DATA SHEET

Opti Max™ Optical Node Series

OM2741, OM4, OM6

CWDM Analog Return Transmitter

FEATURES

- Compatible with legacy CommScope headend analog receivers
- Provides AGC stabilization via AGC pilot tone feature
- Supports 204 MHz upstream performance
- Supports status monitoring
- Supports high-loss, high optical output multiwavelength passive architectures
- Available in eighteen 1271–1611 nm wavelengths, spaced in 20 nm increments
- Compatible with OM2741, OM4 series, and OM6 series nodes

CommScope CWDM Analog Return Transmitters are fully compatible with Opti Max OM2741, OM4 series, and OM6 series nodes. The transmitter is an excellent choice for facilitating multiwavelength planning over a single fiber, which allows end users to maximize fiber capacity. Available in 18 different wavelengths, CWDM Analog Transmitters support a variety of HFC and Fiber Deep wavelength plans and network configurations.

CWDM return transmitters feature an AGC pilot tone that provides AGC stabilization for the laser optical modulation index (OMI). This feature protects the OMI from variations caused by temperature and laser aging.

SPECIFICATIONS

Characteristics	Specification
Physical	
Dimensions (H x L x W)	6.0 in x 4.3 in x 1.25 in (15.24 cm x 10.9 cm x 3.2 cm)
Weight	≤ 1.1 lb (≤ 0.5 kg)
Environmental	
Operating Temperature Range	-40° to 60°C (-40° to 140°F)
Storage Temperature Range	-40° to 85°C (-40° to 185°F)
Humidity	5% to 95% non-condensing
Optical	
Optical Output Power[1]	3.0 ± 0.4 dBm
Transmitted Wavelength	1271 nm to 1611 nm ± 6.5 nm (18 CWDM channels, 20 nm spacing)
Optical Power Test Point	1 ± 10% mW/V
Output Power Stability Over Temperature	± 1.0 dB (max)
Optical Connector	SC/APC
LED Indicators	
Fault	Optical Output Power: Red = high alarm (2.2 mW limit); low alarm (1.8 mW limit); Off = normal operating limits Laser Bias Current: Red = high alarm (110 mA limit); Off = normal operating limits
Status	Green = transmitter is on; Off = transmitter is disabled
RF	
RF Bandwidth	5–204 MHz
Input Level (Total Power)[2]	20 dBmV (nominal); 50 dBmV (max)
Return Loss[3]	-19 dB, 5–120 MHz; -17 dB, 120–204 MHz
Test Point Insertion Loss[1,4]	20 ± 0.5 dB
Frequency Response Flatness[5]	± 0.5 dB (max)
Response Deviation[6]	0.35 dB_{pk-pk} (max)
Average RF Gain[1]	-17.07 ± 0.4 dB
Gain Variation Over Temperature[7]	
AGC Pilot Tone Enabled, T_{bp} = -30° ± 2°C	-6 ± 0.5 dB
AGC Pilot Tone Enabled, T_{bp} = 85° ± 2°C	0.8 ± 0.5 dB
AGC Pilot Tone Disabled	± 2.0 dB (max)
Optical Modulation Index (OMI), % per channel[8]	25.0 ± 1.2%
AGC Pilot Tone	
Nominal Frequency[1]	2.100–2.440 MHz
Frequency Accuracy[9]	± 250 Hz
Peak Optical Modulation Index[1]	3 ± 0.40%
Link Performance[10]	
Dynamic Range for NPR > = 40 dB[11]	
80 MHz Loading (5–85 MHz)	12 dB (min)
199 MHz Loading (5–204 MHz)	9 dB (min)
Peak NPR[11]	
80 MHz Loading (5–85 MHz)	45 dB (min)
199 MHz Loading (5–204 MHz)	43 dB (min)
Dynamic Range for BER < = 1.00E-06[12]	
80 MHz Loading (5–85 MHz)	24 dB (min)
199 MHz Loading (5–204 MHz)	19 dB (min)
Intermodulation Spurious Outputs	-55 dBc (max)
Broadband Spurious Outputs	-65 dBc (max)
Power Requirements	
Supply Current @ +24V	
T_{bp} = 0° to 85°C	165 mA (max)
T_{bp} = -30° to 0°C	290 mA (max)
Supply Current @ +34V	
T_{bp} = 0° to 85°C	120 mA (max)
T_{bp} = -30° to 0°C	210 mA (max)

