Compact EGC Fiber Deep Nodes 115 V Mains Powered A90100

The Compact EGC Fiber Deep Node (FDN) is a small node designed to meet the growing need 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 57 dBmV in the forward path, and can be configured electronically for quick initial setup, or for adjustments that are needed 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 for configuration through a handheld programmer terminal or by connection to a standard PC. This interface allows the settings to be stored and reapplied to streamline configuration.

The node's large optical input range and high RF output level allow 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.

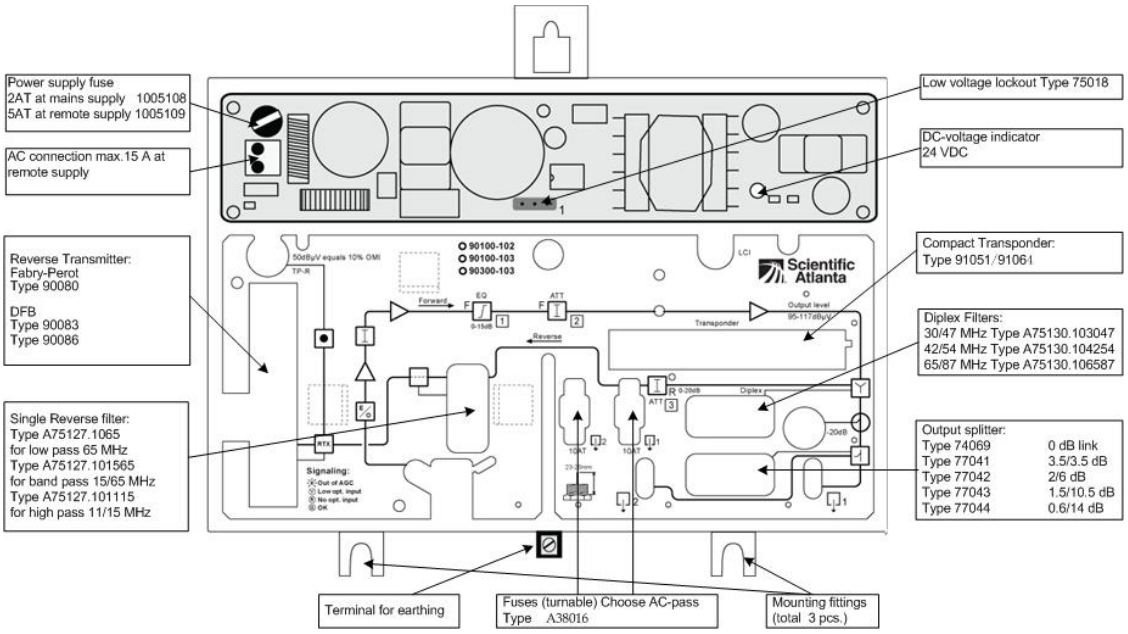
The Compact EGC FDN Model A90100 can be configured with a Cisco status monitoring transponder (SMC or HMS) to enable remote monitoring of critical node parameters and remote control of the built-in 3-state reverse switch. All node settings are remotely addressable via ROSA® Element Management System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

Figure 1. Compact EGC Fiber Deep Nodes A90100

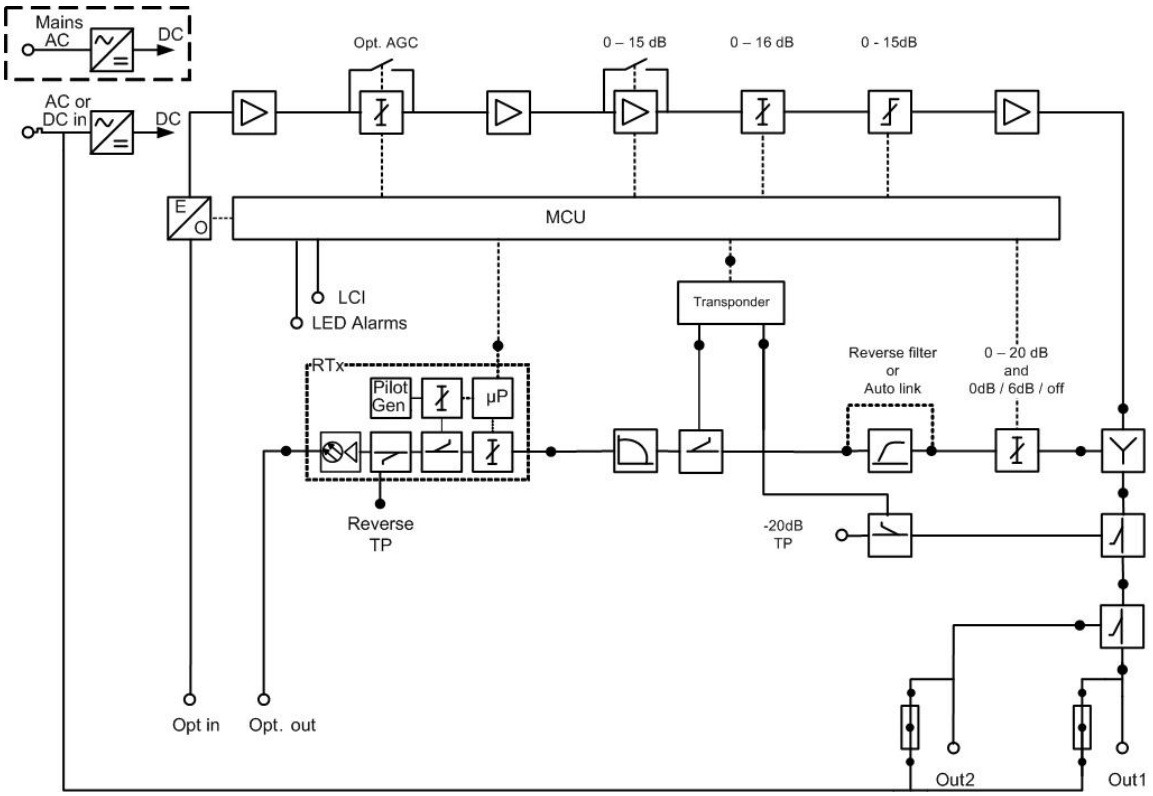
Features

- GaAsFET gain block technology for improved distortion and noise performance
- High-output level up to 57 dBmV with improved CTB/CSO values
- Built-in output splitter (plug-in)
- Extensive range of plug-in reverse transmitters (FP, DFB, CWDM)
- 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



