

Compact Node 90075

Description

The Compact Model 90075 Node is Scientific-Atlanta's latest addition to its family of Compact nodes. The node offers maximized coverage for network designs by combining the technologies found in our proven distribution and trunk Compact nodes. The flexible Model 90075 "two-in-one" node can serve as a trunk or distribution node to feed architectures of various densities and addresses divergent system needs. Available with two high level RF output ports, it is ideal for delivering video as well as high-speed data services over advanced hybrid fiber coax (HFC) networks. With its modular design the node allows segmentation in the reverse path and independent redundancy for both the forward and reverse path in a reliable, cost-effective package.



Forward redundancy can be implemented via use of a second optical receiver module. The Model 90075 Node's reverse path is equally flexible and FP, DFB and CWDM optical transmitters are available. The node provides for reverse segmentation through the addition of a second transmitter and each transmitter is dedicated to the reverse traffic from the two individual node outputs. Alternatively the second transmitter can be used in a redundant configuration to ensure uninterrupted service in the event of transmitter failure.

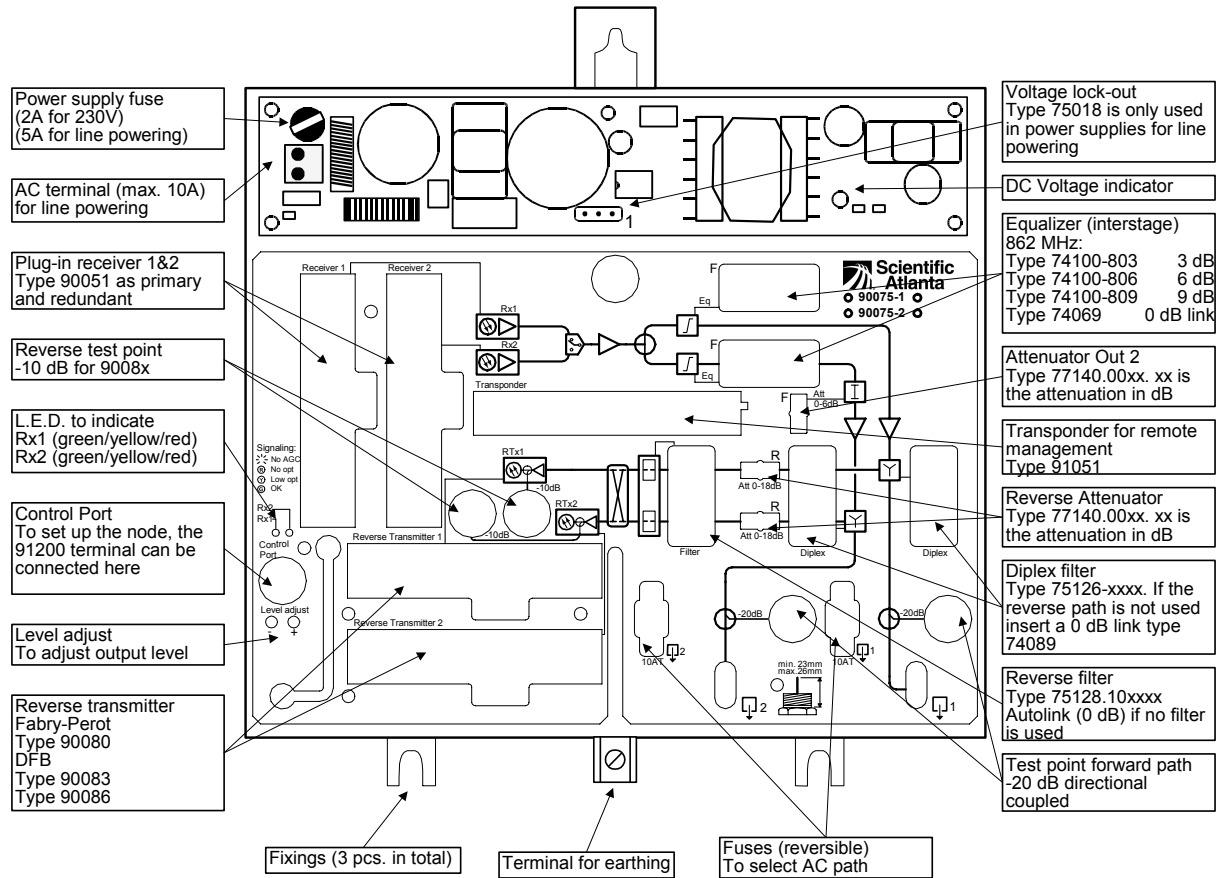
The unit's high output level range makes it ideally suited for system upgrades to help operators push fiber deeper into the network to increase bandwidth in support of interactive applications. The node is developed to serve at different output levels and multiple node sizes in an HFC-network and can be connected directly to the subscriber's tap network. The dual outputs with enhanced intermodulation performance and flatness enables operators to cascade more amplifiers at the end of the system. The Model 90075 Node features a microprocessor controlled output level control. This ensures an output level that is independent of changing optical input levels e.g., by redundant switching, additional fiber splices, and other fiber handling that affects the optical attenuation. Unlike conventional designs, this automatic gain control (AGC) operates without pilot tones.

