



The Maxcom MX700-X10 series mini optical nodes are ideal for use in fiber to the home and fiber to the business applications. An excellent platform for delivering upstream and downstream DOCSIS, voice, video and high-speed data service over FTTX applications. They are designed compliant to industry standards to terminate an RF over Glass (RFoG) communications network. Compatible with GPON/EPON, 10G EPON, and XG(S)POB transmission modes, they include an optical MUX for pass through of the XPON downstream and upstream for both 10G PON wavelengths of 1270nm and 1577nm, in addition to E/G-PON 1310 and 1490nm wavelengths. The node is compatible with both 1G PON and 10G PON. It can be used to overlay RFoG based services on to an existing PON network or expand an RFoG network with services delivered with 10G PON transmission modes. The device uses a single fiber and receives downstream signals at 1550nm and uses a 1610nm Isolated DFB return transmitter. Built with maximum toughness and the best warranty in its class.

## ONU Features

1. CATV Bi-directional single fiber port, w/ additional port for PON pass through
2. Internal WDM to pass PON wavelengths of 1270nm and 1577nm and 1310nm and 1490nm
3. Compatible with both 1G PON and 10G PON
4. Burst mode operation – Isolated DFB Lasers for improved stability
5. Superior proven technologies for both the RF amplification and optical components
6. AGC for consistent RF level \*20 dBmV standard output (36 dBmV output versions available)
7. Automatic Optical Control is designed to reduce return noise effectively.
8. Low power consumption, compact in size, built tough, with Max reliability
9. Follows SCTE 174 standards

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## Specifications

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
<b>General Optical</b>					
Drop Wavelength Band- Forward	Expanded input 1525~1565nm (Option E53)	1540	1550	1560	nm
Add Wavelength Band- Return	Upstream laser	1600	1610	1620	nm
Pass Wavelength 1 - Forward	GPON	1475		1500	nm
Pass Wavelength 2 - Forward	XGS PON	1560		1600	nm
Pass Wavelength Band- Return	GPON and XGS PON	1260		1360	nm
Pass Band Insertion Loss				1	dB
Pass to Add-Drop Crosstalk	Both directions	35			dB
Forward to Return Crosstalk	Both directions	35			dB
<b>Forward Receiver</b>					
Optical Wavelength	Expanded input 1525~1565nm (Option E53)	1540	1550	1560	nm
Monitor Voltage	$\lambda=1550$		1		V/mW
Optical Input Power	Optical AGC / Continuous	-6	-1	+2	dBm
Bandwidth (RF frequency Range)(other options available, see matrix)	(Note 1)	54		1218	MHz
Flatness of Frequency Response	f=54 to 1218MHz		$\pm 0.75$	$\pm 1$	dB
Output Return Loss		14	16		dB
Standard Reference Output Level w/AGC when optical input is between -6 and +2 dBm (may be ordered w/ 20 or 36dBmV output versions)	(Note 2) @ 3.5% OMI per Ch.		*20		dBmV
Standard Reference Output Level w/AGC when optical input is between -6 and +2 dBm (may be ordered w/ 20 or 36dBmV output versions)	(Note 2) @ 2.7% OMI per Ch.		*17		dBmV
Slope (1.2GHz)	6dB slope $\pm 2$ dB	3	5	7	dB
Optical Input Return Losses		45			dB
C/N	(-1dBm optical input, 3.5% OMI/ch, 79ch NTSC, Digital ch above 550MHz at -6dB offset)	50			dB
CTB				-65	dB
CSO				-60	dB
Equivalent Noise Input	f=55MHz			7	pA/Hz
<b>Return Transmitter</b>					
Optical Wavelength		1600	1610	1620	nm
Optical Output Power	w/Isolated DFB laser	1	2	3	dBm
Dynamic Input Range	NPR $\geq 38$		20		
RF Input Level	Typical 20-40	20	30	40	dBmV
Bandwidth (RF frequency Range)(other options available, see matrix)	5 MHz to 42/65/85/204 MHz	5		42	MHz
Flatness of Frequency Response	f=5 to 42MHz		$\pm 0.75$	$\pm 1$	dB
Input Return Loss	f=5 to 42MHz	14	16		dB
Optical Output Return Loss		45			dB
Optical Laser turn ON Level	Follows SCTE 174 (Note 3)		15		dBmV
Optical Laser turn OFF	Follows SCTE 174 (Note 3)		-4		dBmV
Laser Rise Time to 90% optical ON				1.3	$\mu$ s
Laser Fall Time for optical to 10%				1.6	$\mu$ s
<b>General Parameters</b>					
Total Current Consumption (DC)	W/12VDC Power Adapter		4.5		W
Temperature Range in Fahrenheit degrees		-40		+149	$^{\circ}$ F

