - EIA RS-232 and RS-485
Embedded AT command set
Sixty-three embedded and upgradable country profiles for worldwide homologation
NVRAM for configuration and country profile storage
Built-in remote diagnostics and configuration management Heavy-duty surge protection provided at power supply and phone line interface
Supports wide range of AC and DC power supply options
Supports DC power supplied from DTE or DB-9 connector
Wide range of operating temperatures
Optional mounting kits for DIN Rail mounting or wall mount

SPECIFICATIONS

Data Rate Support:
ITU-T V.34bis: Up to 33.6kbps
V.34: Up to 28800 bps
V.32bis/V.32: Up to 14400 bps
V.22bis: Up to 2400 bps
V.21: 0-300 bps
Bell 212A: 1200 bps
Bell 103: 0-300 bops
Fax modem:
Send and receive fax up to 14.4 kbps
V17, V29, V27ter, and V21 channel 2
EIA/TIA 578 Class 1, T.31 Class 1.0, and Class 2
Data Format:
Asynchronous, 7, 8 or 9 data bits, parity, 10- or 11-bits character with 1 or 2 stop bits
Modulation:
Fully compatible with ITU-T V.34bis/V.34/V.32bis/ V.22bis/V.21 Bell 212A and Bell 103 compatible modes.
Transmission Line Interface
2-wire full duplex over PSTN
Connector: RJ-11C
DTE/RTU Interface
The modem provide serial ports to support RS-232 or RS-485 (selectable) interface standards:
RS-232 Interface
Connector: DB9-F
Signal: RTS, CTS CD, TD, RD, DT, DSR, RI
RS-485 Interface
Connector: RJ-11C
Signals: 4-wire full-duplex or 2-wire half-duplex
TX+, TX-, RX+, and RX-
Front Panel Indicators:
LED. Indicators - DTR, TXD, RXD, DCD, DSR, RI
Security Options
Password Log-in
Security call-back
Power Supply
Three models support various power options:

Standalone:	90-264VAC	
Standalone	100-400VDC	
Standalone	10-48 VDC	

Power Consumption:
Idle mode: 65 mA@12V, 0.78 watts
Normal mode: 75 mA@12V, 0.9 watts typical
Mechanical
Enclosure dimensions:
4.1"(W) x 5.0"(L) x 1.3"(H)
104mm(W) x 127mm(L) x 33mm(H)
Weight: 0.5 pound, without AC power module
Operating Temperature: -40 C to + 85 C
Storage Temperature: -40 C to + 85 C
Humidity: Up to 95% non-condensing
Dry Contact Detection (optional)
Two optical isolated dry contact detections are provided for external devices (consult factory for additional information).

ORDERING INFORMATION

DCE/IG336S	Standalone with AC power module, 90-264VAC
DCE/IG336SDC	Standalone, DC power, 10-48 VDC
DCE/IG336S-HV	Standalone with AC power module, 90-264VAC or 100-400VDC
DCE/IG202T-DIN	DCE EN2 Din Rail Kit

DCE LP SERIES

For industrial networks, data centers and remote management application that require high-speed connections, the Data Connect V.3600LP family of wire line data modems incorporates the latest advances in modem design to deliver efficient and reliable performance that is packaged for industrial and commercial applications. V.3600LP series modems offer superior price/performance and robust features set that will meet or exceed your communications needs. UNIVERSAL WIRELESS CONFIGURATION

Complex network configuration often incorporate a variety of data set interfaces, each requiring separate modem types. The result has been a requirement to stock seldom used parts, often in significant quantity. Now, the DCE V.3600LP series offers an all-in-one solution for a wide range of applications. Packaged in either a polymer or metal case, and backed by a five year warranty, the V.3600LP series is capable of operating in either 2 or 4 wire configurations on dial up, leased line, or short haul networks. Protocol support includes V.34, V.32, V.32bis as well as Bell 212A and 103j.

With its standard power saving standby mode and instantaneous (zero character loss) recovery, the V.3600LP series reduces stocking and spares cost while providing additional project flexibility. V.3600LP series modems have been developed to meet the strident environmental and performance demands of the commercial and industrial applications.

Every component, switch and connector is selected for its ability to withstand industrial environmental demands. V.3600LP series models may be housed in optional metal enclosures and are built to meet the most stringent criteria. Temperature ratings, for stringent example, range from -20 C to +70˚C. Versatile power supply options will satisfy any industrial application. Available in commercial and industrial standalone configurations

SPECIFICATIONS

Compatibility– V.34bis, V.34, V.32bis, V.32, V.22bis, V.22, V.23, V.21, Bell 212A, and Bell 103j

DTE Interface- Physical- DB9 connector Electrical-RS-232F (V.24).
Asynchronous: Auto baud or selectable format and rates to 115.2Kbps with V.34 or 57.6 Kbps with V.32bis.
Auto Dial Modes- Standard AT compatible dials command or DTR dial of stored number.
Answer Modes – standard auto answer or manual answer under DTE control.
Error Correction- V.42 and MNP 2-4 error correction
Data Compression- V.42bis and MNP5 data compression
Configuration Control- Standard AT commands for both local and remote configuration
Diagnostic- V.54 through AT commands
Network Interface:
Dial-up: 2-wire pulse or DTMF XMT level:
12dBm RCV sensitivity: -43dBm
2-wire and 4-wire Leased and short –haul
XMT level: Adjustable RCV sensitivity : -43dBM
Power: standalone units automatically adjust to 7-14VDC unregulated, or regulated 5VDC ± 5% (ripple <100mv)
Optional 48VDC supply
115VAC->9VDC Wall Transformer included with all standalone configurations.
Power Consumption
Operational Mode- 85mA@12VDC
Standby Mode -38mA@12VDC
Standby to Operational Transition Time-
Nearly instantaneous- will detect first character or ring.
Operating temperature range: -20˚C to 70˚C
Humidity: 90% non-condensing
Approvals- FCC Part 68& Part 15, Class A
Optional: International approvals available.
Commercial Standalone Dimensions: 5.3"L x 5.05"W x 1.53"H.
Weight: 12oz

ORDERING INFORMATION

DCE/3600LP	V3600 LOW PROFILE
DCE/3342LP	V34BIS LOW PROFILE

FEATURES

All In One Design-
One Model to support
2-wire and 4-wire operation
Leased Line,
Dial-up, short haul V.34, V.32, V.32bis
Standard Error Correction and compression AT command set
Polymer or Metal Case

DCE IG336

The Data Connect DCE/IG336 high speed V.34bis dial-line modems are designed and manufactured for rugged industrial applications over the Public Switched Telephone Network (PSTN). The DCE/IG336 utilizes the industries latest V.34bis modem technology to deliver outstanding features, performance, and reliability in one cost-effective solution.

The DCE/IG336 modems are ideally suited for industrial communication applications including SCADA systems, RTUs, traffic monitor and control, and industrial automation networks. The DCE/IG336 supports RTUS equipped with an EIA RS-232 or RS serial port. Data communication speeds up to 33.6 kbps are supported.

The modems incorporate the latest data compression and error-correction standards for improved data transmission and reception over marginal and poor-quality telephone lines.

The DCE/IG336 modems are powered by a wide range of AC and DC power supply voltages. Its low power consumption and low stand-by current technology design makes the DCE/IG336 ideal for battery-powered systems as well as regular AC powered operations.

FEATURES

Worldwide Operation Support:
-ITU-T V.34bis/V.34/V.32bis/V.32
-V.22bis/V.22/V.23/V23/V.21
-Bell 212A/Bell 103
-V29 Fast POS
-V.22bis fast connect
Data Compression: V.44/V.42bis/MNP2
Error Correction: V.42/MNP 2/MNP 4
DTE/ Host Interface: EIA RS-232 and RS-485
Embedded AT command set
Sixty-three embedded and upgradeable country profiles for worldwide homologation
NVRAM for configuration and country profile storage
Built-in remote diagnostics and configuration management Heavy-duty surge protection provided at power supply phone line interface
Supports wide range of AC & DC power supply options
Supports DC power supplied from DTE or DB-9 connectors
Wide range of operating temperatures
Optional mounting kits for DIN Rail mounting or wall mount

SPECIFICATIONS

Data Rate Support:
ITU-T V.34bis: Up to 33.6kbps
V.34: Up to 28800 bps
V.32bis/V.32: Up to 14400 bps
V.22bis: Up to 2400 bps
V.21: 0-300 bps
Bell 212A: 1200 bps
Bell 103: 0-300 bops
Fax modem:
Send and receive fax up to 14.4 kbps
V17, V29, V27ter, and V21 channel 2
EIA/TIA 578 Class 1, T.31 Class 1.0, and Class 2
Data Format:
Asynchronous, 7, 8 or 9 data bits, parity, 10- or 11-bits character with 1 or 2 stop bits
Modulation:
Fully compatible with ITU-T V.34bis/V.34/V.32bis/ V.22bis/V.21 Bell 212A and Bell 103 compatible modes.
Transmission Line Interface
2-wire full duplex over PSTN
Connector: RJ-11C
DTE/RTU Interface
The modem provide serial ports to support RS-232 or RS-485 (selectable) interface standards:
RS-232 Interface
Connector: DB9-F
Signal: RTS, CTS CD, TD, RD, DT, DSR, RI
RS-485 Interface
Connector: RJ-11C
Signals: 4-wire full-duplex or 2-wire half-duplex
       TX+, TX-, RX+, and RX-
Front Panel Indicators:
LED. Indicators - DTR, TXD, RXD, DCD, DSR, RI
Security Options
     Password Log-in
     Security call-back
Power Supply
Three models support various power options:
     Standalone: 90-264VAC
     Standalone 100-400VDC
     Standalone 10-48 VDC
Power Consumption:
 Idle mode: 65 mA@12V, 0.78 watts
Normal mode: 75 mA@12V, 0.9 watts typical
Mechanical
Enclosure dimensions:
4.1"(W) x 5.0"(L) x 1.3"(H)
104mm(W) x 127mm(L) x 33mm(H)
Weight: 0.5 pound, without AC power module
Operating Temperature: -40 C to + 85 C
Storage Temperature: -40 C to + 85 C
Humidity: Up to 95% non-condensing
Dry Contact Detection (optional)
Two optical isolated dry contact detections are provided for external devices (consult factory for additional information).

ORDERING INFORMATION

DCE/IG336	**Standalone with AC power module 90-264VAC**
DCE/IG336DC	**Standalone, DC power, 10-48 VDC**
DCE/IG336-HV	**Standalone with AC power module, 90-264VAC or 100-400VDC**
DCE/IG202T-DIN	**DCE EN2 Din Rail Kit**

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DATA CONNECT ENTERPRISE
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DCE 3342E-004-2

For data center and remote network applications that require low-speed connections, the Data Connect ST3342E-004-2 commercial modem incorporate the latest advances in modem design to deliver efficient and reliable performance

The Data Connect ST3342E-004-2 commercial modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands.

At connect speeds of 33600bps and below, our patented Quick Connect features reduce modem connect time by as much as 50%.

The Data Connect ST3342E-004-2 commercial modem is available in commercial single port standalone configurations. Rack mount configurations are also available.

SPECIFCATIONS

Compatibility:	V.34bis, V.34, V.32bis, V.32, V.22bis, V.22, Bell 212A, Bell 103J
DTE Interface:	RS232C (V.24), Synchronous or Asynchronous- Auto baud or selectable formats and rates to 155.2kbps.Industrial model includes RS485

Auto Dial modes: Standard AT compatible dial commands or DTR dial or stored number

Answer modes:	Standard auto answer or manual answer under DTE control

Error Correction: V.42 and MNP 2-4 error correction.

Data Compression: V.42bis and MNP5 data a compression

Configuration Control: Standard AT commands for both local and remote configurations.

Diagnostic:	V.54 through AT command

Network Interface: Dial-up 2-wire Pulse or DTMF
XMT level—12dBm
RCV sensitivity—43dBm
2-wire leased and short-haul
XMT level – adjustable
RCV sensitivity –43dBm

Power:	Standalone single port standard unit automatically adjust to 9VAC or 9-14VDC

Power Supply Options: 5.5-14VDC, 18-75VDC, 66-160VDC

Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz. Optional DC supply automatically adjusts to positive or negative 36-75VDC

Environmental:
Commercial Unit- Operating temperature range 20˚C to +70˚C
Humidity- 90% non-condensing.

Approvals:	FCC Part 68 & Part 15, class A Optional International approvals are available

Physical:
Commercial Unit-   Dimensions
5.30"L X 5.05"W 1.53"H
Weight -12oz.
Rack-mount unit- Fits CC-2016 rack
4.73"L x 4.60"W x 80"H

FEATURES

Standard 2-wire Dial-up
2-wire leased line or short haul operation
AT command set
Standard error correction and compression
RS232 & RS485 terminal interface
Asynchronous and Synchronous DTE support
Exclusive quick connect

ORDERING INFORMATION

DCE/3342E-004-2   33.6Kbps 2-Wire Dial or Leased Line Modem

DCE 3342R-004-2

For data center and remote network applications that require low-speed connections, the Data Connect ST3342R-004-2 commercial rackmount modem incorporate the latest advances in modem design to deliver efficient and reliable performance

The Data Connect ST3342E-004-2 commercial modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands.

At connect speeds of 33600bps and below, our patented Quick Connect features reduce modem connect time by as much as 50%.

The Data Connect ST3342E-004-2 commercial modem is available in commercial single port standalone configurations. Rack mount configurations are also available.

FEATURES

Standard 2-wire Dial-up
2-wire leased line or short haul operation
AT command set
Standard error correction and compression
RS232 & RS485 terminal interface
Asynchronous and Synchronous DTE support
Exclusive quick connect

SPECIFCATIONS

Compatibility: V.34bis, V.34, V.32bis, V.32, V.22bis, V.22, Bell 212A, Bell 103J
DTE Interface: RS232C (V.24), Synchronous or Asynchronous- Auto baud or selectable formats and rates to 155.2kbps.Industrial model includes RS485
Auto Dial modes: Standard AT compatible dial commands or DTR dial or stored number
Answer modes: Standard auto answer or manual answer under DTE control
Error Correction: V.42 and MNP 2-4 error correction.
Data Compression: V.42bis and MNP5 data a compression
Configuration Control: Standard AT commands for both local and remote configurations.
Diagnostic: V.54 through AT command
Network Interface: Dial-up 2-wire Pulse or DTMF
    XMT level—12dBm
    RCV sensitivity—43dBm
    2-wire and 4-wire leased and short-haul
    XMT level – adjustable
    RCV sensitivity –43dBm
Power: Standalone single port standard unit automatically adjust to 9VAC or 9-14VDC
Power Supply Options: 5.5-14VDC, 18-75VDC, 66-160VDC
Rack-mount: Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz. Optional DC supply automatically adjusts to positive or negative 36-75VDC
Environmental:
    Commercial Unit- Operating temperature range 20˚C to +70˚C
    Humidity- 90% non-condensing.
Approvals: FCC Part 68 & Part 15, class A Optional International approvals are available
Physical:
    Commercial Unit- Dimensions
    5.30"L X 5.05"W 1.53"H
    Weight -12oz.
    Rack-mount unit- Fits CC-2016 rack
    4.73"L x 4.60"W x 80"H

ORDERING INFORMATION

DCE/3342R-004-2   33.6Kbps 2-Wire Dial or Leased Line Rackmount Modem

DCE 3342E-208-4

For data center and remote network applications that require low-speed connections, the Data Connect ST3342E-004-2 commercial modem incorporate the latest advances in modem design to deliver efficient and reliable performance

The Data Connect ST3342E-004-2 commercial modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands.

At connect speeds of 33600bps and below, our patented Quick Connect features reduce modem connect time by as much as 50%.

The Data Connect ST3342E-004-2 commercial modem is available in commercial single port standalone configurations. Rack mount configurations are also available.

SPECIFCATIONS

Compatibility: V.34bis, V.34, V.32bis, V.32, V.22bis, V.22, Bell 212A, Bell 103J

DTE Interface: RS232C (V.24), Synchronous or Asynchronous-Auto baud or selectable formats and rates to 155.2kbps.Industrial model includes RS485

Auto Dial modes: Standard AT compatible dial commands or DTR dial or stored number

Answer modes: Standard auto answer or manual answer under DTE control

Error Correction: V.42 and MNP 2-4 error correction.

Data Compression: V.42bis and MNP5 data a compression

Configuration Control: Standard AT commands for both local and remote configurations.

Diagnostic: V.54 through AT command

Network Interface: Dial-up 2-wire Pulse or DTMF
XMT level—12dBm
RCV sensitivity—43dBm
2-wire and 4-wire leased and short-haul
XMT level – adjustable
RCV sensitivity –43dBm

Power: Standalone single port standard unit automatically adjust to 9VAC or 9-14VDC

Power Supply Options: 5.5-14VDC, 18-75VDC, 66-160VDC

Rack-mount: Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz.
Optional DC supply automatically adjusts to positive or negative 36-75VDC

Environmental:
Commercial Unit- Operating temperature range 20˚C to +70˚C
Humidity- 90% non-condensing.

Approvals: FCC Part 68 & Part 15, class A
Optional International approvals are available

Physical:
Commercial Unit- Dimensions
5.30"L X 5.05"W 1.53"H
Weight -12oz.
Rack-mount unit- Fits CC-2016 rack
4.73"L x 4.60"W x 80"H

FEATURES

Standard 2-wire Dial-up
2-wire and 4-wire leased line or short haul operation
AT command set
Standard error correction and compression
RS232 & RS485 terminal interface
Asynchronous and Synchronous DTE support
Exclusive quick connect

ORDERING INFORMATION

DCE/3342R-004-2 33.6Kbps 2-Wire Dial or 2/4-Wire Leased Line Rack-mount Modem

NOTES:

V.34 MODEM CHECK LIST

MODEL	MAX. SPEED	HIGH VOLT.	LOW VOLT.	DIAL	LEASED	RACK MOUNT	DIN MOUNT	SECUR-ITY	WALL MOUNT	PHOTO	PAGE
DCE/MIU28.8	28.8KBPS			X							91
DCE/MIUPP28.8	28.8KBPS			X							92
DCE/MD28.8	28.8KBPS			X		X					93
DCE/PE28.8	28.8KBPS			X							95

DCE MIU28.8

To service the growing need for efficient, reliable data communication in a harsh environmental of utility substations and industrial facilities, has developed a 28800bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substation, where meters relays, RTU's, SCADA system, etc are able to "talk" to a remote operator, communication devices such as modems moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the MIU28.8 series modem designed specifically for harsh environments.

The MIU28.8 series modem is highly sophisticated full duplex, V.34 data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The Miu28.8 series modem operates on a dial-up system.

The MIU28.8 series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The MIU28.8 modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The MIU28.8 series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU (Bell), MIU14.4 and MIU9.6FPD modems

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
28.8kbps 2-wire Dial Modem
48 to 220 AC/DC Power Supply
IEC801-4 Surge Protection
-40˚C to +85˚C Operating Temperature
For Meters, Relay, SCADA etc.

SPECIFICATIONS

Modem Line Speeds:
Asynchronous 28800, 14400, 9600, 4800, 1200, 300bps
DTE Rates: Above modem line speeds (IE; with data compression)
115.2, 57.6, 38.4 19.2kbps
Standards: V.34, V.32bis, V.32, V.22bis, V.22, Bell 212A, and Bell 103
Transmission Line: Dial
Compatibility: Hayes Extended AT command set
Power Supply: 48VAC/DC to 220VAC/DC
                    (Optional 9-36VDC)
Power Connector: 4-ft AC Cord with 3-pin screw
        terminal connector included
Case size: 5-3/8" x 4" x 1-3/8"
Digital Port: RS232 withDB9 connector
Analog Port: RJ11 Modular Jack
Surge Protection: (power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)
Surge Protection: 3.75VAC
Environment: -40˚C to +85˚C, 0 to 95% humidity
                          (non-condensing)
Certifications: FCC Part 68, Industry Canada

ORDERING INFORMATION

DCE/MIU-28.8   V.34 28.8Kbps2-Wire Dial Modem
DCE/MIU-28.8LV   V.34 28.8Kbps2-Wire Dial Modem Low Voltage

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DCE MIU-PP288

To service the growing need for efficient, reliable data communication in a harsh environmental of utility substations and industrial facilities, has developed a 28800bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substation, where meters relays, RTU's, SCADA system, etc are able to "talk" to a remote operator, communication devices such as modems moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the PowerPort-MIU28.8 series modem designed specifically for harsh environments.

The PowerPort-MIU28.8 series modem is highly sophisticated full duplex, V.34 data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The PowerPortMiu28.8 series modem operates on a dial-up system.

The PowerPort-MIU28.8 series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The PowerPortMIU28.8 modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The PowerPort-MIU28.8 series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU202T (Bell), MIU9.6FPD, MIU14.4, and MIU28.8 modems.

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
28.8kbps 2-wire Dial Modem
Powered through the RS232 (DB25) data interface port or External Jack
(Optional 7-16VDC available)
Automatic "Power Down" when inactive
IEC801-4 Surge Protection
-40˚C to +85˚C Operating Temperature
Hayes AT compatible

SPECIFICATIONS

Modem Line Speeds:
Asynchronous 28800, 14400, 9600, 4800, 1200, 300bps
DTE Rates: Above modem line speeds (IE; with data compression)
115.2, 57.6, 38.4 19.2kbps
Standards: V.34, V.32bis, V.32, V.22bis, V.22, Bell 212A, and Bell 103
Transmission Line: Dial
Compatibility: Hayes Extended AT command set
          Powered through the RS232 (DB25) data interface port or external jack (optional 7-16VDC available)
Case size: 5-3/8" x 4" x 1-3/8"
Digital Port: RS232 withDB9 connector
Analog Port: RJ11 Modular Jack
Surge Protection: (power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)
Surge Protection: 3.75VAC
Environment: -40˚C to +85˚C, 0 to 95% humidity
                    (non-condensing)
Certifications: FCC Part 68, Industry Canada

ORDERING INFORMATION

DCE/MIU-PP288   V.34 28.8Kbps2-Wire Dial Modem with 5VDC Power thru DB25

DCE MD288

MD228 SPECIFICATIONS

Modem Line Speeds	Asynchronous 28800, 14000, 9600, 4800, 2400, 1200, 300bps
DTE Rate	Above modem line speeds (IE; with data compression 115.2, 57.6, 38.4, 19.2kbps
Standards	V.34, V.32bis, V.32, V.22bis, V.22, Bell 212A, Bell 103
Transmission Line	2-wire dial
Compatibility	Hayes Extended AT Command Set
Digital Port	RS232 with DB9 Connector
Analog Port	RJ11Modular Jack
Surge Protection	(Power Line) 8kV [Exceeds IEC801-4] (20kV {IE801-5} (available if required)
Surge Protection	3.75VAC
Environment	-40˚C to + 85˚C, 0 to 95% humidity (non-condensing)
Certifications	FCC Part 68, Industry Canada

The Data Connect MD28.8 is the Rack-mount version of the Data Connect MIU28. The same functionally that can be found in the MIU28.8 can be found in the MD14.4L.

The Data Connect MD28.8 is a Bell V.32bis modem designed for asynchronous operation at 0 to 144400bps over voice grade lines. The modem is intended for use on 2-wire or 4-wire leased lines.

The MD28.8 is comprised of MDMC carrier card and PE14.4 module. Up to 18 MD28.8 can be front loaded into MDR Modem Bank.

The MDR Modem Bank is an industrial grade 19" X 3U rack mountable chassis. MDR Modem Bank is powered from a wide range of AC and DC voltages. Two power supply cards can be installed to provide automatic back up in the event the primary power supply fails. The MDR will operate in temperatures from -20˚C to + 85˚C and is surge protected on both power analog lines.

Two power supply slots are provided. Power supply cards are available for any voltage in the range 9-150VDC and 9-275VAC. A single power supply card will power all 18 MD28.8. In additional to the MD28.8 the MDR Modem Bank also houses the MD14.4L, MD14.4, MD9.6FPD, and MD202T.

ORDERING INFORMATION

DCE/MD288   V.34 28.8Kbps2-Wire Dial Rackmount Modem

DCE MDR

FEATURES

18 Modem Slots
Dial & Leased Line Modems
V.22, 202T, 9.6FPD, V.32bis, V.34
Hayes AT Compatibility
Full Array of LEDs
Standard 19" x 5.25" (3U) Euro-Chassis
AC or DC Power from 9 to 300VAC or VDC
Dual Power Supplies with Full Redundancy
Ideal for SCADA Master Stations

The Data Connect MDR Modem Chassis is designed to house eighteen (18) DCE MD Modem Cards and two (2) DCE MDP Power Supplies. The DCE MDR Modem Chassis is hardened industrial grade, 19" wide, 3U height (5.25"H), and constructed heavy gauge steel with plating for corrosion resistance.

The DCE MD Modem Cards are comprised of a DCE MDMC Modem Carrier Card and a DCE PE OEM Card. The DCE MD202T (Bell 202T), MD9.6FPD (Proprietary), MD2.4 (V.22), MD14.4 (V.32bis), MD14.4L (V.32bis), and MD28.8 (V.34) operate within the DCE MDR Modem Chassis and are hot-swappable. Any mix of the DCE MD modems can be utilized simultaneously.

Two (2) DCE MDP Power Supplies Cards provide full redundancy and are available for any voltage in the range of 9-150VDC and 9-275VAC. A single DCE MDP Power Supply Card powers eighteen (18) Modem Cards. A second DCE MDP Power Supply Card, if installed, provides automatic backup in the event of a failure of the primary DCE MDP Power Supply Card.

SPECIFICATIONS

EIA Standards
Compliant with EIA Standard EIA-310-C
Modem Interface Connectors (Rear)
Serial RS232: DB25F
Analog Port: RJ11
LEDs (Front)
(Top to bottom)
DTR: Data Terminal Ready
TXD: Transmit Data
RXD: Receive Data
MR: Modem Ready
CD: Carrier Detect
RTS: Request to Send
CTS: Clear to Send
RI: Ring Indicator
Power Requirements
AC Power: 9 to275VAC – Fused Socket (IEC 320)
DC Power: 9 to 150VDC – Screw Terminals – 9 to 150VDC
Dimensions
Width: 19"
Depth:
Height: 5.25" (3U)
Environmental
Operating Temperature: -20 to +85 Degrees Celsius

DCE PE28.8

FEATURES

Modem Interface Units 5V logic (TTL)
Simple send and receive signals
2400kbps 2-wire dial-up line modem
5V logic (TTL) power supply
IEC801-4 surge protection
-40°C to +85°C operating temperature

To service the growing need for efficient, reliable data communication in harsh environments of utility substations and industrial facilities, DCE has developed a series of OEM PCB modems that can operate at 5V logic (TTL) or simple send and receive signals and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices. With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the meters, RTUs, and SCADA units where the conveniences of a standalone modem is unacceptable.

Data Connect Enterprise has addressed this problem by developing the PE28.8 OEM modem designed specifically for harsh environments.

The PE 28.8 OEM modem is highly sophisticated full duplex, V.34 data modem that is designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals. The 28.8 OEM modem operates at full duplex on a dial up line.

SPECIFICATIONS

Modem Line Speeds:
   Asynchronous 28800, 14400, 9600, 4800, 2400, 1200, 300bps
Standards:
   V.34, V.32bis, V.32, V.22bis, V.22, Bell 212A, and Bell 103
Transmission Line:
   Dial-up
Compatibility:
   Hayes Extended AT Command Set
Power:
   5V logic (TTL)
Card size:
   3.4" x 0.01" x 0.5"
Digital port:
   DTE 8-pin, simple send/receive signals
Analog port:
   RJ11 modular jack
Surge protection (Power line):
   8kV (exceeds IEC801-4) (20kV [IE801-5] available if required)
Surge protection (Analog line):
   5kVAC
Environment:
   -40°C to +85°C, 0-95% humidity (non condensing)
Certifications:
   FCC part 68, industry Canada

V.29 MODEM CHECK LIST

MODEL	MAX. SPEED	HIGH VOLT.	LOW VOLT.	DIAL	LEASED	RACK MOUNT	DIN MOUNT	SECUR-ITY	WALL MOUNT	PHOTO	PAGE
DCE/IG192HFP	19.2KBPS	X	X		X	X	X		X		97
DCE/IG96HFP	9.6KBPS	X	X		X	X	X		X		98
DCE/DSP9612	9.6KBPS	X	X		X	X					99

DCE IG192HFP

The IG192HFP industrial grade 19.2 kbps hyper fast poll modem is designed to operate over 4-wire full duplex or 2-wire half duplex unconditional leased lines or private metallic circuits. For optimum performance, the modem employs QAM modulation and Viterbi decoding scheme along with its adaptive equalizer to communicate over a variety of transmission lines. The IG192HFP supports DTE/RTUs with an EIA RS-232 and RS-485 serial port at speeds of 19200, 9600, 4800, 2400 and 1200 bps. With its Auto-RTS mode, the modem can support DTE/RTUs with 3-wire serial interface (TD, RD, SG) in multi-point polling applications.