The node shares common plug-in accessories with other nodes and amplifiers in the Compact family, and utilizes PG11 RF ports or 5/8" using provided adapters. A directional coupler RF test point is provided at the forward output and reverse transmitter, allowing for accurate signal level measurement. Surge protection is provided for the RF ports, and the Compact node is equipped with a double gasket that includes an RF and a water-dust gasket. All Compact nodes 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. By switching to detection mode (-6 dB) it can be observed from which part of the network the ingress derives. Once a failure has been located, the defective network segment may be isolated until the failure has been eliminated and the remaining part of the reverse path is ensured normal traffic.

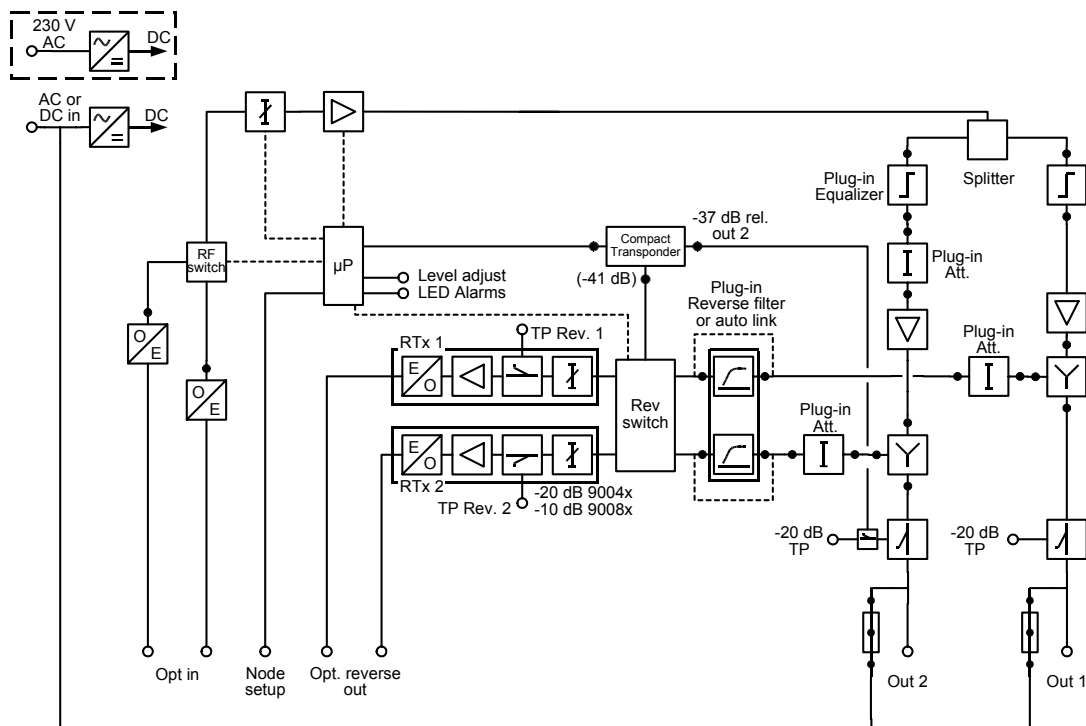
Features

- 862 MHz node optimized for trunk or distribution applications to feed architectures of various densities
- Extended output level range
- GaAs-FET technology for superior performance
- Full two-way communication
- Remarkable CTB/CSO values
- Redundancy for the forward and/or reverse path
- Segmentation of upstream signals with two (2) transmitters
- Optional status monitoring and control
- Minimizes plug-in accessory inventory requirements

