

Cisco Compact EGC Segmentable Node A90200

The Cisco Compact EGC Segmentable Node A90200 is specifically designed to meet the growing need for network segmentation. The node provides advanced features and benefits, helps operators reduce operating costs by streamlining node segmentation deployments and configuration and is well suited for migration toward FTTC/FTTB architectures.

The node has an excellent RF performance that allows it to operate in redundant and full segmented mode in the forward and reverse path. It can be configured electronically for rapid initial setup or for adjustments that are needed as network requirements shift. All settings can be done without service interruption, an especially important capability in networks that deliver real-time interactive services such as Voice over IP (VoIP) and high-speed data transmission. The node's interface allows easy 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 provides flexible options because of its large optical input range and high RF output level. Thus, it can work 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 reverse path that can be upgraded to 200 MHz.

The Cisco Compact EGC Segmentable Node A90200 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 the ROSA[®] Element Management System to help reduce truck rolls and associated cost.



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Figure 1. Cisco Compact EGC Segmentable Node A90200



Features

- High output level up to 116 dB μ V with improved distortion and noise performance
- RF output level adjustable over a wide range 94 to 116 dB μ V
- Covering a wide optical input -7 to $+2$ dBm
- Configurable for 1 GHz or 862 MHz operation
- Configured by Electronic Gain Controlled (EGC) technology
- Full segmentable in forward path and reverse path
- Automatic redundancy switching for forward path
- Easy setup and control

Figure 2. Overview

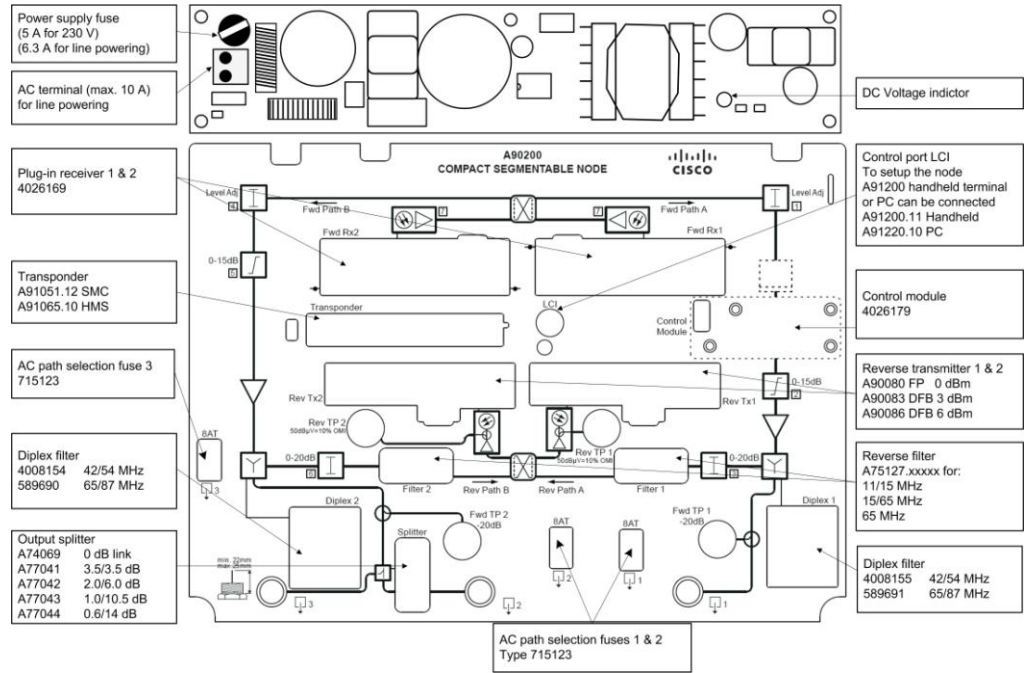
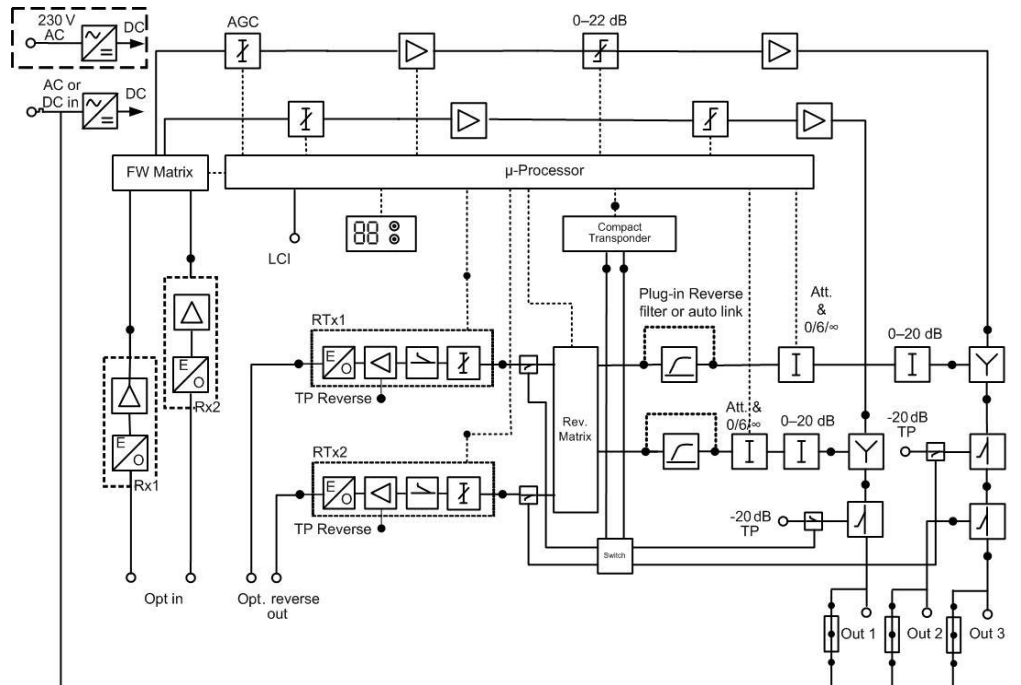