The triple mode capability allows the IG192HFP industrial grade 19.2 kbps hyper fast poll modem to communicate with older generating DSP9612FP at up to 9600 kbps and both the Bell 202T and V.23 FSK modems at up to 1200 bps.

The IG192HFP industrial grade 19.2 kbps hyper fast poll modem is designed to operate over a wide range of AC or DC power supply voltages and temperatures. With proven reliability and ease of installations, the IG192HFP is deal for point-to-multipoint polling networks, where fast training time and low network latency are critical for system performance.

ORDERING INFORMATION

DCE/IG192HFP	STANDALONE (100-240VAC)
DCE/IG192HFP-LV	STANDALONE (10-48 VDC
)DCE/IG192HFP-HV	STANDALONE (100-240 VAC, 85-400 VDC)
DCE/IG192HFP-RM	RM16M RACK-MOUNT MODULE
DCE/192HFP-WMB	WALL-MOUNT/PANEL-MOUNT KIT

SPECIFICATIONS

TRIPLE MODE:
Hyper Fast Poll mode at 19200bps. 17.4 ms RTS-CTS delay QAM mode at 9600/4800/2400bps. 23 ms RTS-CTS delay FSK mode for both Bell 202T (0-1800bps) and V23 (0-1200bps)
DTE/RTU INTERFACE:
RS-232 interface with full control signals support (DB-9F) RS-485/RS422 support, 4-wire F.D., or 2-wire H.D. Auto RTS and forced RTS options to support 3-wire interface
LEASED LINE INTERFACE:
TELCO 2- or 4- wire conditioned or unconditioned lines Private metallic 2 or 4 wire circuits
Cable equalizers for long distance over standard cables
MECHANICAL:
Enclosure dimensions: 5.0" (W) x 6.75"(L) x 1.3" (H)
127mm (W) x 172mm (L) x 33mm (H)
DIAGNOSTIC:
Local or remote Analog + digital loopback eight (8) front panel LEDS for status monitoring
AC and DC Power Support:
Standalone: 10-48 VDC, 85-400 VDC, 100-240 AC Rack Mount Module: Plug-in RM16M modem rack
ENVIRONMENTAL:
Operating temperature: -40 to 85 Degrees Celsius
Storage temperature: -40 to 100 Degrees Celsius
Humidity: up to 95%, non-condensing
OPTIONAL MOUNTING KITS:
Wall-mount or panel mount kit DIN rail mounting kit
POWER + CURRENT CONSUMPTION:
125 mA @ 12 VDC
28.0 mA @ 48 VDC

DCE IG96HFP

The IG96HFP industrial grade 9.6 kbps hyper fast modem is designed to operate over 4-wire full duplex or 2 wire half duplex unconditioned leased lines or private metallic circuits. For optimum performance, the modem employs QAM modulations along with its adaptive equalizers to communicate over a variety of transmissions lines. The IG96HFP supports DTE/RTUs with an EIA RS-232 andRS-485 serial port at speeds of 9600, 4800, 2400 and 1200 bps. EIA its Auto-RTS mode, the modem can support DTE/RTUs with 3-wire serial interface (TD, RD, and SG) in multi-point polling applications.

The triple mode capability allows the IG96HFP industrial grade 9.6 kbps hyper fast poll modem to communicate with the older generation DSP9612FP at up to 9600 kbps and both the Bell 202T and V.23 FSK modem at up to 1200 bps.

The IG96HFP industrial grade 9.6 kbps hyper fast poll modem to range AC or DC power supply voltage and temperatures, with proven reliability and ease of installation, the IG96HFP is deal for point-to-multipoint polling networks, where fast training time and low-network latency are critical for system performance.

ORDERING INFORMATION

DCE/IG96HFP   STANDALONE (100-240VAC)
DCE/IG96HFP-LV   STANDALONE (10-48 VDC)
DCE/IG96HFP-HV   STANDALONE (100-240 VAC, 85-400 VDC)
DCE/IG96HFP-RM   RM16M RACK-MOUNT MODULE
DCE/96HFP-WMB   WALL-MOUNT/PANEL-MOUNT KIT
DCE/IG96HFP-DIN   DIN RAIL MOUNTING KIT

SPECIFICATIONS

TRIPLE MODE:
Hyper Fast Poll mode at 9600, 17.5 ms RTS-CTS delay QAM mode at 9600/4800/4200bps 23 ms RTS-CTS delay FSK mode for Bell 202T (0-1800) modes
DTE/RTU INTERFACE:
RS-232 interface with full control signals support (db-9F) RS-485/RS422 support, 4-wire F.D., or 2-wire H.D Auto RTS and forced RTS options to support 3-wire interface
LEASED LINE INTERFACE:
Telco 2- or 4- wire conditioned or unconditioned lines private metallic 2 or 4 wire circuits. Cable equalizer for long distance over standard cables
MECHANICAL:
Enclosure Dimensions: 5.0" (W) x 6.75" (L) x 1.3" (H). 127mm (W) x 172mm (L) x 33mm (H)
DIAGNOSTICS:
Local or remote Analog + digital loopback Eight (8) front panel LEDs for status monitoring AC and DC
POWER SUPPORT:
Standalone: 10-48 VDC, 85-400 VDC, 100-240 AC Rack Mount modules: Plug-in RM16M modem rack
ENVIRONMENTAL:
Operating temperatures:-40 to 85 degrees Celsius storage temperature:-40 to 100 degrees Celsius humidity: up to 95% non-condensing
OPTIONAL MOUNTING KITS:
Wall-mount or panel-mount kit
DIN rail mounting kit
POWER+ CURRENT CONSUMPTION:
125 mA @ 12 VDC
28.0 mA @ 48 VDC

DCE DSP9612

The DCE Fast Poll DSP9612 is a triple mode, full featured 9600 QAM fast poll, ITU V.23 and Bell 202T leased line or private wire modem with the fastest training time in the industry: 23msec RTS?CTS delay at 9600bps and 8ms in Bell 202T mode. The DSP9612 is ideal for utility and industrial automation multi-dropping applications, where an unlimited number or drops is desirable at ranges up to 16 miles (26km), including SCADA systems, traffic automation and oil or gas automation products.

The DSP9612 is a modem designed for 4-wire full duplex or 2 wire half-duplex operation over a voice-band leased line or private copper wire. The modem designed utilizes the latest digital-signal processing (DSP) technology to achieve high performance with an adaptive equalizer for the best operation on the poor unconditional lines.

In Fast Poll Mode (9600/4800bps), the dsp9612 employs a propriety modulation and encoding scheme to achieve fast modem training time in V.23 or Bell 202T mode, the modem is also backward compatible with V.23 (0-1800bps) modems.

Ideal for systems where fast response, shirt training time and low throughput is required, the Flash poll is optimized for fast receiver equalizer training and extremely low through put delay.

The triple mode capability allows the DSP9612 to communicate with existing V.23 or Bell 202T modems at up to 1800bps, which can then be upgraded later to DCE DSP9612 Fast poll standalone modems and switched to 9600bps. Three models are available: Rack mount (RM) for insertion into RM16 nest, stand alone AC/DC powered (FP) and standalone low Voltage DC powered (LV).

Auto RTS is a new feature allowing multi-drop for devices with 3 wire data interfaces and no control signals (no RTS signal) required.

FEATURES

Fast poll modems are industrial grade modems designed for harsh environmental conditions [-40 to 85 degrees Celsius] with ultra fast polling times.
Triple mode: QAM 9600 or 4800 bps, ITU V.23 and Bell202T.
Fast Training modem equalizer with 23msec RTS/CTS delay @ 9600/4800bps.
DSP designed with automatic adaptive equalizer.
Leased-line or private wire interfaces. Line and power protected with heavy-duty surge protection.
Stand alone or nest card for RM16 nest.
All settings are DIP switch selectable with no software commands
Auto RTS allows multi-drop for devices with three wire data interface.

SPECIFICATIONS

DATA RATE
Fast Poll Mode: 9600 or 4800 bps asynchronous, +1% -2.5%
Bell 202T Mode: 0-1800 bps asynchronous
V.23 Mode: 0-1200bps asynchronous
DATA FORMAT - 8 or 9 data bits with 1 more stop bits
LINE REQIREMENTS - TELCO Voice band 2 or 2 wire leased line.
Private metal RS-232 (DTE) INTERFACE

Signal Name	in/out DP25	PIN Description
Earth	GND1	Earth Ground
TXD	Input 2	Transmit Data
RXD	Output 3	Receive Data
RTS	Input 4	Request to Send
CTS	Output 5	Clear to Send
DSR	Output 6	Data Set Ready (Modem Ready)
SG	GND7	Signal Ground
DCD	Output 8	Data Carrier Detected
DTR	Input20	Data Terminal Ready (HOST READY)
DSR	Input23	Data Select Rate

OPERATING MODES - 2-wire half duplex or 4-wire full duplex
MODULATION - DCE Propriety (Fast Poll Mode)
EQUALIZER - Automatic, adaptive in Fast Poll Mode, Fixed compromised in FSK mode
TRAINING TIME (RTS to CTS Delay)
Fast Poll Mode: 23ms V23 33ms
Bell 202T Mode:8, 33, 59, 219 ms
CABLE EQUALIZER - Fixed transmitter and receiver cable equalizer
POWER SUPPLY (BY MODEL)
DSP9612RM, powered from RM16 Rack
DSP9612LV, 10 to 53 VDC
DSP9612FP, 85 to 265 VAC or 85 to 400 VDC
SURGE PROTECTION - Provided at power line and leased line; Up to 15KV (Standalone Version)
CARRIER CONTROL - Constant or switched, DIP Switch available
SYNCHRONIZATION LOSS RECOVERY - Built in Train on Data for Fast Poll
TRANSMIT OUTPUT LEVEL +3dbm, to -14dbm, 1dbm step (Dip Switch available)
OPERATING TEMPERATURE - -40 Degrees Celsius to 85 Degrees Celsius
RM FORM FACTOR - Rack-Mount Modem card for the DCE and the Motorola/UDS MD16M Universal Data Shelf
Dimension 9" x 6.25 x 0.87"
Weight 8oz.
LV AND FP FORM FACTOR - Aluminum and Steel Case
Dimensions: 5.7" x 8.3" x1.5" (144.78mm x 210.82mm x 38.1mm)
Weight: 1.9lb (227 grams)
DIAGNOSTIC FEATURES
Front panel LED for status monitoring: Power (PWR), Request to send (RTS), Clear to Send (CTS), Transmit Data (TXD), Receive Data (RXD), Data Carrier Detect (DCD), Data Set Ready (DSR), Analog Loopback (ALB), Digital Loopback (DLB)
Front Panel loopback control for testing: Local Analog Loopback (ALB), Local Digital Loopback (DLB), Remote Digital Loopback (RDL)(except V.23 Mode)
DIAGNOSTIC FEATURES
Front panel LED for status monitoring: Power (PWR), Request to Send (RTS), Clear to Send (CTS), Transmit Data (TD), Receive Data (RD), Data Carrier Detect (DCD), Data Set Ready (DSR), Analog Loopback, Digital Loopback
Front Panel loopback control for testing: Local Analog Loopback, Local Digital Loopback, Remote Digital Loopback (except V.23 Mode)

V.32BIS MODEM CHECK LIST

MODEL	MAX. SPEED	HIGH VOLT.	LOW VOLT.	DIAL	LEASED	RACK MOUNT	DIN MOUNT	SECUR-ITY	WALL MOUNT	PHOTO	PAGE
DCE/1442E-003-2	33.6KBPS	X	X	X	X						101
DCE/IG144	14.4KBPS	X	X	X			X		X		102
DCE/IG144S	14.4KBPS	X	X	X			X	X	X		103
DCE/MIU14.4	14.4KBPS	X	X	X							104
DCEMIUPP14.4	14.4KBPS	X	X	X							105
DCE/MD14.4	14.4KBPS			X		X					106
DCE/PE14.4	14.4KBPS			X							108
DCE/MIU14.4L	14.4KBPS	X	X		X						109
DCE/MIUPP14.4L	14.4KBPS	X	X		X						110
DCE/MD14.4L	14.4KBPS				X	X					111
DCE/PE14.4L	14.4KBPS				X						113
DCE/1442E-203-3	14.4KBPS			X							114
DCE/1442E-103-2	14.4KBPS			X	X						115
DCE/1442R-003-4	14.4KBPS			X	X	X					116
DCE/1442E-503-2	14.4KBPS			X	X						117

DCE 1442E-003-2

For data center and remote network applications that require low-speed connections, the Data Connect ST1442E series modem incorporates the latest advance in modem design to deliver efficient and reliable performance.

The Data Connect ST1442E series modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands

The industrial-rated Data Connect ST1442E may be housed in an optional metal enclosure and is built to meet the most stringent criteria. Temperature ratings, for example, range from -40˚C to + 85˚C versatile power supply option will meet most industrial applications.

At connect speeds of 14400bps and below, our patented quick Connect features reduce modem connect time by as much as 50%

The Data Connect ST1442E series modem is available in commercial and industrial single-port standalone configurations. Rack mount configurations are also available.

FEATURES

Standard 2-wire Dial-up
2-wire and 4-wire leased-line or short haul operation
AT Command Set
Standard Error Correction and Compression
RS232 & RS485 Terminal Interfaces
Asynchronous and Synchronous DTE Support
Exclusive Quick Connect

ORDERING INFORMATION

DCE/1442E-003-2   Data Connect V32BIS 14.4KBPS Dial Modem

SPECIFICATIONS

Compatibility:	V.32bis/V.32/V.22bis/V.22/Bell 212A/Bell 103J.
DTE Interface:	RS232C (V.24), synchronous or asynchronous auto baud or selectable formats and rates to 57.6kbps. Industrial model includes RS485
Auto Dial modes:	Standard AT compatible dial commands or DTR dial or stored number
Answer modes:	Standard auto answer or manual answer under DTE control
Error Correction:	V.42 and MNP 2-4 error correction
Data Compression:	V.42bis and MNP5 data compression
Configuration Control:	Standard AT commands for both local and remote configurations.
Diagnostic:	V.54 through AT command
Network Interface:	Dial-up 2-wire Pulse or DTMF XMT level—12dBm RCV sensitivity—43dBm 2-wire and 4-wire leased and short-haul XMT level – adjustable RCV sensitivity –43dBm
Power:	Standalone single port standard unit automatically adjust to 9VAC or 9-14VDC
Power Supply Options:	5.5-14VDC, 18-75VDC / 66-160VDC
Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz.
Optional DC supply:	automatically adjusts to positive or negative 36-75VDC
Environmental:	Commercial Unit Operating temperature range 20˚C to +70˚C Humidity - 90% non-condensing Industrial Unit Operating temperature range 40˚C to +85˚C Humidity - 95% non-condensing
Approvals:	FCC Part 68 & Part 15, class A Optional International approvals are available.
Physical:	Commercial Unit Dimensions 5.30"L X 5.05"W 1.53"H Weight 12oz. Rackmount Unit Fits CC-2016 rack 4.73"L x 4.60"W x 80"H Weight 9oz. Industrial Unit Dimensions 6.190"L x 5.120"W 1.750"H Weight 32oz. (Metal Enclosure)

DCE IG144

The Data Connect DCE/IG144 high speed V.32bis dial-line modems are designed and manufactured for rugged industrial applications over the Public Switched Telephone Network (PSTN). The DCE/IG144 utilizes the industries latest V.32bis modem technology to deliver outstanding features, performance, and reliability in one cost-effective solution.

The DCE/IG144 modems are ideally suited for industrial communication application including SCADA systems, RTs, traffic monitor and control, and industrial automation networks. The DCE/IG144 supports RTUs equipped with an EIA RS-232 or RS-485 serial port. Data communications speeds up to 14.4 kbps in reception and up and up to 9.6 kbps in transmission are supported.

The modems incorporate the latest data-compression and error-correction standards for improved data transmission and reception over marginal and poor-quality telephone lines. Multiple levels of security with password verification and security call back keep your valuable data secure from intruders.

The DCE/IG144 modems are powered by wide range of AC and DC power supply voltage. Its low power consumption and low stand-by current technology design makes the DCE/IG144 ideal for a battery-powered system as well as regular AC powered operations.

FEATURES

Worldwide Operation Support:
-ITU-T V.32bis/V.32/V.22bis/V.22/V.23/V.21/Bell 212A/Bell 103
-V29 FastPOS/V.22bis fast connect
Data Compression: V.44/V.42bis/MNP 2
Error Correction: V.42/MNP 2/MNP 4
DTE/ Host Interface
EIA RS-232 and RS-485
Embedded AT Command Set
63 embedded and upgradable country profiles for worldwide homologation
NVRAM for configuration and country profile storage
Built-in remote diagnostics and configuration management
Heavy-duty surge protection provided at power supply and phone line interface
Supports wide range of AC & DC power supply options
Supports DC power supplied from DTE or DB-9 connector
Wide range of operation temperatures
Optional mounting kits for DIN rail mounting or wall mount

ORDERING INFORMATION

DCE/IG144	Standalone with AC power module, 90-264VAC
DCEIG144DC	Standalone, DC power, 10-48VDC
DCE/IG144-HV	Standalone with AC power module, 90-264VAC or 100-400VDC
DCE/IG202T-DIN	DCE EN2 Din Rail Kit

SPECIFICATIONS

Data Modem:
ITU-T V32bis: Up to 14.4kbps receive & 9.6kbps transit
V.32: Up to 14400bps //V.32 Up to 9600 bps
V.22bis: Up to 2400 bps
V.21: 0-300 bps
Bell 212A: 1200bps
Bell 103: 0-300

Fax modem:
Send and receive fax up to 14.4 kbps
V17, V29, V27ter, and V21 channel 2
EIA/TIA 578 Class 1, T.31 Class 1.0, and Class 2

Data Format:
Asynchronous, 7, 8 and 9 data bits parity, 10- or 11-bit character with 1 or 2 stop bits

Modulation:
Fully compatible with ITU-T V.32bis/   V.22bis/V.21 Bell 212A and Bell 103 compatible

Transmission Line Interface:
2-wire full duplex over PSTN connector RJ-11C

DTE/RTU Interface
The modem provides serial ports to supports RS-232 or RS-485 (selectable) interface standards:
RS-232 Interface
Connectors: DB9-F
Signals: RTS, CTS, CD, TD, RD, DTR, DSR, RI
RS-485 Interface
Connector: RJ-11C
Signals: 4-wire full duplex or 2-wire half duplex
TX+, TX-, RX- and RX-

LED Indicators:
DTR, TXD, RXD, DCD, DSR, RI

Power Supply
Three models support various power options:
Standalone - 90-264VAC
Standalone - 100-400VDC
Standalone - 10-48VDC

Power Consumption:
Idle mode - 65 mA@12V, 0.78watts
Normal mode - 75 mA@12V, 0.9 watts, typical

Mechanical
Enclosure dimensions:
4.1" (W) x 5.0" (L) x 1.3" (H)
104mm (W) x 127mm (L) x 33mm (H)
Weight: 0.5 pounds, without AC power module

Environment
Temperature:
Operation - -40°C to +85°C
Storage - -40°C to +85°C

Humidity
Up to 95% non-condensing

Dry Contact Detection (optional)
Two Optical isolated dry contact detection are provided for external devices (consult factory for additional information)

DCE IG144S

The Data Connect DCE/IG144S high speed V.32bis dial-line modems are designed and manufactured for rugged industrial applications over the Public Switched Telephone Network (PSTN) with security features such as password log-in and security call-back. The DCE/IG144S utilizes the industries latest V.32bis modem technology to deliver outstanding features, performance, and reliability in one cost-effective solution.

The DCE/IG144S modems are ideally suited for industrial communication application including SCADA systems, RTs, traffic monitor and control, and industrial automation networks. The DCE/IG14S supports RTUs equipped with an EIA RS-232 or RS-485 serial port. Data communications speeds up to 14.4 kbps are supported.

The modems incorporate the latest data-compression and error-correction standards for improved data transmission and reception over marginal and poor-quality telephone lines. Multiple levels of security with password verification and security call back keep your valuable data secure from intruders.

The DCE/IG144S modems are powered by wide range of AC and DC power supply voltage. Its low power consumption and low stand-by current technology design makes the DCE/IG144S ideal for a battery-powered system as well as regular AC powered operations.

FEATURES

Worldwide Operation Support:
-ITU-T V.32bis/V.32/V.22bis/V.22/V.23/V.21/Bell 212A/Bell 103
-V29 FastPOS/V.22bis fast connect/V.44/V.42bis/MNP 2/V.42/MNP 2/MNP 4
Security Options: Password log-in / Security call-back
DTE/ Host Interface
EIA RS-232 and RS-485
Embedded AT Command Set
63 embedded and upgradable country profiles for worldwide homologation
NVRAM for configuration and country profile storage
Built-in remote diagnostics and configuration management
Heavy-duty surge protection provided at power supply and phone line interface
Supports wide range of AC & DC power supply options
Supports DC power supplied from DTE or DB-9 connector
Wide range of operation temperatures
Optional mounting kits for DIN rail mounting or wall mount

ORDERING INFORMATION

DCE/IG144S	Standalone with AC power module, 90-264VAC
DCEIG144SDC	Standalone, DC power, 10-48VDC
DCE/IG144-S-HV	Standalone with AC power module, 90-264VAC or 100-400VDC
DCE/IG202T-DIN	DCE EN2 Din Rail Kit

SPECIFICATIONS

Data Modem:
ITU-T V32bis: Up to 14.4kbps receive & 9.6kbps transit
V.32: Up to 14400bps
V.32 Up to 9600 bps
V.22bis: Up to 2400 bps
V.21: 0-300 bps
Bell 212A: 1200bps
Bell 103: 0-300

Fax modem:
Send and receive fax up to 14.4 kbps
V17, V29, V27ter, and V21 channel 2
EIA/TIA 578 Class 1, T.31 Class 1.0, and Class 2

Data Format:
Asynchronous, 7, 8 and 9 data bits parity, 10- or 11-bit character with 1 or 2 stop bits

Modulation:
Fully compatible with ITU-T V.32bis/   V.22bis/V.21 Bell 212A and Bell 103 compatible

Transmission Line Interface:
2-wire full duplex over PSTN connector RJ-11C

DTE/RTU Interface
The modem provides serial ports to supports RS-232 or RS-485 (selectable) interface standards:RS-232 Interface Connectors - DB9-F
Signals - RTS, CTS, CD, TD, RD, DTR, DSR, RI

RS-485 Interface
Connector - RJ-11C
Signals - 4-wire full duplex or 2-wire half duplex TX+, TX-, RX- and RX-

Front Panel Indicators
LED Indicators:
DTR, TXD, RXD, DCD, DSR, RI

Security Options
Password Log-in
Security call-back

Power Supply
Three models support various power options:

Standalone:	90-264VAC
Standalone:	100-400VDC
Standalone	10-48VDC

Power Consumption:

Idle mode:	65 mA@12V, 0.78watts
Normal mode:	75 mA@12V, 0.9 watts, typical

Mechanical
Enclosure dimensions:
4.1" (W) x 5.0" (L) x 1.3" (H)
104mm (W) x 127mm (L) x 33mm (H)
Weight: 0.5 pounds, without AC power module

Environment
Temperature:
Operation - -40°C to +85°C
Storage - -40°C to +85°C
Humidity - Up to 95% non-condensing

Dry Contact Detection (optional)
Two Optical isolated dry contact detection are provided for external devices (consult factory for additional information)

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DCE MIU-14.4

To service the growing need for efficient, reliable data communication in harsh environments of utility substation and industrial facilities, has developed a 14400bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the MIU14.4 series modem designed specifically for harsh environments.

The MIU14.4 series modem is highly sophisticated full duplex, V.32BIS data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The MIU14.4 series modem operates on a dial-up line systems.

The MIU14.4series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The MIU14.4 modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The MIU14.4 series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU202T (Bell), MIU28.8 and MIU9.6FPD modems

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
14.4kbps 2-wire Dial line modem
48 to 220 AC/DC Power Supply
IEC801-4 Surge Protection
-40˚C to +85˚C Operating Temperature
For Meters, Relay, SCADA etc.

SPECIFICATIONS

Modem Line Speeds:	
Asynchronous	14400, 9600, 4800, 1200, 300bps
DTE Rates:	Above modem line speeds (IE; with data compression) 57.6, 38.4 19.2kbps
Standards:	V.32bis, V.32, V.22bis, V.22, Bell 212A, and Bell 103
Transmission Line:	
	2-Wire Dial
Compatibility:	Hayes Extended AT command set
Power Supply:	48VAC/DC to 220VAC/DC (Optional 9-36VDC)
Power Connector:	4-ft AC Cord with 3-pin screw terminal connector included
Case size:	5-3/8" x 4" x 1-3/8"
Digital Port:	RS232 withDB9 connector
Analog Port:	RJ11 Modular Jack
Surge Protection:	(power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)
Surge Protection:	3.75VAC
Environment:	-40˚C to +85˚C, 0 to 95% humidity (non-condensing)
Certifications:	FCC Part 68, Industry Canada

ORDERING INFORMATION

DCE/MIU-14.4   Data Connect V.32BIS, 14.4KBPS Dial Modem 48V-240V

DCE/MIU-14.4LV   Data Connect V.32BIS, 14.4KBPS Dial Modem 9– 36VDC

DCE MIU-PP14.4

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
14.4kbps 2&$ wire leased line modem
Powered through the RS232 (DB25) data interface port or External Jack
(Optional 7-16VDC available)
Automatic "Power Down" when inactive
IEC801-4 Surge Protection
-40˚C to +85˚C Operating Temperature
Hayes AT compatible
Works with meters, Relays, SCADA, etc.

To service the growing need for efficient, reliable data communication in a harsh environmental of utility substations and industrial facilities, has developed a 14400bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substation, where meters relays, RTU's, SCADA system, etc are able to "talk" to a remote operator, communication devices such as modems moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the PowerPortMIU14.4 series modem designed specifically for harsh environments.

The PowerPortMIU14.4 series modem is highly sophisticated full duplex, V.32BIS data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The PowerPortMIU14.4 series modem operates on a 2-Wire Dial-up system.

The PowerPortMIU14.4 series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The PowerPortMIU14.4 modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The PowerPortMIU14.4 series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU202T (Bell), MIU9.6FPD, MIU14.4, and MIU28.8 modems.

SPECIFICATIONS

Modem Line Speeds:
   Asynchronous 14400, 9600, 4800, 1200, 300bps
DTE Rates:
   Above modem line speeds (IE; with data compression)
   57.6, 38.4 19.2kbps
Standards:
   V.32bis, V.32, V.22bis, V.22, Bell 212A, and Bell 103
Transmission Line:
   Dial or 2&4 wire leased line
Compatibility:
   Hayes Extended AT command set
   Powered through the RS232 (DB25) data interface port or external jack (optional 7- 16VDC available)
Case size:
   5-3/8" x 4" x 1-3/8"
Digital Port:
   RS232 withDB9 connector
Analog Port:
   RJ11 Modular Jack
Surge Protection:
   (power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)
Surge Protection:
   3.75VAC
Environment:
   -40˚C to +85˚C, 0 to 95% humidity (non-condensing)
Certifications:
   FCC Part 68, Industry Canada

ORDERING INFORMATON

DCE/MIU-PP14.4   Data Connect V.32BIS 14.4 Dial Modem with
5VDC Power thru DB25

DATA CONNECT ENTERPRISE   3405 OLANDWOOD CT   OLNEY, MD 20832   USA
PHONE: 301.924.7400 EXT 17   FAX: 301.924.7403   www.data-connect.com

DCE MD14.4

FEATURES

14.4kbps 2-Wire Dial line modem
IEC801-4 surge protection
-20˚C to +80˚C Operating Temperature
Works with Meters, Relays, SCADA, etc.