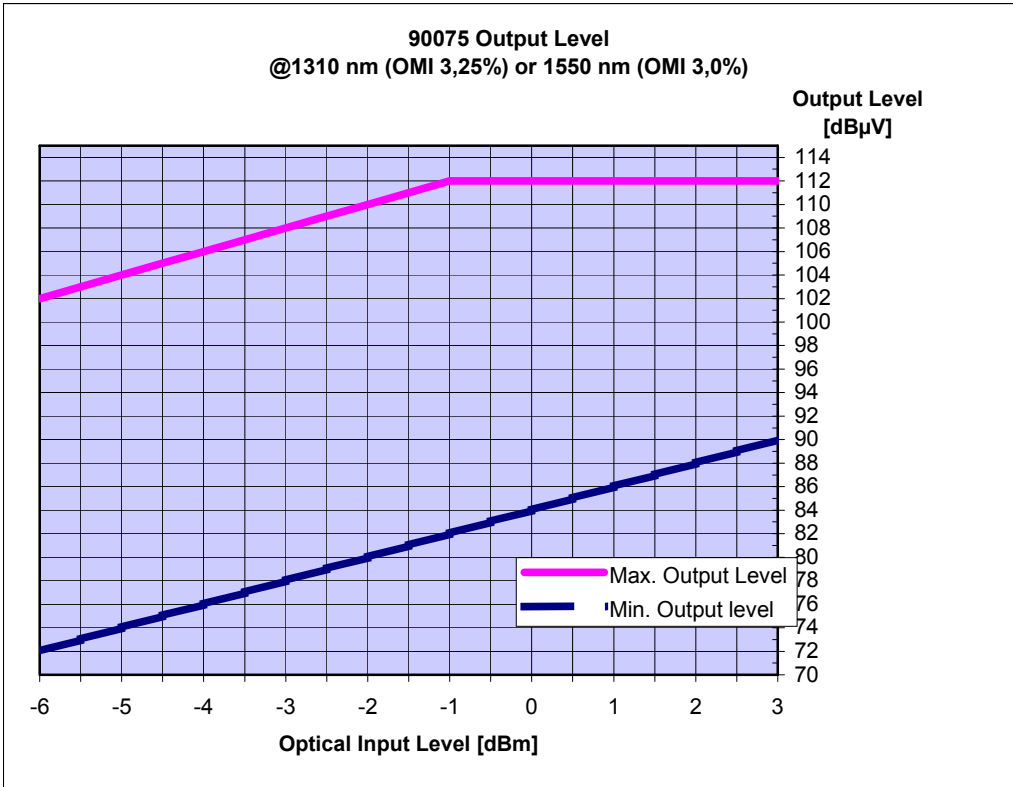
Overview



Block Diagram



Specifications

General Performance	Units	90075	Notes
Optical wavelength	nm	1100 - 1600	
Max. optical input level	dBm	≤ 5.5	
90075 Output Level @1310 nm (OMI 3,25%) or 1550 nm (OMI 3,0%) 			
Input noise current, below 750 MHz	pA√Hz	≤ 6.5 (7.5 @ 750-862 MHz)	
Frequency range, reverse/forward	MHz	5-200 / 45-862	
Split frequencies with plug-in diplex filters	MHz	30/45, 42/54, 50/70	
	MHz	55/75, or 65/87	
Reverse attenuation from output to reverse transmitter	dB	Max. 8.75 @ 5-65 MHz Max. 9.25 @ 200 MHz	
Number of outputs		2 outputs	
Return loss, 5 – 40 MHz	dB	20	
Return loss, 40 – 862 MHz	dB	20 red. 1.5 / octave	
3-state reverse switch, Element Management controlled	dB	On / -6 / off	
Main output	dBμV	2 x 112	
CTB launch amplifier	dB	≥ 60	1
CSO launch amplifier	dB	≥ 65	1
Flatness	dB	< ± 0.5 typ.	2
Output level slope	dB	Plug-in equalizer, max. 9 dB	
Alarms			
DC supply voltage		Green LED	
Reduced received power		Yellow LED	
No AGC		Flashing LED	
No optical signal		Red LED	

Specifications, cont'd

Electrical			
Supply voltage, mains powered version	V AC	187 - 250	
Supply voltage, remote coaxial line version		24 – 65 V AC, 36 - 75 V DC	
Power consumption	W	≤ 28.5 ≤ 35.5	3 4
Power consumption, 24 V AC, fully loaded	mA	< 1850	
Power consumption, 40 V AC, fully loaded	mA	< 1080	
Power consumption, 65 V AC, fully loaded	mA	< 700	
Max. current, output	A AC	≤ 8	
Max. current, local insertion	A AC	≤ 10	
Hum modulation	dBc	≤ -65	
Over voltage protection		6 kV, 1.2 / 50 μs	
Screening	dB	≥ 85	
Environmental			
Operating temperature	°C	-15 to +55	
Mechanical			
Optical connector		Depending on adapter	
RF connector		PG 11(5/8" reduction incl.)	
Test points		F-female	
Housing		Die-cast, Silumin	
Dimensions: H x W x D	mm	255 x 250 x 125 (measured with fittings)	



When opened, the node requires a minimum space of 300 mm in width.

