

## 1550nm Externally Modulated Transmitters

### CHP Max5000

#### Converged Headend Platform

- **Transmitter series offers intermediate (65 km) and long (100 km) range performance options**
- **Simplified installation and control with graphical user interface**
- **Universal management through Craft interface and SNMP with HMS**



CHP Max5000 Externally Modulated Transmitters offer scalable long distance optical solutions. These dual output CHP Max5000 1550nm transmitters are designed for use with CHP EDFA series modules, simplifying applications by providing low noise, integrated element management capability, reduced rack space, and power requirements at geographical reach distances of up to 100km—the preferred solution for HFC or FTTx applications.

Advanced adjustable SBS from 12 to 18dB provides the flexibility to optimize link performance with minimal inventory providing both CapEx and OpEx savings. Two performance range options provide 65km and 100km geographical reach. Laser options enable  $1555 \pm 5$  nm for WDM,  $1545 \pm 1$  nm for Red/Blue, and 1550 ITU for DWDM applications providing a variety of solutions for fiber challenged long distance applications.

The 2RU CHP Max5000 chassis can accommodate up to 5 double-width externally modulated transmitter modules (up to 100 double-width modules in one standard 40RU rack) to relieve the pressure on precious headend space as you expand your network offering advanced service applications.

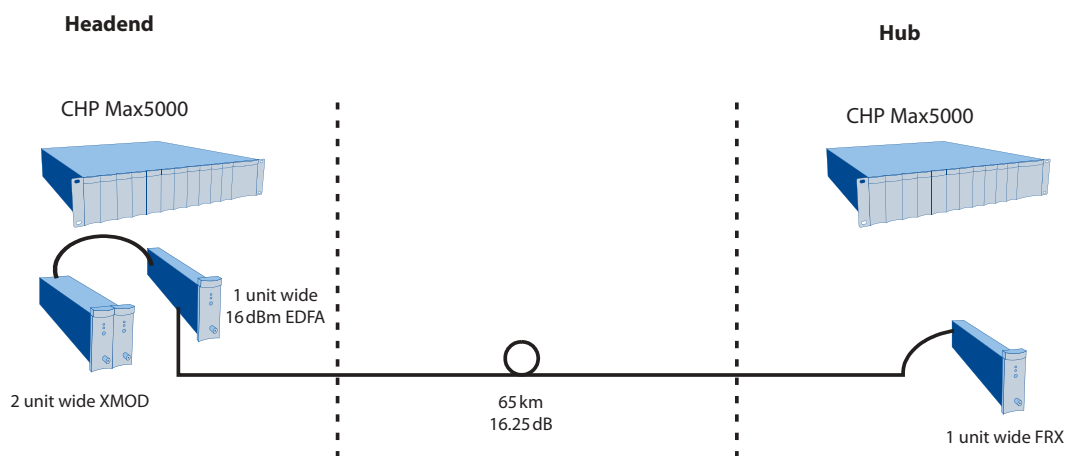
CHP Max5000 Externally Modulated Transmitters offer hot-swapping and integrated monitoring and configuration control through a Craft graphical user interface with local or remote access. Remote management is accessible through the SNMP HMS-compliant interface for external connection to an element manager. Energy efficient internal components and effective thermal design keep optical components cool to ensure effective, reliable performance.

## Features

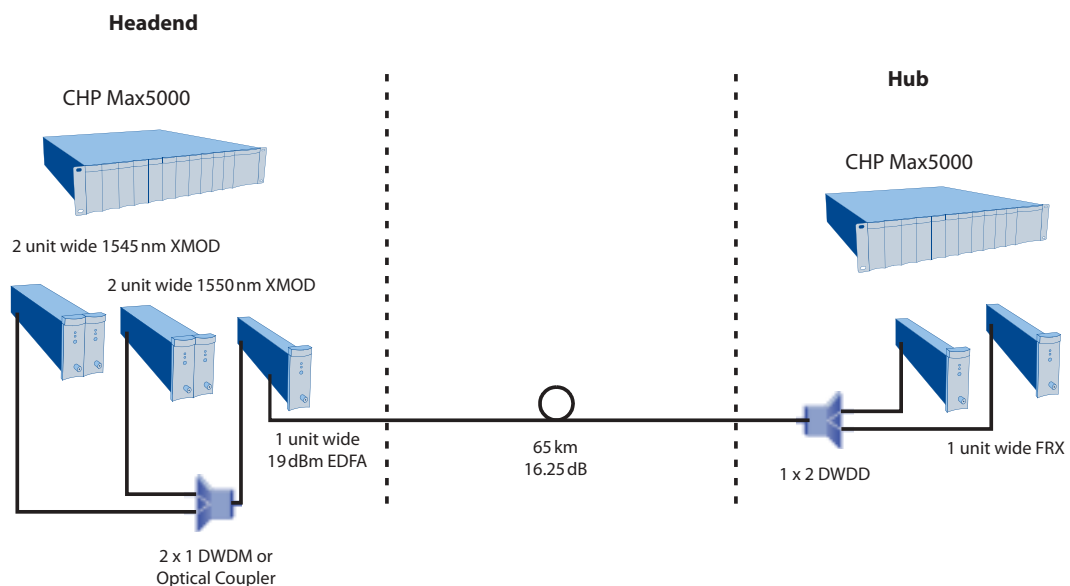
- Advanced adjustable SBS from 12 to 18 dB for maximum performance and minimal inventory
- Laser options support standard 1555 +/- 5 nm, 1445 +/- 1 nm, and DWDM for various fiber challenged applications
- High-density solution (up to 5 modules per 2RU chassis and 100 modules per 40RU rack)
- Modular system optimized for use with CHP Max5000 EDFA series modules

## Applications

### 65 km Single Channel Application



### 65 km Split Channel Application



Note: Refer to the CHP Max5000 EDFA data sheet for 100km Single and Split Channel application diagrams.

