

## Fiber Optics

### Compact EGC Fiber Deep Nodes A90100 and A90300

#### Description

The Compact EGC Fiber Deep Node (FDN) is a small node specially designed to meet the growing needs for network segmentation. It provides advanced features and benefits, at an attractive price point, to help 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 dB $\mu$ V 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 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, as well as reverse path that can be upgraded to 200 MHz.

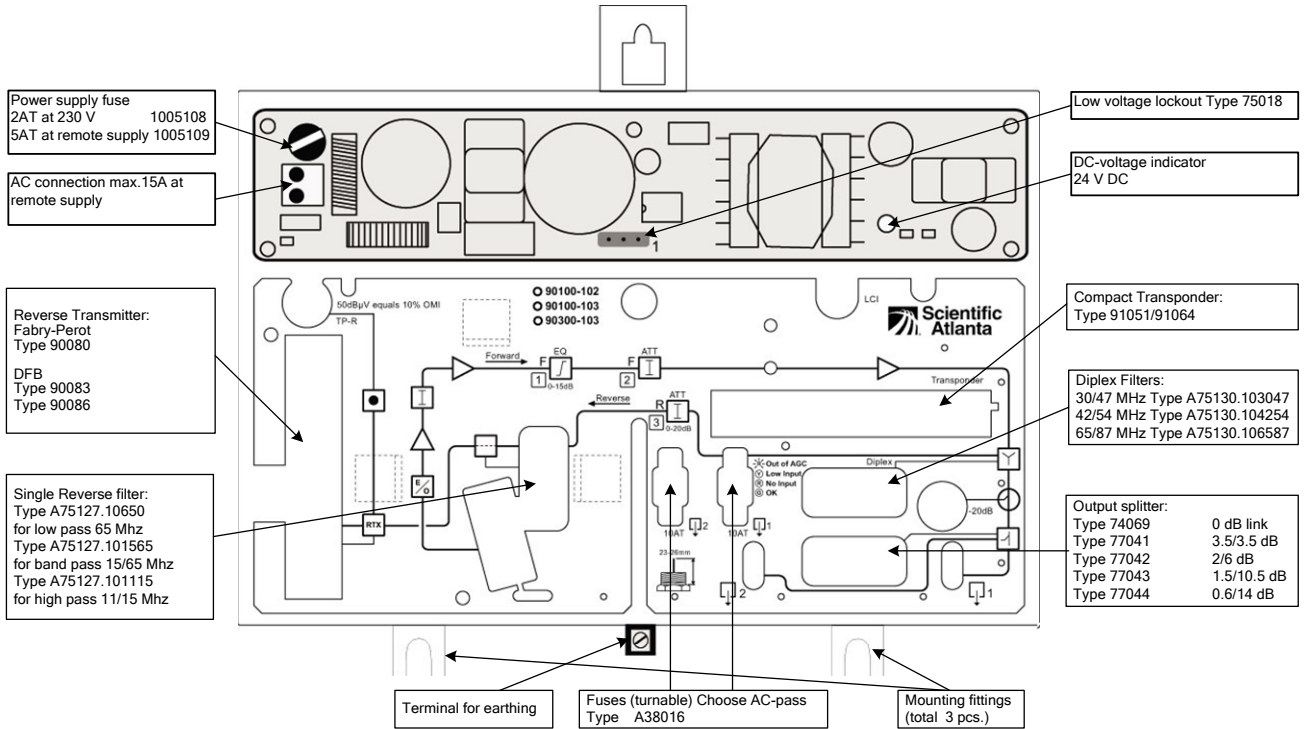
The Compact EGC FDN Model A90100 and A90300 can be configured with a Scientific Atlanta status monitoring transponder (SMC or HMS) to enable remote monitoring of critical node parameters and remote control of the built-in 3-state reverse switch. All node settings are remotely addressable via ROSA<sup>®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

