Compact EGC Fiber Deep Nodes A90100 and A90300

The Compact EGC Fiber Deep Node (FDN) is a small node designed to meet the growing needs for network segmentation. It provides advanced features and benefits, at an attractive price point, helps operators reduce operating costs by streamlining node segmentation deployments and configuration, and is well suited for migration toward FTTC/FTTB architectures.

The node can operate at an output level of 117 dBμV in the forward path and can be configured electronically for quick initial setup or adjustments that arise as network requirements shift. All settings can be done without interrupting service, an especially important capability in networks that are delivering interactive services such as Voice over IP (VoIP) and high-speed data. The node is equipped with an interface that allows configuration through a handheld programmer terminal or by connecting to a standard PC. This interface allows the settings to be stored and reapplied for maintaining a streamlined configuration.

The node's large optical input range and high RF output level provide flexible options for use with a large variety of reverse transmitters to support a variety of applications within the network.

The number of plug-ins has been minimized to help operators keep inventory and costs down. The full range electronic attenuators and equalizers offer improved versatility and make it possible to achieve the same adjustment range as with conventional plug-ins or potentiometer solutions. A plug-in diplexer filter is used to determine the forward/reverse band split.

To meet future demands for more bandwidth, the node offers an electronic 862 MHz to 1 GHz field-programmable bandwidth extension, and the reverse path that can be upgraded to 200 MHz.

The Compact EGC FDN Model A90100 and A90300 can be configured with a Cisco status monitoring transponder (SMC or HMS) to enable remote monitoring of critical node parameters and remote control of the built-in 3-state reverse switch. All node settings are remotely addressable via ROSA® Element Management System to help reduce truck rolls and associated cost.