SPECIFICATIONS

Modem Line Speeds:
Asynchronous 14000, 9600, 4800, 1200, 300bps
DTE Rates:
Above modem line speed (IE; with data compression 57.6, 38.4, 19.2kbps)
Standards:
V.32bis, V.32, V.22bis, V.22, Bell212A, and Bell 103
Transmission Line:
2-wire dial
Compatibility:
Hayes Extended AT Command Set
Digital Port:
RS232 with DB9 connector
Analog Port:
RJ11 Modular Jack
Surge Protection:
(Power Line) 8kV [Exceeds IE801-4] (20Kv {IE801-5} available if required)
Surge Protection:
3.75VAC
Environment:
-40˚C or + 85˚C, 0 to 95% humidity (non-condensing)
Certification:
FCC Part 68, Industry Canada

The Data Connect MD14.4 is the rack mount version of the Data Connect MIU14.4 and MIU14.4-LV. The same functionally that it can be found in the MIU14.4 and MIU14.4-LV can be found in the MD14.4.

The Data Connect MD.14.4 is a Bell V.32bis modem designed for asynchronous operation at 0 to 14400bps over voice grade lines. The modem is intended for use on two-wire dial lines.

The MD14.4 is comprised of MDMC carrier card and PE14.4 module. Up to 18 MD14.4 can be front loaded into a MDR Modem Bank.

The MDR Modem Bank is an industrial grade 19" X 3U rack mountable chassis. The MDR Modem Bank is powered from a wide range of AC or DC voltages. Two power supply cards can be installed to provide automatic back up in the event the primary power supply fails. The MDR will operate in temperatures from -20˚C to +85˚C and is surge protected on both power and analog lines.

Two power supply slots are provided. Power supply cards are available for any voltages in the range 9-150VDC and 9-275VAC. A single power supply card will power all 18 MD14.4.

In addition to MD14.4 the MDR Modem Bank also houses the MD28.8, MD14.4L, MD9.6FPD, and MD202T.

ORDERING INFORMATION

DCE/MD14.4	Data Connect V.32bis, 14.4Kbps Rackmount Modem
DCE/PE14.4	Data Connect V.32bis, 14.4Kbps OEM (PCB) Modem

DATA CONNECT ENTERPRISE
PHONE: 301.924.7400 EXT 17

3405 OLANDWOOD CT
FAX: 301.924.7403

OLNEY, MD 20832   USA
www.data-connect.com

DCE MDR

FEATURES

18 Modem Slots
Dial & Leased Line Modems
V.22, 202T, 9.6FPD, V.32bis, V.34
Hayes AT Compatibility
Full Array of LEDs
Standard 19" x 5.25" (3U) Euro-Chassis
AC or DC Power from 9 to 300VAC or VDC
Dual Power Supplies with Full Redundancy
Ideal for SCADA Master Stations

The Data Connect MDR Modem Chassis is designed to house eighteen (18) DCE MD Modem Cards and two (2) DCE MDP Power Supplies. The DCE MDR Modem Chassis is hardened industrial grade, 19" wide, 3U height (5.25"H), and constructed heavy gauge steel with plating for corrosion resistance.

The DCE MD Modem Cards are comprised of a DCE MDMC Modem Carrier Card and a DCE PE OEM Card. The DCE MD202T (Bell 202T), MD9.6FPD (Proprietary), MD2.4 (V.22), MD14.4 (V.32bis), MD14.4L (V.32bis), and MD28.8 (V.34) operate within the DCE MDR Modem Chassis and are hot-swappable. Any mix of the DCE MD modems can be utilized simultaneously.

Two (2) DCE MDP Power Supplies Cards provide full redundancy and are available for any voltage in the range of 9-150VDC and 9-275VAC. A single DCE MDP Power Supply Card powers eighteen (18) Modem Cards. A second DCE MDP Power Supply Card, if installed, provides automatic backup in the event of a failure of the primary DCE MDP Power Supply Card.

SPECIFICATIONS

EIA Standards
Compliant with EIA Standard EIA-310-C
Modem Interface Connectors (Rear)
Serial RS232: DB25F
Analog Port: RJ11
LEDs (Front)
(Top to bottom)
DTR: Data Terminal Ready
TXD: Transmit Data
RXD: Receive Data
MR: Modem Ready
CD: Carrier Detect
RTS: Request to Send
CTS: Clear to Send
RI: Ring Indicator
Power Requirements
AC Power: 9 to275VAC – Fused Socket (IEC 320)
DC Power: 9 to 150VDC – Screw Terminals – 9 to 150VDC
Dimensions
Width: 19"
Depth:
Height: 5.25" (3U)
Environmental
Operating Temperature: -20 to +85 Degrees Celsius

DCE/PE14.4

To service the growing need for efficient, reliable data communication in harsh environments of utility substations and industrial facilities, DCE has developed a series of OEM PCB modems that can operate at 5V logic (TTL) or simple send and receive signals and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices. With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the meters, RTUs, and SCADA units where the conveniences of a standalone modem is unacceptable.

Data Connect Enterprise has addressed this problem by developing the PE14.4 OEM modem designed specifically for harsh environments.

The PE14.4 OEM modem is highly sophisticated full duplex, V.32bis data modem that is designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals. The PE14.4 OEM modem operates at full duplex on a dial up line. The PE 14.4 PCB can be found in the MIU14.4 modem, MD14.4 modem card, and the MIU-PP14.4 modem.

FEATURES

Modem Interface Units 5V logic (TTL)
Simple send and receive signals
14400kbps 2-wire dial-up line modem
5V logic (TTL) power supply
IEC801-4 surge protection
-40°C to +85°C operating temperature
For meters, relays, SCADA etc.

SPECIFICATIONS

Modem Line Speeds:
Asynchronous 14000, 9600, 4800, 2400, 1200, 300bps
Standards:
V.32bis, V.32, V.22bis, Bell 212A, Bell 103
Transmission line:
Dial-up
Compatibility:
Hayes Extended AT Command Set
Power:
5V logic (TTL)
Card size:
3.4" x 0.01" x 0.5"
Digital port:
DTE 8-pin, simple send/receive signals
Analog port:
RJ11 modular jack
Surge protection (Power line):
8kV (exceeds IEC801-4) (20kV [IE801-5] available if required)
Surge protection (Analog line):
5kVAC
Environment:
-40°C to +85°C, 0-95% humidity (non condensing)
Certifications:
FCC part 68, industry Canada

ORDERING INFORMATION

DCE/PE14.4   Data Connect V.32bis, 14.4Kbps OEM (PCB) Modem

DCE MIU14.4L

To service the growing need for efficient, reliable data communication in harsh environments of utility substation and industrial facilities, has developed a 14400bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the MIU14.4 series modem designed specifically for harsh environments.

The MIU14.4 series modem is highly sophisticated full duplex, V.32BIS data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The MIU14.4L series modem operates on 2-wire and 4-wire leased line systems.

The MIU14.4 series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The MIU14.4 series modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The MIU14.4 series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU202T (Bell), MIU28.8 and MIU9.6FPD mo-

SPECIFICATIONS

Modem Line Speeds:	
	Asynchronous
	14400, 9600, 4800, 1200, 300bps
DTE Rates:	Above modem line speeds (IE; with data compression) 57.6, 38.4 19.2kbps
Standards:	V.32bis, V.32, V.22bis, V.22, Bell 212A, and Bell 103
Transmission Line:	
	2 & 4-wire leased line
Compatibility:	Hayes Extended AT command set
Power Supply:	48VAC/DC to 220VAC/DC (Optional 9-36VDC)
Power Connector:	4-ft AC Cord with 3-pin screw terminal connector included
Case size:	5-3/8" x 4" x 1-3/8"
Digital Port:	RS232 with DB9 connector
Analog Port:	RJ11 Modular Jack
Surge Protection:	(power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)
Surge Protection:	3.75VAC
Environment:	-40˚C to +85˚C, 0 to 95% humidity (non-condensing)
Certifications:	FCC Part 68, Industry Canada

DCE MIU-PP14.4L

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
14.4kbps 2 or 4-Wire Leased Line modem
Powered through the RS232 (DB25) data interface port or External Jack
(Optional 7-16VDC available)
Automatic "Power Down" when inactive
IEC801-4 Surge Protection
-40˚C to +85˚C Operating Temperature
Hayes AT compatible

Specifications

Modem Line Speeds:
        Asynchronous
        14400, 9600, 4800, 1200, 300bps
DTE Rates:
        Above modem line speeds (IE; with data compression)
        57.6, 38.4 19.2kbps
Standards:
        V.32bis, V.32, V.22bis, V.22, Bell 212A, and Bell 103
Transmission Line:
        Dial or 2&4 wire leased line
Compatibility:
        Hayes Extended AT command set
        Powered through the RS232 (DB25) data interface port
        or external jack (optional 7- 16VDC available)
Case size:
        5-3/8" x 4" x 1-3/8"
Digital Port:
        RS232 withDB9 connector
Analog Port:
        RJ11 Modular Jack
Surge Protection:
        (power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)
Surge Protection:
        3.75VAC
Environment:
        -40˚C to +85˚C, 0 to 95% humidity (non-condensing)
Certifications:
        FCC Part 68, Industry Canada

To service the growing need for efficient, reliable data communication in a harsh environmental of utility substations and industrial facilities, has developed a 14400bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substation, where meters relays, RTU's, SCADA system, etc are able to "talk" to a remote operator, communication devices such as modems moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the PowerPortMIU14.4 series modem designed specifically for harsh environments.

The PowerPortMIU14.4L series modem is highly sophisticated full duplex, V.32BIS data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The PowerPortMIU14.4L series modem operates on a 2 or 4-Wire Leased Line and Short Haul systems.

The PowerPortMIU14.4L series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The PowerPortMIU14.4L modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The PowerPortMIU14.4L series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU202T (Bell), MIU9.6FPD, MIU14.4, and MIU28.8 modems.

DCE MD14.4L

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FEATURES

14.4kbps 2 or 4-wire Leased Line modem
IEC801-4 surge protection
-20˚C to +80˚C Operating Temperature
Works with Meters, Relays, SCADA, etc.
</div>

SPECIFICATIONS

DTE Rates:
Asynchronous 14000, 9600, 4800, 1200, 300bps
Standards:
V.32bis, V.32, V.22bis, V.22, Bell212A, and Bell 103
Transmission Line:
2- and 4-wire leased line
Compatibility:
Hayes Extended AT Command Set
Digital Port:
RS232 with DB9 connector
Analog Port:
RJ11 Modular Jack
Surge Protection:
(Power Line) 8kV [Exceeds IE801-4] (20Kv {IE801-5} available if required)
Surge Protection
3.75VAC
Environment:
-40˚C or + 85˚C, 0 to 95% humidity (non-condensing)
Certification:
FCC Part 68, Industry Canada

The Data Connect MD14.4L is the rack mount version of the Data Connect MIU14.4L and MIU14.4-LV. The same functionally that it can be found in the MIU14.4L and MIU14.4-LV can be found in the MD14.4L.

The Data Connect MD.14.4L is a Bell V.32bis modem designed for asynchronous operation at 0 to 14400bps over voice grade lines. The modem is intended for use on two or four wire Leased Lines.

The MD14.4L is comprised of MDMC carrier card and PE14.4L module. Up to 18 MD14.4L can be front loaded into a MDR Modem Bank.

The MDR Modem Bank is an industrial grade 19" X 3U rack mountable chassis. The MDR Modem Bank is powered from a wide range of AC or DC voltages. Two power supply cards can be installed to provide automatic back up in the event the primary power supply fails. The MDR will operate in temperatures from -20˚C to +85˚C and is surge protected on both power and analog lines.

Two power supply slots are provided. Power supply cards are available for any voltages in the range 9-150VDC and 9-275VAC. A single power supply card will power all 18 MD14.4L.

In addition to MD14.4L the MDR Modem Bank also houses the MD28.8, MD14.4, MD9.6FPD, and MD202T.

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DCE MDR

FEATURES

18 Modem Slots
Dial & Leased Line Modems
V.22, 202T, 9.6FPD, V.32bis, V.34
Hayes AT Compatibility
Full Array of LEDs
Standard 19" x 5.25" (3U) Euro-Chassis
AC or DC Power from 9 to 300VAC or VDC
Dual Power Supplies with Full Redundancy
Ideal for SCADA Master Stations

The Data Connect MDR Modem Chassis is designed to house eighteen (18) DCE MD Modem Cards and two (2) DCE MDP Power Supplies. The DCE MDR Modem Chassis is hardened industrial grade, 19" wide, 3U height (5.25"H), and constructed heavy gauge steel with plating for corrosion resistance.

The DCE MD Modem Cards are comprised of a DCE MDMC Modem Carrier Card and a DCE PE OEM Card. The DCE MD202T (Bell 202T), MD9.6FPD (Proprietary), MD2.4 (V.22), MD14.4 (V.32bis), MD14.4L (V.32bis), and MD28.8 (V.34) operate within the DCE MDR Modem Chassis and are hot-swappable. Any mix of the DCE MD modems can be utilized simultaneously.

Two (2) DCE MDP Power Supplies Cards provide full redundancy and are available for any voltage in the range of 9-150VDC and 9-275VAC. A single DCE MDP Power Supply Card powers eighteen (18) Modem Cards. A second DCE MDP Power Supply Card, if installed, provides automatic backup in the event of a failure of the primary DCE MDP Power Supply Card.

SPECIFICATIONS

EIA Standards
Compliant with EIA Standard EIA-310-C
Modem Interface Connectors (Rear)
Serial RS232: DB25F
Analog Port: RJ11
LEDs (Front)
(Top to bottom)
DTR: Data Terminal Ready
TXD: Transmit Data
RXD: Receive Data
MR: Modem Ready
CD: Carrier Detect
RTS: Request to Send
CTS: Clear to Send
RI: Ring Indicator
Power Requirements
AC Power: 9 to275VAC – Fused Socket (IEC 320)
DC Power: 9 to 150VDC – Screw Terminals – 9 to 150VDC
Dimensions
Width: 19"
Depth:
Height: 5.25" (3U)
Environmental
Operating Temperature: -20 to +85 Degrees Celsius

DCE PE14.4

To service the growing need for efficient, reliable data communication in harsh environments of utility substations and industrial facilities, DCE has developed a series of OEM PCB modems that can operate at 5V logic (TTL) or simple send and receive signals and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices. With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the meters, RTUs, and SCADA units where the conveniences of a standalone modem is unacceptable.

Data Connect Enterprise has addressed this problem by developing the PE14.4L OEM modem designed specifically for harsh environments.

The PE14.4L OEM modem is highly sophisticated full duplex, V.32bis data modem that is designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals. The PE14.4L OEM modem operates at half and full duplex 2 & 4-Wire Leased Lins. The PE 14.4L PCB can be found in the MIU14.4 modem, MD14.4 modem card, and the MIU-PP14.4 modem.

ORDERING INFORMATION

DCE/PE14.4   **Data Connect V.32bis, 14.4Kbps OEM (PCB) Modem**

SPECIFICATIONS

Modem Line Speeds:
    Asynchronous 14000, 9600, 4800, 2400, 1200, 300bps
Standards:
    V.32bis, V.32, V.22bis, Bell 212A, Bell 103
Transmission line:
    2 or 4-Wire Leased Lines
Compatibility:
    Hayes Extended AT Command Set
Power:
    5V logic (TTL)
Card size:
    3.4" x 0.01" x 0.5"
Digital port:
    DTE 8-pin, simple send/receive signals
Analog port:
    RJ11 modular jack
Surge protection (Power line):
    8kV (exceeds IEC801-4) (20kV [IE801-5] available if required)
Surge protection (Analog line):
    5kVAC
Environment:
    -40°C to +85°C, 0-95% humidity (non condensing)
Certifications:
    FCC part 68, industry Canada

DCE 1442E-203-2

For data center and remote network applications that require low-speed connections, the Data Connect ST1442E-203-2 modem incorporates the latest advance in modem design to deliver efficient and reliable performance.

The Data Connect ST1442E-203-2 modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands

The industrial-rated Data Connect ST1442E-203-2 modem may be housed in an optional metal enclosure and is built to meet the most stringent criteria. Temperature ratings, for example, range from -40˚C to + 85˚C versatile power supply option will meet most industrial applications.

At connect speeds of 14400bps and below, our patented quick Connect features reduce modem connect time by as much as 50%

The Data Connect ST1442E-203-2 modem is available in commercial and industrial single-port standalone configurations. Rack mount configurations are also available.

FEATURES

Standard 2-wire Dial-up
2-wire dial operation
AT Command Set
Standard Error Correction and Compression
RS232 & RS485 Terminal Interfaces
Asynchronous and Synchronous DTE Support

ORDERING INFORMATION

DCE/1442E-203-2   Data Connect V32BIS 14.4KBPS Dial Modem

SPECIFICATIONS

Compatibility:	V.32bis, V.32, V.22bis, V.22, Bell 212A, Bell 103J.
DTE Interface:	RS232C (V.24), synchronous or asynchronous auto baud or selectable formats and rates to 57.6kbps. Industrial model includes RS485
Auto Dial modes:	Standard AT compatible dial commands or DTR dial or stored number
Answer modes:	Standard auto answer or manual answer under DTE control
Error Correction:	V.42 and MNP 2-4 error correction
Data Compression:	
	V.42bis and MNP5 data compression
Configuration Control:	
	Standard AT commands for both local and remote configurations.
Diagnostic:	V.54 through AT command
Network Interface:	
	Dial-up 2-wire Pulse or DTMF
	XMT level—12dBm
	RCV sensitivity—43dBm
	2-wire and 4-wire leased and short-haul
	XMT level – adjustable
	RCV sensitivity –43dBm
Power:	Standalone single port standard unit automatically adjust to 9VAC or 9-14VDC
Power Supply Options:	
	5.5-14VDC, 18-75VDC / 66-160VDC
Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz.
Optional DC supply:	
	Automatically adjusts to positive or negative 36-75VDC
Environmental:	Commercial Unit
	Operating temperature range
	20˚C to +70˚C
	Humidity
	90% non-condensing
	Industrial Unit
	Operating temperature range
	40˚C to +85˚C
	Humidity
	95% non-condensing
Approvals:	FCC Part 68 & Part 15, class A
	Optional International approvals are available.
Physical:	Commercial Unit
	Dimensions
	5.30"L X 5.05"W 1.53"H
	Weight
	12oz.
	Rackmount Unit
	Fits CC-2016 rack
	4.73"L x 4.60"W x 80"H
	Weight
	9oz.
	Industrial Unit
	Dimensions
	6.190"L x 5.120"W 1.750"H
	Weight

DCE 1442E-103-2

For data center and remote network applications that require low-speed connections, the Data Connect ST1442E-103-2 modem incorporates the latest advance in modem design to deliver efficient and reliable performance.

The Data Connect ST1442E-103-2 modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands

The industrial-rated Data Connect ST1442E-103-2 modem may be housed in an optional metal enclosure and is built to meet the most stringent criteria. Temperature ratings, for example, range from -40˚C to + 85˚C versatile power supply option will meet most industrial applications.

At connect speeds of 14400bps and below, our patented quick Connect features reduce modem connect time by as much as 50%

The Data Connect ST1442E-103-2 modem is available in commercial and industrial single-port standalone configurations. Rack mount configurations are also available.

FEATURES

Standard 2-wire Dial-up
2-Wire dial operation
AT Command Set
Standard Error Correction and Compression
RS232 & RS485 Terminal Interfaces
Asynchronous and Synchronous DTE Support

ORDERING INFORMATION
DCE/1442E-103-2   Data Connect V32BIS 14.4KBPS Dial Modem

SPECIFICATIONS

Compatibility:	V.32bis, V.32, V.22bis, V.22, Bell 212A, Bell 103J.
DTE Interface:	RS232C (V.24), synchronous or asynchronous auto baud or selectable formats and rates to 57.6kbps. Industrial model includes RS485
Auto Dial modes:	Standard AT compatible dial commands or DTR dial or stored number
Answer modes:	Standard auto answer or manual answer under DTE control
Error Correction:	V.42 and MNP 2-4 error correction
Data Compression:	V.42bis and MNP5 data compression
Configuration Control:	Standard AT commands for both local and remote configurations.
Diagnostic:	V.54 through AT command
Network Interface:	Dial-up 2-wire Pulse or DTMF XMT level—12dBm RCV sensitivity—43dBm 2-wire and 4-wire leased and short-haul XMT level – adjustable RCV sensitivity –43dBm
Power:	Standalone single port standard unit automatically adjust to 9VAC or 9-14VDC
Power Supply Options:	5.5-14VDC, 18-75VDC / 66-160VDC
Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz.
Optional DC supply:	Automatically adjusts to positive or negative 36-75VDC
Environmental:	Commercial Unit Operating temperature range 20˚C to +70˚C Humidity 90% non-condensing Industrial Unit Operating temperature range 40˚C to +85˚C Humidity 95% non-condensing
Approvals:	FCC Part 68 & Part 15, class A Optional International approvals are available.
Physical:	Commercial Unit Dimensions 5.30"L X 5.05"W 1.53"H Weight 12oz. Rackmount Unit Fits CC-2016 rack 4.73"L x 4.60"W x 80"H Weight 9oz. Industrial Unit Dimensions 6.190"L x 5.120"W 1.750"H Weight

DCE 1442R-003-4

For data center and remote network applications that require low-speed connections, the Data Connect ST1442E-003-4 Rackmount modem incorporates the latest advance in modem design to deliver efficient and reliable performance.

The Data Connect ST1442E-003-4 Rackmount modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands

The industrial-rated Data Connect ST1442E-003-4 Rackmount modem may be housed in an optional metal enclosure and is built to meet the most stringent criteria. Temperature ratings, for example, range from -40˚C to + 85˚C versatile power supply option will meet most industrial applications.

At connect speeds of 14400bps and below, our patented quick Connect features reduce modem connect time by as much as 50%

The Data Connect ST1442E-003-4 Rackmount modem is available in commercial and industrial single-port rackmount configurations. Standalone configurations are also available.

FEATURES

Standard 2-wire Dial-up
2-Wire Dial or 4-Wire Leased Line operation
AT Command Set
Standard Error Correction and Compression
RS232 & RS485 Terminal Interfaces
Asynchronous and Synchronous DTE Support

ORDERING INFORMATION

DCE/1442E-003-4   Data Connect V32BIS 14.4KBPS Dial Modem

SPECIFICATIONS

Compatibility:	V.32bis, V.32, V.22bis, V.22, Bell 212A, Bell 103J.
DTE Interface:	RS232C (V.24), synchronous or asynchronous auto baud or selectable formats and rates to 57.6kbps. Industrial model includes RS485
Auto Dial modes:	Standard AT compatible dial commands or DTR dial or stored number
Answer modes:	Standard auto answer or manual answer under DTE control
Error Correction:	V.42 and MNP 2-4 error correction
Data Compression:	
	V.42bis and MNP5 data compression
Configuration Control:	
	Standard AT commands for both local and remote configurations.
Diagnostic:	V.54 through AT command
Network Interface:	
	Dial-up 2-wire Pulse or DTMF
	XMT level—12dBm
	RCV sensitivity—43dBm
	2-wire and 4-wire leased and short-haul
	XMT level – adjustable
	RCV sensitivity –43dBm
Power:	Standalone single port standard unit automatically adjust to 9VAC or 9-14VDC
Power Supply Options:	
	5.5-14VDC, 18-75VDC / 66-160VDC
Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz.
Optional DC supply:	
	Automatically adjusts to positive or negative 36-75VDC
Environmental:	Commercial Unit
	Operating temperature range
	20˚C to +70˚C
	Humidity
	90% non-condensing
	Industrial Unit
	Operating temperature range
	40˚C to +85˚C
	Humidity
	95% non-condensing
Approvals:	FCC Part 68 & Part 15, class A
	Optional International approvals are available.
Physical:	Commercial Unit
	Dimensions
	5.30"L X 5.05"W 1.53"H
	Weight
	12oz.
	Rackmount Unit
	Fits CC-2016 rack
	4.73"L x 4.60"W x 80"H
	Weight
	9oz.
	Industrial Unit
	Dimensions
	6.190"L x 5.120"W 1.750"H
	Weight

DCE 1442E-503-2

For data center and remote network applications that require low-speed connections, the Data Connect ST1442E-503-2 modem incorporates the latest advance in modem design to deliver efficient and reliable performance.

The Data Connect ST1442E-503-2 modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands

The industrial-rated Data Connect ST1442E-503-2 modem may be housed in an optional metal enclosure and is built to meet the most stringent criteria. Temperature ratings, for example, range from -40˚C to + 85˚C versatile power supply option will meet most industrial applications.

At connect speeds of 14400bps and below, our patented quick Connect features reduce modem connect time by as much as 50%

The Data Connect ST1442E-503-2 modem is available in commercial and industrial single-port standalone configurations. Rack mount configurations are also available.

FEATURES

Standard 2-wire Dial-up
2-Wire dial operation
AT Command Set
Standard Error Correction and Compression
RS232 & RS485 Terminal Interfaces
Asynchronous and Synchronous DTE Support

ORDERING INFORMATION
DCE/1442E-503-2   Data Connect V32BIS 14.4KBPS Dial Modem

SPECIFICATIONS

Compatibility:	V.32bis, V.32, V.22bis, V.22, Bell 212A, Bell 103J.
DTE Interface:	RS232C (V.24), synchronous or asynchronous auto baud or selectable formats and rates to 57.6kbps. Industrial model includes RS485
Auto Dial modes:	Standard AT compatible dial commands or DTR dial or stored number
Answer modes:	Standard auto answer or manual answer under DTE control
Error Correction:	V.42 and MNP 2-4 error correction
Data Compression:	V.42bis and MNP5 data compression
Configuration Control:	Standard AT commands for both local and remote configurations.
Diagnostic:	V.54 through AT command
Network Interface:	Dial-up 2-wire Pulse or DTMF XMT level—12dBm RCV sensitivity—43dBm 2-wire and 4-wire leased and short-haul XMT level – adjustable RCV sensitivity –43dBm
Power:	Standalone single port standard unit automatically adjust to 9VAC or 9-14VDC
Power Supply Options:	5.5-14VDC, 18-75VDC / 66-160VDC
Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz.
Optional DC supply:	Automatically adjusts to positive or negative 36-75VDC
Environmental:	Commercial Unit Operating temperature range 20˚C to +70˚C Humidity 90% non-condensing Industrial Unit Operating temperature range 40˚C to +85˚C Humidity 95% non-condensing
Approvals:	FCC Part 68 & Part 15, class A Optional International approvals are available.
Physical:	Commercial Unit Dimensions 5.30"L X 5.05"W 1.53"H Weight 12oz. Rackmount Unit Fits CC-2016 rack 4.73"L x 4.60"W x 80"H Weight 9oz. Industrial Unit Dimensions 6.190"L x 5.120"W 1.750"H Weight

V.22 MODEM CHECK LIST

MODEL	MAX. SPEED	HIGH VOLT.	LOW VOLT.	DIAL	LEASED	RACK MOUNT	DIN MOUNT	SECUR-ITY	WALL MOUNT	PHOTO	PAGE
DCE/2400E-000-2	2.4KBPS			X							119
DCE/2400E-034-2	2.4KBPS			X		X					120
DCE/2400E-030-4	2.4KBPS			X	X	X					121
DCE/2400E-330-4	2.4KBPS			X	X						122
DCE/MIU2.4	2.4KBPS	X	X	X							123
DCE/PPMIU2.4	2.4KBPS			X							124
DCE/MD2.4	2.4KBPS			X		X					125
DCE/PE2.4	2.4KBPS			X							127

DCE 2400E-000-2

For data center and remote network applications that require low-speed connections, the Data Connect ST2400E-000-2 modem incorporates the latest advances in modem design to deliver efficient and reliable performance.

The Data Connect ST2400E-000-2 modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands.

The industrial-rated Data Connect ST2400E-000-2 may be housed in an optional metal enclosure and is built to meet the most stringent criteria. Temperature ratings, for example, range from -40°C to +85°C versatile power supply options will meet most industrial applications.

The Data Connect ST2400E-000-2 modem is available in commercial and industrial single-port standalone configurations. Rack mount configurations are also available.

