

# 1 GHz Fixed Output Forward Transmitter

## CHP Max5000

### Converged Headend Platform

- **1 GHz technology**
- **Value line series transmitters**
- **Dual input accommodates broadcast and narrowcast inputs**
- **Low profile footprint allows 200 transmitters in a standard rack**
- **Universal local or remote management through Craft interface and SNMP with HMS**



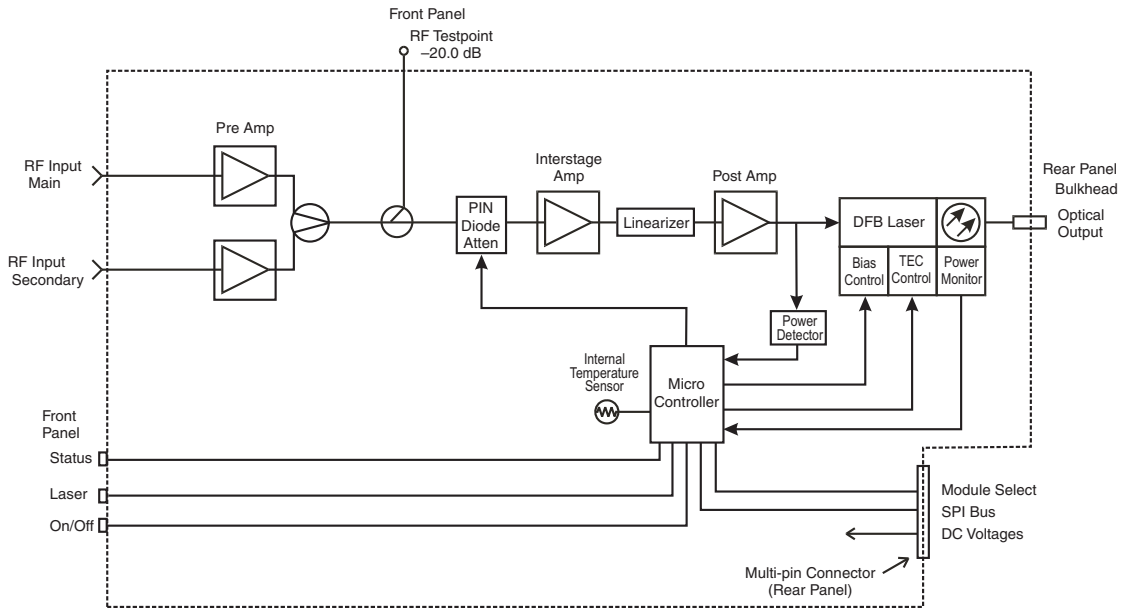
The Value Line series transmitters for the CHP Max5000 headend platform are 1 GHz forward path transmitters available with fixed output levels of 2, 4, 6, 8, 10, and 12dBm. Additional 1 GHz forward path fixed output transmitters are available with output levels of 13, 14, and 15dBm.

Extending bandwidth from 870MHz to 1GHz will enable broadband service providers to increase the overall forward capacity by 16% and the digital spectrum by 40%. This transmitter will be designed as an economical alternative to the premium grade variable output 1 GHz forward path transmitter to deliver advanced video, voice, and data services.

### Features

- 1 GHz technology
- Unlock narrowcast bandwidth to accelerate deployment of advanced services
- Investment protection through high module density (10 modules in a 2RU footprint)
- Dual RF inputs—Primary input for broadcast; Secondary input for narrowcast
- GUI configurable automatic drive control (ADC)
- Universal local or remote management through Craft interface and SNMP with HMS
- Economical Value Line fixed output version of the variable output series transmitter
- Downloadable firmware upgrades

## Functional Block Diagram



## Specifications

Carrier to Thermal Noise	(Value Line) CHP-GFXF-D-						CHP-GFX-D-		
	02	04	06	08	10	12	13	14	15
Output Power (dBm)	2.0	4.0	6.0	8.0	10.0	12.0	13.0	14.0	15.0
Fiber Length (km)	4.0	7.0	13.8	15.0	15.0	20.0	20.0	20.0	20.0
Optical Loss Budget (dB)	CNR (dB) for part fiber/part passive link, typical								
2	54.2	—	—	—	—	—	—	—	—
3	53.6	54.5	—	—	—	—	—	—	—
4	—	54	—	—	—	—	—	—	—
5	—	53.4	53.8	—	—	—	—	—	—
6	—	—	53.2	—	—	—	—	—	—
7	—	—	52.6	53.8	—	—	—	—	—
8	—	—	—	53.2	—	—	—	—	—
9	—	—	—	52.6	53.8	—	—	—	—
10	—	—	—	—	53.2	—	—	—	—
11	—	—	—	—	52.6	53.8	—	—	—
12	—	—	—	—	—	53.2	53.4	—	—
13	—	—	—	—	—	52.6	52.8	53.4	—
14	—	—	—	—	—	—	52.2	52.8	53.4
15	—	—	—	—	—	—	51.5	52.2	52.8
16	—	—	—	—	—	—	50.6	51.5	52.2
17	—	—	—	—	—	—	—	50.6	51.5
18	—	—	—	—	—	—	—	—	50.6

**Notes:**

- Optical output power specified before transmitter's bulkhead.
- CNR is measured using only CW analog carriers per SCTE test procedures. Performance shown is ambient. Subtract 0.5dB for performance over full temperature range.
- Specifications measured using typical receiver with 0.85 mA/mW, 7 pA/Hz<sup>0.5</sup> performance.