Note 1: 54/85/102/258 MHz to 1218 MHz

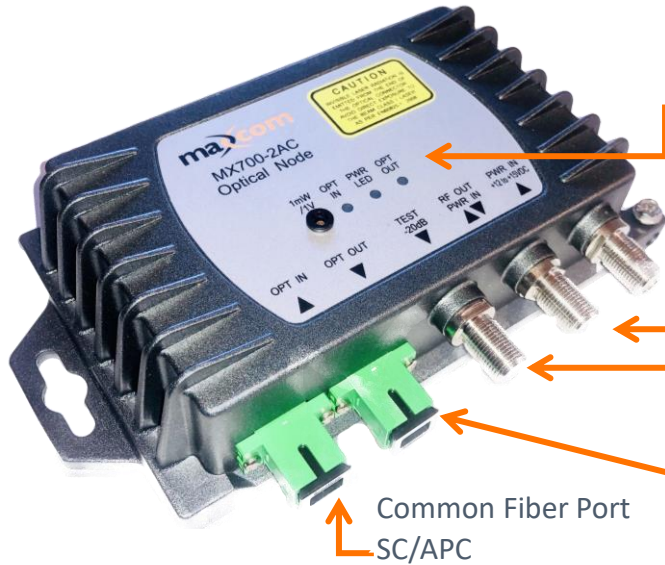
Note 2: Power output is measured at 1218MHz.

Note 3: Burst mode parameter may be adjustable according to customer's request

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Diagram of MX700-X10 series



Power Supply included

LED display lights, and test probe port for optical power

12 VDC power port

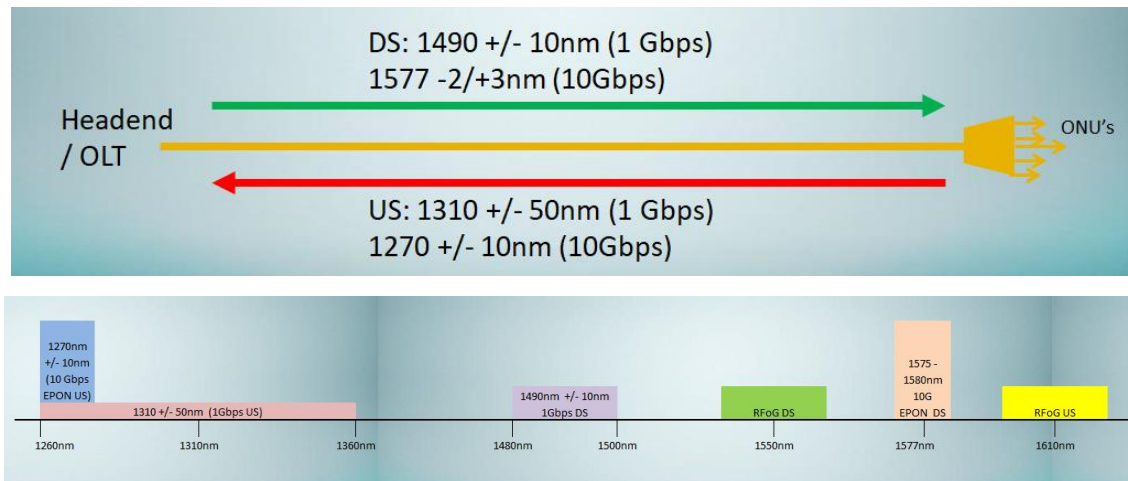
Forward RF output, return RF input, 12 VDC common port