ROSA® SUPPORTED Manage your network with ROSA and TNCS open standards element management. Get faster mean-time-to-repair, increased uptime, and management that evolves as you provision your networks. US toll-free 1-800-722-2009. EMEA +32 56 445 445. www.scientificatlanta.com/ROSA
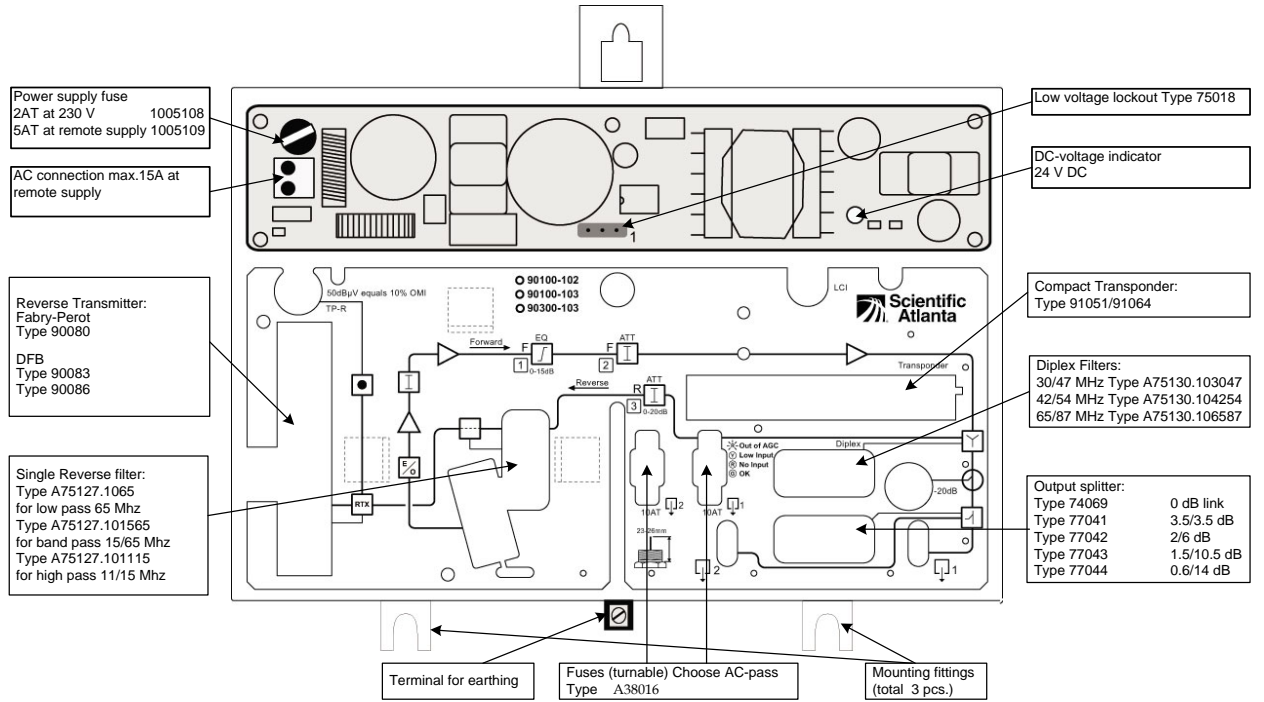
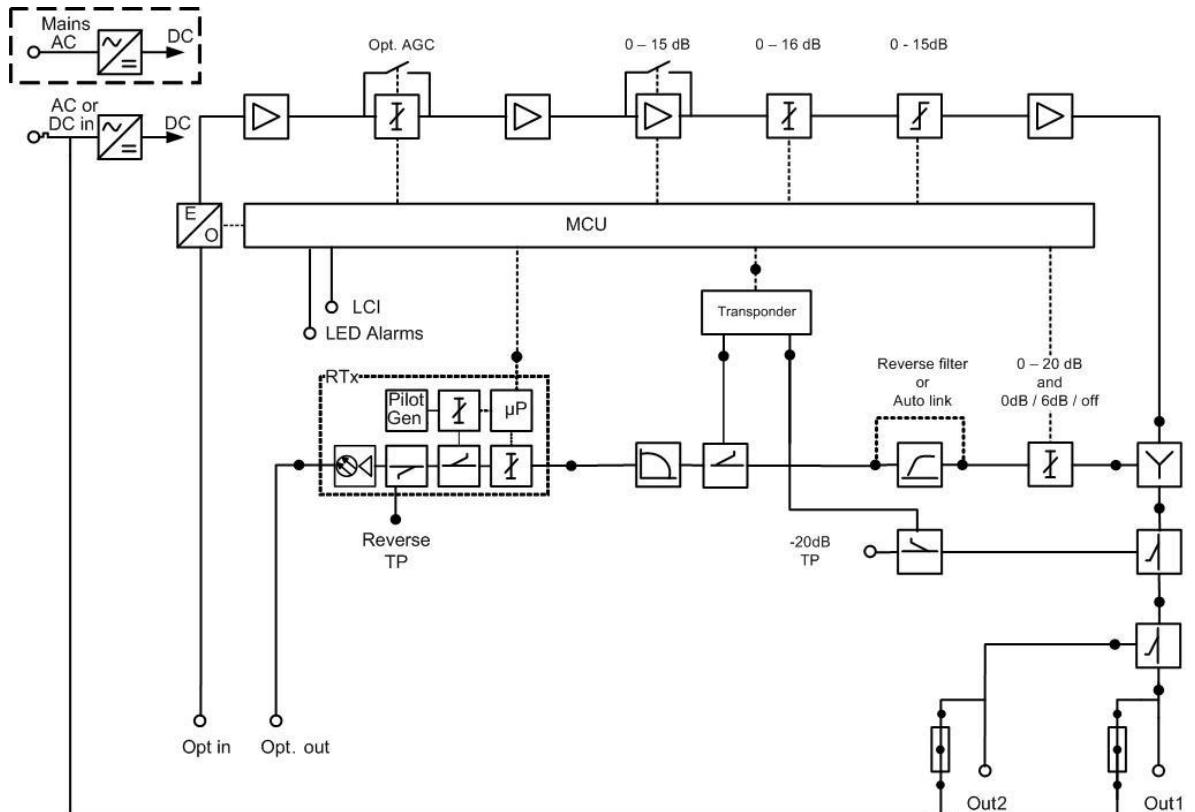**Figure 1.**   Compact EGC Fiber Deep Nodes A90100 and A90300

Features

- GaAsFET gain block technology for improved distortion and noise performance
- High-output level up to 117 dBµV with improved CTB/CSO values
- Built-in output splitter (plug-in)
- Extensive range of plug-in reverse transmitter (FP, DFB, CWDM)
- Two different housings: compact indoor housing (IP54) and hardened outdoor housing (IP68)
- Integrated 3-state reverse switch (on/-6 dB/off) allows the reverse input to be isolated for noise and ingress troubleshooting
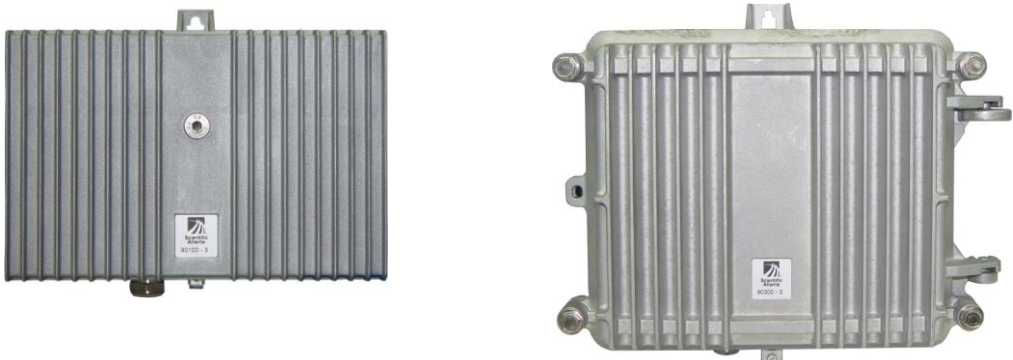- Optional Ingress block filter (plug-in)