Figure 3. Block Diagram



Product Specifications

This section provides product specifications.

Table 1. Optical Specifications

Item	Value
Optical	
Optical Wavelength	1200–1600 nm
Optical Input Level	–7 – +2 dBm
AGC Accuracy	≤ ±0.5 dB
Equivalent Input Noise Current (EIN)	7 pA√Hz @ 86–862 MHz 8 pA√Hz @ 86–1002 MHz

Table 2. Forward RF Specifications

Item	Value	
Forward RF¹		
Frequency Range	Selectable 86–862 MHz or 86–1002 MHz	
Output Level Range	94–116 dBμV @ 3.25% OMI/ch	
Responsivity	66.25 ±0.5 dB A/W @ full gain, 1310 nm	
Flatness	≤ ±0.75 dB @ 86–862 MHz ≤ ±1.0 dB @ 86–1002 MHz	
Interstage Tilt	0–15 dB, 0.5 dB step	
Path to Path Isolation	≥ +60 dB @ 86–862 MHz ≥ +55 dB @ 862–1002 MHz	
Output Return Loss	≥ 18 dB @ 40 MHz reduction 1.5 dB/octave	
Test Point Return Loss	≥ 20 dB @ 40 MHz reduction 1.5 dB/octave	
Test Point	–20 ±0.5 dB @ 86–862 MHz, –20 ±0.75 dB @ 86–1002 MHz	
Distortion ²		
CTB	≤ –58 dB	
CSO	≤ –58 dB	
Hum Modulation	≤ –65 dB @ 7 A	
Thermal Stability	≤ ±1.0 dB	
Redundant Receiver Switch Over Time	≤ 25 ms	
Number of Optical Inputs	2	
Number of RF Output Ports	2 active outputs + 1 additional output with plug-in output splitter	
Group Delay	With 42/54 diplexer Δf = 3.58 MHz	With 65/86 diplexer Δf = 4.43 MHz
	≤ 20 nsec @ 55.25–58.83 MHz ≤ 8 nsec @ 61.25–64.83 MHz ≤ 8 nsec @ 67.25–70.83 MHz	≤ 10 nsec @ 112.25–116.68 MHz ≤ 8 nsec @ 119.25–123.68 MHz ≤ 8 nsec @ 126.25–130.68 MHz
Insertion Loss of Transponder Pick Off Point ³	40±1.5 dB	
Notes:		
1. Unless otherwise specified, all forward band specifications are tested with a 65/86 diplexer module installed.		
2. CENELEC 42 ch, 3.25% OMI, 9 dB tilt, and output level 116 dBμV.		
3. From RF port to the transponder's RF input.		