Notes:

- 1) 41 channels CENELEC, $m = 3.25\%$, 1310 nm or $m=3\%$, 1550 nm. Pin max. 1.5 dBm, measured with 6 dB plug-in equalizers. With Band I the CSO=60 dB
- 2) At 25°C, ≤ 0.5 dB @ output level ≤ 100 dBμV, ≤ 0.75 dB @ output level ≤ 112 dBμV
- 3) Node with 1x receiver
- 4) Full configured node with 2x receivers, 2x DFB reverse transmitters and transponder.

Ordering Information

Description	Part Number
Optical Node, 862 MHz, 230 V AC	A90075.102
Optical Node, 862 MHz, 24-65 V AC	A90075.103

Please note that additional powering versions are available on request only

Element Management Parameters

Optical Input Receiver Modules	
Primary receiver	90051
Second receiver – to be ordered separately	90051 redundant
Monitorable Parameters	
Power supply DC voltage	+
Power supply AC coax line voltage	+
Optical input power, both receivers	+
Output level	+
Temperature	+
AGC range both receivers	+
Factory data for node, transponder and both reverse transmitters	+
Controllable Parameters	
Output level, offset from initial level	+
Switch between receivers	+
Reverse transmitters on/off	+
OMI setting both reverse transmitters	+
Pilot tone setting both reverse transmitters	+
3-State Reverse switch 0, -6 dB, off	+
Reverse Transmitters settings – combined or segmented	+
Transponder transmit level	+
Alarms via Element Management System and Locally Local Alarms via LED's	
No optical input level	+
Low optical input level, adjustable	+
Optical level OK	+
AGC out of range	+
Reverse transmitter ageing	+
Reverse laser failure	+

Required and Optional Accessories

Below table 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 Pads (attenuators) - available in 1.0 dB steps from 0 to 20 dB • 1 required for forward attenuation • 2 required for reverse attenuation	A77140.00xx
Plug-in Equalizer - 2 required, chose from below: • 2 required for equalization • 2 required for link (0 dB)	A74100.108xx A74069.10
Plug-in Diplex Filter - 2 required, chose from below: • 2 required for forward and reverse splitting	A75126.10xxyy
Plug-in Reverse Transmitter; chose from below: • 1 required for reverse transmission • 2 required for redundant or segmented reverse transmission	A9008x.10yyyy A9008x.10yyyy
Optical Adapter - up to 4 adapters are required, 1 for each optical connection. Internal optical connector is SC/APC, chose from below: • Adapter SC/APC to E2108 • Adapter SC/APC to FC/APC • Adapter SC/APC to SC/APC	A90540.1048 A90540.1058 A90540.1088
Dual reverse filter - 1 required if the output level exceeds 100 dBμV, chose from below: • 1 Dual low pass filter 65 MHz • 1 Dual band pass filter 11/65 MHz • 1 Dual band pass filter 15/65 MHz	A75128.1065 A75128.101165 A75128.101565

*The following **Optional Accessories** must be ordered separately:*

Optional Accessories	Part Number
Plug-in optical receiver for redundant forward operation	A90051.10
Voltage lock-out module, 24 or 35 V	A75018.00xx
Dual low pass filter 65 MHz	A75128.1065
Dual band pass filter 11/65 MHz	A75128.101165
Dual band pass filter 15/65 MHz	A75128.101565
Dual high pass filter 11/15 MHz	A75128.101115
Dual high pass filter 15/20 MHz	A75128.101520
Plug-in Compact SMC transponder	A91051.12
Handheld terminal	A91200.10

Complete part numbers are available in separate datasheets



Scientific-Atlanta and the Scientific-Atlanta logo are registered trademarks of Scientific-Atlanta, Inc.
ROSA is a trademark of Scientific-Atlanta Europe NV.
Specifications and product availability are subject to change without notice.
© 2004 Scientific-Atlanta, Inc. All rights reserved.

Europe & Asia.
+45-73-12-21-50 or +49-6173-928-0
<http://www.saeurope.com/>

North America
1-800-722-2009 or 770-236-6900
www.scientificatlanta.com

Part Number 7005613 Rev A
September 2004