SPECIFICATIONS

Compatibility:	V.22bis, V.22, Bell 212A
DTE Interface:	RS232C (V.24), synchronous or synchronous—auto baud or selectable formats and rates to 4.8Kbps. Industrial model includes RS485
Auto Dial Modes:	Standard AT compatible dial commands or DTR dial or stored number.
Answer Modes:	Standard auto answer or manual answer under DTE control
Error Correction:	V.42 and MNP 2-4 error correction
Data Compression:	V.42bis and MNP5 data compression
Configuration Control:	Standard AT commands for both local and remote configuration
Diagnostic:	V.54 through AT command
Network Interface:	Dial-up 2-wire pulse or DTMF XMT level—adjustable RCV sensitivity—43dBm
Power:	Standalone single port Standard units automatically adjust to 9VAC or 9-14VAC
Power Supply Options:	5.5-14VDC, 18-75VDC 66-160VDC
Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz. Optional DC supply automatically adjusts to positive or negative 36-75VDC
Environmental:	Commercial Unit- Operating temperature range -20°C to +70°C Humidity—90% non condensing Industrial Unit - Operating temperature range -40°C to + 85°C Humidity—95% non condensing
Approvals:	FCC Part 68 & Part 15, class A. Optional International approvals are available
Physical:	Commercial Unit: Dimensions 5.30"L x 5.05"W x 1.53"H Weight- 12oz. Rack-mount Unit: Fits CC-2016 rack 4.73"L x 4.60"W x 80"H Weight- 9oz Industrial Unit: Dimensions 6.190"L x 5.12"W x 1.75"H Weight—32oz (metal enclosure)

FEATURES

Standard 2-wire Dial-up
2-wire and 4-wire leased –line
or short haul operation
AT Command set
Standard Error Correction
and Compression
RS232 & RS485
Terminal Interfaces
Asynchronous and Synchronous
DTE Support

ORDERING INFORMATION

DCE/2400E-000-2   V.22 2.4KBPS DIAL MODEM

DATA CONNECT ENTERPRISE
PHONE: 301.924.7400 EXT 17
3405 OLANDWOOD CT
FAX: 301.924.7403
OLNEY, MD 20832   USA
www.data-connect.com

DCE 2400E-034-2

For data center and remote network applications that require low-speed connections, the Data Connect ST2400E-034-2 modem incorporates the latest advances in modem design to deliver efficient and reliable performance.

The Data Connect ST2400E-034-2 modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands.

The industrial-rated Data Connect ST2400E-034-2 may be housed in an optional metal enclosure and is built to meet the most stringent criteria. Temperature ratings, for example, range from -40˚C to +85˚C versatile power supply options will meet most industrial applications.

At connect speeds of 2400bps and below, our patented Quick Connect features reduce modem connect time by as much as 50%

The Data Connect ST2400E-034-2 modem is available in commercial and industrial single-port standalone configurations. Rack mount configurations are also available.

FEATURES

Standard 2-wire Dial-up
2-wire and 4-wire leased –line
or short haul operation
AT Command set
Standard Error Correction
and Compression
RS232 & RS485
Terminal Interfaces
Asynchronous and Synchronous
DTE Support
Exclusive Quick Connect

SPECIFICATIONS

Compatibility:	V.22bis, V.22, Bell 212A
DTE Interface:	RS232C (V.24), synchronous or synchronous— auto baud or selectable formats and rates to 4.8Kbps. Industrial model includes RS485
Auto Dial Modes:	Standard AT compatible dial commands or DTR dial or stored number.
Answer Modes:	Standard auto answer or manual answer under DTE control
Error Correction:	V.42 and MNP 2-4 error correction
Data Compression:	V.42bis and MNP5 data compression
Configuration Control:	Standard AT commands for both local and remote configuration
Diagnostic:	V.54 through AT command
Network Interface:	Dial-up 2-wire pulse or DTMF XMT level—adjustable RCV sensitivity—43dBm
Power:	Standalone single port Standard units automatically adjust to 9VAC or 9-14VAC
Power Supply Options:	5.5-14VDC, 18-75VDC 66-160VDC
Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz. Optional DC supply automatically adjusts to positive or negative 36-75VDC
Environmental:	Commercial Unit- Operating temperature range -20˚C to +70˚C Humidity—90% non condensing Industrial Unit - Operating temperature range -40˚C to + 85˚C Humidity—95% non condensing
Approvals:	FCC Part 68 & Part 15, class A. Optional International approvals are available
Physical:	Commercial Unit: Dimensions 5.30"L x 5.05"W x 1.53"H Weight- 12oz. Rack-mount Unit: Fits CC-2016 rack 4.73"L x 4.60"W x 80"H Weight- 9oz Industrial Unit: Dimensions 6.190"L x 5.12"W x 1.75"H Weight—32oz (metal enclosure)

ORDERING INFORMATION

DCE/2400E-034-2 2.4KBPS DIAL MODEM

DCE 2400E--030-4

For data center and remote network applications that require low-speed connections, the Data Connect ST2400E-030-4 modem incorporates the latest advances in modem design to deliver efficient and reliable performance.

The Data Connect ST2400E-O30-4 modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands.

The industrial-rated Data Connect ST2400E-030-4 may be housed in an optional metal enclosure and is built to meet the most stringent criteria. Temperature ratings, for example, range from -40˚C to +85˚C versatile power supply options will meet most industrial applications.

At connect speeds of 2400bps and below, our patented Quick Connect features reduce modem connect time by as much as 50%

The Data Connect ST2400E-030-4 modem is available in commercial and industrial single-port standalone configurations. Rack mount configurations are also available.

SPECIFICATIONS

Compatibility:	V.22bis, V.22, Bell 212A
DTE Interface:	RS232C (V.24), synchronous or synchronous—auto baud or selectable formats and rates to 4.8Kbps. Industrial model includes RS485
Auto Dial Modes:	Standard AT compatible dial commands or DTR dial or stored number.
Answer Modes:	Standard auto answer or manual answer under DTE control
Error Correction:	V.42 and MNP 2-4 error correction
Data Compression:	V.42bis and MNP5 data compression
Configuration Control:	Standard AT commands for both local and remote configuration
Diagnostic:	V.54 through AT command
Network Interface:	Dial-up 2-wire pulse or DTMF XMT level—adjustable RCV sensitivity—43dBm
Power:	Standalone single port Standard units automatically adjust to 9VAC or 9-14VAC
Power Supply Options:	5.5-14VDC, 18-75VDC 66-160VDC
Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz. Optional DC supply automatically adjusts to positive or negative 36-75VDC
Environmental:	Commercial Unit- Operating temperature range -20˚C to +70˚C Humidity—90% non condensing Industrial Unit - Operating temperature range -40˚C to + 85˚C Humidity—95% non condensing
Approvals:	FCC Part 68 & Part 15, class A. Optional International approvals are available
Physical:	Commercial Unit: Dimensions 5.30"L x 5.05"W x 1.53"H Weight- 12oz.
	Rack-mount Unit: Fits CC-2016 rack 4.73"L x 4.60"W x 80"H Weight- 9oz
	Industrial Unit: Dimensions 6.190"L x 5.12"W x 1.75"H Weight—32oz (metal enclosure)

FEATURES

Standard 2-wire Dial-up
2-wire and 4-wire leased –line
or short haul operation
AT Command set
Standard Error Correction
and Compression
RS232 & RS485
Terminal Interfaces
Asynchronous and Synchronous
DTE Support
Exclusive Quick Connect

ORDERING INFORMATION

DCE/2400E-030-4   2.4KBPS DIAL & LEASED LINE MODEM

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DCE 2400E-330-4

For data center and remote network applications that require low-speed connections, the Data Connect ST2400E modem series incorporates the latest advances in modem design to deliver efficient and reliable performance.

The Data Connect ST2400E series modem has been developed to meet the most stringent environmental and performance demands of the commercial and industrial application. Every relay, transformer, capacitor, switch and connector is selected for its ability to withstand industrial environmental demands.

The industrial-rated Data Connect ST2400E may be housed in an optional metal enclosure and is built to meet the most stringent criteria. Temperature ratings, for example, range from -40°C to +85°C versatile power supply options will meet most industrial applications.

At connect speeds of 2400bps and below, our patented Quick Connect features reduce modem connect time by as much as 50%

The Data Connect ST2400E series modem is available in commercial and industrial single-port standalone configurations. Rack mount configurations are also available.

SPECIFICATIONS

Compatibility:	V.22bis, V.22, Bell 212A
DTE Interface:	RS232C (V.24), synchronous or synchronous—auto baud or selectable formats and rates to 4.8Kbps. Industrial model includes RS485
Auto Dial Modes:	Standard AT compatible dial commands or DTR dial or stored number.
Answer Modes:	Standard auto answer or manual answer under DTE control
Error Correction:	V.42 and MNP 2-4 error correction
Data Compression:	V.42bis and MNP5 data compression
Configuration Control:	Standard AT commands for both local and remote configuration
Diagnostic:	V.54 through AT command
Network Interface:	Dial-up 2-wire pulse or DTMF XMT level—adjustable RCV sensitivity—43dBm
Power:	Standalone single port Standard units automatically adjust to 9VAC or 9-14VAC
Power Supply Options:	5.5-14VDC, 18-75VDC 66-160VDC
Rack-mount:	Standard CC-2016 rack automatically adjusts to 85-265VAC, 27-440Hz. Optional DC supply automatically adjusts to positive or negative 36-75VDC
Environmental:	Commercial Unit- Operating temperature range -20°C to +70°C Humidity—90% non condensing Industrial Unit - Operating temperature range -40°C to + 85°C Humidity—95% non condensing
Approvals:	FCC Part 68 & Part 15, class A. Optional International approvals are available
Physical:	Commercial Unit: Dimensions 5.30"L x 5.05"W x 1.53"H Weight- 12oz. Rack-mount Unit: Fits CC-2016 rack 4.73"L x 4.60"W x 80"H Weight- 9oz Industrial Unit: Dimensions 6.190"L x 5.12"W x 1.75"H Weight—32oz (metal enclosure)

FEATURES

Standard 2-wire Dial-up
2-wire and 4-wire leased –line
or short haul operation
AT Command set
Standard Error Correction
and Compression
RS232 & RS485
Terminal Interfaces
Asynchronous and Synchronous
DTE Support
Exclusive Quick Connect

ORDERING INFORMATION

DCE/2400E-000-2   2.4KBPS DIAL MODEM

DATA CONNECT ENTERPRISE
PHONE: 301.924.7400 EXT 17

3405 OLANDWOOD CT
FAX: 301.924.7403

OLNEY, MD 20832   USA
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DCE MIU2.4

To service the growing need for efficient, reliable data communication in a harsh environmental of utility substations and industrial facilities, has developed a 28800bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substation, where meters relays, RTU's, SCADA system, etc are able to "talk" to a remote operator, communication devices such as modems moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the MIU28.8 series modem designed specifically for harsh environments.

The MIU2.4 series modem is highly sophisticated full duplex, V.22 data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The MIU2.4 series modem operates on a dial-up system.

The MIU2.4 series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The MIU28.8 modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The MIU2.4 series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU (Bell), MIU14.4 and MIU9.6FPD modems

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
2.4kbps 2-wire Dial Modem
48 to 220 AC/DC Power Supply
IEC801-4 Surge Protection
-40˚C to +85˚C Operating Temperature
For Meters, Relay, SCADA etc.

SPECIFICATIONS

Modem Line Speeds:
Asynchronous 2400, 1200, 300bps
DTE Rates: Above modem line speeds (IE; with data compression) 9600bps
Standards: V.22, Bell 212A, and Bell 103
Transmission Line: Dial
Compatibility: Hayes Extended AT command set
Power Supply: 48VAC/DC to 220VAC/DC
                (Optional 9-36VDC)
Power Connector: 4-ft AC Cord with 3-pin screw
        terminal connector included
Case size: 5-3/8" x 4" x 1-3/8"
Digital Port: RS232 withDB9 connector
Analog Port: RJ11 Modular Jack
Surge Protection: (power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)
Surge Protection: 3.75VAC
Environment: -40˚C to +85˚C, 0 to 95% humidity
                (non-condensing)
Certifications: FCC Part 68, Industry Canada

ORDERING INFORMATION

DCE/MIU-2.4   V.22 2.4Kbps2-Wire Dial Modem
DCE/MIU-2.4-LV   V.22 2.4Kbps2-Wire Dial Modem Low Voltage

DCE MIU-PP2.4

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
2.4kbps 2-wire Dial Modem
Powered through the RS232 (DB25) data interface port or External Jack
(Optional 7-16VDC available)
Automatic "Power Down" when inactive
IEC801-4 Surge Protection
-40˚C to +85˚C Operating Temperature
Hayes AT compatible

To service the growing need for efficient, reliable data communication in a harsh environmental of utility substations and industrial facilities, has developed a 2400bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substation, where meters relays, RTU's, SCADA system, etc are able to "talk" to a remote operator, communication devices such as modems moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the PowerPort-MIU2.4 series modem designed specifically for harsh environments.

The PowerPort-MIU2.4 series modem is highly sophisticated full duplex, V.22 data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The PowerPortMiu2.4 series modem operates on a dial-up system.

The PowerPort-MIU2.4 series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The PowerPortMIU2.4 modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The PowerPort-MIU2.4 series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU202T (Bell), MIU9.6FPD, MIU14.4, and MIU28.8 modems.

SPECIFICATIONS

Modem Line Speeds:
Asynchronous 2400, 1200, 300bps
DTE Rates: Above modem line speeds (IE; with data compression) 9600bps
Standards: V.22, Bell 212A, and Bell 103
Transmission Line: Dial
Compatibility: Hayes Extended AT command set
      Powered through the RS232 (DB25) data interface port or external jack (optional 7-16VDC available)

Case size:	5-3/8" x 4" x 1-3/8"
Digital Port:	RS232 withDB9 connector
Analog Port:	RJ11 Modular Jack

Surge Protection: (power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)
Surge Protection: 3.75VAC
Environment: -40˚C to +85˚C, 0 to 95% humidity (non-condensing)
Certifications: FCC Part 68, Industry Canada

ORDERING INFORMATION

DCE/MIU-PP2.4   V.22 2.4Kbps2-Wire Dial Modem with 5VDC Power thru DB25

DCE MD2.4

FEATURES

2.4kbps 2-wire Dial Line Modem
IEC801-4 Surge Protection
-20˚C to +85˚C Operating Temperature
For Meters, Relays, SCADA, etc.

MD2.4 SPECIFICATIONS

Modem Line Speeds	Asynchronous 2400, 1200, 300bps
DTE Rate	Above modem line speeds (IE; with data compression 9.6kbps
Standards	V.22, Bell 212A, Bell 103
Transmission Line	2-wire dial
Compatibility	Hayes Extended AT Command Set
Digital Port	RS232 with DB9 Connector
Analog Port	RJ11Modular Jack
Surge Protection	(Power Line) 8kV [Exceeds IEC801-4] (20kV {IE801-5} (available if required)
Surge Protection	3.75VAC
Environment	-40˚C to + 85˚C, 0 to 95% humidity (non-condensing)
Certifications	FCC Part 68, Industry Canada

The Data Connect MD2.4 is the Rack-mount version of the Data Connect MIU2.4. The same functionally that can be found in the MIU28.8 can be found in the MD14.4L.

The Data Connect MD2.4is a Bell V.22 modem designed for asynchronous operation at 0 to 2400bps over voice grade lines. The modem is intended for use on 2-wire or 4-wire leased lines.

The MD2.4 is comprised of MDMC carrier card and PE14.4 module. Up to 18 MD28.8 can be front loaded into MDR Modem Bank.

The MDR Modem Bank is an industrial grade 19" X 3U rack mountable chassis. MDR Modem Bank is powered from a wide range of AC and DC voltages. Two power supply cards can be installed to provide automatic back up in the event the primary power supply fails. The MDR will operate in temperatures from -20˚C to + 85˚C and is surge protected on both power analog lines.

Two power supply slots are provided. Power supply cards are available for any voltage in the range 9-150VDC and 9-275VAC. A single power supply card will power all 18 MD28.8. In additional to the MD28.8 the MDR Modem Bank also houses the MD14.4L, MD14.4, MD9.6FPD, and MD202T.

ORDERING INFORMATION

DCE/MD2.4   V.22 2.4Kbps2-Wire Dial Rackmount Modem

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PHONE: 301.924.7400 EXT 17
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DCE MDR

The Data Connect MDR Modem Chassis is designed to house eighteen (18) DCE MD Modem Cards and two (2) DCE MDP Power Supplies. The DCE MDR Modem Chassis is hardened industrial grade, 19" wide, 3U height (5.25"H), and constructed heavy gauge steel with plating for corrosion resistance.

The DCE MD Modem Cards are comprised of a DCE MDMC Modem Carrier Card and a DCE PE OEM Card. The DCE MD202T (Bell 202T), MD9.6FPD (Proprietary), MD2.4 (V.22), MD14.4 (V.32bis), MD14.4L (V.32bis), and MD28.8 (V.34) operate within the DCE MDR Modem Chassis and are hot-swappable. Any mix of the DCE MD modems can be utilized simultaneously.

Two (2) DCE MDP Power Supplies Cards provide full redundancy and are available for any voltage in the range of 9-150VDC and 9-275VAC. A single DCE MDP Power Supply Card powers eighteen (18) Modem Cards. A second DCE MDP Power Supply Card, if installed, provides automatic backup in the event of a failure of the primary DCE MDP Power Supply Card.

FEATURES

18 Modem Slots
Dial & Leased Line Modems
V.22, 202T, 9.6FPD, V.32bis, V.34
Hayes AT Compatibility
Full Array of LEDs
Standard 19" x 5.25" (3U) Euro-Chassis
AC or DC Power from 9 to 300VAC or VDC
Dual Power Supplies with Full Redundancy
Ideal for SCADA Master Stations

SPECIFICATIONS

EIA Standards
Compliant with EIA Standard EIA-310-C
Modem Interface Connectors (Rear)
Serial RS232: DB25F
Analog Port: RJ11
LEDs (Front)
(Top to bottom)
DTR: Data Terminal Ready
TXD: Transmit Data
RXD: Receive Data
MR: Modem Ready
CD: Carrier Detect
RTS: Request to Send
CTS: Clear to Send
RI: Ring Indicator
Power Requirements
AC Power: 9 to275VAC – Fused Socket (IEC 320)
DC Power: 9 to 150VDC – Screw Terminals – 9 to 150VDC
Dimensions
Width: 19"
Depth:
Height: 5.25" (3U)
Environmental
Operating Temperature: -20 to +85 Degrees Celsius

DCE PE2.4

To service the growing need for efficient, reliable data communication in harsh environments of utility substations and industrial facilities, DCE has developed a series of OEM PCB modems that can operate at 5V logic (TTL) or simple send and receive signals and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices. With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the meters, RTUs, and SCADA units where the conveniences of a standalone modem is unacceptable.

Data Connect Enterprise has addressed this problem by developing the PE2.4, 9.6FPD, 14.4, 14.4L, 202T, and 28.8 OEM modems designed specifically for harsh environments.

The PE OEM modems are highly sophisticated full duplex, V.22bis data modems that are designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals. The PE2.4, 14.4, and 28.8 OEM modems operate at full or half duplex on a dial up line. The PE202T, 14.4L, and 9.6FPD OPM modems operate full or half duplex on 2 or 4 wire leased lines.

The PE OEM PECs can be found in the MIU modems, MD modem cards, and the MIU Power Port modems.

FEATURES

Modem Interface Units 5V logic (TTL)
Simple send and receive signals
2400kbps 2-wire dial-up line modem
5V logic (TTL) power supply
IEC801-4 surge protection
-40°C to +85°C operating temperature

SPECIFICATIONS

PE2.4
Modem Line Speeds:
Asynchronous 2400, 1200, 300bps
Standards:
V.22bis, V.22, Bell212A, Bell 103
Transmission Line:
Dial-up
Compatibility:
Hayes Extended AT Command Set
Power:
5V logic (TTL)

ORDERING INFORMATION

DCE/PE2.4   2-wire dial-up PCB

V.23 & BELL 202 MODEM CHECK LIST

MODEL	MAX. SPEED	HIGH VOLT.	LOW VOLT.	DIAL	LEASED	RACK MOUNT	DIN MOUNT	SECUR- ITY	WALL MOUNT	PHOTO	PAGE
DCE/IGV23	75BPS	X	X		X	X	X		X		129
DCE/IG202T	0-1200BPS	X	X		X	X	X		X		130
DCE/IG202T-R38	0-1200BPS		X		X	X					131
DCE/MIU/202T	0-1200BPS	X	X		X						132
DCE/MD202T	0-1200BPS				X	X					133
DCE/PE202T	0-1200BPS				X						135
DCE/202TE-037-4	1200BPS				X						136
DCE/202TR-037-4	1200BPS					X					137

DCE IGV.23

SPECIFICATIONS

DATA RATE SUPPORT:
Data Speed 0-1200 bps in V.23 mode Data Format Asynchronous, transparent character format (10 or 11-bit character with 1 or 2 stop bits)
MODULATION:
Frequency Shift Key (FSK)
V.23 Mode:
Mark 1300 Hz
Space 2100 Hz
Soft Carrier 900 Hz
TRANSMISSION LINE INTERFACE:
Leased Line TELCO voice band 2 or 4 –wire leased lines Private or metallic circuits 2 or 4 –wire, 19-26 AWG Connector: 4 PIN RJ-11C modular jack
Transmitter output level: 0 to -12dbm, selectable
DTE/RTU Interface:
The modem provides serial ports to support either the RS-485 Interface standards RS-232 INTERFACE: Connector: D9-F Signals: RTS, CTS, CD, TD, RD, DSR, and SG
RS-485 INTERFACE:
Connector: RJ-11CSignals: 4-wire full-duplex
TX+, TX-, RX+, RX-
FRONT PANEL INDICATORS & CONTROL S:
RTS, CTS, TD, CD, RD, MR, ALB, DLB TEST Switch: Push Button for Analog Loopback, Digital Loopback
AC & DC POWER SUPPORT:
Standalone: 10-48 VDC: 85-400 VDC, 100-240 VAC
Rack mount module: plug-in RM16M modem rack
POWER + CURRENT CONSUMPTION:
75 Ma @ 12 VDC
18 Ma @ 48VDC
MECHANICAL:
Enclosure dimensions:
4.1" (W) x 4.9" (L) x1.4" (H)
104mm (W) x 125mm (L) x36mm (H)
weight: 0.51lbs, without AC power module
ENVIRONMENT:
Operation: -40 Degrees Celsius to + 85 Degrees Celsius
Storage: -40 Degrees Celsius to + 85 Degrees Celsius

The Data Connect low speed IGV.23 Industrial Grade V.23 modem is designed and manufactured for rugged industrial communication networks. The IGV.23 delivers cost effective and reliable 1200bps asynchronous solutions for point to point and multipoint connectivity.

The IGV.23 Industrial Grade V.23 modem is ideal for industrial communication application including SCADA systems, RTUs, traffic monitor and control, and industrial and automation networks. The V.23 supports RTUs with switch selectable settings and no AT command set required. The IGV.23 modem is designed to operate over 4-wire full duplex or 2-wire half duplex over unconditioned leased lines or private metallic circuits. For optimum performance, the modem employs FSK modulation to be compatible with V.23 standards, which can communicate over a variety of transmission lines.

The IGV.23 Industrial Grade V.23 modem can operate over a wide range of AC or DC power supply voltages and temperatures. With Proven reliability and ease of installation the V.23 is ideal for point-to-point and point-to-multipoint polling networks, where reliability and low-network latency are critical for system performance. With its Auto-RTS mode, the modem can support DTE/RTUs with 3-wire serial interface (TD, RD, and SG) in point-to-point and multi-point polling applications.

The IGV.23 industrial grade V.23 modem has selectable EIA RS-232/V.24 and RS-485 DTE support. It also features built-in diagnostics for local and remote testing. The configuring and options on the IG202T is provided by DIP switches and jumpers, eliminating the need for an AT command set. The IGV.23 has heavy-duty surge protection at the power supply and leased line inputs. IGV.23 also uses an isolated DC to DC power converter for protecting critical DC or battery power systems.

ORDERING INFORMATION

DCE/IGV.23	STANDALONE (100-240 VAC)
DCE/IGV.23-DC	STANDALONE (10-48 VDC)
DCE/IGV.23-HV	STANDALONE (100-240 VAC, 85-400 VDC)
DCE/IGV.23-RM	RM16M RACKMOUNT MODULE
DCE/IGV.23-WMB	WALL-MOUNT/PANEL-MODULE
DCE/IGV.23-DIN	DIN-MOUNT KIT

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DCE IG202T

The Data Connect low speed IG202T Industrial Grade Bell 202 modem is designed and manufactured for rugged industrial communication networks. The IG202T delivers cost effective and reliable 1200bps asynchronous solutions for point to point and multipoint connectivity.

The IG202T Industrial Grade Bell 202 modem is ideal for industrial communication application including SCADA systems, RTUs, traffic monitor and control, and industrial and automation networks. The IG202T supports RTUs with switch selectable settings and no AT command set required. The IG202T modem is designed to operate over 4-wire full duplex or 2-wire half duplex over unconditioned leased lines or private metallic circuits. For optimum performance, the modem employs FSK modulation to be compatible with Bell 202 standards, which can communicate over a variety of transmission lines.

The IG202T Industrial Grade Bell 202 modem can operate over a wide range of AC or DC power supply voltages and temperatures. With Proven reliability and ease of installation the IG202T is ideal for point-to-point and point-to-multipoint polling networks, where reliability and low-network latency are critical for system performance. With its Auto-RTS mode, the modem can support DTE/RTUs with 3-wire serial interface (TD, RD, and SG) in point-to-point and multi-point polling applications.

The IG202T industrial grade Bell 202 modem has selectable EIA RS-232/V.24 and RS-485 DTE support. It also features built-in diagnostics for local and remote testing. The configuring and options on the IG202T is provided by DIP switches and jumpers, eliminating the need for an AT command set. The IG202T has heavy-duty surge protection at the power supply and leased line inputs. IG202T also uses an isolated DC to DC power converter for protecting critical DC or battery power systems.

SPECIFICATIONS

DATA RATE SUPPORT:
Data Speed 0-1200 bps in Bell 202T mode Data Format Asynchronous, transparent character format (10 or 11-bit character with 1 or 2 stop bits)
MODULATION:
Frequency Shift Key (FSK)
Bell 202 Mode: Mark 1200 Hz
Space 2200 Hz
Softt Carrier 900 Hz
TRANSMISSION LINE INTERFACE:
Leased Line TELCO voice band 2 or 4 –wire leased lines Private or metallic circuits 2 or 4 –wire, 19-26 AWG Connector: 4 PIN RJ-11C modular jack
Transmitter output level: 0 to -12dbm, selectable
DTE/RTU Interface:
The modem provides serial ports to support either the RS-485 Interface standards RS-232 INTERFACE: Connector: D9-F Signals: RTS, CTS, CD, TD, RD, DSR, and SG
RS-485 INTERFACE:
Connector: RJ-11CSignals: 4-wire full-duplex
TX+, TX-, RX+, RX-
FRONT PANEL INDICATORS & CONTROL S:
RTS, CTS, TD, CD, RD, MR, ALB, DLB TEST Switch: Push Button for Analog Loopback, Digital Loopback
AC & DC POWER SUPPORT:
Standalone: 10-48 VDC: 85-400 VDC, 100-240 VAC
Rack mount module: plug-in RM16M modem rack
POWER + CURRENT CONSUMPTION:
75 Ma @ 12 VDC
18 Ma @ 48VDC
MECHANICAL:
Enclosure dimensions:
4.1" (W) x 4.9" (L) x1.4" (H)
104mm (W) x 125mm (L) x36mm (H)
weight: 0.51lbs, without AC power module
ENVIRONMENT:
Operation: -40 Degrees Celsius to + 85 Degrees Celsius
Storage: -40 Degrees Celsius to + 85 Degrees Celsius
Humidity: up to 95% non-condensing

ORDERING INFORMATION

DCE/IG202T	STANDALONE (100-240 VAC)
DCE/IG202T-DC	STANDALONE (10-48 VDC)
DCE/IG202T-HV	STANDALONE (100-240 VAC, 85-400 VDC)
DCE/IG202T-RM	RM16M RACKMOUNT MODULE
DCE/IG202T-WMB	WALL-MOUNT/PANEL-MODULE
DCE/IG202T-DIN	DIN-MOUNT KIT

DCE IG202T-R38

The Data Connect IG202T-R38 is Bell 202 frequency shift key (FSK) and quadrature amplitude modulation (QAM) modem for asynchronous and synchronous data transmission in 300-3400 Hz voice band. It is highly immune to interference and noise and permits extensive voice-band communication link utilization.

The modem supports several international standards ITU V.21, V.23, R.35, R.37, R.38A, R38B, v.29, Bell 103, Bell 202 and propriety Cegelec 1200/600Bd and Indactic 33 communication standards.

The modem can operate in half or full-duplex, point-to-point or point-to-multipoint mode when using FSK modulation the receive and transmit channels may be independently set.

The modem employs advanced DSP technology, thus offering high service flexibility through programmable features. Software configuration is performed via Hayes AT command set. AT commands can be initiated from any terminal application using and RS-232 communication interface. Additionally, for easy firmware upgrade a bootstrap loader is provided.