Overview

Power supply fuse
2AT at 230 V   1005108
5AT at remote supply 1005109

AC connection max.15A at remote supply

Reverse Transmitter:
Fabry-Perot
Type 90080

DFB
Type 90083
Type 90086

Single Reverse filter:
Type A75127.1065
for low pass 65 Mhz
Type A75127.101565
for band pass 15/65 Mhz
Type A75127.101115
for high pass 11/15 Mhz

Low voltage lockout Type 75018

DC-voltage indicator
24 V DC

Compact Transponder:
Type 91051/91064

Diplex Filters:
30/47 MHz Type A75130.103047
42/54 MHz Type A75130.104254
65/87 MHz Type A75130.106587

Output splitter:
Type 74069   0 dB link
Type 77041   3.5/3.5 dB
Type 77042   2/6 dB
Type 77043   1.5/10.5 dB
Type 77044   0.6/14 dB

Terminal for earthing

Fuses (turnable) Choose AC-pass
Type   A38016

Mounting fittings
(total 3 pcs.)

Block Diagram

Product Specifications

Table 1. Optical and RF Specifications

Specification	Value	Notes
Optical wavelength	1100 to 1600 nm	
Optical input level (max.)	+6 dBm	
Optical range	-7 to +2 dBm	
AGC range	-7 to +2 dBm	2
AGC accuracy	±1 dB	
Input noise current, max.	≤ 7.0 pA/√Hz (below 862 MHz) ≤ 8.0 pA/√Hz (862 to 1002 MHz)	
Frequency range	45 to 1002 MHz	6
Number of outputs	2	3
Output level	95 to 117 dBµV	1
Level flatness	±0.75 dB @ 45 to 862 MHz ±1 dB @ 45 to 1GHz	
Output level temperature variation	±1 dB	
Intermodulation • CTB • CSO	≥ 58 dBc ≥ 58 dBc	4
Interstage equalizer	0 to 15 dB	
Output return loss	≥ 20 dB	5
Test point, outputs	-20±0.5 dB @ 45 to 862 MHz -20±0.75 dB @ 45 to 1002 MHz	
Frequency range	5 to 200 MHz	6
Insertion loss	4±0.5 dB @ 5 to 65 MHz ≤ 6 dB @ 65 to 200 MHz	7
Input return loss	≥ 20 dB	8
Test point, outputs	Connected to Rev. Tx	9
Isolation – reverse switch in off position	> 55 dB @ 5 to 65 MHz > 45 dB @ 65 to 200 MHz	
3-State reverse switch (ingress)	On / -6 dB / off	

Table 2.   General Specifications

Specification	Value		Notes
Hum modulation	≤ -65 dB		
Transient protection	6 kV, 1, 2 µs/50 µs		
Screening effectiveness	≥ 85 dB		
Power Supply			
Supply voltage • Mains powered • Network powered	187 to 250 VAC, 50 to 60 Hz 24 to 65 VAC		
Power consumption • General without plug-ins • Compact transponder • FP reverse Tx • DFB reverse Tx	≤ 30 W ≤ 2.0 W ≤ 2.5 W ≤ 3.0 W		10
Max. current, outputs	7 A AC		
Max. current, external supply	15 A AC		11
Safety/Compliance			
Electrical safety	EN 50083-1, EN 60065, IEC 65		
EMC emissions	EN 50083-2		
Connectors			
RF outputs	PG11		
RF test points	F-connector		
Optical adapter • Standard • Optional	SC/APC to SC/APC SC/APC to E2000		12
LCI interface	Mini jack, female		
Mechanics			
	A90100, Indoor use	A90300, Outdoor use	
Housing	Die-cast, aluminum		
Water/Dust ingress rating	IP54	IP68	
Operating temperature	-15 to +55 °C (+5 to +131 °F)	-25 to +60 °C (-13 to +140 °F)	
Dimensions: W x H x D	230 mm x 188 mm x 119 mm (9.1 in. x 7.4 in. x 4.7 in.)	297 mm x 145 mm x 215 mm (11.7 in. x 5.7 in. x 8.5 in.)	
Weight	3.2 kg (7.0 lbs)	4.7 kg (10.4 lbs)	
Housing: Ports are at the base of the housing for easy connection to underground cabling. (Left: A90100, right: A90300)			