## Specifications

### RF Specifications

RF Bandwidth	40 to 870MHz
RF Input Power	39 ± 3 dBmV total power 20dBmV/channel @ 80 NTSC channels 18.5dBmV/channel @ 112 NTSC channels
Flatness	±0.5 dB, max. without EDC ±0.5 dB, 40 to 550MHz; ±0.75 dB, 550 to 870MHz with EDC
Impedance	75 Ohm
Return Loss	17 dB, min., all ports
Residual Spurs	< 65 dBc
Number of Inputs	1

### Common Optical Specifications

Wavelength	1555 ± 5 nm; 1545 ± 1 nm; odd ITU channels 21 through 29, 37, 39
Line Width	0.6MHz, max.
Optical Output Power, Ports 1 and 2	8dBm
Laser RIN	< -157 dBc/Hz
Optical Return Loss	> 55 dB
Optical Modulation Index	3% min. per channel/80 channels
SBS Suppression	Variable 12dB to 18dB
Number of Outputs	2

### Medium Haul Performance Specifications (Notes 1, 2, and 3)

	77/112 NTSC Channel Loading	Split Band 40 Low/40 High NTSC Ch.
Link Budget	65 km	65 km
CNR	52.5/51 dB	55.2/55.2 dB
CTB	-66/-66 dB	-70/-70 dB
CSO	-66/-66 dB	-70/-70 dB
XMOD	-66 dBc, max.	-70 dBc, max.

### Long Haul Performance Specifications (Notes 1, 2, and 4)

	77/112 NTSC Channel Loading	Split Band 40 Low/40 High NTSC Ch.
Link Budget	100 km	100 km
CNR	50.5/48 dB	53/53 dB
CTB	-66/-65 dB	-70/-70 dB
CSO	-65/-65 dB	-70/-70 dB
XMOD	-66 dBc, max.	-70 dBc, max.

### Powering

Power Consumption	40W, max.; 12V at 1.6A, max.
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### Physical and Environmental Specifications

Dimensions (W x H x D), double-width module	2.5 x 3.4 x 17.27 in. (6.35 x 8.7 x 43.87 cm)
Operating Temperature	0 to 50°C (32 to 122°F)
Operating Humidity, noncondensing	10 to 90%

#### Notes:

- Specifications are worst case and are for both output ports. Reference receiver: 7pA/Hz<sup>0.5</sup>. Reference receiver input: 0dBm. Reference maximum channel loading: 80 NTSC plus 300MHz QAM -10dBc relative to analog carriers. SBS suppression: 12 to 18dBm. XMOD performance is no worse than CTB performance as specified per the channel plan.
- 64 PAL channel performance is equivalent to 80 NTSC channel performance. 42 CENELEC channel CSO and CTB performance is equivalent to 80 NTSC channel performance. 42 CENELEC channel CNR performance is 1.0dB higher than 80 NTSC channel performance.
- 16dBm EDFA, 65 km fiber, 0dBm at receiver.
- 16dBm EDFA, 45 km fiber, 16dBm EDFA, 55km fiber, 0dBm at receiver.

Specifications subject to change without notice

Ordering Information

										<b>1</b>	<b>2</b>	<b>3</b>		<b>4</b>	<b>5</b>		<b>6</b>
C	H	P	-	X	M	O	D	-	x	x	x	-	x	x	-	x	

1-3 Transmit Channel/Wavelength		
45	1545 ± 1 nm	
55	1555 ± 5 nm	
D21	ITU Channel 21 (1560.61 nm)	a
D23	ITU Channel 23 (1558.98 nm)	a
D25	ITU Channel 25 (1557.36 nm)	a
D27	ITU Channel 27 (1555.75 nm)	a
D29	ITU Channel 29 (1554.13 nm)	a
D37	ITU Channel 37 (1547.72 nm)	a, b
D39	ITU Channel 39 (1546.12 nm)	a, b
a) Must select "M" in #4 block, <b>Transmitter Reach</b>		
b) Must select "blank" in #5 block, <b>Channel Loading</b>		

4 Transmitter Reach	
M	Medium haul, 65km
X	Extended range, 100km

5 Channel Loading		
A	112 NTSC channels	a
L	40 NTSC low-band channels	a, b
U	40 NTSC high-band channels	a, b
blank	80 NTSC channels	
a) Must select "S" in #6 block, <b>Connector Type</b>		
b) Must select "55" in #1-3 blocks, <b>Transmit Channel/Wavelength</b>		

6 Connector Type	
E	E2000
S	SC/APC

Consult your C-COR sales professional for more details on our new 1550 nm externally modulated transmitter, and refer to the CHP Max5000 Converged Headend Platform data sheet for additional ordering information.

For other ITU wavelengths, contact your C-COR sales representative.

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