The modem features programmable modem capability for SCADA or power utility communication networks. It can support a range of standards including ITUR.35, R.37, R.38A, R.38B, V.21, V.23, Bell 103, and Bell 202. It is fully programmable via Hayes AT command set. The modem also features specialized line, power line carrier, or radio communication, as well as half or full-duplex operating modes.

The IG202T-R38 is designed for use in SCADA systems mainly based upon power utility communication networks. Depending on modulation standards it can communicate through specialized, private or leased lines, radio links and power lines (PLC)

The IG202T-R38 is available as a desktop modem or in two different types standard 19" rack, including: 1U rack with 1, 2, or 3 modems per rack;   3U rack with 10, 12 or 14 modems per rack, with additional blank front plates covering unused slots. All connectors at the rear side are accessible at the back openings.

ORDERING INFORMATION

DCE/IG202T-R38-DC-12   STANDALONE (9-18 VDC)
DCE/IG202T-R38-DC-24   STANDALONE (18-36 VDC)
DCE/IG202T-R38-DC-48   STAMDALONE (25-50 VDC)
DCE/IG202TRM-R38   RACKMOUNT MODEM

SPECIFACTIONS

Operation Type
Data Transmission on audio frequency analog medium
Media - Leased line, radio, PLC
Modes - asynchronous or synchronous, point-to-point, 2-wire or 4-wire
         -support for synchronous Indactic 33 protocol.
INTERFACES
DTE Interface - RS-232C, DB (female) connector
Signals:
DCD, RD, TD, DTR, SG, DSR, RTS, CTS, RI
Character length:
5-9 data bits, 1 start & 1 stop
RTS/CTS delay:
adjustable by 1ms step within range of 40-6825ms
option to transmit on RTS
Configuration:
AT command set
 ANALOG LINE
DB15 (female) connector
-600Ω or high impedance with return loss <0.2
Transmission level: 0 to -32dBM, programmable by 1dBstep
Receive level: 0 to -36dBM, programmable by 1 dB step, min. -48dBM
Radio control: half duplex control squelch detection
POWER SUPPLY:
2-position screw plug type (for 2-2.5mm 2 wire)
GENERAL LED INDICATION POWER SUPPLY:
PWR, TXD, RXD, RTS, RTS, DCD
9- 18VDC, 9-12VAC, model 12
18-36VDC, 14-23VAC, model 24
36-72VDC, 25-50VAC, model 48
ISOLATION IMMUNITY to NOISE
Transformer up to 1500V
Peak pulse noise: 100v Peak
Effective interference at 50 Hz: 80V rms
TEMPERATURE DIMENSIONS
Operation and storage: -10 to 50 °C
desktop: aluminum enclosure 11x30x170mm
19" rack: EUROCARD PCB, 160x100mm 3HE, 6T in 1U and 3U rack

MODULATION	TRANS. RATE	FREQ. DEVN.	CHANL. SPACE.	LOW FREQ	HIGH FREQ
FSK	Bd	Hz	Hz	Hz	Hz
ITU R.35	50	±30	120	420	3300
ITU R.37	100	±60	240	480	3120
ITU R.38B	200	±90	360	540	3060
ITU R.38A	200/300	±120	480	600	3000
ITU V.21	300	±100	400		1080/1750
ITU V23/1/2	600/1200	±200/400	800/1600		1500/1700
Bell 103	300	±100	400		1170/2125
Bell 202	1200	±500	2000		1700
QAM	TRANS.RATE	SYM. RATE	CONST. PT.	CARE.FREQ.	MODE
	Bps			Hz	
	4800	2400	4	1700	half duplex
	7200	2400	8	1700	half duplex
ITU V29	9600	2400	16	1700	half duplex

DCE MIU-202T

Bell 202T continues to be the standard of choices in many utility and industrial multi-drop data communications applications. The Data Connect Enterprise MIU202T can be powered from a wide range of DC and AC voltages, is surge protected on both the power and analog lines, and will operate in extreme heat and cold. Ideal for multi-drop applications over leased lines and private lines.

The MIU202T is a Bell Standard 202T modem designed for asynchronous operation at 0 to 1200 bps over voice grade lines and pilot wires. The modem is intended for use on leased lines and private lines and provides half-duplex communications on 2-wire lines, or full-duplex on 4-wire.

Most modem manufactures have abandoned the Bell 202T in favor of the much higher speed modulation preferred in dial-up systems. However, Bell 202T remains the standard of choice in many utility and industrial applications where relatively small amounts of data are to be transmitted in multi-point networks.

To meet this continued demand, Data Connect Enterprise has added the MIU202T to its range of Communications Interface Units (see separate brochure).

The MIU202T can be powered from any AC or DC voltage in the range of 48V to 220V.A 9-36VDC version is also available. It is designed to work extended temperatures ranging from -40C to +80 C, and its surge protected to 8kV, double the voltage requirements of IEC801-4 standard.

All of this is bundled in a 5-3/8"x 4" x 1-3/8,' non metallic enclosure, suitable for desktop or wall mounting. Rack mount cards are also available for Data Connect Enterprise "Myriad" system (see separate brochure)

SPECIFICATIONS

Data Rate:
Asynchronous 0-1200bps over voice grade leased or pilot lines
Modulation:
Bell 202T
Operation: phase coherent, (FSK)
Full duplex over 4-wire leased or private lines
Half duplex over 2-wire leased or private lines
(constant or switched carrier, Dip Switch selectable)
Power supply: 48VAC/DC (Optional 9-36VDC)
Power consumption:
15mA @ 48VD; 7.5mA @ 115CDV; 7.5mA @ 125VDC
Digital Port:
RS232 with DB9 Connector
Analog Port:
RJ11
Power connector:
3-pin with screw terminals for customer supplied cable
Case Size:
5-3/8" x 4" x 1-3/8"
Surge protection:
(Power Line) - 8kV [Exceeds IEC801-4]
Surge protection:
(Analog Line) - 3.75kVac
Operation equipment
-40 C to +85 C, 0 to 95% humidity (non-condensing)
Carrier Frequencies:
Bell 202T…
Mark:
1200Hz ± 0.1%
Space: 2200Hz ± 0.1%

FEATURES

0-1200 bps, leased AC/DC powered substation hardened Bell 202T
0-1200 bps over voice grade leased lines
Point-to-point or multi-point
48 to 220V AC/DC Power Supply
9-36VDC optional power supply
IEC901-4 surge protection
-40 C to +85 C operating Temp.
For meters, RTUs, SCADA, etc.

ORDERING INFORMATION

DCE/MIU-202T   BELL 202 1.2Kbps Leased Line Modem
DCE/MIU-202T-LV BELL 202 1.2Kbps Leased Line Modem Low Voltage

DCE MD202T

SPECIFICATIONS

Data Rate:
Asynchronous· 9-1200 bps over voice grade leased lines or pilot wires
Modulation:
Bell 202T
Phase coherent, Frequency Shift Keyed (FSK)
Operation:
Full duplex over 4-wire leased lines or private lines
Half duplex over 2-wire leased or private lines "
(Constant or Switched Carrier, DIP Switch Selectable)
Digital Port:
RS232 with DB9 Connectors
Analog Port:
RJ11
Surge Protection:
(Power Line): 8kV [Exceeds IEC801-4]
Surge Protection:
(Analog Line): 3.75Vac
Operating Equipment:
-20 C to + 85 C, 0 to 95% humidity (non-condensing)
Carrier Frequencies:
Bell 202T…
Mark:
1200Hz ± 0.1%
Space:
1200Hz ± 0.1%
Line Independence:
600 ohms
Anti streaming:
45 seconds or more
Transmitter Output Level:
0 or -10dBm
Receive Sensitivity:
-33 or -43dBm
RTS/CTS delay:
1, 12, 35, or 50msec
Carrier Detect Delay:
8.5msec
Soft Carrier Turnoff:
8.3msec
Test Features:
Analog Loopback

The Data Connect MD202T is the rack-mount version of The Data Connect MIU202T. The same functionally that can be found in the MIU202T can be found in the MD202T.

The Data Connect MD202T is a Bell 202T modem designed for asynchronous operation at 0 to 1200bps over voice grade lines and pilot wires. The modem is intended for use on leased lines or private lines and provides half duplex communications on 2 wire lines, or full duplex on 4-wire lines.

The MD202T is comprised of MDMC carrier card and PE202T module. Up to 18 MD202T can be front loaded into a MDR Modem Bank. The MDR Modem Bank is an industrial grade 19" x 3U rack mountable chassis. The MDR Modem Bank is powered from a wide range of AC or DC voltages. Two power supply cards can be installed to provide automatic back up in the event the primary power supply fails. The MDR will operate in temperatures from -20 C to +85 C and is surged protected on both power and analog lines.

Two power supply slots are provided. Power supply cards are available for any voltage in the range 9- 150VDC and 9-275VAC. A single power supply card will power all 18 MD202T.

In addition to the MD202T the MDR Modem Bank also houses the MD28.8, MD14.4, MD14.4L, and MD9.6FPD.

FEATURES

0-1200bps, leased lines AC/DC powered Bell 202T
0-1200bps over voice grade leased lines
Point-to-point or multipoint
IEC901-4 Surge Protection
-20 C to +85 C
for meters RTUs, SCADA, etc.

ORDERING INFORMATION

DCE/MD2O2T   BELL 202 1.2Kbps Rackmount Modem

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DATA CONNECT ENTERPRISE
PHONE: 301.924.7400 EXT 17

3405 OLANDWOOD CT
FAX: 301.924.7403

OLNEY, MD 20832   USA
www.data-connect.com

DCE MDR

FEATURES

18 Modem Slots
Dial & Leased Line Modems
V.22, 202T, 9.6FPD, V.32bis, V.34
Hayes AT Compatibility
Full Array of LEDs
Standard 19" x 5.25" (3U) Euro-Chassis
AC or DC Power from 9 to 300VAC or VDC
Dual Power Supplies with Full Redundancy
Ideal for SCADA Master Stations

The Data Connect MDR Modem Chassis is designed to house eighteen (18) DCE MD Modem Cards and two (2) DCE MDP Power Supplies. The DCE MDR Modem Chassis is hardened industrial grade, 19" wide, 3U height (5.25"H), and constructed heavy gauge steel with plating for corrosion resistance.

The DCE MD Modem Cards are comprised of a DCE MDMC Modem Carrier Card and a DCE PE OEM Card. The DCE MD202T (Bell 202T), MD9.6FPD (Proprietary), MD2.4 (V.22), MD14.4 (V.32bis), MD14.4L (V.32bis), and MD28.8 (V.34) operate within the DCE MDR Modem Chassis and are hot-swappable. Any mix of the DCE MD modems can be utilized simultaneously.

Two (2) DCE MDP Power Supplies Cards provide full redundancy and are available for any voltage in the range of 9-150VDC and 9-275VAC. A single DCE MDP Power Supply Card powers eighteen (18) Modem Cards. A second DCE MDP Power Supply Card, if installed, provides automatic backup in the event of a failure of the primary DCE MDP Power Supply Card.

SPECIFICATIONS

EIA Standards
Compliant with EIA Standard EIA-310-C
Modem Interface Connectors (Rear)
Serial RS232: DB25F
Analog Port: RJ11
LEDs (Front)
(Top to bottom)
DTR: Data Terminal Ready
TXD: Transmit Data
RXD: Receive Data
MR: Modem Ready
CD: Carrier Detect
RTS: Request to Send
CTS: Clear to Send
RI: Ring Indicator
Power Requirements
AC Power: 9 to275VAC – Fused Socket (IEC 320)
DC Power: 9 to 150VDC – Screw Terminals – 9 to 150VDC
Dimensions
Width: 19"
Depth:
Height: 5.25" (3U)
Environmental
Operating Temperature: -20 to +85 Degrees Celsius

DCE PE202T

To service the growing need for efficient, reliable data communication in harsh environments of utility substations and industrial facilities, DCE has developed a series of OEM PCB modems that can operate at 5V logic (TTL) or simple send and receive signals and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices. With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the meters, RTUs, and SCADA units where the conveniences of a standalone modem is unacceptable.

Data Connect Enterprise has addressed this problem by developing the PE2.4, 9.6FPD, 14.4, 14.4L, 202T, and 28.8 OEM modems designed specifically for harsh environments.

The PE OEM modems are highly sophisticated full duplex, V.22bis data modems that are designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals. The PE2.4, 14.4, and 28.8 OEM modems operate at full or half duplex on a dial up line. The PE202T, 14.4L, and 9.6FPD OPM modems operate full or half duplex on 2 or 4 wire leased lines.

The PE OEM PECs can be found in the MIU modems, MD modem cards, and the MIU Power Port modems.

FEATURES

Modem Interface Units 5V logic (TTL)
Simple send and receive signals
1200kbps 2/4-Wire Leased Line modem
5V logic (TTL) power supply
IEC801-4 surge protection
-40°C to +85°C operating temperature

SPECIFICATIONS

Modem Line Speeds:
0-1200bps
Standard:
Bell 202T
Transmission Line:
4-wire or leased lines
Compatibility:
Hayes Extended AT Command Set

ORDERING INFORMATION

DCE/PE202T 2/4-WIRE LEASED LINE PCB

DCE 202TE-037-4

For years the Bell 202 modem has delivered reliable low speed multipoint communications. Today, this device still enjoys great popularity due to its ability to communicate under adverse conditions. The Bell 202 remains the right choice for telemetry applications, control systems, transaction applications, and for reliable data delivery over RF or cellular connections.

The Data Connect ST202TE series offers a modem implementation of this classic modulation standard. In this design, we have utilized the latest semiconductor technology to guarantee a level of performance and reliability that cannot be matched by older designs.

The industrial-rated Data Connect ST202TE is housed in metal enclosures and is built too meet the most stringent criteria. Temperature ratings, for example, range from -40 C to +85 C. versatile power supply options will meet most industrial application.

The ST202TE series was designed, however, to allow implementation of a wide variety of OEM applications. Like all Data Connect designs, it is microcontroller based so that it may support custom interfaces and protocols. In addition, the line interface of the ST202TE series is capable of supporting, either leased circuits, dial circuits or short hall twist pair.

The ST202TE series is available in our standalone or rack mount configuration. In addition, this device is available at the board level for OEM applications

SPECIFACTIONS

Compatibility:
Bell 202S, Bell 202T
DTE Interface:
RS-232C (V.24) 0-1800bps.
Configuration Control:
Parameters set through switches
Line Interface:
Standard 4-wire leased
Standard 2-wire leased
optional 2-wire dial.
Line Diagnostic:
DTE and modem generated test patterns
Local Analog Loopback
Local Digital Loopback
Remote Digital Loopback
Transmit Power:
Adjustable in 2db increments from 0dBmthrough -14dBm
Power:
Standalone Unit-Automatically adjust 9Vac or 9-14VDC
Power Supply Options- 5.5-14VDC, 18-75VDC, 66-160VDC
Rack mount - Standard CC-2016 rack automatically adjust to 85-265VAC, 27-440Hz. Optional DC Supply, automatically adjusts to positive or negative 36-75VDC
Operating Environment: -40 C to +85 C
Humidity – 95% non-condensing
Approvals:
FCC part 68 & part 15, Class A optional international approval are available.
Physical:
Standalone Units- Dimensions 6.19"L x 5.12"W x 1.75 "H
Weight 30oz. (metal enclosure)
Rack mount Unit- Fits ST-2016 Rack.
4.73" L x 4.60"W x .80H
Weight: 9oz

FEATURES

Compatible with all standards Bell 202S or 202T modems. Engineered and manufactured to standards with metal enclosure.
Easy to configure
4-Wire leased line (202T) 2-wire leased line (202S)

ORDERING INFORMATION
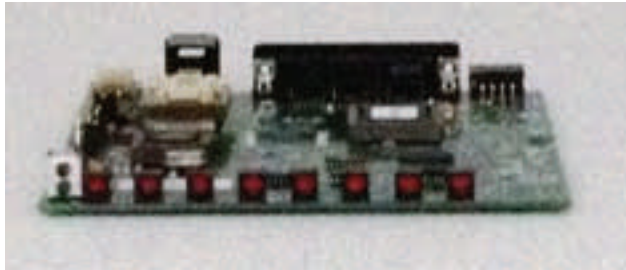
DCE/202TE-037-4 BELL 202 1.2Kbps Leased Line Modem
DCE/202TR-037-4 BELL 202 1.2Kbps Leased Line Rackmount
Modem

DCE 202TR-037-4

For years the Bell 202 modem has delivered reliable low speed multi-point communications. Today, this device still enjoys great popularity due to its ability to communicate under adverse conditions. The Bell 202 remains the right choice for telemetry applications, control systems, transaction applications, and for reliable data delivery over RF or cellular connections.

The Data Connect ST202TE series offers a modem implementation of this classic modulation standard. In this design, we have utilized the latest semiconductor technology to guarantee a level of performance and reliability that cannot be matched by older designs.

The industrial-rated Data Connect ST202TE is housed in metal enclosures and is built too meet the most stringent criteria. Temperature ratings, for example, range from -40 C to +85 C. versatile power supply options will meet most industrial application.

The ST202TE series was designed, however, to allow implementation of a wide variety of OEM applications. Like all Data Connect designs, it is microcontroller based so that it may support custom interfaces and protocols. In addition, the line interface of the ST202TE series is capable of supporting, either leased circuits, dial circuits or short hall twist pair.

The ST202TE series is available in our standalone or rack mount configuration. In addition, this device is available at the board level for OEM applications

SPECIFACTIONS

Compatibility:
Bell 202S, Bell 202T
DTE Interface:
RS-232C (V.24) 0-1800bps.
Configuration Control:
Parameters set through switches
Line Interface:
Standard 4-wire leased
Standard 2-wire leased
optional 2-wire dial.
Line Diagnostic:
DTE and modem generated test patterns
Local Analog Loopback
Local Digital Loopback
Remote Digital Loopback
Transmit Power:
Adjustable in 2db increments from 0dBmthrough -14dBm
Power:
Standalone Unit-Automatically adjust 9Vac or 9-14VDC
Power Supply Options- 5.5-14VDC, 18-75VDC, 66-160VDC
Rack mount - Standard CC-2016 rack automatically adjust to 85-265VAC, 27-440Hz. Optional DC Supply, automatically adjusts to positive or negative 36-75VDC
Operating Environment: -40 C to +85 C
Humidity – 95% non-condensing
Approvals:
FCC part 68 & part 15, Class A optional international approval are available.
Physical:
Standalone Units- Dimensions 6.19"L x 5.12"W x 1.75 "H
Weight 30oz. (metal enclosure)
Rack mount Unit- Fits ST-2016 Rack.
4.73" L x 4.60"W x .80H
Weight: 9oz

ORDERING INFORMATION

DCE/202TE-037-4 BELL 202 1.2Kbps Leased Line Modem
DCE/202TR-037-4 BELL 202 1.2Kbps Leased Line Rackmount
Modem

FEATURES

Compatible with all standards Bell 202S or 202T modems. Engineered and manufactured to standards with metal enclosure.
Easy to configure
4-Wire leased line (202T) 2-wire leased line (202S)

SERIAL DATA & MODEM EXTENSION

MODEL	MAX. SPEED	HIGH VOLT.	LOW VOLT.	PRIVATE LINE	RACK MOUNT	DIN MOUNT	WALL MOUNT	RS485	DIS- TANCE	PHOTO	PAGE
DCE/IGV23	1200BPS	X	X	X	X	X		X	COPPER 10 MILES		140
DCE/IG202T	1200BPS	X	X	X	X	X		X	COPPER 10 MILES		141
DCE/IG202T-R38	1200BPS		X	X	X				COPPER 10 MILES		142
DCE/MIU/202T	1200BPS	X	X	X					COPPER 10 MILES		143
DCE/MD202T	1200BPS			X	X				COPPER 10 MILES		144
DCE/PE202T	1200BPS			X					COPPER 10 MILES		145
DCE/202TE-037-4	1200BPS			X	X				COPPER 10 MILES		147
DCE/IG96HFP	9.6KBPS	X	X	X	X			X	COPPER 16.1 MILES		148
DCE/DSP9612	9.6KBPS	X	X	X	X				COPPER 16.1 MILES		149
DCE/MIU9.6FPD	9.6KBPS	X	X	X					COPPER 16.1 MILES		150
DCE/MD9.6FPD	9.6KBPS			X	X				COPPER 16.1 MILES		151
DCE/PE9.6FPD	9.6KBPS			X					COPPER 16.1 MILES		153
DCE/MIU14.4L	14.4KBPS	X	X	X					COPPER 5 MILES		154
DCE/MIUPP14.4L	14.4KBPS	X	X	X					COPPER 5 MILES		155
DCE/MD14.4L	14.4KBPS			X	X				COPPER 5 MILES		156
DCE/PE14.4L	14.4KBPS			X					COPPER 5 MILES		158
DCE/IG192HFP	19.2KBPS	X	X	X	X			X	COPPER 10.6 MILES		159
DCE/3600LP	33.6KBPS	X	X	X					COPPER 5 MILES		160
DCE/3342LP	33.6KBPS	X	X	X					COPPER 5 MILES		161
DCE/V.3600UI	33.6KBPS	X	X	X	X				COPPER 10 MILES		162
DCE/SWM910A	115KBPS			X					FREQUENCY HOPPING 62 MILES		163
DCE/SFM	1024KBPS	X	X	X	X				FIBER 75 MILES		164
DCE/HS-SFM	2048KBPS	X	X	X	X				FIBER 75 MILES		165
DCE/SHS-SFM	8192KBPS	X	X	X	X				FIBER 75 MILES		165

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TECHNOLOGY	SPEED	PAGE
ITU-T V.23 MODULATION	1200BPS	140
BELL 202 MODULATION	1200BPS	141— 147
ITU-T V.29 & DSP MODULATION	9600/19200BPS	148, 149
ITU-T V.29 & FPD MODULATION	9600BPS	150—153
ITU-T V.32BIS	14400BPS	154—158
ITU-T V.34BIS	28,800BPS	160—162
FREQUENCY HOPPING	115200BPS	163
FIBER CONVERSION	1024000 / 2048000 / 8192000BPS	164—165

TECHNOLOGY

Most Leased Line modems can be used for Serial Data Extension as Private Line, Limited distance, or Short Haul modems. Our solutions allow you to transmit serial data over copper, wireless, and fiber media and range in speed from 1200bps to 8,192,000bps and in distance from 5 to 75 miles. The modulations above 1200BPS are proprietary implementations of industry standard technologies designed for maximum Point-to-Point and Point-to-Multipoint.

At Data Connect we offer a wide range of modem products to fit your network needs. We can assist you in finding a solution that maximizes your investment while providing the solutions that will benefit your customers both now and in the years to come. With the ability to match all requirements and standards, your choice becomes a wise choice and made easy by Data Connect expertise.

DCE IGV.23

The Data Connect low speed IGV.23 Industrial Grade V.23 modem is designed and manufactured for rugged industrial communication networks. The IGV.23 delivers cost effective and reliable 1200bps asynchronous solutions for point to point and multipoint connectivity.

The IGV.23 Industrial Grade V.23 modem is ideal for industrial communication application including SCADA systems, RTUs, traffic monitor and control, and industrial and automation networks. The V.23 supports RTUs with switch selectable settings and no AT command set required. The IGV.23 modem is designed to operate over 4-wire full duplex or 2-wire half duplex over unconditioned leased lines or private metallic circuits. For optimum performance, the modem employs FSK modulation to be compatible with V.23 standards, which can communicate over a variety of private transmission lines at a distance up to 10 miles.

The IGV.23 Industrial Grade V.23 modem can operate over a wide range of AC or DC power supply voltages and temperatures. With Proven reliability and ease of installation the V.23 is ideal for point-to-point and point-to-multipoint polling networks, where reliability and low-network latency are critical for system performance. With its Auto-RTS mode, the modem can support DTE/RTUs with 3-wire serial interface (TD, RD, and SG) in point-to-point and multi-point polling applications.

The IGV.23 industrial grade V.23 modem has selectable EIA RS-232/V.24 and RS-485 DTE support. It also features built-in diagnostics for local and remote testing. The configuring and options on the IG202T is provided by DIP switches and jumpers, eliminating the need for an AT command set. The IGV.23 has heavy-duty surge protection at the power supply and leased line inputs. IGV.23 also uses an isolated DC to DC power converter for protecting critical DC or battery power systems.

SPECIFICATIONS

DATA RATE SUPPORT:
Data Speed 0-1200 bps in V.23 mode Data Format Asynchronous, transparent character format (10 or 11-bit character with 1 or 2 stop bits)
MODULATION:
Frequency Shift Key (FSK)
V.23 Mode:
Mark 1300 Hz
Space 2100 Hz
Soft Carrier 900 Hz
TRANSMISSION LINE INTERFACE:
Leased Line TELCO voice band 2 or 4 –wire leased lines Private or metallic circuits 2 or 4 –wire, 19-26 AWG Connector: 4 PIN RJ-11C modular jack
Private Line at a distance up to 10 miles
Transmitter output level: 0 to -12dbm, selectable
DTE/RTU Interface:
The modem provides serial ports to support either the RS-485 Interface standards RS-232 INTERFACE: Connector: D9-F Signals: RTS, CTS, CD, TD, RD, DSR, and SG
RS-485 INTERFACE:
Connector: RJ-11CSignals: 4-wire full-duplex
TX+, TX-, RX+, RX-
FRONT PANEL INDICATORS & CONTROL S:
RTS, CTS, TD, CD, RD, MR, ALB, DLB TEST Switch: Push Button for Analog Loopback, Digital Loopback
AC & DC POWER SUPPORT:
Standalone: 10-48 VDC: 85-400 VDC, 100-240 VAC
Rack mount module: plug-in RM16M modem rack
POWER + CURRENT CONSUMPTION:
75 Ma @ 12 VDC
18 Ma @ 48VDC
MECHANICAL:
Enclosure dimensions:
4.1" (W) x 4.9" (L) x1.4" (H)
104mm (W) x 125mm (L) x36mm (H)
weight: 0.51lbs, without AC power module
ENVIRONMENT:
Operation: -40 Degrees Celsius to + 85 Degrees Celsius
Storage: -40 Degrees Celsius to + 85 Degrees Celsius
Humidity: up to 95% non-condensing

ORDERING INFORMATION

DCE/IGV.23	STANDALONE (100-240 VAC)
DCE/IGV.23-DC	STANDALONE (10-48 VDC)
DCE/IGV.23-HV	STANDALONE (100-240 VAC, 85-400 VDC)
DCE/IGV.23-RM	RM16M RACKMOUNT MODULE
DCE/IGV.23-WMB	WALL-MOUNT/PANEL-MODULE
DCE/IGV.23-DIN	DIN-MOUNT KIT

DCE IG202T

The Data Connect low speed IG202T Industrial Grade Bell 202 modem is designed and manufactured for rugged industrial communication networks. The IG202T delivers cost effective and reliable 1200bps asynchronous solutions for point to point and multi-point connectivity.

The IG202T Industrial Grade Bell 202 modem is ideal for industrial communication application including SCADA systems, RTUs, traffic monitor and control, and industrial and automation networks. The IG202T supports RTUs with switch selectable settings and no AT command set required. The IG202T modem is designed to operate over 4-wire full duplex or 2-wire half duplex over unconditioned leased lines or private metallic circuits. For optimum performance, the modem employs FSK modulation to be compatible with Bell 202 standards, which can communicate over a variety of private transmission lines at a distance up to 10 miles.

The IG202T Industrial Grade Bell 202 modem can operate over a wide range of AC or DC power supply voltages and temperatures. With Proven reliability and ease of installation the IG202T is ideal for point-to-point and point-to-multipoint polling networks, where reliability and low-network latency are critical for system performance. With its Auto-RTS mode, the modem can support DTE/RTUs with 3-wire serial interface (TD, RD, and SG) in point-to-point and multi-point polling applications.

The IG202T industrial grade Bell 202 modem has selectable EIA RS-232/V.24 and RS-485 DTE support. It also features built-in diagnostics for local and remote testing. The configuring and options on the IG202T is provided by DIP switches and jumpers, eliminating the need for an AT command set. The IG202T has heavy-duty surge protection at the power supply and leased line inputs. IG202T also uses an isolated DC to DC power converter for protecting critical DC or battery power systems.