Product Specifications

Table 3. Reverse RF Specifications

Item	Value	
Reverse RF¹		
Frequency Range	5–200 MHz	
Tilt	Slope < 1.0 dB	
Flatness	≤ ±0.5 dB	
Path to Path Isolation	60 dB	
Input Return Loss	≥ 18 dB @ 40 MHz reduction 1.5 dB/octave	
Input Test Point Return Loss	≤ –18 dB	
Input Test Point	–20 ±0.5 dB	
RTx Test Point Return Loss	≤ –18 dB @ 40 MHz reduction 1.5 dB/octave	
RTx Test Point	50 dBμV equals to 10% OMI	
Hum Modulation	≤ –65 dB @ 7 A	
Reverse Input Attenuator	0–20 dB, 0.5 dB step	
Reverse Tri-state Switch	On, –6 dB, Off	
Thermal Stability	≤ ±0.7 dB	
Redundant Transmitter Switch Over Time	≤ 25 ms	
Group Delay	With 42/54 diplexer Δf = 1.5 MHz	With 65/86 diplexer Δf = 1 MHz
	≤ 20 nsec @ 5–6.5 MHz ≤ 10 nsec @ 6.5–8 MHz ≤ 8 nsec @ 8–9.5 MHz ≤ 8 nsec @ 37.5–39. MHz ≤ 8 nsec @ 39–40.5 MHz ≤ 8 nsec @ 40.5–42 MHz	≤ 20 nsec @ 5–6 MHz ≤ 10 nsec @ 6–7 MHz ≤ 8 nsec @ 7–8 MHz ≤ 8 nsec @ 62–63 MHz ≤ 8 nsec @ 63–64 MHz ≤ 8 nsec @ 64–65 MHz
Insertion Loss ²	≤ 8 dB	
Insertion Loss of Transponder Pick Off Point ³	30±1.5 dB	
Notes:		
1. Unless otherwise specified, all reverse band specifications are tested with a 65/86 diplexer module installed.		
2. From RF port to the reverse transmitter input; tri-state switch at ON setting.		
3. From the transponder's RF output to the reverse transmitter's input.		