Block Diagram



Product Specifications

Table 1. Optical and RF Specifications

Specification	Units	Value	Notes
Optical Performance			
Optical wavelength	nm	1100 to 1600	
Optical input level (max.)	dBm	+6	
Optical range	dBm	-7 to +2	
AGC range	dBm	-7 to +2	2
AGC accuracy	dB	±1	
Input noise current, max.	pA/ Hz	≤ 7.0 (below 862 MHz) ≤ 8.0 (862 to 1002 MHz)	
Forward RF Performance			
Frequency range	MHz	45 to 1002	6
Number of outputs	outputs	2	3
Output level	dBmV	35 to 57	1
Level flatness	dB	±0.75 @ 45 to 862 MHz ±1 @ 45 to 1GHz	
Output level temperature variation	dB	±1	
Intermodulation • CTB • CSO	dBc	 ≧ 58 ≥ 58	4
Interstage equalizer	dB	0 to 15	
Output return loss	dB	≧ 20	5
Test point, outputs	dB	-20 ± 0.5 @ 45 to 862 MHz -20 ± 0.75 @ 45 to 1002 MHz	
Reverse RF Performance			
Frequency range	MHz	5 to 200	6
Insertion loss	dB	4 ± 0.5 @ 5 to 65 MHz ≤ 6 @ 65 to 200 MHz	7
Input return loss	dB	≥ 20	8
Test point, outputs	dB	Connected to Rev. Tx	9
Isolation – rev. switch in off position	dB	> 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	Units	Value	Notes
General Specifications			
Hum modulation	dB	≤ -65	
Transient protection	–	6 kV, 1, 2 µs/50 µs	
Screening effectiveness	dB	≥ 85	
Power Supply			
• Supply voltage	VAC	110 to 240, 50 to 60 Hz	
Power consumption • General without plug-ins • Compact transponder • FP reverse transmitter • DFB reverse transmitter	W	 ≤ 30 ≤ 2.0 ≤ 2.5 ≤ 3.0	
Max. current, outputs	A AC	7	
Safety/Compliance			
Electrical safety	–	IEC 60065	
EMC emissions	–	47CFR Part 15 47CFR Part 76 ICES-003	
Connectors			
RF outputs	–	PG11 – 5/8 reduction ring provided with the product	
RF test points	–	F-connector	
Optical adapter • Standard • Optional	–	 SC/APC to SC/APC SC/APC to E2000	10
LCI interface	–	Mini jack, female	
Mechanics			
Housing	–	Die-cast, aluminum	
Water/dust ingress rating	–	IP54	
Operating temperature	°C °F	-15 to +55 +5 to +131	
Dimensions: W x H x D	mm in.	230 x 188 x 119 9.1 x 7.4 x 4.7	
Weight	kg lbs	3.2 7.0	

Housing: Ports are at the base of the housing for easy connection to underground cabling.

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 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%)
57	-7 to +2	51	-10 to +2
56	-7.5 to +2	50	-10.5 to +2
55	-8 to +2	49	-11 to +2
54	-8.5 to +2	48	-11.5 to +2
53	-9 to +2	35 to 47	-12 to +2
52	-9.5 to +2		

3. With internal plug-in splitter.
4. At 79 NTSC ch. Without QAM, Output level 1x117 dBµV @ 1000 MHz, With 42/54 MHz Diplexer and 9 dB equalizer. Or at 79 NTSC ch. With QAM, Output Analog level 1x115 dBµV @ 870 MHz, Digital level 1x109 dBµV @ -6 dB (550-870 MHz), With 42/54 MHz Diplexer and 9 db EQ.
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 transmitter specification.
10. 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 locally 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/1 GHz, 115 V mains powered	A90100.101
Compact EGC FDN, 862 MHz/1 GHz, 115 V mains powered configured for 42/54 MHz	A90100.10142

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	A75130.103047
• 42/54 MHz split	A75130.104254
• 65/87 MHz split	A75130.106587
Plug-in at output – 1 required, choose from below:	
• 1 link 0 dB at output	A74069.10
• 1 splitter 3.5/3.5 dB at output	A77041.10
• 1 splitter 2/6 dB at output	A77042.10
• 1 splitter 1/10.5 dB at output	A77043.10
• 1 splitter 0.6/14 dB at output	A77044.10
Plug-in Reverse Transmitter	
• 1 required for reverse transmission	A9008x.10yyyy
Optical Adapter – up to 2 adapters required; 1 for forward and 1 for reverse Internal optical connector is SC/APC, choose from below:	
• Adapter SC/APC to E2108	A90540.1048
• Adapter SC/APC to FC/APC	A90540.1058
• Adapter SC/APC to SC/APC	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	A75127.1065
• 1 Single band pass filter 15/65 MHz	A75127.101565
• 1 Single high pass filter 11/15 MHz	A75127.101115

Cisco Systems, Inc.
1-800-722-2009 or 678-277-1120
www.cisco.com

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