SPECIFICATIONS

DATA RATE SUPPORT:
Data Speed 0-1200 bps in Bell 202T mode Data Format Asynchronous, transparent character format (10 or 11-bit character with 1 or 2 stop bits)
MODULATION:
Frequency Shift Key (FSK)
Bell 202 Mode: Mark 1200 Hz
Space 2200 Hz
Softt Carrier 900 Hz
TRANSMISSION LINE INTERFACE:
Leased Line TELCO voice band 2 or 4 –wire leased lines Private or metallic circuits 2 or 4 –wire, 19-26 AWG Connector: 4 PIN RJ-11C modular jack
Private Line at a distance up to 10 miles
Transmitter output level: 0 to -12dbm, selectable
DTE/RTU Interface:
The modem provides serial ports to support either the RS-485 Interface standards RS-232 INTERFACE: Connector: D9-F Signals: RTS, CTS, CD, TD, RD, DSR, and SG
RS-485 INTERFACE:
Connector: RJ-11CSignals: 4-wire full-duplex
TX+, TX-, RX+, RX-
FRONT PANEL INDICATORS & CONTROL S:
RTS, CTS, TD, CD, RD, MR, ALB, DLB TEST Switch: Push Button for Analog Loopback, Digital Loopback
AC & DC POWER SUPPORT:
Standalone: 10-48 VDC: 85-400 VDC, 100-240 VAC
Rack mount module: plug-in RM16M modem rack
POWER + CURRENT CONSUMPTION:
75 Ma @ 12 VDC
18 Ma @ 48VDC
MECHANICAL:
Enclosure dimensions:
4.1" (W) x 4.9" (L) x1.4" (H)
104mm (W) x 125mm (L) x36mm (H)
weight: 0.51lbs, without AC power module
ENVIRONMENT:
Operation: -40 Degrees Celsius to + 85 Degrees Celsius
Storage: -40 Degrees Celsius to + 85 Degrees Celsius
Humidity: up to 95% non-condensing

ORDERING INFORMATION

DCE/IG202T	STANDALONE (100-240 VAC)
DCE/IG202T-DC	STANDALONE (10-48 VDC)
DCE/IG202T-HV	STANDALONE (100-240 VAC, 85-400 VDC)
DCE/IG202T-RM	RM16M RACKMOUNT MODULE
DCE/IG202T-WMB	WALL-MOUNT/PANEL-MODULE
DCE/IG202T-DIN	DIN-MOUNT KIT

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DCE IG202T-R38

The Data Connect IG202T-R38 is Bell 202 frequency shift key (FSK) and quadrature amplitude modulation (QAM) modem for asynchronous and synchronous data transmission in 300-3400 Hz voice band. It is highly immune to interference and noise and permits extensive voice-band communication link utilization.

The modem supports several international standards ITU V.21, V.23, R.35, R.37, R.38A, R38B, v.29, Bell 103, Bell 202 and propriety Cegelec 1200/600Bd and Indactic 33 communication standards.

The modem can operate in half or full-duplex, point-to-point or point-to-multipoint mode when using FSK modulation the receive and transmit channels may be independently set.   Private linedistance is up to 10 miles.

The modem employs advanced DSP technology, thus offering high service flexibility through programmable features. Software configuration is performed via Hayes AT command set. AT commands can be initiated from any terminal application using and RS-232 communication interface. Additionally, for easy firmware upgrade a bootstrap loader is provided.

The modem features programmable modem capability for SCADA or power utility communication networks. It can support a range of standards including ITUR.35, R.37, R.38A, R.38B, V.21, V.23, Bell 103, and Bell 202. It is fully programmable via Hayes AT command set. The modem also features specialized line, power line carrier, or radio communication, as well as half or full-duplex operating modes.

The IG202T-R38 is designed for use in SCADA systems mainly based upon power utility communication networks. Depending on modulation standards it can communicate through specialized, private or leased lines, radio links and power lines (PLC)

The IG202T-R38 is available as a desktop modem or in two different types standard 19" rack, including: 1U rack with 1, 2, or 3 modems per rack;   3U rack with 10, 12 or 14 modems per rack, with additional blank front plates covering unused slots. All connectors at the rear side are accessible at the back openings.

SPECIFACTIONS

Operation Type
Data Transmission on audio frequency analog medium
Media - Leased line, radio, PLC
Private Line at a distance up to 10 miles
Modes - asynchronous or synchronous, point-to-point, 2-wire or 4-wire
-support for synchronous Indactic 33 protocol.
INTERFACES
DTE Interface - RS-232C, DB (female) connector
Signals:
DCD, RD, TD, DTR, SG, DSR, RTS, CTS, RI
Character length:
5-9 data bits, 1 start & 1 stop
RTS/CTS delay:
adjustable by 1ms step within range of 40-6825ms
option to transmit on RTS
Configuration:
AT command set
ANALOG LINE
DB15 (female) connector
-600Ω or high impedance with return loss <0.2
Transmission level: 0 to -32dBM, programmable by 1dBstep
Receive level: 0 to -36dBM, programmable by 1 dB step, min. -48dBM
Radio control: half duplex control squelch detection
POWER SUPPLY:
2-position screw plug type (for 2-2.5mm 2 wire)
GENERAL LED INDICATION POWER SUPPLY:
PWR, TXD, RXD, RTS, RTS, DCD
9- 18VDC, 9-12VAC, model 12
18-36VDC, 14-23VAC, model 24
36-72VDC, 25-50VAC, model 48
ISOLATION IMMUNITY to NOISE
Transformer up to 1500V
Peak pulse noise: 100v Peak   -
Effective interference at 50 Hz: 80V rms
TEMPERATURE DIMENSIONS
Operation and storage: -10 to 50 °C
desktop: aluminum enclosure 11x30x170mm
19" rack: EUROCARD PCB, 160x100mm 3HE, 6T in 1U and 3U rack

MODULATION	TRANS. RATE	FREQ. DEVN.	CHANL. SPACE.	LOW FREQ	HIGH FREQ
FSK	Bd	Hz	Hz	Hz	Hz
ITU R.35	50	±30	120	420	3300
ITU R.37	100	±60	240	480	3120
ITU R.38B	200	±90	360	540	3060
ITU R.38A	200/300	±120	480	600	3000
ITU V.21	300	±100	400		1080/1750
ITU V23/1/2	600/1200	±200/400	800/1600		1500/1700
Bell 103	300	±100	400		1170/2125
Bell 202	1200	±500	2000		1700
QAM	TRANS.RATE	SYM. RATE	CONST. PT.	CARE.FREQ.	MODE
	Bps			Hz	
	4800	2400	4	1700	half duplex
	7200	2400	8	1700	half duplex
ITU V29	9600	2400	16	1700	half duplex

DCE MIU-202T

SPECIFICATIONS

Data Rate:
Asynchronous 0-1200bps over voice grade leased or pilot lines
Modulation:
Bell 202T
Operation: phase coherent, (FSK)
Full duplex over 4-wire leased or private lines
Half duplex over 2-wire leased or private lines
Private Line at a distance up to 10 miles
(constant or switched carrier, Dip Switch selectable)
Power supply: 48VAC/DC (Optional 9-36VDC)
Power consumption:
15mA @ 48VD; 7.5mA @ 115CDV; 7.5mA @ 125VDC
Digital Port:
RS232 with DB9 Connector
Analog Port:
RJ11
Power connector:
3-pin with screw terminals for customer supplied cable
Case Size:
5-3/8" x 4" x 1-3/8"
Surge protection:
(Power Line) - 8kV [Exceeds IEC801-4]
Surge protection:
(Analog Line) - 3.75kVac
Operation equipment
-40 C to +85 C, 0 to 95% humidity (non-condensing)
Carrier Frequencies:
Bell 202T…
Mark:
1200Hz ± 0.1%
Space: 2200Hz ± 0.1%

Bell 202T continues to be the standard of choices in many utility and industrial multi-drop data communications applications. The Data Connect Enterprise MIU202T can be powered from a wide range of DC and AC voltages, is surge protected on both the power and analog lines, and will operate in extreme heat and cold. Ideal for multi-drop applications over leased lines and private lines at a distance up to 10 miles..

The MIU202T is a Bell Standard 202T modem designed for asynchronous operation at 0 to 1200 bps over voice grade lines and pilot wires. The modem is intended for use on leased lines and private lines and provides half-duplex communications on 2-wire lines, or full-duplex on 4-wire.

Most modem manufactures have abandoned the Bell 202T in favor of the much higher speed modulation preferred in dial-up systems. However, Bell 202T remains the standard of choice in many utility and industrial applications where relatively small amounts of data are to be transmitted in multi-point networks.

To meet this continued demand, Data Connect Enterprise has added the MIU202T to its range of Communications Interface Units (see separate brochure).

The MIU202T can be powered from any AC or DC voltage in the range of 48V to 220V.A 9-36VDC version is also available. It is designed to work extended temperatures ranging from -40C to +80 C, and its surge protected to 8kV, double the voltage requirements of IEC801-4 standard.

All of this is bundled in a 5-3/8"x 4" x 1-3/8,' non metallic enclosure, suitable for desktop or wall mounting. Rack mount cards are also available for Data Connect Enterprise "Myriad" system (see separate brochure)

FEATURES

0-1200 bps, leased AC/DC powered substation hardened Bell 202T
0-1200 bps over voice grade leased lines
Point-to-point or multi-point
48 to 220V AC/DC Power Supply
9-36VDC optional power supply
IEC901-4 surge protection
-40 C to +85 C operating Temp.
For meters, RTUs, SCADA, etc.

ORDERING INFORMATION

DCE/MIU-202T   BELL 202 1.2Kbps Leased Line Modem
DCE/MIU-202T-LV   BELL 202 1.2Kbps Leased Line Modem Low Voltage

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DCE MD202T

The Data Connect MD202T is the rack-mount version of The Data Connect MIU202T. The same functionally that can be found in the MIU202T can be found in the MD202T.

The Data Connect MD202T is a Bell 202T modem designed for asynchronous operation at 0 to 1200bps over voice grade lines and pilot wires. The modem is intended for use on leased lines or private lines and provides half duplex communications on 2 wire lines, or full duplex on 4-wire lines. Private line distance is up to 10 miles.

The MD202T is comprised of MDMC carrier card and PE202T module. Up to 18 MD202T can be front loaded into a MDR Modem Bank. The MDR Modem Bank is an industrial grade 19" x 3U rack mountable chassis. The MDR Modem Bank is powered from a wide range of AC or DC voltages. Two power supply cards can be installed to provide automatic back up in the event the primary power supply fails. The MDR will operate in temperatures from -20 C to +85 C and is surged protected on both power and analog lines.

Two power supply slots are provided. Power supply cards are available for any voltage in the range 9- 150VDC and 9-275VAC. A single power supply card will power all 18 MD202T.

In addition to the MD202T the MDR Modem Bank also houses the MD28.8, MD14.4, MD14.4L, and MD9.6FPD.

SPECIFICATIONS

Data Rate:
Asynchronous· 9-1200 bps over voice grade leased lines or pilot wires
Modulation:
Bell 202T
Phase coherent, Frequency Shift Keyed (FSK)
Operation:
Full duplex over 4-wire leased lines or private lines
Half duplex over 2-wire leased or private lines "
Private Line at a distance up to 10 miles
(Constant or Switched Carrier, DIP Switch Selectable)
Digital Port:
RS232 with DB9 Connectors
Analog Port:
RJ11
Surge Protection:
(Power Line): 8kV [Exceeds IEC801-4]
Surge Protection:
(Analog Line): 3.75Vac
Operating Equipment:
-20 C to + 85 C, 0 to 95% humidity (non-condensing)
Carrier Frequencies:
Bell 202T…
Mark:
1200Hz ± 0.1%
Space:
1200Hz ± 0.1%
Line Independence:
600 ohms
Anti streaming:
45 seconds or more
Transmitter Output Level:
0 or -10dBm
Receive Sensitivity:
-33 or -43dBm
RTS/CTS delay:
1, 12, 35, or 50msec
Carrier Detect Delay:
8.5msec
Soft Carrier Turnoff:
** 8.3msec**
Test Features:
Analog Loopback

FEATURES

0-1200bps, leased lines AC/DC powered Bell 202T
0-1200bps over voice grade leased lines
Point-to-point or multipoint
IEC901-4 Surge Protection
-2O C to +85 C
for meters RTUs, SCADA, etc.

ORDERING INFORMATION

DCE/MD2O2T   BELL 202 1.2Kbps Rackmount Modem

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DCE MDR

FEATURES

18 Modem Slots
Dial & Leased Line Modems
V.22, 202T, 9.6FPD, V.32bis, V.34
Hayes AT Compatibility
Full Array of LEDs
Standard 19" x 5.25" (3U) Euro-Chassis
AC or DC Power from 9 to 300VAC or VDC
Dual Power Supplies with Full Redundancy
Ideal for SCADA Master Stations

The Data Connect MDR Modem Chassis is designed to house eighteen (18) DCE MD Modem Cards and two (2) DCE MDP Power Supplies. The DCE MDR Modem Chassis is hardened industrial grade, 19" wide, 3U height (5.25"H), and constructed heavy gauge steel with plating for corrosion resistance.

The DCE MD Modem Cards are comprised of a DCE MDMC Modem Carrier Card and a DCE PE OEM Card. The DCE MD202T (Bell 202T), MD9.6FPD (Proprietary), MD2.4 (V.22), MD14.4 (V.32bis), MD14.4L (V.32bis), and MD28.8 (V.34) operate within the DCE MDR Modem Chassis and are hot-swappable. Any mix of the DCE MD modems can be utilized simultaneously.

Two (2) DCE MDP Power Supplies Cards provide full redundancy and are available for any voltage in the range of 9-150VDC and 9-275VAC. A single DCE MDP Power Supply Card powers eighteen (18) Modem Cards. A second DCE MDP Power Supply Card, if installed, provides automatic backup in the event of a failure of the primary DCE MDP Power Supply Card.

SPECIFICATIONS

EIA Standards
Compliant with EIA Standard EIA-310-C
Modem Interface Connectors (Rear)
Serial RS232: DB25F
Analog Port: RJ11
LEDs (Front)
(Top to bottom)
DTR: Data Terminal Ready
TXD: Transmit Data
RXD: Receive Data
MR: Modem Ready
CD: Carrier Detect
RTS: Request to Send
CTS: Clear to Send
RI: Ring Indicator
Power Requirements
AC Power: 9 to275VAC – Fused Socket (IEC 320)
DC Power: 9 to 150VDC – Screw Terminals – 9 to 150VDC
Dimensions
Width: 19"
Depth:
Height: 5.25" (3U)
Environmental
Operating Temperature: -20 to +85 Degrees Celsius

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DCE PE202T

FEATURES

Modem Interface Units 5V logic (TTL)
Simple send and receive signals
1200kbps 2/4-Wire Leased Line modem
5V logic (TTL) power supply
IEC801-4 surge protection
-40°C to +85°C operating temperature

To service the growing need for efficient, reliable data communication in harsh environments of utility substations and industrial facilities, DCE has developed a series of OEM PCB modems that can operate at 5V logic (TTL) or simple send and receive signals and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices. With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the meters, RTUs, and SCADA units where the conveniences of a standalone modem is unacceptable.

Data Connect Enterprise has addressed this problem by developing the PE2.4, 9.6FPD, 14.4, 14.4L, 202T, and 28.8 OEM modems designed specifically for harsh environments.

The PE OEM modems are highly sophisticated full duplex, V.22bis data modems that are designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals. The PE2.4, 14.4, and 28.8 OEM modems operate at full or half duplex on a dial up line. The PE202T, 14.4L, and 9.6FPD OPM modems operate full or half duplex on 2 or 4 wire leased lines.

The PE OEM PECs can be found in the MIU modems, MD modem cards, and the MIU Power Port modems.

SPECIFICATIONS

Modem Line Speeds:
0-1200bps
Standard:
Bell 202T
Transmission Line:
4-wire or private lines
Compatibility:
Hayes Extended AT Command Set

ORDERING INFORMATION

DCE/PE202T   **2/4-WIRE LEASED LINE PCB**

DCE 202TE-037-4

SPECIFACTIONS

Compatibility:
Bell 202S, Bell 202T
DTE Interface:
RS-232C (V.24) 0-1800bps.
Configuration Control:
Parameters set through switches
Line Interface:
Standard 4-wire leased
Standard 2-wire leased
optional 2-wire dial.
Private Line at a distance up to 10 miles
Line Diagnostic:
DTE and modem generated test patterns
Local Analog Loopback
Local Digital Loopback
Remote Digital Loopback
Transmit Power:
Adjustable in 2db increments from 0dBmthrough -14dBm
Power:
Standalone Unit-Automatically adjust 9Vac or 9-14VDC
Power Supply Options- 5.5-14VDC, 18-75VDC, 66-160VDC
Rack mount - Standard CC-2016 rack automatically adjust to 85-265VAC, 27-440Hz. Optional DC Supply, automatically adjusts to positive or negative 36-75VDC
Operating Environment: -40 C to +85 C
Humidity – 95% non-condensing
Approvals:
FCC part 68 & part 15, Class A optional international approval are available.
Physical:
Standalone Units- Dimensions 6.19"L x 5.12"W x 1.75 "H
Weight 30oz. (metal enclosure)
Rack mount Unit- Fits ST-2016 Rack.
4.73" L x 4.60"W x .80H
Weight: 9oz

For years the Bell 202 modem has delivered reliable low speed multi-point communications. Today, this device still enjoys great popularity due to its ability to communicate under adverse conditions. The Bell 202 remains the right choice for telemetry applications, control systems, transaction applications, and for reliable data delivery over RF or cellular connections.

The Data Connect ST202TE series offers a modem implementation of this classic modulation standard. In this design, we have utilized the latest semiconductor technology to guarantee a level of performance and reliability that cannot be matched by older designs.

The industrial-rated Data Connect ST202TE is housed in metal enclosures and is built too meet the most stringent criteria. Temperature ratings, for example, range from -40 C to +85 C. versatile power supply options will meet most industrial application.

The ST202TE series was designed, however, to allow implementation of a wide variety of OEM applications. Like all Data Connect designs, it is microcontroller based so that it may support custom interfaces and protocols. In addition, the line interface of the ST202TE series is capable of supporting, either leased circuits, dial circuits or short hall twist pair. Private line distance is up to 10 miles.

The ST202TE series is available in our standalone or rack mount configuration. In addition, this device is available at the board level for OEM applications

FEATURES

Compatible with all standards Bell 202S or 202T modems. Engineered and manufactured to standards with metal enclosure.
Easy to configure
4-Wire leased line (202T) 2-wire leased line (202S)

ORDERING INFORMATION

DCE/202TE-037-4   BELL 202 1.2Kbps Leased Line Modem
DCE/202TR-037-4   BELL 202 1.2Kbps Leased Line Rackmount
Modem

DCE IG96HFP

The IG96HFP industrial grade 9.6 kbps hyper fast modem is designed to operate over 4-wire full duplex or 2 wire half duplex unconditioned leased lines or private metallic circuits. For optimum performance, the modem employs QAM modulations along with its adaptive equalizers to communicate over a variety of private transmissions lines at a distance up to 16.1 miles. The IG96HFP supports DTE/RTUs with an EIA RS-232 andRS-485 serial port at speeds of 9600, 4800, 2400 and 1200 bps. EIA its Auto-RTS mode, the modem can support DTE/RTUs with 3-wire serial interface (TD, RD, and SG) in multi-point polling applications.

The triple mode capability allows the IG96HFP industrial grade 9.6 kbps hyper fast poll modem to communicate with the older generation DSP9612FP at up to 9600 kbps and both the Bell 202T and V.23 FSK modem at up to 1200 bps.

The IG96HFP industrial grade 9.6 kbps hyper fast poll modem to range AC or DC power supply voltage and temperatures, with proven reliability and ease of installation, the IG96HFP is deal for point-to-multipoint polling networks, where fast training time and low-network latency are critical for system performance.

ORDERING INFORMATION

DCE/IG96HFP	STANDALONE (100-240VAC)
DCE/IG96HFP-LV	STANDALONE (10-48 VDC)
DCE/IG96HFP-HV	STANDALONE (100-240 VAC, 85-400 VDC)
DCE/IG96HFP-RM	RM16M RACK-MOUNT MODULE
DCE/96HFP-WMB	WALL-MOUNT/PANEL-MOUNT KIT
DCE/IG96HFP-DIN	DIN RAIL MOUNTING KIT

SPECIFICATIONS

TRIPLE MODE:
Hyper Fast Poll mode at 9600, 17.5 ms RTS-CTS delay QAM mode at 9600/4800/4200bps 23 ms RTS-CTS delay FSK mode for Bell 202T (0-1800) modes

DTE/RTU INTERFACE:
RS-232 interface with full control signals support (db-9F) RS-485/RS422 support, 4-wire F.D., or 2-wire H.D Auto RTS and forced RTS options to support 3-wire interface

LEASED LINE INTERFACE:
Telco 2- or 4- wire conditioned or unconditioned lines private metallic 2 or 4 wire circuits. Cable equalizer for long distance over standard cables
Private Line at a distance up to 16.1 miles

MECHANICAL:
Enclosure Dimensions: 5.0" (W) x 6.75" (L) x 1.3" (H). 127mm (W) x 172mm (L) x 33mm (H)

DIAGNOSTICS:
Local or remote Analog + digital loopback Eight (8) front panel LEDs for status monitoring AC and DC

POWER SUPPORT:
Standalone: 10-48 VDC, 85-400 VDC, 100-240 AC Rack Mount modules: Plug-in RM16M modem rack

ENVIRONMENTAL:
Operating temperatures:-40 to 85 degrees Celsius storage temperature:-40 to 100 degrees Celsius humidity: up to 95% non-condensing

OPTIONAL MOUNTING KITS:
Wall-mount or panel-mount kit
DIN rail mounting kit

POWER+ CURRENT CONSUMPTION:
125 mA @ 12 VDC
28.0 mA @ 48 VDC

DCE DSP9612

The DCE Fast Poll DSP9612 is a triple mode, full featured 9600 QAM fast poll, ITU V.23 and Bell 202T leased line or private wire modem with the fastest training time in the industry: 23msec RTS?CTS delay at 9600bps and 8ms in Bell 202T mode. The DSP9612 is ideal for utility and industrial auto-mation multi-dropping applications, where an unlimited number or drops is desirable at ranges up to 16 miles (26km), including SCADA systems, traffic automation and oil or gas automation products.

The DSP9612 is a modem designed for 4-wire full duplex or 2 wire half-duplex operation over a voice-band leased line or private copper wire. The modem designed utilizes the latest digital-signal processing (DSP) technol-ogy to achieve high performance with an adaptive equalizer for the best operation on the poor unconditional lines.

In Fast Poll Mode (9600/4800bps), the dsp9612 employs a propriety modulation and encoding scheme to achieve fast modem training time in V.23 or Bell 202T mode, the modem is also backward compatible with V.23 (0-1800bps) modems.

Ideal for systems where fast response, shirt training time and low throughput is required, the Flash poll is optimized for fast receiver equal-izer training and extremely low through put delay.

The triple mode capability allows the DSP9612 to communicate with existing V.23 or Bell 202T modems at up to 1800bps, which can then be upgraded later to DCE DSP9612 Fast poll standalone modems and switched to 9600bps. Three models are available: Rack mount (RM) for insertion into RM16 nest, stand alone AC/DC powered (FP) and standalone low Voltage DC powered (LV).

Auto RTS is a new feature allowing multi-drop for devices with 3 wire data interfaces and no control signals (no RTS signal) required.

FEATURES

Fast poll modems are industrial grade modems designed for harsh environ-mental conditions [-40 to 85 degrees Celsius] with ultra fast polling times.
Triple mode: QAM 9600 or 4800 bps, ITU V.23 and Bell202T.
Fast Training modem equalizer with 23msec RTS/CTS delay @ 9600/4800bps.
DSP designed with automatic adaptive equalizer.
Leased-line or private wire interfaces. Line and power protected with heavy-duty surge protection.
Stand alone or nest card for RM16 nest.
All settings are DIP switch selectable with no software commands
Auto RTS allows multi-drop for devices with three wire data interface.

SPECIFICATIONS

DATA RATE
Fast Poll Mode: 9600 or 4800 bps asynchronous, +1% -2.5%
Bell 202T Mode: 0-1800 bps asynchronous
V.23 Mode: 0-1200bps asynchronous
DATA FORMAT - 8 or 9 data bits with 1 more stop bits
LINE REQIREMENTS - TELCO Voice band 2 or 2 wire leased line.
Private metal RS-232 (DTE) INTERFACE

Signal Name	in/out DP25	PIN Description
Earth	GND1	Earth Ground
TXD	Input 2	Transmit Data
RXD	Output 3	Receive Data
RTS	Input 4	Request to Send
CTS	Output 5	Clear to Send
DSR	Output 6	Data Set Ready (Modem Ready)
SG	GND7	Signal Ground
DCD	Output 8	Data Carrier Detected
DTR	Input20	Data Terminal Ready (HOST READY)
DSR	Input23	Data Select Rate

OPERATING MODES - 2-wire half duplex or 4-wire full duplex
MODULATION - DCE Propriety (Fast Poll Mode)
EQUALIZER - Automatic, adaptive in Fast Poll Mode, Fixed compromised in FSK mode
TRAINING TIME (RTS to CTS Delay)
Fast Poll Mode: 23ms V23 33ms
Bell 202T Mode:8, 33, 59, 219 ms
CABLE EQUALIZER - Fixed transmitter and receiver cable equalizer
Private Line at a distance up to 16.1 miles
POWER SUPPLY (BY MODEL)
DSP9612RM, powered from RM16 Rack
DSP9612LV, 10 to 53 VDC
DSP9612FP, 85 to 265 VAC or 85 to 400 VDC
SURGE PROTECTION - Provided at power line and leased line; Up to 15KV (Standalone Version)
CARRIER CONTROL - Constant or switched, DIP Switch available
SYNCHRONIZATION LOSS RECOVERY - Built in Train on Data for Fast Poll
TRANSMIT OUTPUT LEVEL +3dbm, to -14dbm, 1dbm step (Dip Switch avail-able)
OPERATING TEMPERATURE - -40 Degrees Celsius to 85 Degrees Celsius
RM FORM FACTOR - Rack-Mount Modem card for the DCE and the Motorola/UDS MD16M Universal Data Shelf
Dimension 9" x 6.25 x 0.87"
Weight 8oz.
LV AND FP FORM FACTOR - Aluminum and Steel Case
Dimensions: 5.7" x 8.3" x1.5" (144.78mm x 210.82mm x 38.1mm)
Weight: 1.9lb (227 grams)
DIAGNOSTIC FEATURES
Front panel LED for status monitoring: Power (PWR), Request to send (RTS), Clear to Send (CTS), Transmit Data (TXD), Receive Data (RXD), Data Carrier Detect (DCD), Data Set Ready (DSR), Analog Loopback (ALB), Digital Loopback (DLB)
Front Panel loopback control for testing: Local Analog Loopback (ALB), Local Digital Loopback (DLB),   Remote Digital Loopback (RDL)(except V.23 Mode)
DIAGNOSTIC FEATURES
Front panel LED for status monitoring: Power (PWR), Request to Send (RTS), Clear to Send (CTS), Transmit Data (TD), Receive Data (RD), Data Carrier Detect (DCD), Data Set Ready (DSR), Analog Loopback,   Digital Loopback
Front Panel loopback control for testing: Local Analog Loopback, Local Digital Loopback, Remote Digital Loopback (except V.23 Mode)

DCE MIU-9.6FPD

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
9.6 kbps 2 & 4-Wire Leased Line Modem
48 to 220 AC/DC Power Supply
IEC801-4 Surge Protection
-40°C to + 85°C Operating Temperature
For Meters, Relays, SCADA etc.

GENERAL SPECIFICATIONS

Modem Line Speeds:
Asynchronous 4800, 9600, 14000bps
DTE Rates:
Above modem line speeds (IE; with data compression) 4800, 9600, 14000
Standards:
V.27 & V.29
Transmission Line:
2 & 4 Wire Leased Line
Power Supply 48VAC/DC to 220VA/DC (Optional 9-36VDC)
Power Connector:
4-ft AC Cord with 3-Pin Screw Terminal connector included
Case size:
5-3/8" X 4" X 1-3/8"
Digital Port:
RS232 with DB9 Connector
Analog Port:
RJ11 Modular Jack
Surge Protection: 3.75VAC
Environment: -40°C to +85°C, 0to 95% humidity (non-condensing)
Certifications: FCC Part 68, Industry Canada

To service the growing need for efficient, reliable data communication in harsh environments of utility substations and industrial facilities, has developed a 9600 Fast Poll modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices.