#### Features

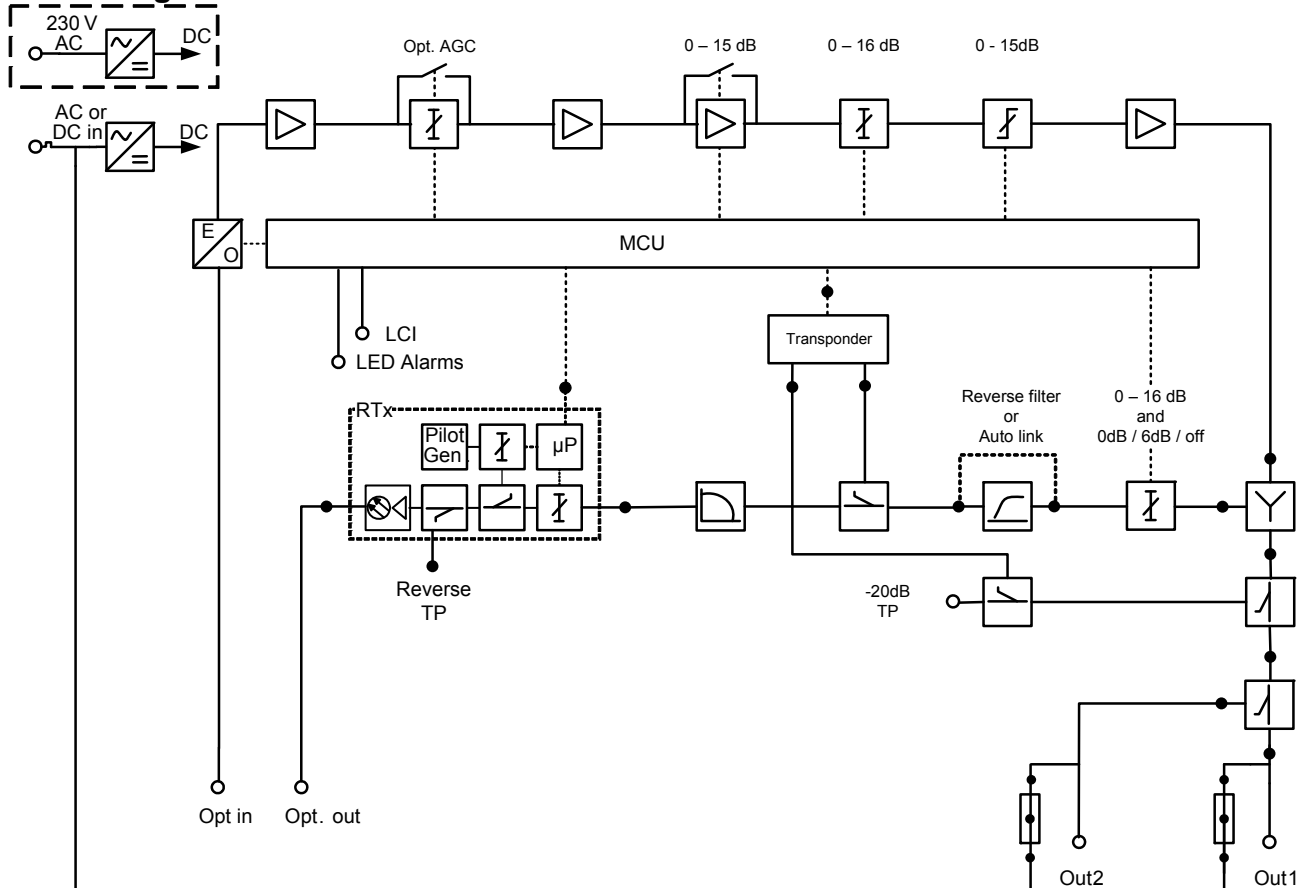
- GaAsFET gain block technology for improved distortion and noise performance
- High output level up to 117 dB $\mu$ V with improved CTB/CSO values
- Build-in output splitter (plug-in)
- Extensive range of plug-in reverse transmitter (FP, DFB, CWDM)
- Two different housings: compact indoor housing (IP54) 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)