Notes:

1. Output level @ 1310 nm (m = 3.25%) or 1550 nm (m = 3%). Valid for the node being configured with one RF output port.

2. Reducing output level will extend the AGC range as shown below.

Output Level	AGC range dBm @ 1310 nm (m = 3.25%) or 1550 nm (m = 3%)	Output Level	AGC range dBm @ 1310 nm (m = 3.25%) or 1550 nm (m = 3%)
117	-7 to +2	111	-10 to +2
116	-7.5 to +2	110	-10.5 to +2
115	-8 to +2	109	-11 to +2
114	-8.5 to +2	108	-11.5 to +2
113	-9 to +2	95 to 107	-12 to +2
112	-9.5 to +2		

3. With internal plug-in splitter.

4. At 42 unmodulated ch. in CENELEC channel loading, EN50083-3, Output level 1x117 dBμV, 9 dB equalizer. Or at 41 unmodulated ch. in CENELEC channel loading, EN50083-3 (without Band I), Output level 1x117 dBμV, 9 dB equalizer.

5. At 40 MHz decreasing with -1.5 dB/octave. With 0 dB link 74089. Forward output return loss≧ 18 dB at 40 MHz decreasing with -1.5 dB/octave with diplex filter A75130.xxxx.

6. Depending on plug-in diplex filters.

7. Output ports to input reverse Tx depending on output splitter. Valid for the node being configured with one RF output port.

8. Below 40 MHz, above 40 MHz decreasing with 1.5 dB/octave with LP-link 77099. Reverse output return loss ≧ 18 dB at 40 MHz decreasing with -1.5 dB/octave, the return path being equipped with optional reverse filter A73127.xxxx and diplex filter A75130.XXXX.

9. Depending on Reverse Tx specification.

10. Power consumption is 31 W for network powered versions between 24 and 30 V.

11. Only applicable for network powered versions.

12. The adapter type SC/APC to E2000 is available by the use of required accessory A90540.xxxxx.

TNCS Interface

TNCS Monitorable Parameters	
Power supply DC voltage	+
Power supply AC coax line voltage	+
Optical input power	+
Output level	+
Temperature	+
Factory data for node, transponder, reverse transmitter	+
TNCS Controllable Parameters	
Reverse transmitter on/off	+
OMI setting reverse transmitter	+
3-state reverse switch (on, -6 dB, off)	+
Reverse transmitter pilot level	+
Alarms via TNCS and Local alarms via LEDs	
No optical input level	+
Low optical input level, adjustable	+
Optical level OK	+
AGC output range	+
Reverse transmitter aging	+
Reverse laser failure	+

Ordering Information

Table 3.   Ordering Information

Description	Part Number
Compact EGC FDN, 862 MHz to 1GHz, 230 V mains powered	A90100.102
Compact EGC FDN, 862 MHz to 1GHz, 65 V coax line powered	A90100.103
Compact EGC FDN Outdoor, 862 MHz to 1GHz, 65 V coax line powered	A90300.103

Required and Optional Accessories

This page contains ordering information for required and optional accessories. Consult your sales representative to determine the best configuration for your particular application.

The following Required Accessories must be ordered separately:

Required Accessories	Part Number
Plug-in diplex filter – 1 required, choose from below: • 30/47 MHz split • 42/54 MHz split • 65/87 MHz split	A75130.103047 A75130.104254 A75130.106587
Plug-in at output – 1 required, choose from below: • 1 link 0 dB at output • 1 splitter 3.5/3.5 dB at output • 1 splitter 2/6 dB at output • 1 splitter 1/10.5 dB at output • 1 splitter 0.6/14 dB at output	A74069.10 A77041.10 A77042.10 A77043.10 A77044.10
Plug-in reverse transmitter • 1 required for reverse transmission	A9008x.10yyyy
Optical adapter – up to 2 adapters are required; 1 for forward and 1 for reverse. Internal optical connector is SC/APC, choose from below: • Adapter SC/APC to E2108 • Adapter SC/APC to FC/APC • Adapter SC/APC to SC/APC	A90540.1048 A90540.1068 A90540.1088

The following Optional Accessories must be ordered separately:

Optional Accessories	Part Number
Voltage lock-out module, 24 or 35 V	A75018.00xx
Plug-in Compact SMC Transponder	A91051.12
Plug-in Compact HMS Transponder	A91064.10
Handheld terminal (required for configuration of the unit)	A91200.11
Configuration kit (software and USB-cable)	A91220.10
Single reverse filter: • 1 Single low pass filter 65 MHz • 1 Single band pass filter 15/65 MHz • 1 Single high pass filter 11/15 MHz	A75127.1065 A75127.101565 A75127.101115