With the rapid move toward "intelligent" substations, where meters, relays, RTU's, SCADA systems, etc are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the field, where the conveniences of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the 9.6FPD series modem designed specifically for harsh environments. The 9.6FPD series modem is a highly sophisticated full duplex V.29 or V.27 data modem that is designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals. The 9.6FPD operates at full or half duplex 2-wire or 4-wire lease line and in multi-polling circuits.

The 9.6FPD is powered from a unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The 9.6FPD is designed to work in temperatures from 40°C to 85°C, and is surge protected on both the power analog lines.

The 9.6FPD is bundled in a 5-3/8" X 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

ORDERING INFORMATION

DCE MIU9.6FPD	2-4 – wire leased line standalone
DCE MIU9.6FPD-LV	2-4-wire leased line standalone low voltage

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DATA CONNECT ENTERPRISE
3405 OLANDWOOD CT
OLNEY, MD 20832   USA
PHONE: 301.924.7400 EXT 17
FAX: 301.924.7403
www.data-connect.com

DCE MD-9.6FPD

FEATURES

14.4kbps 2 or 4-wire Leased Line modem
IEC801-4 surge protection
-20˚C to +80˚C Operating Temperature
Works with Meters, Relays, SCADA, etc.

SPECIFICATIONS

DTE Rates:
>   Asynchronous 14000, 9600, 4800, 1200, 300bps

Standards:
>   V.32bis, V.32, V.22bis, V.22, Bell212A, and Bell 103

Transmission Line:
>   2- and 4-wire leased line

Private Line at a distance up to 10 miles

Compatibility:
>   Hayes Extended AT Command Set

Digital Port:
>   RS232 with DB9 connector

Analog Port:
>   RJ11 Modular Jack

Surge Protection:
>   (Power Line) 8kV [Exceeds IE801-4] (20Kv {IE801-5}
>   available if required)

Surge Protection
>   3.75VAC

Environment:
>   -40˚C or + 85˚C, 0 to 95% humidity (non-condensing)

Certification:
>   FCC Part 68, Industry Canada

The Data Connect MD-9.6FPD is the rack mount version of the Data Connect MIU-9.6FPD and MIU-9.6FPD-LV. The same functionally that it can be found in the MIU-9.6FPD and MIU-9.6FPD-LV can be found in the MD-9.6FPD.

The Data Connect MD-9.6FPD is a Bell V.29 modem designed for asynchronous operation at 0 to 9600bps over voice grade lines. The modem is intended for use on two or four wire Leased Lines.   Private line distance is up to 16.1 miles.

The MD-9.6FPD is comprised of MDMC carrier card and PE-9.6FPD module. Up to 18 MD-9.6FPD can be front loaded into a MDR Modem Bank.

The MDR Modem Bank is an industrial grade 19" X 3U rack mountable chassis. The MDR Modem Bank is powered from a wide range of AC or DC voltages. Two power supply cards can be installed to provide automatic back up in the event the primary power supply fails. The MDR will operate in temperatures from -20˚C to +85˚C and is surge protected on both power and analog lines.

Two power supply slots are provided. Power supply cards are available for any voltages in the range 9-150VDC and 9-275VAC. A single power supply card will power all 18 MD14.4L.

In addition to MD14.4L the MDR Modem Bank also houses the MD28.8, MD14.4, MD14.4L, and MD202T.

DCE MDR

The Data Connect MDR Modem Chassis is designed to house eighteen (18) DCE MD Modem Cards and two (2) DCE MDP Power Supplies. The DCE MDR Modem Chassis is hardened industrial grade, 19" wide, 3U height (5.25"H), and constructed heavy gauge steel with plating for corrosion resistance.

The DCE MD Modem Cards are comprised of a DCE MDMC Modem Carrier Card and a DCE PE OEM Card. The DCE MD202T (Bell 202T), MD9.6FPD (Proprietary), MD2.4 (V.22), MD14.4 (V.32bis), MD14.4L (V.32bis), and MD28.8 (V.34) operate within the DCE MDR Modem Chassis and are hot-swappable. Any mix of the DCE MD modems can be utilized simultaneously.

Two (2) DCE MDP Power Supplies Cards provide full redundancy and are available for any voltage in the range of 9-150VDC and 9-275VAC. A single DCE MDP Power Supply Card powers eighteen (18) Modem Cards. A second DCE MDP Power Supply Card, if installed, provides automatic backup in the event of a failure of the primary DCE MDP Power Supply Card.

SPECIFICATIONS

EIA Standards
Compliant with EIA Standard EIA-310-C
Modem Interface Connectors (Rear)
Serial RS232: DB25F
Analog Port: RJ11
LEDs (Front)
(Top to bottom)
DTR: Data Terminal Ready
TXD: Transmit Data
RXD: Receive Data
MR: Modem Ready
CD: Carrier Detect
RTS: Request to Send
CTS: Clear to Send
RI: Ring Indicator
Power Requirements
AC Power: 9 to275VAC – Fused Socket (IEC 320)
DC Power: 9 to 150VDC – Screw Terminals – 9 to 150VDC
Dimensions
Width: 19"
Depth:
Height: 5.25" (3U)
Environmental
Operating Temperature: -20 to +85 Degrees Celsius

DCE PE-9.6FPD

FEATURES

Modem Interface Units 5V logic (TTL)
Simple send and receive signals
2400kbps 2-wire dial-up line modem
5V logic (TTL) power supply
IEC801-4 surge protection
-40°C to +85°C operating temperature
For meters, relays, SCADA etc.

To service the growing need for efficient, reliable data communication in harsh environments of utility substations and industrial facilities, DCE has developed a series of OEM PCB modems that can operate at 5V logic (TTL) or simple send and receive signals and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices. With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the meters, RTUs, and SCADA units where the conveniences of a standalone modem is unacceptable.   Private line distances up to 16.1 miles.

Data Connect Enterprise has addressed this problem by developing the PE2.4, 9.6FPD, 14.4, 14.4L, 202T, and 28.8 OEM modems designed specifically for harsh environments.

The PE OEM modems are highly sophisticated full duplex, V.22bis data modems that are designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals. The PE2.4, 14.4, and 28.8 OEM modems operate at full or half duplex on a dial up line. The PE202T, 14.4L, and 9.6FPD OPM modems operate full or half duplex on 2 or 4 wire leased lines.

The PE OEM PECs can be found in the MIU modems, MD modem cards, and the MIU Powerport modems.

PE9.6FPD
Modem Line Speeds:
Asynchronous 4800, 9600, 14000bps
Standards:
V.27, V.29
Transmission Line:
2 & 4 wire leased lines
Private Line at a distance up to 16.1 miles
Compatibility:
Hayes Extended AT Command Set
5V logic (TTL)

ORDERING INFORMATION

DCE/PE9.6FPD   2 & 4 wire leased line PCB

DCE MIU14.4L

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
14.4kbps 2 & 4-wire leased line modem
48 to 220 AC/DC Power Supply
IEC801-4 Surge Protection
-40˚C to +85˚C Operating Temperature
For Meters, Relay, SCADA etc.

To service the growing need for efficient, reliable data communication in harsh environments of utility substation and industrial facilities, has developed a 14400bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the MIU14.4 series modem designed specifically for harsh environments.

The MIU14.4 series modem is highly sophisticated full duplex, V.32BIS data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The MIU14.4L series modem operates on 2-wire and 4-wire leased line systems. Private line distance is up to 5 miles.

The MIU14.4 series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The MIU14.4 series modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The MIU14.4 series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU202T (Bell), MIU28.8 and MIU9.6FPD modems.

SPECIFICATIONS

Modem Line Speeds:
Asynchronous
14400, 9600, 4800, 1200, 300bps

DTE Rates: Above modem line speeds (IE; with data compression) 57.6, 38.4 19.2kbps

Standards: V.32bis, V.32, V.22bis, V.22, Bell 212A, and Bell 103

Transmission Line:
2 & 4-wire leased line
Private Line at a distance up to 5 miles

Compatibility: Hayes Extended AT command set

Power Supply: 48VAC/DC to 220VAC/DC (Optional 9-36VDC)

Power Connector: 4-ft AC Cord with 3-pin screw terminal connector included

Case size: 5-3/8" x 4" x 1-3/8"

Digital Port: RS232 with DB9 connector

Analog Port: RJ11 Modular Jack

Surge Protection: (power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)

Surge Protection: 3.75VAC

Environment: -40˚C to +85˚C, 0 to 95% humidity (non-condensing)

Certifications: FCC Part 68, Industry Canada

DCE MIU-PP14.4L

FEATURES

Modem Interface Units AC/DC Powered
Substation Hardened Communication Interface Units
14.4kbps 2 or 4-Wire Leased Line modem
Powered through the RS232 (DB25) data interface port or External Jack
(Optional 7-16VDC available)
Automatic "Power Down" when inactive
IEC801-4 Surge Protection
-40˚C to +85˚C Operating Temperature
Hayes AT compatible

To service the growing need for efficient, reliable data communication in a harsh environmental of utility substations and industrial facilities, has developed a 14400bps modem that can operate from various AC/DC power supplies and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communications devices.

With the rapid move toward "intelligent" substation, where meters relays, RTU's, SCADA system, etc are able to "talk" to a remote operator, communication devices such as modems moving off the desktop and into the field, where the convenience of 115VAC power outlets and climate control are usually hard to find.

Data Connect Enterprise has addressed this problem by developing the PowerPortMIU14.4 series modem designed specifically for harsh environments.

The PowerPortMIU14.4L series modem is highly sophisticated full duplex, V.32BIS data modem that designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals The PowerPortMIU14.4L series modem operates on a 2 or 4-Wire Leased Line and Short Haul systems. Private line distance is up to 5 miles.

The PowerPortMIU14.4L series modem is powered from unique power supply that enables it to operate on any AC or DC voltage ranging from 48V to 240V. A low voltage version (9-36VDC) is also available. The PowerPortMIU14.4L modem is designed to work in temperatures from 40˚C to 85˚C and is surge protected on both the power and analog lines.

The PowerPortMIU14.4L series modem is bundled in a 5-3/8" x 1-3/8" non-metallic enclosure, suitable for desktop or wall mounting.

Also see our Data sheets on the MIU/power-port low voltage modems, the "Myriad" Rack Mount Modem, MIU202T (Bell), MIU9.6FPD, MIU14.4, and MIU28.8 modems.

Specifications

Modem Line Speeds:
　　Asynchronous
　　14400, 9600, 4800, 1200, 300bps
DTE Rates:
　　Above modem line speeds (IE; with data compression)
　　57.6, 38.4 19.2kbps
Standards:
　　V.32bis, V.32, V.22bis, V.22, Bell 212A, and Bell 103
Transmission Line:
　　Dial or 2&4 wire leased line
Private Line at a distance up to 5 miles
Compatibility:
　　Hayes Extended AT command set
　　Powered through the RS232 (DB25) data interface port
　　or external jack (optional 7- 16VDC available)
Case size:
　　5-3/8" x 4" x 1-3/8"
Digital Port:
　　RS232 withDB9 connector
Analog Port:
　　RJ11 Modular Jack
Surge Protection:
　　(power line) 8kV [exceeds IEC801-4] (20kV {IE801-5} available if required)
Surge Protection:
　　3.75VAC
Environment:
　　-40˚C to +85˚C, 0 to 95% humidity (non-condensing)
Certifications:
　　FCC Part 68, Industry Canada

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DCE MD14.4L

FEATURES

14.4kbps 2 or 4-wire Leased Line modem
IEC801-4 surge protection
-20˚C to +80˚C Operating Temperature
Works with Meters, Relays, SCADA, etc.

SPECIFICATIONS

DTE Rates:
　　　　Asynchronous 14000, 9600, 4800, 1200, 300bps
Standards:
　　　　V.32bis, V.32, V.22bis, V.22, Bell212A, and Bell 103
Transmission Line:
　　　　2- and 4-wire leased line
Private Line at a distance up to 5 miles
Compatibility:
　　　　Hayes Extended AT Command Set
Digital Port:
　　　　RS232 with DB9 connector
Analog Port:
　　　　RJ11 Modular Jack
Surge Protection:
　　　　(Power Line) 8kV [Exceeds IE801-4] (20Kv {IE801-5}
　　　　 available if required)
Surge Protection
　　　　3.75VAC
Environment:
　　　　-40˚C or + 85˚C, 0 to 95% humidity (non-condensing)
Certification:
　　　　FCC Part 68, Industry Canada

The Data Connect MD14.4L is the rack mount version of the Data Connect MIU14.4L and MIU14.4-LV. The same functionally that it can be found in the MIU14.4L and MIU14.4-LV can be found in the MD14.4L.

The Data Connect MD.14.4L is a Bell V.32bis modem designed for asynchronous operation at 0 to 14400bps over voice grade lines. The modem is intended for use on two or four wire Leased Lines.   Private line distance is up to 5 miles.

The MD14.4L is comprised of MDMC carrier card and PE14.4L module. Up to 18 MD14.4L can be front loaded into a MDR Modem Bank.

The MDR Modem Bank is an industrial grade 19" X 3U rack mountable chassis. The MDR Modem Bank is powered from a wide range of AC or DC voltages. Two power supply cards can be installed to provide automatic back up in the event the primary power supply fails. The MDR will operate in temperatures from -20˚C to +85˚C and is surge protected on both power and analog lines.

Two power supply slots are provided. Power supply cards are available for any voltages in the range 9-150VDC and 9-275VAC. A single power supply card will power all 18 MD14.4L.

In addition to MD14.4L the MDR Modem Bank also houses the MD28.8, MD14.4, MD9.6FPD, and MD202T.

DCE MDR

FEATURES

18 Modem Slots
Dial & Leased Line Modems
V.22, 202T, 9.6FPD, V.32bis, V.34
Hayes AT Compatibility
Full Array of LEDs
Standard 19" x 5.25" (3U) Euro-Chassis
AC or DC Power from 9 to 300VAC or VDC
Dual Power Supplies with Full Redundancy
Ideal for SCADA Master Stations

The Data Connect MDR Modem Chassis is designed to house eighteen (18) DCE MD Modem Cards and two (2) DCE MDP Power Supplies. The DCE MDR Modem Chassis is hardened industrial grade, 19" wide, 3U height (5.25"H), and constructed heavy gauge steel with plating for corrosion resistance.

The DCE MD Modem Cards are comprised of a DCE MDMC Modem Carrier Card and a DCE PE OEM Card. The DCE MD202T (Bell 202T), MD9.6FPD (Proprietary), MD2.4 (V.22), MD14.4 (V.32bis), MD14.4L (V.32bis), and MD28.8 (V.34) operate within the DCE MDR Modem Chassis and are hot-swappable. Any mix of the DCE MD modems can be utilized simultaneously.

Two (2) DCE MDP Power Supplies Cards provide full redundancy and are available for any voltage in the range of 9-150VDC and 9-275VAC. A single DCE MDP Power Supply Card powers eighteen (18) Modem Cards. A second DCE MDP Power Supply Card, if in-stalled, provides automatic backup in the event of a failure of the primary DCE MDP Power Supply Card.

SPECIFICATIONS

EIA Standards
Compliant with EIA Standard EIA-310-C
Modem Interface Connectors (Rear)
Serial RS232: DB25F
Analog Port: RJ11
LEDs (Front)
(Top to bottom)
DTR: Data Terminal Ready
TXD: Transmit Data
RXD: Receive Data
MR: Modem Ready
CD: Carrier Detect
RTS: Request to Send
CTS: Clear to Send
RI: Ring Indicator
Power Requirements
AC Power: 9 to275VAC – Fused Socket (IEC 320)
DC Power: 9 to 150VDC – Screw Terminals – 9 to 150VDC
Dimensions
Width: 19"
Depth:
Height: 5.25" (3U)
Environmental
Operating Temperature: -20 to +85 Degrees Celsius

DCE PE14.4L

FEATURES

Modem Interface Units 5V logic (TTL)
Simple send and receive signals
14400kbps 2-wire dial-up line modem
5V logic (TTL) power supply
IEC801-4 surge protection
-40°C to +85°C operating temperature
For meters, relays, SCADA etc.

To service the growing need for efficient, reliable data communication in harsh environments of utility substations and industrial facilities, DCE has developed a series of OEM PCB modems that can operate at 5V logic (TTL) or simple send and receive signals and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices. With the rapid move toward "intelligent" substations, where meters, relays, RTUs, SCADA systems, etc. are able to "talk" to a remote operator, communication devices such as modems are moving off the desktop and into the meters, RTUs, and SCADA units where the conveniences of a standalone modem is unacceptable.

Data Connect Enterprise has addressed this problem by developing the PE14.4L OEM modem designed specifically for harsh environments.

The PE14.4L OEM modem is highly sophisticated full duplex, V.32bis data modem that is designed to interface with RS232, RS485 (external device), 5V logic (TTL) or simple send and receive signals. The PE14.4L OEM modem operates at half and full duplex 2 & 4-Wire Leased Lines. Private line distance is up to 5 miles. The PE 14.4L PCB can be found in the MIU14.4 modem, MD14.4 modem card, and the MIU-PP14.4 modem.

ORDERING INFORMATION

DCE/PE14.4L   Data Connect V.32bis, 14.4Kbps OEM (PCB) Modem

SPECIFICATIONS

Modem Line Speeds:
    Asynchronous 14000, 9600, 4800, 2400, 1200, 300bps
Standards:
    V.32bis, V.32, V.22bis, Bell 212A, Bell 103
Transmission line:
    2 or 4-Wire Leased Lines
Private Line at a distance up to 5 miles
Compatibility:
    Hayes Extended AT Command Set
Power:
    5V logic (TTL)
Card size:
    3.4" x 0.01" x 0.5"
Digital port:
    DTE 8-pin, simple send/receive signals
Analog port:
    RJ11 modular jack
Surge protection (Power line):
    8kV (exceeds IEC801-4) (20kV [IE801-5] available if required)
Surge protection (Analog line):
    5kVAC
Environment:
    -40°C to +85°C, 0-95% humidity (non condensing)
Certifications:
    FCC part 68, industry Canada

DCE IG192HFP

The IG192HFP industrial grade 19.2 kbps hyper fast poll modem is designed to operate over 4-wire full duplex or 2-wire half duplex unconditional leased lines or private metallic circuits. For optimum performance, the modem employs QAM modulation and Viterbi decoding scheme along with its adaptive equalizer to communicate over a variety of private transmission lines at a distance up to 16.1 miles. The IG192HFP supports DTE/RTUs with an EIA RS-232 and RS-485 serial port at speeds of 19200, 9600, 4800, 2400 and 1200 bps. With its Auto-RTS mode, the modem can support DTE/RTUs with 3-wire serial interface (TD, RD, SG) in multi-point polling applications.

The triple mode capability allows the IG192HFP industrial grade 19.2 kbps hyper fast poll modem to communicate with older generating DSP9612FP at up to 9600 kbps and both the Bell 202T and V.23 FSK modems at up to 1200 bps.

The IG192HFP industrial grade 19.2 kbps hyper fast poll modem is designed to operate over a wide range of AC or DC power supply voltages and temperatures. With proven reliability and ease of installations, the IG192HFP is deal for point-to-multipoint polling networks, where fast training time and low network latency are critical for system performance.

ORDERING INFORMATION

DCE/IG192HFP	STANDALONE (100-240VAC)
DCE/IG192HFP-LV	STANDALONE (10-48 VDC
)DCE/IG192HFP-HV	STANDALONE (100-240 VAC, 85-400 VDC)
DCE/IG192HFP-RM	RM16M RACK-MOUNT MODULE
DCE/192HFP-WMB	WALL-MOUNT/PANEL-MOUNT KIT

SPECIFICATIONS

TRIPLE MODE:
Hyper Fast Poll mode at 19200bps. 17.4 ms RTS-CTS delay QAM mode at 9600/4800/2400bps. 23 ms RTS-CTS delay FSK mode for both Bell 202T (0-1800bps) and V23 (0-1200bps)

DTE/RTU INTERFACE:
RS-232 interface with full control signals support (DB-9F) RS-485/RS422 support, 4-wire F.D., or 2-wire H.D. Auto RTS and forced RTS options to support 3-wire interface

LEASED LINE INTERFACE:
TELCO 2- or 4- wire conditioned or unconditioned lines Private metallic 2 or 4 wire circuits
Private Line at a distance up to 16.1 miles
Cable equalizers for long distance over standard cables

MECHANICAL:
Enclosure dimensions: 5.0" (W) x 6.75"(L) x 1.3" (H)
127mm (W) x 172mm (L) x 33mm (H)

DIAGNOSTIC:
Local or remote Analog + digital loopback eight (8) front panel LEDS for status monitoring

AC and DC Power Support:
Standalone: 10-48 VDC, 85-400 VDC, 100-240 AC Rack Mount Module: Plug-in RM16M modem rack

ENVIRONMENTAL:
Operating temperature: -40 to 85 Degrees Celsius
Storage temperature: -40 to 100 Degrees Celsius
Humidity: up to 95%, non-condensing

OPTIONAL MOUNTING KITS:
Wall-mount or panel mount kit DIN rail mounting kit

POWER + CURRENT CONSUMPTION:
125 mA @ 12 VDC
28.0 mA @ 48 VDC

DCE V.3600LP

Remote access modem offer significant cost savings and reduce network downtimes by eliminating the need to dispatch personnel to remote sites to reconfigure alarm and control systems, phone switches, diagnostic ports, remote access servers, and supervisory channels.
However, these benefits come with the risk that unauthorized access to remote facilities could disrupt your network and cripple your business operation with the Data Connect V.3600LP+ Series family of remote access modems, it is no longer necessary to accept the security risk associated with unprotected remote access installations. Data Connect 's V.3600LP+ series provides the full range of advanced modem features found in our series V.3600LP family, combined with a comprehensive set of security and access control features.

If you are managing highly secure remote access points, The V.3600LPseries modems offer the most advanced security features available. Now you can access remote configuration, diagnostic, console ports, and supervisory and control channels over secure connections. With the V.3600LP Series, password protection, the cornerstone of most security strategies, can augment with a wide range of feature options. These features can be used to implement the multi-faceted type of access control recommended by most security experts. In addition, a comprehensive audit trial provides a historical view of access attempts, allowing your security personnel to identify "at risk" facilities.

Private line distance is up to 5 miles.

FEATURES

Non-registered numbers will not receive modem supervision.
Closed User Groups- Built in challenge response algorithms may be enabled to create closed user groups of DCE security modem
Automatic Call Back-Is configured to initiate a call back to a users modem, insuring that access is originated from known terminal or locations.
Password Aging –Insures that passwords are changed on a specified schedule.
Enforced Syntax- Implements password policies with regards to alpha, numeric and control type characters
Audit Trial with Precision Time Keeping-With the audit trial facilities, there is never a question about who has gained access or who has tried to gain access of your installation. All attempts to access a V.3600LP+ series device are stored in a nonvolatile audit trail along with the date and time.

ORDERING INFORMATION

DCE/V3600LP   V3600 LOW PROFILE

SPECIFICATIONS

Remote Configuration- The remote configuration facilities of V.3600LP+ Series modem will allow you to remotely maintain passwords, review the audit trial or modify any parameter of the device. Additional configuration commands allow you to select DTE bit rate, character length and parity. Remote configuration access may be restricted to specific passwords.
Device Management Software- This optional software automates audit trial data collection and simplifies password management for large, distributed networks.
Feature Overview
Standard 2-wire dial-up & 2/4 wire Leased Line
Private Line at a distance up to 10 miles
AT Command Set
Standard Error Correction and compression
RS-232 Asynchronous DTE Support Remote Configuration
See LP Series datasheet for a complete description of modem capabilities
Data Compatibility– V.34bis, V.34, V.32bis, V.32, V.22bis, V.22, V.23, V.21, Bell 212A, Bell 103j
DTE Interface- Physical- DB9 connector Electrical-RS-232F (V.24). Asynchronous: Auto baud or selectable formats and rates to 11.2Kbps with V.32bis
Auto Dial Modes- Standard AT compatible dial commands or DTR dial of stored number.
Answer Modes- Standard auto answer or manual answer under DTE control.
Error correction- V.42 and MNP 2-4 error correction
Data Compression- V.42bis and MNP5 data compression
Configuration Control- Standard AT commands for both local and remote configuration
Diagnostic- V54 throughout AT commands
Network Interface- 2-wire, pulse or DTMF dial.
XMT level: -12dBm
RCV sensitivity: -43dBm
Power- Standalone units automatically adjust to 14-54VDC
Standard S1900 Rack mount unit automatically adjust to 85-265VAC, 27-440Hz. Optional 48VDC supply.
Environmental- Operating temperature range:
 -20°C to 70°C. Humidity: 90% non-condensing
Approvals- FCC part 68& part 15, class A
Optional: international approvals available

DCE 3342LP

Remote access modem offer significant cost savings and reduce network downtimes by eliminating the need to dispatch personnel to remote sites to reconfigure alarm and control systems, phone switches, diagnostic ports, remote access servers, and supervisory channels.

However, these benefits come with the risk that unauthorized access to remote facilities could disrupt your network and cripple your business operation with the Data Connect V.3600LP+ Series family of remote access modems, it is no longer necessary to accept the security risk associated with unprotected remote access installations. Data Connect 's V.3600LP+ series provides the full range of advanced modem features found in our series V.3342LP family, combined with a comprehensive set of security and access control features.

If you are managing highly secure remote access points, The 3342LP series modems offer the most advanced security features available. Now you can access remote configuration, diagnostic, console ports, and supervisory and control channels over secure connections. With the 3342LP Series, password protection, the cornerstone of most security strategies, can augment with a wide range of feature options. These features can be used to implement the multi-faceted type of access control recommended by most security experts. In addition, a comprehensive audit trial provides a historical view of access attempts, allowing your security personnel to identify "at risk" facilities.

Private line distance is up to 5 miles.

FEATURES

Non-registered numbers will not receive modem supervision.
Closed User Groups- Built in challenge response algorithms may be enabled to create closed user groups of DCE security modem
Automatic Call Back-Is configured to initiate a call back to a users modem, insuring that access is originated from known terminal or locations.
Password Aging –Insures that passwords are changed on a specified schedule.
Enforced Syntax- Implements password policies with regards to alpha, numeric and control type characters
Audit Trial with Precision Time Keeping-With the audit trial facilities, there is never a question about who has gained access or who has tried to gain access of your installation. All attempts to access a V.3600LP+ series device are stored in a nonvolatile audit trail along with the date and time.

ORDERING INFORMATION

DCE/3342LP   V.34BIS LOW PROFILE

SPECIFICATIONS

Remote Configuration- The remote configuration facilities of V.3600LP+ Series modem will allow you to remotely maintain passwords, review the audit trial or modify any parameter of the device. Additional configuration commands allow you to select DTE bit rate, character length and parity. Remote configuration access may be restricted to specific passwords.
Device Management Software- This optional software automates audit trial data collection and simplifies password management for large, distributed networks.
Feature Overview
Standard 2-wire dial-up
AT Command Set
Standard Error Correction and compression
RS-232 Asynchronous DTE Support Remote Configuration
See LP Series datasheet for a complete description of modem capabilities
Data Compatibility– V.34bis, V.34, V.32bis, V.32, V.22bis, V.22, V.23, V.21, Bell 212A, Bell 103j
DTE Interface- Physical- DB9 connector Electrical-RS-232F (V.24). Asynchronous: Auto baud or selectable formats and rates to 11.2Kbps with V.32bis
Auto Dial Modes- Standard AT compatible dial commands or DTR dial of stored number.
Answer Modes- Standard auto answer or manual answer under DTE control.
Error correction- V.42 and MNP 2-4 error correction
Data Compression- V.42bis and MNP5 data compression
Configuration Control- Standard AT commands for both local and remote configuration
Diagnostic- V54 throughout AT commands
Network Interface- 2-wire, pulse or DTMF dial.
XMT level: -12dBm
RCV sensitivity: -43dBm
Power- Standalone units automatically adjust to 14-54VDC
Standard S1900 Rack mount unit automatically adjust to 85-265VAC, 27-440Hz. Optional 48VDC supply.
Environmental- Operating temperature range:
 -20˚C to 70˚C. Humidity: 90% non-condensing
Approvals- FCC part 68& part 15, class A
Optional: international approvals available

DCE V.3600UI

The Data Connect V.36UI series is a series of high performance, synchronous and asynchronous, full-duplex, multi-standard stand-alone or rack mounted modem. They are designed for use on 2-wire dial-up and 2/4-wire leased line circuits. Private line distance is up to 10 miles

The Data Connect V.3600UI series is fully compliant with ITU-T V.34 as well as being compatible with ITU-T recommended V.32bis/V.32, V.22bis, V.23 and V.21 international standards while operating at 33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 1200, 9600, 7200, 4800, 2400, 1200 and 300 bits per second.