# Compact EGC Fiber Deep Nodes A90100, A90300

## Overview



## Block Diagram



## Specifications

Optical Performance	Units	Descriptions	Notes
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)	
<b>Forward RF Performance</b>			
Frequency range	MHz	45 to 1002	6
Number of outputs	outputs	2	3
Output level	dBμV	95 to 117	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	
<b>Reverse RF Performance</b>			
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	

General Specifications	Units	Descriptions	Notes
Hum modulation	dB	≤ -65	
Transient protection	–	6kV, 1,2μs/50μs	
Screening effectiveness	dB	≥ 85	
<b>Power supply</b>			
Supply voltage • Mains powered • Network powered	V AC	187 to 250, 50 to 60 Hz 24 to 65	
Power consumption • General without plug-ins • Compact Transponder • FP reverse Tx • DFB reverse Tx	W	≤ 30 ≤ 2.0 W ≤ 2.5 W ≤ 3.0 W	10
Max. current, outputs	A AC	7	
Max. current, external supply	A AC	15	11
<b>Safety/Compliance</b>			
Electrical Safety	–	EN 50083-1, EN 60065, IEC 65	
EMC Emissions	–	EN 50083-2	
<b>Connectors</b>			
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	

## Specifications, continued

Mechanics	Units	90100, Indoor use	90300, Outdoor use
Housing	–	Die-cast, aluminum	
Water/Dust Ingress Rating	–	IP54	IP68
Operating temperature	°C	-15 to +55	-25 to +60
	°F	+5 to +131	-13 to +140
Dimensions: W x H x D	mm	230 x 188 x 119	297 x 145 x 215
	in.	9.1 x 7.4 x 4.7	11.7 x 5.7 x 8.5
Weight	kg	3.2	4.7
	lbs	7.0	10.4

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



A90100:



A90300:

### Notes:

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

- With internal plug-in splitter.
- 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.
- At 40 MHz decreasing with -1.5 dB/octave. With 0 dB link 74089. Forward output return loss  $\geq$  18 dB at 40 MHz decreasing with -1.5 dB/octave with diplex filter A75130.xxxx.
- Depending on plug-in diplex filters.
- Output ports to input reverse Tx depending on output splitter. Valid for the node being configured with one RF output port.
- Below 40 MHz, above 40 MHz decreasing with 1.5 dB/octave with LP-link 77099. Reverse output return loss  $\geq$  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.
- Depending on Reverse Tx specification.
- Power consumption  $\leq$  31 W for network powered versions between 24 and 30 V.
- Only applicable for network powered versions.
- The adapter type SC/APC to E2000 is available by the use of required accessory A90540.xxxxx.

## TNCS Interface

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

## 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. Please consult with your Scientific-Atlanta 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 –2 required, chose from below: <ul style="list-style-type: none"> <li>• 30/47 MHz split</li> <li>• 42/54 MHz split</li> <li>• 65/87 MHz split</li> </ul>	A75130.103047 A75130.104254 A75130.106587
Plug-in at output – 1 required, chose from below: <ul style="list-style-type: none"> <li>• 1 link 0 dB at output</li> <li>• 1 splitter 3.5/3.5 dB at output</li> <li>• 1 splitter 2/6 dB at output</li> <li>• 1 splitter 1/10.5 dB at output</li> <li>• 1 splitter 0.6/14 dB at output</li> </ul>	A74069.10 A77041.10 A77042.10 A77043.10 A77044.10
Plug-in Reverse Transmitter <ul style="list-style-type: none"> <li>• 1 required for reverse transmission</li> </ul>	A9008x.10yyyy
Optical Adapter – up to 2 adapters are required; 1 for forward and 1 for reverse. Internal optical connector is SC/APC, chose from below: <ul style="list-style-type: none"> <li>• Adapter SC/APC to E2108</li> <li>• Adapter SC/APC to FC/APC</li> <li>• Adapter SC/APC to SC/APC</li> </ul>	A90540.1048 A90540.1058 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: <ul style="list-style-type: none"> <li>• 1 Single low pass filter 65 MHz</li> <li>• 1 Single band pass filter 15/65 MHz</li> <li>• 1 Single high pass filter 11/15 MHz</li> </ul>	A75127.1065 A75127.101565 A75127.101115



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