

# T-336 Series Advanced Network Modems



Morph and harmonize your network

## Descriptions

The T-336 is a series of high performance, synchronous and asynchronous, full-duplex, multi-standard standalone or rack-mounted modem. It is designed for use on 2-wire dial-up and 2/ 4-wire leased-line circuits.

The T-336 is fully compliant with ITU-T V.34 recommendation as well as being compatible with ITU-T recommended V.32 bis/ V.32, V.22 bis, V.23 and V.21 international standards while operating at 33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, 2400, 1200, and 300 bits per second.

In V.34 mode the T-336 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 precoding, adaptive pre-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 T-336 series also offers auto callback and leased-line security checks in addition to the dial-up security checks. The TRS16 rack can accommodate up to 16 modem cards with 16 ports, control unit and single or dual redundant power unit. Dual redundant power supply meaning if one power does fail, the other one is capable of powering the entire rack.

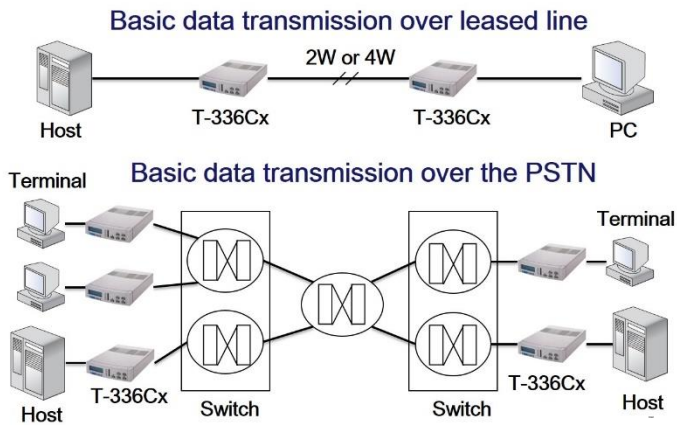
## Features

- Fully compatible with ITU-T V.34+/ V.34/ V.32bis/ V.32/ V. 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
- Achieve 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-T V.25bis command set
- Leased line 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 & call back security
- Diagnostic capabilities:
  - Analog loopback, digital loopback and remote, digital loopback (with pattern or not); BERT test pattern using 511
- Auto or manual dialing/answer
- Front panel configuration via rubber switches and LCD
- Front panel key reset function



# T-336 Series Advanced Network Modems

## Application Diagram



## 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, freq. offset, far-end freq. 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 LED monitoring

## Memory

Non-volatile; 10 user profiles and 10 phone numbers with 30 characters each

## Line Interface

Cx/ Nx: RJ-11 for dial-up, JM8 (like RJ45) for leased line  
NDx: 6-pin Terminal Block or 50-pin Centronics

## 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

## Power Requirements

Standalone: 100 ~ 240VAC Auto-range ( $\pm 10\%$  for full range), 47 ~ 63 Hz  
Rack-Mount: -36 ~ -72VDC (optional), 90 ~ 260 VAC & 110 VDC (optional)  
Dual redundant power unit for rack (optional)

## Dimensions and Weight

Standalone: 180(W) x 48(H) x 262(D) mm; 0.93 Kg  
Line card: 220(W) x 19(H) x 328(D) mm; 0.6 Kg  
Rack-Mount: 482(W) x 220(H) x 380(D) mm; (chassis) 8 Kg

## Operating Environment

Operating temperature: 0°C ~ 50°C  
Storage temperature: -25°C ~ 70°C  
Relative humidity: up to 95% (non-condensing)

## Technical 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/ 7200 bps TCM  
V.32: 9600 bps TCM, 9600/ 4800 bps QAM  
V.22bis: 2400 bps QAM, 1200 bps BPSK  
V.22/ Bell 212A: 1200 bps DPSK  
V.23: 1200/ 75, 600/ 75 bps FSK  
V.21/ Bell 103: 300 bps FSK

### Symbol Rate and Carrier Frequency

Symbol rate (Baud)	Carrier Frequency (Hz)
2400	1600
	1800
2800	1680
	1867
3000	1800
	2000
3200	1829
	1920
3429	1959

### Data Format

Synchronous or Asynchronous  
Total bit length: 8, 9, 10, 11

### Data Speed

Asynchronous - 75/ 300/ 600/ 1200/ 2400/ 4800/ 7200/ 9600/ 12000/ 14400/ 16800/ 19200/ 21600/ 24000/ 26400/ 28800/ 31200/ 33600/ 38400/ 57600/ 76800/ 115200 bps  
Synchronous - 1200/ 2400/ 4800/ 7200/ 9600/ 12000/ 14400/ 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 -15 dBm; Leased line: 0 to -31 dBm

### Receive Dynamic Range

-4 to -43/ 0 to -33 dBm

### Equalization

Automatic adaptive EQ

## Ordering Info

Basic Unit	
T-336Cx	V.34+, 33600 bps external modem, dial-up & 2/4 wire leased line supported; AC power
T-336Cx/DC	V.34+, 33600 bps external modem, dial-up & 2/4 wire leased line supported; DC power
T-336Nx	Rack-Mounted modem card of T-336Cx; single port per card (TRS16)
T-336NDx	Rack-Mounted modem card of T-336Cx; dual ports per card (TRS32)
Chassis & Accessory	
NMC-16	Shelf controller with LCD and key pads (TRS16)
NMC-32	Shelf controller with LCD and key pads (TRS32)
TRS-16	19-Inch rack (up to 16 modem card)
TRS-32	19-Inch rack (up to 32 modem card)
PW-130AC	90 ~ 260 VAC 130W power unit for rack
PW-130DC	-36 ~ -72 VDC 130W power unit for rack
CA50	50-Pin cable with standard Centronics connector for (TRS32)
TB32	The rear panel terminal block module board of the TRS32
Tainet Manager	Network Management System



The Professional Partner

**TAINET COMMUNICATION SYSTEM CORP.**

3F., No.108, Ruiguang Rd., Neihu Dist., Taipei City 114, Taiwan

TEL: 886-2-2658-3000

FAX: 886-2-2793-8000

http://www.tainet.net