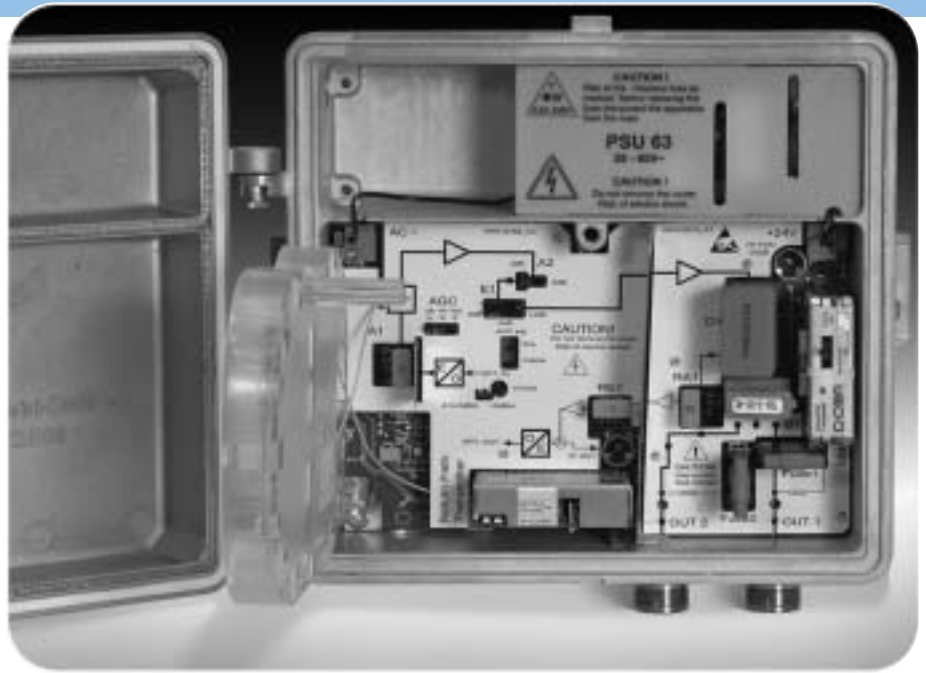


## Opti Max1220

### High Value Fiber Deep Cabinet Nodes



- **Optimized for fiber deep architectures**
- **High output level minimizes number of actives**
- **Complete CWDM return path offerings**
- **Service interruption prevention**
- **Optical automatic gain control**
- **EMS support via an HMS/AM protocol transponder**

C-COR introduces the Opti Max1220 High Value Fiber Deep Cabinet Node—an economical, fiber deep node that enables service providers to launch advanced revenue services and accelerate segmentation of older networks. The Opti Max1220 High Value Fiber Deep Cabinet Node is based on the latest technology, combining innovative features that meet customer requirements. These include optical automatic gain control (AGC), service interruption prevention, modular return DFB and CWDM transmitters, a return path ingress switch, and an HMS/AM transponder.

The optical AGC option enables a constant RF output independent of minor forward optical input level fluctuations. Service interruption prevention is a unique feature that enables node adjustment without disrupting forward and return service, a crucial feature for providers who have provisioned VoIP and high speed data services. The Opti Max1220 can be configured with either a single high output for fiber deep applications or with two outputs, symmetrical or asymmetrical, for classic HFC systems.

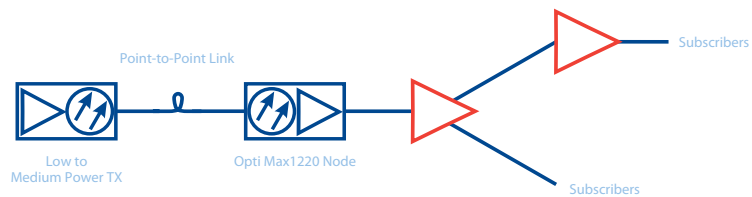
#### Features

- Modular design and flexibility enable a low initial capital expense and provide an upgrade path for future services while preserving your initial investment
- GaAs technology for improved system performance
- Plug-in diplexers allow future upgrades
- Optical AGC to ensure a constant RF output despite minor optical input fluctuations
- Service interruption prevention for maintaining network integrity during adjustment
- Increased return offerings with up to 16 CWDM wavelengths
- Optional splitter or 8dB and 12dB TAPs (directional couplers) to provide two RF outputs
- Improved system reliability with HMS/AM compliant transponders controlling an on-board return ingress switch