In V.34 mode the Data Connect V.3600UI series provides full duplex operation at up to 33.6Kbps on a 2/4-wire PSTN line, with features like line probing, symbol rate, and carrier frequency automatic selection. a range of performance enhancing techniques are available for V.34 mode, including adaptive pre-coding, adaptive re-emphasis, non-linear encoding (warping), constellation expansion, multi dimensional trellis coding, transmission power back-off (power drop), V.8 standard modem initialization, and shell mapping.

An in-band secondary channel allows the user to monitor and control the remote site unit. The Data Connect V.3600UI series also offers auto callback and leased-line security checks in addition to dial-up security checks.

The Data Connect RM16MUI series can accommodate up to 16 modem cards with 16 ports, control unit and single or dual redundant power unit, it also dual redundant power supply which means if one power does fail the other one is capable of powering the entire rack.

FEATURES

Fully compatible with ITU-T V.34+/V.34/V.32bis/V.32/V.26bis/V.22bis/V.22/V.23/V.21/V.24/V.28/V.25bis/V.54/V.52/V.42/V.42bis/V.14/V.13/V.8 and Bell 212A/103
19" rack accommodates up to 16 modem cards with hot-swap and profile copy functions
Achiever throughput up to 115200bps V.13 simulated carrier in half-duplex
MNP4®, V.42 error correction
MNP5®, V.42bis data compression
Extended AT and ITU-R V.25bis command set
Leased lines dial back-up and restore in manual or auto mode
Auto fallback and fall forward
Remote configuration via secondary channel
Front panel lock and password protect
Password & callback security
Diagnostic capabilities:
Analog loopback and remote, digital loopback (with pattern or not); BERT test pattern using 511
Auto manual dialing/answer
Front panel configuration via rubber switches and LCD
Front panel key reset function
G3FAX send/receive compatible with EIA-578 Class 1 FAX command (optional)

SPECIFICATIONS

Compatibility:
V.34+: 33.6/31.2 Kbps SM (4D TCM)
V.34+: 28.8/ 26.4/24/21.6/19.2/16.8/14.4/12/9.6/7.2/ 4. 8/2.4 Kbps SM (4D TCM)
V.32bis: 14400/12000/7200bps TCM
V.32: 9600bps TCM, 9600/4800 bps QAM
V.26bis: 2400/1200bps QAM, 1200bps BPSK
V.22/Bell 212A: 1200bps DPSK
V.23: 1200/75, 600/75bps FSK
V.21/Bell 103:300 bps FSK
Symbol Rate (Baud) and Carrier Frequency(Hz):
2400 Baud- 1600/ 1800 Hz
2800 Baud- 1680/ 1867 Hz
3000 Baud- 1800/2000 Hz
3200 Baud- 1829/ 1920 Hz
3429 Baud- 1959 Hz
Data Format:
Synchronous or Asynchronous
Total bit length: 8, 9, 10, and 11
Data Speed:
Asynchronous- 75/300/600/1200/2400/4800/7200/ 12000/14400/168/19200/21600/2400/26400/28800/ 31200/33600/38400/57600/76800/115200 bps
Synchronous- 1200/2400/4800/7200/9600/12000/ 144400/16800/19200/21600/24000/26400/28800/ 31200/33600 bps
DTE Interface: EIA RS-232C, ITU-T V.24/V.28
Line Requirement: Dial-up line, 2/4-wire leased line
Private Line at a distance up to 10 miles
Transmit Level:
Dial-up line: 0 to -15dBm; Leased line: 0 to -31dBm
Receive Dynamic Range: -4 to -43/ 0 to -33dBm
Equalization: Automatic adaptive EQ
Call Progress Monitoring:
Dial tone, Ring, Ring-back, Busy and backup dial
Line Status Monitoring:
TX level, RX level, S/N ratio, EQM value, delay, phase jitter, frequency offset, far-end echo, DTE format, retrain count, TX baud rate, RX baud rate, TX carrier, RX carrier, TX speed, RX speed, TX power back-off level, Interface lead monitoring .
Memory:
Non-volatile; 2user profiles and 10 phone numbers with 30 characters each
Line Interface: RJ-11 for dial-up, JM8 (like RJ45) for leased line
Transmit Clock: Internal, Loopback, or External
Dialing Command and Type:
Extended AT and V.25bis using Tone/Pulse/Mixed
Flow Control: RTS/CTS, XON/XOFF, CTS only
Enclosure dimensions: 7.1" W x 10.3"L x 1.9"H; 4.2 lbs
Rack Mount dimensions: 18.9" W x 14.9"L x 8.7"H
Temperature: Operation: 0˚ to +50˚C,   Storage: 0˚ to +50˚C
Humidity: Up to 95% (non-condensing)

ORDERING INFORMATION

DEC/V3600UI	V3600UI STANDALONE 100-240VAC
DCE/V3600UI-48	V3600UI STANDALONE 48VDC
DCE/V3600UI-24	V3600UI STANDALONE 24VDC

DCE/V3600UI-RM	V3600UI RACKMOUNT MODEM
DCE/RM16MUI	16 SLOT CHASSIS 100-240VAC REDUNT. PWR
DCE/RM16M-48	16 SLOT CHASSIS 48VDC REDUNDANT PWR

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FAX: 301.924.7403
OLNEY, MD 20832   USA
www.data-connect.com

DCE SWM910A

FEATURES

Up to 115kbps continuous throughout
Extremely Robust Long Range Frequency-Hopping Data Radio
Transparent Communications
Low Latency adding Little Overhead
Supports Point-to-Point, Point-to-Multipoint, Repeater, TDMA
Supports TDMA Mode through Units Configured as a Repeater
Adjustable Transmit Power (100mW 1W)

SPECIFICATIONS

Frequency:	902-928 MHz
Spread Method:	Frequency Hopping
Output Power:	1W User Configurable
Sensitivity:	-108dBm
Data Rate:	1200 to 115.2kbps Uncompressed
Range:	62+ miles (100+km) dependent on link rate and line of sight
Rejection:	70dB Out of Band, 60dB In Band 50dB Adjacent Channel
Operating Modes:	Point-to-Point, Point-to-Multipoint, Store & Repeater, TDMA Multi-master
Hopping Patterns:	64 User Selectable
Diagnostics:	Remote Control, Remote Statics, Remote Diagnostics
Error Detection:	32bis of CRC with Optional REC
Data Interface:	Asynchronous RS232 Optional RS422/RS485
RS232 Signals: and	GRD, TXD, RXD, CTS, RTS, DTR, DRS DCD
Input Voltage:	10-30VDC
Power Consumption:	450mA Max at 12V & 1W TX Power
	250mA MAX at 12V & 1W TX Power
LED Indicators:	Power, TX, RX, RSSI
Connectors:	
Antenna:	RP-TNC Female Bulkhead
Data:	RS232 (DB-9F)
	Locking Screw Connector
Environmental:	
Temperature:	-40°C to +85°C
Humidity:	5-95% Non-Condensing
Weight:	420g
Dimensions:	111mm L X 95.3mm W X 44.5mm H
Enclosure:	Extruded Aluminum
Mount:	Panel Mount
Approvals:	FCC Part 15.247
	IC RSS210

As industry leaders for extremely robust and reliable license-free data transfer, the Data Connect SS910A provides up to 115kbps serial communications over distances up to 62 miles (100km). Flexible configuration options allow for various network topologies.

Data Connects proprietary radio technology excels in the most demanding RF and physical environments. The Data Connect SS910A is easily configured through a convenient AT Command Serial Interface. Users have the ability to deploy a wide range of network styles including repeaters and multipoint. The master she can diagnose the performance and modify the operating parameters of any remote slave unit.

The following are applications for the SS910A.

SCADA
Telemetry
Vehicle Detail Tracking
Utilities / Metering
Display Signs
Traffic Control
Many More

The SS910A provides a very high Interference and noise rejection allowing reliable communication in high power cellular and paging environments. The repeater units can also act as a slave with no restrictions on the number of repeaters in the system. Internal CRC and user-selectable forward error correction ensures reliable transmission.

DCE SFM

The Data Connect Serial Fiber Modem Provides a fiber modem solution to extend RS232 or RS485 transmission distance up to 2km over multimode fiber or up to 120km over single mode fiber. The modem is equipped with multiple interface circuits, fro connection to RS232, RS423, or RS485/422 (2 or 4 wire). The DCE SFM secures data transmission over EMI resistant fiber at speeds up to 256kbps for RS232 or up to 1024kbps for RS422/RS485. When the DCE SFM is linked to the DCE SFM-RM card, it allows network engineers to get greater functionality through advanced SNMP features. The network administrator can manage any serial fiber modem module from anywhere on the network and detect any link loss and maintain each loop.

SPECIFICATIONS

Interfaces:
6 pin screw block connector for RS485/RS232/RS422 serial asynchronous ports and SC, ST, or FC 155M fiber ports

Operating wavelengths:
1310nm or 1550nm, MM, SM, WDM

Operating distance:
2Km on 62.5/125um fiber, up to 120Km on 9/125um fiber

Optical Connector:
SC, ST or FC available

Front LEDs:
PWR, Data, Test, Fiber Link

Power:
External 90-260VAC switching adapter 12VDC@1A with NEMA1-15(2 blades only), US type main plug

Temperature:
0-50°C (Operating); 0-70°C (Storage)

Humidity:
20-80% non-condensing (Operating); 0-90% (Storage)

Consumption:
less than 5W

Dimension (W x D x H):
85.6mm x 122.6mm x 20mm

Weight:
310g (without AC adapter)

Compliance:
CE, FCC Class A

MTBF:
257,063 hours

FEATURES

Extend serial transmission from 2 to 120km over fiber
Selectable data I/F for RS232/423/422/485/TTL
Selectable two or four wire RS485/422
Selectable three to five wire RS232/423
SNMP management features with SFM Chassis
Speeds up to 256kbps for RS232 (Async mode)and RS423
Speeds up to 1024kbps for RS485/422 and TTL
Support auto-adjustment function, no extra attenuators needed

ORDERING INFORMATION

DCE/SFM MODEL	FIBER TYPE	FIBER CONNECTOR		CONNECTIVITY DISTANCE
DCE/SFM-LV	S: Single	ST		002: 2km
DCE/SFM-HV	M: Multi	SC		015: 15km
DCE/SFM-RM	W: WDM	FC		030: 30km
DCE/RM16-SFM				050: 50km
				080: 80km
				120: 120km
				*020A: 20km (WDM only)
				*020B: 20km (WDM only)
				*040A: 40km (WDM only)
				*040B: 40km (WDM only)
				*060A: 60km (WDM only)
				*060B: 60km (WDM only)

*020A must be used with 020B
*040A must be used with 040B
*060A must be used with 060B

DCE HS-SFM & SHS-SFM

The Data Connect High Speed Serial Fiber modem is a fiber modem for V.35, RS232, and RS530, X.21 or RS449 high speed (2.048Mbps) synchronous or low speed synchronous and asynchronous data transmission over optical fiber media. The Data Connect Super High Speed Serial Fiber Modem is a high speed fiber modem for V.35, RS530, X.21 or RS449 super high-speed (8.192Mbps) synchronous data transmission over optical fiber media. When the DCE HS-SFM-RM or the DCE SHS-SFM-RM is placed in the DCE RM16-F3U rack with SNMP management, the card status, type, version, fiber link status, data link status and alarms can all be displayed. Configuration is also available to enable or disable the port, reset the port, set the data rate, modify the clock mode and initiate local or far end loop back tests.

SPECIFICATIONS

STANDARD		DESCRIPTION
LEDs		PWR, Fiber Link, TD, RD, RTS, CTS DCD, Test mode Power
	AC	External AC adapter, 9VDC@1A
	ACDC	100-240VAC+ or – 10% & 48VDC
Environmental	Temperature	0 to 50°C (Operating)
		0 to 70°C (Storage)
	Humidity	20 to 80% non Condensing (Operating)
		10 to 90% non Condensing (Storage)
Power Consumption	AC	<5W
	ACDC	<5W
Dimensions	AC	3-3/8 x 4-13/16 x 13/16 inches
(D x W x H)	ACDC	3-3/8 x 7-9/16 x 1-3/16 inches
Weight	AC	.44 lbs
	ACDC	1.21 lbs
Compliance		CE, FCC Class A
MTBF		257, 063 Hours

FEATURES

1 Port data communication on HDB26 female (adapter required)

Network management via terminal or SNMP in DCE RM16-F3U chassis

Optical Bit Error Rate less than 10 to the -11 power

User selectable n x 64Kbps for the DCE HS-SFM & n x 256Kbps for DCE SHS-SFM data rate

ORDERING INFORMATION

Product Type	Copper Interface Type	Fiber Connector Type	Connectivity Distance
DCE/HS-SFM-AC	V35	ST	002: 2km
DCE/HS-SFM-ACDC	RS232	SC	015: 15km
DCE/HS-SFM-RM	RS530	LC	030: 30km
DCE/SHS-SFM-AC	X21		050: 50km
DCE/SHS-SFM-ACDC	RS449		080: 80km
DCE/SHS-SFM-RM			120: 120km
			*020A: 20km [WDM only]
			*020B: 20km [WDM only]
			*040A: 40km [WDM only]
			*040B: 40km [WDM only]
			*060A: 60km [WDM only]
			*060B: 60km [WDM only]

*020A must be used with 020B
*040A must be used with 040B
*060A must be used with 060B

INDUSTRIAL ETHERNET SERIAL SERVERS & SWITCHES CHART

MODEL	ETHERNET SERVER TO SERIAL DATA	SWITCH	10/100-BASE-T	# OF PORTS	WALL MOUNT	DIN MOUNT	PHOTO	PAGE
DCE/EPORT-101	√		√	1 SERIAL	√	√		168
DCE/EPORT-102	√		√	2 SERIAL	√	√		168
DCE/EPORT-104	√		√	4 SERIAL	√	√		169
DCE/ANS205CR		√	√	5 ETHERNET		√		170
DCE/ANS208		√	√	8 ETHERNET		√		171

IN THIS SECTION

TECHNOLOGY	SPEED	PAGE
INDUSTRIAL ETHERNET SERIAL SERVERS	10/100BASE-T	168, 169
INDUSTRIAL SWITCHES	10/100BASE-T	170, 171

THE TECHNOLOGY

Ethernet Serial Server allows a "remote" serial port to connect any LAN connected workstation via telnet or port-redirector software. The Ethernet Serial Server also connects any two asynchronous serial devices through a LAN, even via routers, when used in client-server. The Ethernet Serial Server is often used with serial devices such as remote data collection terminals, SCADA, building automation equipment, UPS's, bar code scanners, or climate control devices. It is used to connect serial management ports directly to an Ethernet network for "in-band" control of "out-of-band" devices. For this application, simply telnet to the serial management port of the connected device or use inexpensive (or free) port redirector software.

The network switch plays an integral part in most modern Ethernet Local Area Networks (LANs). Mid-to-large sized LANs contain a number of linked managed switches. Small Office or Home Office (SOHO) applications typically use a single switch, or an all-purpose converged device such as a residential gateway to access small office/home broadband services such as DSL or Cable Internet. In most of these cases, the end-user device contains a router and components that interface to the particular physical broadband technology. User devices may also include a telephone interface for VoIP.

An Ethernet switch operates at the data link layer of the OSI model to create a separate collision domain for each switch port. With 4 computers (e.g., A, B, C, and D) on 4 switch ports, A and B can transfer data back and forth, while C and D also do so simultaneously, and the two conversations will not interfere with one another. In the case of a hub, they would all share the bandwidth and run in half duplex, resulting in collisions, which would then necessitate retransmissions. Using a switch is called micro segmentation. This allows computers to have dedicated bandwidth on point-to-point connections to the network and to therefore run in full duplex without collisions.

At Data Connect, we offer a wide range of products to suite your network needs. We can assist you in finding a solution that maximizes your investment while providing the solutions that will benefit your customers both now and for years to come. With the ability to use DCE Industrial Ethernet Servers and Switches at your locations, Ethernet to Serial conversion and temperature rated LAN switching requirements are cost effective and for both your normal and harsh operating environments.

DCE EPORT 101 & 102

The Data Connect Eport 101/102 Ethernet Serial Server connects RS232, RS422 and RS485 serial devices to an Ethernet LAN/WAN providing a reliable communication connection. The Eport 101/102 Windows driver installs virtual COM ports in the Device Manager of the operating system. The virtual COM port is designed to establish a connection with the connected serial device in the same manner as a device connected to the COM port in a PC. The LAN becomes transparent to the serial device and the software running on the PC. The Eport 101/102 also offers a heart beat feature to insure reliable communications connection.

The Eport 101/102 can be configured as a TCP client/server or UDP. The E-port 101 operates in "Direct IP Mode", "Virtual COM Mode" and "Paired Mode." Direct IP connection allows applications using TCP/IP or UDP/IP network socket programs to communicate with asynchronous serial port on the Eport 101/102. In this type of application the Eport 101/102 is configured to TCP or UDP server. The socket program running on the PC establishes a communication connection with the Eport 101/102. The raw data is sent directly to and from the serial port.

The Virtual COM mode requires the installation of the virtual COM port device driver. In this mode, the Eport101 must be set to either TCP/server or UDP/server in the menu with a designated communication port number. The virtual COM driver is a TCP or UDP client. Once the connection is made, the LAN is transparent to the serial device. Applications work just as if the serial device is connected a host's physical COM port. The virtual COM port converts the application's data into IP packet destined for the Eport 101/102, which in turn converts the IP packet back to serial data.

Paired mode is also called serial tunneling. When this type of configuration is selected, no additional software is needed to install in the host PC. In fact a PC is not required to make the connection. Any to dumb serial devices that can communicate with each other through a serial link will be able to communicate using two Eport101/102s and the LAN. Two Eport 101/102s are configured with one setup as a TCP or UDP client and the other to TCP/UDP server. When setting up the server, the remote IP address section must contain the address of the client. This will allow the client's IP address to pass the IP address filtering features of the server. Conversely, the remote IP address of the client must contain the server address.

The Eport 101/102 provides a convenient way to establish reliable communications between two devices. Communication port 5300 is reserved for the Heart beat protocol if a loss connection occurs the heart beat feature will try to reconnect the TCP data connection every 5 seconds until communication is established again.

Eport 101/102 will work at Loop Back Mode, all data is sent back immediately. This feature makes connection testing easy.

SPECIFICATIONS

Serial Buffer:
Output 64Kbytes- Input 8k bytes per port
Serial Connection:
DTE-DB9 Male
LAN:
10/100 Mbps Auto-Detecting 10 Base T, 100Base TX
Serial Interfaces:
RS232   TX, RX, RTS, CTS, DTR, DSR, DCD, GND
RS422   TX+, TX-, RX+, RX-, RTS+, RTS-, CTS+, CTS-, GND
RS485   Data+, Data- and GND
Data Rate:
110bps to 230.4kbps
Parity:
None, Even, Odd, Mark and Space
Data Bits:
5, 6, 7, or 8
Stop Bits:
1, 1.5, or 2
Protocol:
TCP, IP, ARP, DHCP, Telnet, HTTP, UDP, & ICMP
Management:
Manager Software, Serial Console, Telnet, Web Server, Firmware upgradeable
Dimensions:
8.5cmL x 11.5cmW x 2.3cmH
Power Requirements:
9-15VDC, 300mA
Operating Temperature:
0˚C to 50˚C
Storage Temperature:
-20˚C to +60˚C
Humidity:
0-90% Non-condensing
Approvals:
CE, FCC

FEATURES

DIN Rail or Panel Mount
Support 10/100Mbps Ethernet
Supports RS232, RS422, & RS485 Serial Interface
Supports LAN & WAN Communications
In Server Mode Supports Individual Client Sessions for Security
Management Access Password Protected
Virtual COM drivers for Windows NT/ 98/ME/2000/XP
Supports Socket Connection, TCP server, TCP Client, and UDP
Supports up to 2 TCP Connection in TCP Server Mode
Heart Beat Connection Guard against Power Failure and Network description.
Supports Loop Back Mode Testing

DCE EPORT 104

The DCE Eport-104 Ethernet serial server connects RS-232, 422, 485 serial devices to an Ethernet LAN/WAN providing a reliable communication connection. The DCE Eport-104 Windows driver installs virtual COM ports in the Device Manager of the operating system. The virtual COM port is designed to establish a connection with the DCE Eport-104. This in turn will allow communications with the connected serial device in the same manner as a device connected to the COM port in a PC. The LAN becomes transparent to the serial device and software running on the PC. The DCE Eport-104 also offers a Heart Beat feature to insure a reliable communications connection.

The DCE Eport-104 can be configured as a TPC Client/Server or UDP. The DCE Eport-104 operates in "Direct IP Mode", "Virtual COM Mode", and "Paired Mode".

In Direct IP Mode the Direct IP connections allow applications using TCP/IP or UDP/IP network socket programs to communicate with the asynchronous serial port on the DCE Eport-104. In this type of application the DCE Eport-104 is configured to TCP or UPD server. The socket program running on the PC establishes a communication connection with the DCE Eport-104. The raw data is sent directly to and from the serial port.

The Virtual COM mode requires the installation of virtual COM port device driver. In this mode, the DCE Eport-104 must be set to either TCP/server or UPD/server in the menu with designed communication port number.
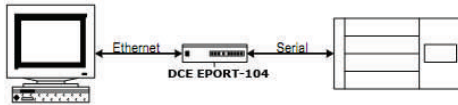
The virtual COM driver is a TCP or UPD client. Once the connection is made, the LAN is transparent to the serial device. Applications work just as if the serial device is connected a host's physical COM port. The virtual COM port converts the application's data into the IP packet back to serial data.

Paired mode is also called serial tunneling. When this type of configuration is selected, no additional software is needed to install in a host PC. In fact a PC is not required to make the connection. Any two dumb serial devices that can communicate with each other through a serial link will be able to communicate using the DCE Eport-104 and the LAN.
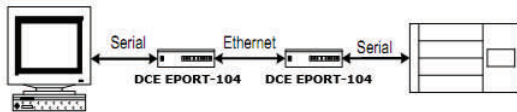
Two DCE Eport-104s are configured with one setup as a TCP or UDP client and the other to TCP/UPD server. When setting up the Server the Remote IP address section must contain the address of the Client. This will allow the Client's IP address to pass the IP address-filtering feature of the Server. Conversely, the Remote IP address of the Client must contain the Server's IP address.

In the Heart Beat protocol the DCE Eport-104 provides a convenient way to establish reliable communications between two devices. Communication port 5300 is reserved for the Heartbeat Protocol. If a loss feature connection occurs the Heart Beat will try to reconnect the TCP data connection every 5 seconds until communication is established again.

SPECIFICATIONS

Serial Buffer:	Output: 32K bytes
	Input: 8K bytes per port
Serial Connection:	DTE—BD-9 male
LAN:	10/100 Mbps Auto-detecting – 10 Base T, 100 Base TX
Serial Interfaces:	RS-232: TX, RX, RTS, CTS, DTR, DSR, DCD, GND
	RS-422: TX+, TX-, RX+, RX-, CTS+, CTS-, GND
	RS-485: Data+, Data-, GND
Data Rate:	110 bps to 230.4 kbps
Parity:	none, even, odd, mark, space
Data Bits:	5, 6, 7 or 8
Stop Bits:	1, 1.5 or 2
Protocol:	TCP, IP, APR, DHCP, Telnet, HTTP, UDP, ICMP
Management:	Manager Software, Serial Console, Telnet, Web server, Firmware upgradeable
Dimensions:	Eport-104 – 4.5 x 7.3 x 1.1 in (11.4 x 18.5 x 2.9 cm)
Power Requirements:	9 ~15 VDC 500 mA
Operating Temperature:	0 to 50°C (32 to 122°F)
Storage Temperature:	-20 to 60°C (-4 to 140 °F)
Humidity:	0—90% Non-Condensing
Approvals:	CE, FCC

FEATURES

- Din Rail or panel mount.
- Supports 10/100 Mbps Ethernet.
- Supports RS-232, RS-422 and RS-485 serial interface.
- Supports LAN and WAN communications.
- In Server mode supports individual client sessions for security
- Management access password protected.
- Virtual COM drivers for Windows NT/ 98/ME /2000/XP.
- Supports socket connection in TCP server mode.
- Heart beat connection ensures reliable TCP connection against power failure or network disruption.
- Supports loop back mode. Data is echoed back for easily testing

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DCE ANS205

To service the growing need for efficient, reliable data communication in the harsh environmental of utility substation and industrial facilities, Data Connect Enterprise has developed of five port switch that can operate from various DC voltages and survive high surge levels and extreme heat and cold. All this without compromising the performance expected from state-of-the-art communication devices.

The Data Connect ANS205 has 5 Ethernet Switching ports that support 10/100Base-T, with a 10/100M auto-negotiating feature and auto MDI/MDIX function. The ANS205 can connect 5 workstation and automatically switches and transmission speed (10Mbps or 100Mbps) for corresponding connections.

In the ANS205 the flow mechanism is also negotiated. There is link/data rate LEDs for each port in the ANS205 to aid troubleshooting. Port connectors are shielded RJ45.

The following are industrial applications
SCADA
Telemetry
Vehicle Detail Tracking
Utilities/Metering
Display Signs Traffic control
Many More.
The ANS205 is bundled in a 64mm X 114mm non-metallic enclosure, suitable for desktop or wall mounting.

SPECIFICATIONS

Compatibility:
 IEEE 802.3, IEEE 802.3u, IEEE802.3x
Interface:
 10/100Base-T
Port:
 10/100Mbps x 5 (Shielded RJ-45 Jack)
Diagnostics:
 Provides LEDs for networking and power monitoring
ESD Protection:
 8kV Contact Discharge
 15KV Air-Gap Discharge
Cables:
 10Base-T (Cat 3, 4, 5 UTP, 100m Max.)
Environmental:
 Operating Temperature -30°C to +75°C
 Storage Temperature -20°C to +85°C
 Relative Humidity—10% to 90% non-condensing
Dimensions
 64mmW x 114mmH x 107mmD
Power Requirements:
 10 to 30VDC (Removable Terminal Block)
Low Power Consumption:
 0.12A @ 24VDC; ± 5%, arrowed.

FEATURES

Automatic MDI/MDI-X crossover for plug-and-played
Each port supports both 10/100Mbps speed auto negotiation
Store-and-forward architecture
Full duplex IEEE 802.3x and half duplex backpressure flow control
2.0Gps high performance memory bandwidth
Support +10 to +30 VDC voltage
Supports operating temperatures from
 -30°C to +75°C

DCE ANS208

To service the growing need for efficient, reliable data communication in the harsh environments of utility substations and industrial facilities, Data Connect Enterprise has developed a five port switch that can operate heat and cold. All this without compromising the performance expected from state-of-the-art communication devices.

The Data Connect ANS208 has 8 Ethernet Switching ports that support 10/100Base-T, with a 10/100M auto-negotiation feature and auto MDI/MDIX function. The ANS208 can connect 8 work stations automatically switches speed (10Mbps or 200Mbps) for corresponding connections.

In the ANS 205 flow control mechanism is also negotiated. There is link/data rate LEDs for each port in the ANS208 to aid troubleshooting. Port Connectors are shielded RJ45.

The following are industrial application
- SCADA
- Telemetry
- Vehicle Detail Tracking
- Utility / Metering
- Display Signs
- Traffic Control
- Many More

The ANS208 is bundled in a 64mm x 114mm non-metallic enclosure, suitable for desktop or wall mounting.

SPECIFICATIONS

Compatibility:
    IEEE 802.3, IEEE 802.3u, & IEEE 802.3x
Interface:
    10/100Base-T
Port:
    10/100Mbps x 8 (Shield RJ-45 Jack)
Diagnostic:
    Provides LEDs for networking and power monitoring
ESD Protection:
    8KV Contact discharge
    18KV Air-Gap Discharge
Cables:
    10Base-T (Cat 3, 4, 8 UTP, 100m Max)
Environment:
    Operating Temperature -30˚C to +75˚C
    Storage Temperature -20˚C to +85˚C
    Relative Humidity—10% to 90% non-condensing
Dimensions:
    64mmW x 114mmH x 107mmD
Power Requirements:
    10 to 30 VDC (Removable Terminal Block)
Low Power Consumption:
0.12A @ 24VDC; ± 8%, arrowed

FEATURES

Automatic MDI/MDI-X crossover for plug-and-play
Each port Supports both 10/100Mbps speed auto negotiation
Store-and-forward architecture
Full duplex IEEE 802.3x and half duplex
Backpressure flow control
2.0Gps high performance memory bandwidth

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