NOTES:

1. Measured at T_a = 25° ± 5°C.
2. The maximum RF input level must be tolerated for at least one hour with no damage.
3. Measured in a 75 Ω system.
4. The RF test point insertion loss is measured relative to the module input with a 0 dB JXP PAD installed. The entire RF test point response must be contained within the indicated limits over the 5–204 MHz RF bandwidth. The RF test point return loss is measured in a 75 Ω system.
5. Measured over the 5–204 MHz RF bandwidth. The specified plus/minus value may be interpreted as a peak-to-peak value of twice the indicated value (e.g., ± 0.5 dB may be interpreted as 1.0 dB_{pk-pk}) to simplify the measurement.
6. The RF response deviation applies to any 6 MHz band within the 5–204 MHz RF bandwidth.
7. The RF gain variation over temperature is the change in the average RF gain as the DUT is operated over temperature. The receiver temperature is held at T_a = 25° ± 1°C, and the optical power at the receiver input is held constant to within ± 0.1 dB. The gain will vary in an approximately linear manner as the base plate temperature deviates from T_{bp} = 25° ± 5°C.
8. The peak optical modulation index (OMI) is specified at T_a = 25° ± 5°C and is derived from the specified average RF gain value and 20 dBmV nominal RF input level.
9. The AGC pilot tone frequency accuracy is determined by measuring the worst-case high and low tone frequency as the module is operated over the full operating temperature range. The worst-case tone frequency values are then subtracted from the nominal frequency and the results are compared to the AGC pilot tone frequency accuracy specification.
10. Test link consisted of 20 km of SMF-28 fiber, plus passive loss sufficient to obtain an optical input power of -6 dBm at the test receiver. The test receiver was a CHP-2RRX, CHP-4RRX, GX2-RX200BX2, or GX2-RX200BX4 return path receiver set to medium gain. The passive loss must be located between the fiber and the test receiver.
11. Tested with a 41 MHz notch (5–85 MHz loading) and a 100 MHz notch (5–204 MHz loading).
12. The BER dynamic range is tested with a 13 channel (5–85 MHz loading) and a 33 channel (5–204 MHz loading) QAM-64 load at a total nominal input power equal to 20 dBmV. The BER is measured without any forward error correction (Pre-FEC).

ORDERING INFORMATION

Ordering Part Number	Manufacturing Part Number	Description
1510388-027	1509071-011	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1271 nm
1510388-029	1509071-021	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1291 nm
1510388-031	1509071-031	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1311 nm
1510388-033	1509071-041	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1331 nm
1510388-035	1509071-051	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1351 nm
1510388-037	1509071-061	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1371 nm
1510388-039	1509071-071	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1391 nm
1510388-041	1509071-081	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1411 nm
1510388-043	1509071-091	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1431 nm
1510388-045	1509071-101	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1451 nm
1510388-047	1509071-111	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1471 nm
1510388-049	1509071-121	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1491 nm
1510388-051	1509071-131	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1511 nm
1510388-053	1509071-141	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1531 nm
1510388-055	1509071-151	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1551 nm
1510388-057	1509071-161	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1571 nm
1510388-059	1509071-171	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1591 nm
1510388-061	1509071-181	OM2741/OM4/OM6 CWDM Analog Transmitter, SC/APC, 1611 nm

RELATED PRODUCTS

CH3 Chassis	CHP Chassis
Remote PHY Device (RPD)	XE4202M Remote OLT (R-OLT)
Power Supplies	Optical Service Cables

Contact Customer Care for product information and sales:
- United States: 866-36-ARRIS
- International: +1-678-473-5656

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