-20 dB Forward Test Point

Common Fiber Port SC/APC

xPON pass-through port

The MX700-X10 Series node is compatible with both 1G PON and 10G PON Wavelengths



Maxcom Mini Optical Node Modeling Matrix

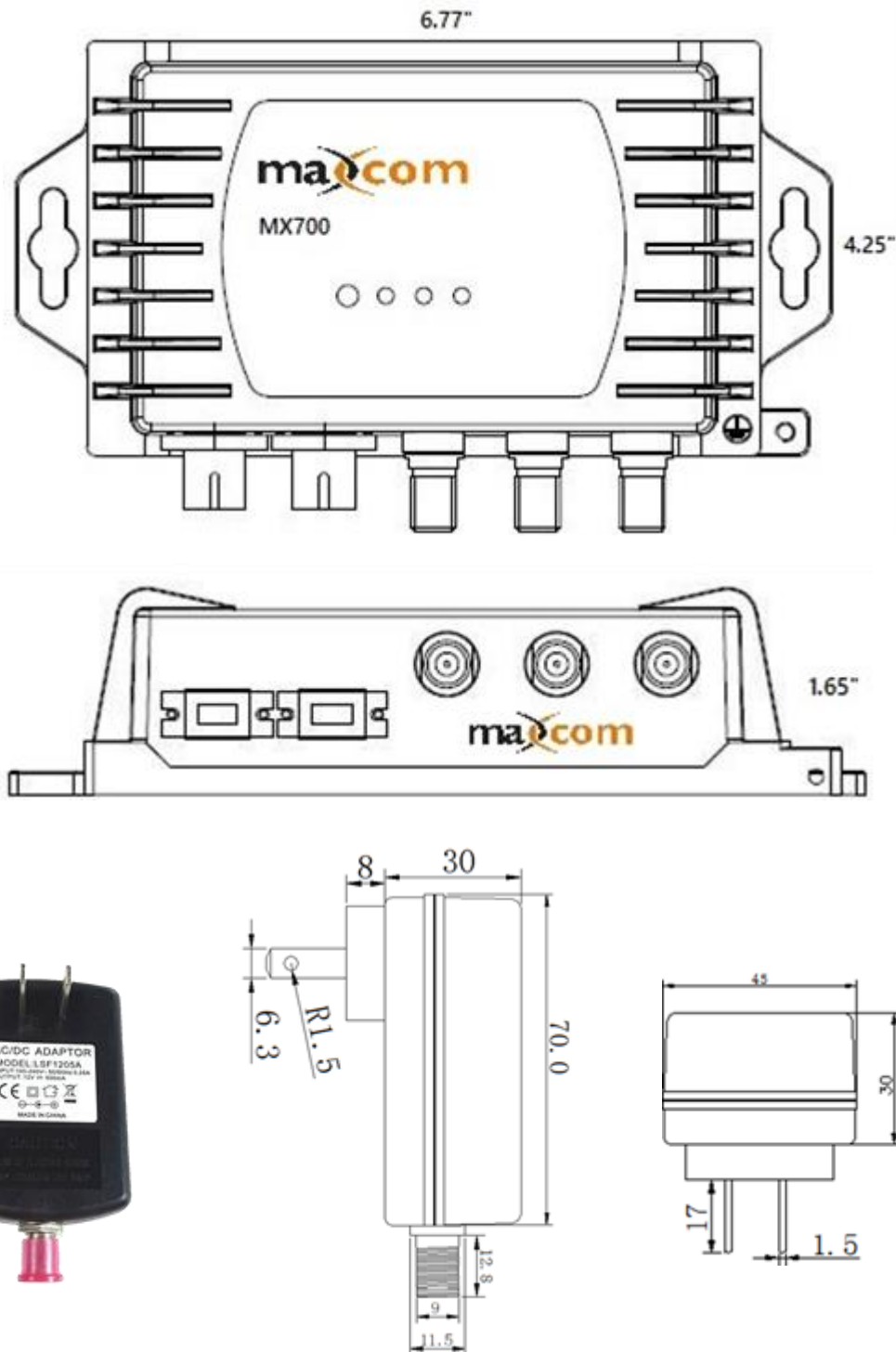
Maxcom Mini Optical Node Series		Forward Output Level	Return Input Level	Laser Type	Tx. Optical Power	Optical Connector	Transmitter wavelength	Sub Split	Power A daptor	Forward Frequency	Options
MX700-XXX (A=A/GC on forward path, C=Burst mode return laser)		XX①	XX②	X	X	XX	XXXX	XX③	XX	XX	XXX
MX700-2	Dual fiber I/O	17 17dBmV	20 20dBmV	F FP	1 1mW	SA SC/APC	1310 1310nm	34 30/47	00 None	None 1000MHz	00 None
		20 20dBmV	25 25dBmV	D DFB	2 2mW		1470 1470nm	45 42/54	01 North America	1.2G 1220MHz	E53 Extended input RX wavelength 1525-1605nm
MX700-3	Single fiber I/O	25 25dBmV	28 28dBmV	I Isolated DFB	3 3mW		1490 1490nm	57 55/70		2.0G 2800MHz	
		36 36dBmV	30 30dBmV				1510 1510nm	68 65/85		3.0G 3000MHz	
MX700-4	One fiber I/O, a 2nd fiber for PON port		35 35dBmV				1530 1530nm	81 85/102			
MX700-2C	Dual fiber I/O, burst mode on the return path						1550 1550nm				
MX700-3C	Single fiber I/O, burst on the return path						1570 1570nm				
MX700-4C	Single fiber I/O, a 2nd fiber for PON port, burst on the return path						1590 1590nm				
MX700-2A C	Dual fiber I/O, burst mode on the return AGC on the forward path						1610 1610nm				
MX700-3A C	Single fiber I/O, burst on the return, AGC on the forward path										
MX700-4A C	One fiber I/O, a 2nd fiber for PON port, burst on the return, AGC on the forward path										
MX700-X10AC	One fiber I/O, a 2nd fiber port for GPON & XG(S)PON, burst on the return, AGC on the forward path										

Note: the series (4) model is equipped with PON fiber port with internal optical filter that is configured for default standard wavelengths supporting 1550 forward path RX, 1610 return TX, and PON port supporting 1310 and 1490nm wavelengths

Note: the series (X10) model is equipped with xPON fiber port with internal optical filter that is configured for default standard wavelengths supporting 1550 forward path RX, 1610 return TX, and PON port supporting both 1G and 10G PON wavelengths of 1270nm and 1577nm, and 1310 and 1490nm wavelengths. The node is compatible with both 1G GPON and 10G XG(S)PON

All versions standard with SC/APC optical connectors, North American Power Adapter

Note: ①② Please specify levels not included in the Matrix. Note ③ sub split may be customized to customer requirement



Maxcom carries a full line of Optical Products and CATV Products supporting RFoG. Transmitters, Receivers, Optical Jumpers and Passives. Contact us at 877-330-5333 or visit our website at [www.maxcomcorp.com](http://www.maxcomcorp.com) and let us assist with answering any questions or providing technical support.