## Applications

### Fiber Deep Node Application

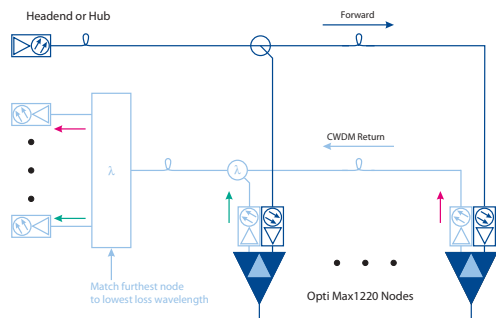
The Opti Max1220 Fiber Deep Node is dedicated to network architectures that enable advanced services and increased return bandwidth through customized segmentation of node service areas. The Opti Max1220's single-port high output level [109dBμV (49dBmV)] enables operators to reach a high number of subscribers while its low input power (-6dBm) allows long point-to-point fiber links with low to medium power transmitters, limiting capital expenditures per subscriber. These architectures typically have short amplifier cascades, or even no amplifier cascade. The Opti Max1220 can also be configured with a splitter, 8dB TAP, or 12dB TAP for a dual-port application in classic HFC systems.



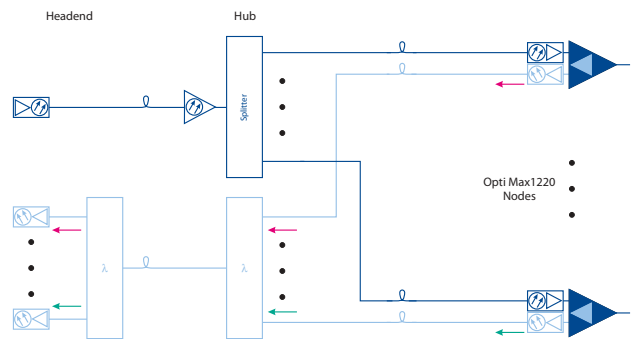
### CWDM Applications

In fiber poor systems, CWDM technology increases return path capability using a single fiber. In the following example, multiple return paths can be combined onto a single fiber from nodes to a headend or hub. Contact your C-COR sales professional for new CWDM features and applications.

In the following star architecture, point-to-point links between each node and a hub are possible with short fiber lengths, while maintaining a single, long fiber between the hub and headend. The advantage with this architecture is that an existing fiber can be used between hub and headend, or only one fiber has to be installed between hub and headend, reducing the cost of such implementation.



**CWDM Daisy Chaining**



**CWDM Grouped Return**

## Specifications

### Forward Path Receiver

Level Range	-6 to 0dBm @ 109dB $\mu$ V (49dBmV) output
Wavelength	1100 to 1600nm
Optical Return Loss	> 40dB
Optical Automatic Gain Control (AGC)	
Operational Level Range	-6 to 0dBm
Tuning Range	$\pm$ 1 dB over complete operational level range

### Forward RF Specifications

RF Coverage, per diplexer split	47/54/70/85 to 862MHz
Impedance	75Ohm
Testpoint	-20dB
Gain Slope	$\pm$ 1.0dB
Flatness, with respect to gain slope	$\pm$ 0.75 dB, excluding diplexer roll-off

### Performance Specifications (Note 1)

Reference Output Level, single output	$\geq$ 109dB $\mu$ V (49dBmV) without AGC; $\geq$ 107dB $\mu$ V (47dBmV) with AGC
CNR, min.	49dB
CTB, min.	62 dB
CSO, min.	62 dB

### Plug-In Return Path Transmitters

Isolated FP Lasers	1310 $\pm$ 40nm; 0dBm
Isolated DFB Lasers	1310 $\pm$ 20nm; 2dBm
Isolated CWDM Lasers	1270 to 1610nm $\pm$ 3nm, 20nm spaced; 2dBm
RF Input Level, 10% OMI	70dB $\mu$ V (10dBmV), per carrier
RF Input Testpoint	-25dB
Optical Power Testpoint	1V/mW $\pm$ 10%

### Powering Specifications

AC Input Voltage	28 to 65VAC, 47 to 63Hz
Local Powering	90 to 250VAC, 47 to 63Hz
AC Bypass Current	3A total
Power Consumption	23W, max., including PSU efficiency, TX, and transponder

### Plug-In Modules

Diplexers (Note 2)	D30/47MHz, D42/54MHz, D55/70MHz, D65/85MHz
Output Configuration Modules	Amini 0dB: single output Splitter: 4/4dB symmetrical dual output TAPs: 1.8/12dB and 2.6/8dB asymmetrical dual output options
Input and Return Path Attenuators (Note 3)	Amini: 0 to 20dB, in 1 dB increments
Transponder Module	Value Max, HMS and AM protocols