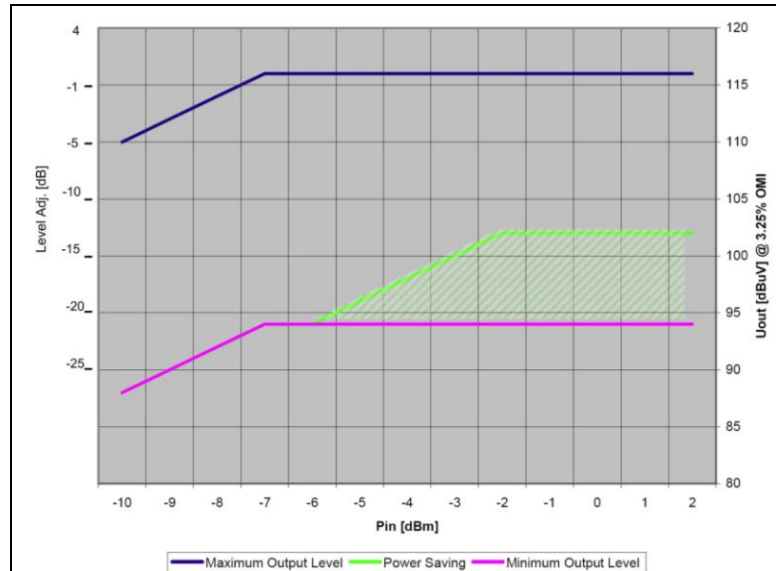
Product Specifications

Table 4. Station Powering Specifications

Item	Value									
Power Supply										
65 V Remote Powered	24–65 VAC									
230 V Mains Powered	100–240 VAC									
Powering										
Maximum AC Current	15 A @ power supply input									
Maximum AC Current Per Port	7 A									
Power Consumption										
Power Consumption ¹	1×Tx, 1×Rx, 1×transponder					2×Tx, 2×Rx, 1×transponder				
	≤ 54 W					≤ 59 W				
Power Reduction	2.7 W per path									
Power Saving On	7.1 W per path									
Dynamic Power Saving ²	2.2 W									
Redundancy Mode	20.6 W									
Single Output Mode										
Control Module Power Consumption	0.5 W									
Transponder	≤ 2.5 W									
AC Current vs AC Voltage										
AC Input Voltage	24 V	30 V	35 V	40 V	45 V	50 V	55 V	60 V	65 V	
AC Current Draw (1×TX, 1×Rx, 1×transponder)	3.0 A	2.4 A	2.1 A	1.9 A	1.7 A	1.6 A	1.5 A	1.4 A	1.3 A	
AC Current Draw (2×TX, 2×Rx, 1×transponder)	3.3 A	2.9 A	2.4 A	2.1 A	1.9 A	1.7 A	1.6 A	1.5 A	1.4 A	

Notes:

1. Segmented mode, Power saving mode off.
2. The availability of the dynamic power saving depends on the combination of the optical input level and the RF output level as shown in the graph below.



Product Specifications

Table 5. Environmental, Mechanical and Compliance/Safety Specifications

Item	Value
Environmental	
Operating Temperature	−40 to +55 °C (−40 to +131 °F)
Storage Temperature	−40 to +85 °C (−40 to +185 °F)
Water/Dust Ingress Rating	IP67
Mechanical	
Connectors Optical RF	SC/APC PG11
Housing Dimensions (H x W x D)	293 mm x 292 mm x 125 mm (11.5 in. x 11.5 in. x 4.9 in.)
Weight	8 kg (17.6 lb)
Compliance/Safety	
Electrical Safety	EN 50083-1, EN 60065, IEC 60065
Laser Safety	IEC/EN 60825-1
EMC Emissions	EN 50083-2
RoHS	Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, O.J. (L 19)

Ordering Information

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

Table 6. Node A90200 and Part Numbers

Description	Part Number for Ordering
Cisco Compact EGC Segmentable Node, 1 Rx, 1 GHz, AGC, 230 VAC, 65/86 MHz	A90200.102
Cisco Compact EGC Segmentable Node, 1 Rx, 1 GHz, AGC, 65 VAC, 65/86 MHz	A90200.103

*The following **Required Accessories** must be ordered separately.*

Table 7. Required Accessories and Part Numbers

Description	Part Number for Ordering
Plug-in at output—1 required, choose from below: 0 dB jumper 3.5/3.5 dB splitter 2/6 dB directional coupler 1/10.5 dB directional coupler 0.6/14 dB directional coupler	A74069.10 A77041.10 A77042.10 A77043.10 A77044.10
Plug-in Reverse Transmitter, choose from below: Reverse Transmitter for compact Nodes, FP 0 dBm Reverse Transmitter for compact Nodes, DFB with Isolator 3 dBm Reverse Transmitter for compact Nodes, DFB with Isolator 6 dBm	A90080.10 A90083.10yyyy A90086.10yyyy

Description	Part Number for Ordering
Optical Adapter 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.

Table 8. Optional Accessories and Part Numbers

Description	Part Number	Part Number for Ordering
Plug-in Compact SMC Transponder		A91051.12
Plug-in Compact HMS Transponder		A91065.10
Handheld Terminal (required for configuration of the unit)		A91200.11
PC Configuration Kit (software and USB-cable)		A91220.10
Plug-in Diplex Filter-2 required, choose from below: *		
42/54 MHz split (left)		4008154
42/54 MHz split (right)		4008155
65/86 MHz split (left)		589690
65/86 MHz split (right)		589691
Single Reverse Filter-1 required, choose from below:		
Single low pass filter 65 MHz		A75127.1065
Single band pass filter 15/65 MHz		A75127.101565
Single high pass filter 11/15 MHz		A75127.101115
Optical Receiver	4026169	4033722
Control Module	4026179	4034246
Kit, Fuse 8 A Time Delay, Black Handle (1 Kit=10 pcs of 715123)		4043258
Kit, Fuse 10 A Mini-Blade, Black Handle (1 Kit=4 pcs of 4036557)		4036876
Sleeve PG11 - 5/8" with O-ring *		744576
* Included in the part numbers listed in Table 6.		



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