Specifications subject to change without notice

**Specifications (continued)**

	CHP-GFXF-D (Value Line)	CHP-GFX-D
<b>Optical</b>		
Optical Wavelength	1310 ± 10nm	1310 ± 10nm
Optical Output Power	2, 4, 6, 8, 10, and 12dBm	13, 14, and 15 dBm
<b>RF</b>		
Analog Channel Range	54 to 550MHz	54 to 550MHz
Digital Channel Range	550 to 1002MHz	550 to 1002MHz
Response Flatness, P-V, typ.	1.0dB	1.0dB
Input Return Loss, min.	16 dB	16dB
Port-to-Port Isolation	>42dB, narrowcast to broadcast >18dB, broadcast to narrowcast	≥60dB from 54 to 870MHz ≥50dB from 870 to 1002MHz
ADC Range	± 1.5dB	± 3.0dB
<b>Powering</b>		
Power Consumption	17.4W	17.4W
<b>Performance</b>		
Channel Plan	79 NTSC channels (up to 75 256-QAM channels)	79 NTSC channels (up to 75 256-QAM channels)
Analog Channel RF Input Power (Notes 1 and 2)	15dBmV/ch	15dBmV/ch
Digital QAM Channel RF Input Power	9dBmV/ch	9dBmV/ch
Composite Second Order (Notes 1 and 3)	-63dBc	-65dBc
Composite Triple Beat (Note 1)	-69 dBc	-70 dBc
<b>Mechanical</b>		
Optical Connector	SC/APC	SC/APC
RF Connector	F-type	F-type
RF Input Testpoint (Note 4)	-20 ± 1.25dB	-20 ± 1.0dB
Dimensions (W x H x D) (Note 5)	single-slot width 1.25 x 3.4 x 18.5 in. (3.2 x 8.7 x 47.0 cm.)	
Weight	2.75 lbs (1.24kg)	
<b>Environmental</b>		
Temperature (Note 6)	Operational: 0 to 50°C (32 to 122°F); Storage: -40 to 70 °C (-40 to 158°F)	
Humidity, noncondensing, max	Operational: 85%; Storage: 95%	

Notes:

- Distortions are measured using only CW analog carriers per SCTE recommendation by standard RF test methods. Performance shown represents typical performance for ≥85% of production units tested over typical Corning SMF-28 fiber (or equivalent). For minimum CSO and CTB, subtract 2dB from typical.
- OMI is 3.9% at 79 NTSC channel loading.
- CSO performance for NTSC channels is for the in-band (high-side) beats.
- Relative to main port with 0 dB pad and 0 dB EQ.
- Includes handles and connectors.
- Operational temperature measured at transmitter module's air inlet.

Specifications subject to change without notice

**Ordering Information**

							<b>1</b>		<b>2</b>		<b>3</b>	<b>4</b>		<b>5</b>
C	H	P	-	G	F	X	x	-	D	-	x	x	-	S

1 Fixed Output Transmitter Type		
F	Value Line series 1GHz fixed output transmitter	a
blank	1GHz fixed output transmitter	b
a) Select "02", "04", "06", "08", "10", or "12" in #3-4 block, <b>Optical Output Power</b>		
b) Select "13", "14", or "15" in #3-4 block, <b>Optical Output Power</b>		

2 Optical Output Wavelength	
D	1310nm dual-input rear fiber access

3-4 Optical Output Power		
02	Value Line fixed output power of 2 dBm	
04	Value Line fixed output power of 4 dBm	
06	Value Line fixed Fixed output power of 6 dBm	
08	Value Line fixed Fixed output power of 8 dBm	
10	Value Line fixed Fixed output power of 10 dBm	
12	Value Line fixed Fixed output power of 12 dBm	
13	Fixed output power of 13 dBm	a
14	Fixed output power of 14 dBm	a
15	Fixed output power of 15 dBm	a
a) GFX "13", "14", and "15" have ADC control button on the front		

5 Optical Connector	
S	SC/APC

Contact your C-COR sales professional for the availability of the Value Line transmitters and to discuss how our exciting new 1 GHz products can add value to your network.

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