### Physical and Environmental Specifications

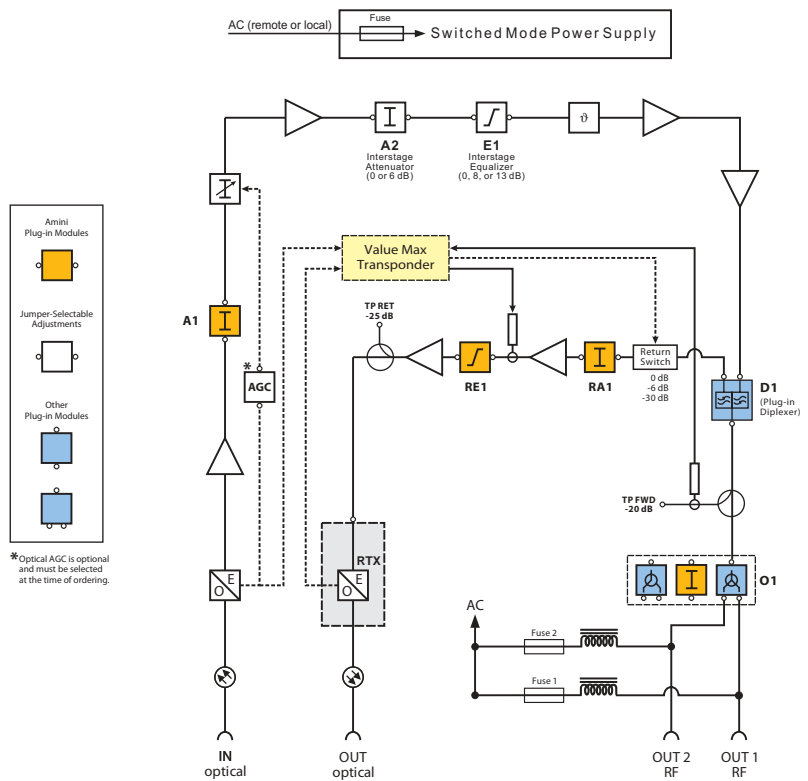
Dimensions (W x H x D)	221 x 98 x 192mm (8.7 x 3.86 x 7.56in.)
Weight	2.3kg (5.07lbs), max.
Connectors	
Optical Fiber Patch Cord Entry Option	PG11
Optical Connector Option	SC/APC
RF Output Port Options	3.5/12; 5/8-inch; F-type, female; IEC
RF Testpoints	F-type, male
Local Power Supply	PG9
Temperature Range	-20 to 55°C (-4 to 130°F)

#### Notes:

- According to EN 50083-3, 42 CENELEC channel loading, and with diplexer and 8dB slope. Measured with 5% OMI, -6dBm optical input power, 109dB $\mu$ V (49dBmV) RF output level, without optical AGC.
- The D30/47 diplexer is used when the return path is not activated.
- Amini attenuators are used in the forward and return paths. In the forward path, Aminis are used to adjust the forward input level (0 to 20dB) and as a through plug-in for a single output configuration. In the return path, Aminis are used to adjust the return input level (0 to 20dB) and return path output equalization (0 to 16dB).

Specifications subject to change without notice

Opti Max1220 Block Diagram



Ordering Information

							<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>O</b>	<b>M</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>-</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>1</b>	<b>0</b>

<b>1</b>	<b>Power Supply</b>
2	Local powering (90–250VAC)
6	Remote powering (28–65VAC)

<b>4</b>	<b>Optical AGC (Automatic Gain Control)</b>
N	None
A	AGC

<b>2</b>	<b>Return Transmitter</b>
0	No return transmitter
A	Isolated FP laser, 1310nm, 0dBm (1.0mW)
B	DFB laser, 1310nm, 2dBm (1.6mW)
C	DFB laser, 1550nm, 2dBm (1.6mW)

<b>5</b>	<b>Optical Connector</b>
1	SC/APC

<b>3</b>	<b>RF Adapter</b>
3	3.5/12 type
5	5/8-inch
F	F-type
I	IEC type

<b>6</b>	<b>Optical Fiber Patch Cord Entry</b>
0	PG11

Diplexers and the Value Max transponder must be ordered separately. CWDM transmitters are also available. Contact your C-COR sales professional.

Americas Headquarters

60 Decibel Road • State College • Pennsylvania • 16801 • USA  
 T: 1-814-238-2461 T: 1-800-233-2267 F: 1-814-238-4065

EuroPacific Headquarters

Transistorstraat 44-V • 1322 CG Almere • The Netherlands  
 T: 31-36-546 1111 F: 31-36-536 4255

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