

# OC-48/STM-16 Module Technical Specifications

<b>Requirements</b>	Meets the requirements of GR-253 (OC-48) and ITU-T G.707 (STM-16)	<b>Patterns</b>	PRBS (normal and inverted): 2 <sup>15</sup> -1 PRBS, 2 <sup>23</sup> -1 PRBS, 2 <sup>31</sup> -1 PRBS, all 0's, all 1's, user-defined 32-bit pattern (per ITU-T 0.151)
<b>Line Code</b>	NRZ	<b>APS Commands</b>	Supports transmission/reception of linear and ring-mode command sequences for K1/K2 bytes (per G.841)
<b>Mapping</b>	<u>SONET</u> : STS-48c/Bulk fill (per ANSI T.105.02) <u>SDH</u> : STM-16: AU-4-16c (per ITU-T G.707)	<b>Pointer Control</b>	<u>STS/AU</u> : New value; NDF control; STS/AU single adjustments: Increment or decrement, increment then decrement, decrement then increment; 1 to 8 bursts of adjustments: Increment or decrement, increment then decrement, decrement then increment. STS/AU single add; STS/AU single cancel; STS/AU continuous; STS/AU continuous add; STS/AU continuous cancel; STS/AU continuous phase; STS/AU 87-3; STS/AU 87-3 add; and STS/AU 87-3 cancel; 34 to 10,000 ms delays between bursts; and STS/AU frequency offset: ±100 ppm.
<b>Line Rate</b>	Tx: N x 51.84 MHz; Rx: N x 51.84 MHz, Stratum III-compliant; offset capability ±100 ppm	<b>Control and Monitoring</b>	<u>OC-48</u> : Overhead: Transmit control over bytes: Transport OH: A1, A2, Z0, D1-D12, E1, E2, F1, K1, K2, J0 (Trace), Z1, Z2; Path OH: C2, F2, G1, J1 (Trace), Z3, Z4, Z5; Receive monitor: Transport OH: All bytes; Path OH: All bytes <u>STM-16</u> : Overhead: Transmit control over bytes: MSOH: A1, A2, Z0, D1-D12, E1, E2, F1, K1, K2, J0 (Trace), Z1, Z2; HP OH: C2, F2, G1, J1 (Trace), F3, K3, N1; Receive monitor: RSOH: All bytes HP OH: All bytes
<b>Input Signal Measurement</b>	Optical power meter: 0 to -26 dBm, ±1.5 dB, Frequency measurement range: N x 51.84 MHz, ±200 ppm	<b>Intrusive / Non-intrusive Through-mode</b>	Provides the ability to regenerate optical signal and optionally modify section and line overhead bytes
<b>Synchronization</b>	Internal, received SONET or SDH signal, BITS (1.544 Mbps), SETS (2.048 Mbps)	<b>Switch to Protect Measurement</b>	Measure on B1, SEF, OOF, AIS-L, MS-AIS, AIS-P, AU-AIS, and PRBS; 125 microsecond resolution
<b>Level (Tx)</b>	<u>1310 nm</u> : Single-mode, Intermediate reach-compliant, 1290 to 1330 nm, 1310 nm typical, 0 dB <u>1550 nm</u> : Intermediate reach-compliant, single-mode, 1530 to 1565 nm, 1550 nm typical, 0 dB	<b>Round-Trip Delay (RTD) Measurement</b>	Measurement ranges: 125 microseconds resolution
<b>Level (Rx)</b>	<u>STM-16/OC-48</u> : -7 dBm to -26 dBm typical, -30 dBm typical minimum at 10 <sup>-10</sup> BER with 2 <sup>23</sup> -1 PRBS	<b>Tandem Connection Monitor</b>	In accordance with G.707/ Annex D for High Order Path (via N1), Errors/Alarms: TC-IEC, TC-REI, TC-OEI, TC-AIS, TC-UNEQ, TC-RDI, TC-ODI, TC-LOF, TC-API
<b>Spectral Range (Rx)</b>	1290-1600 nm		
<b>Connectors</b>	SC, FC-PC, ST		
<b>Error Measurement</b>	<u>OC-48</u> : B1, B2, REI-L, B3, REI-P, BIT, NDF errors <u>STM-16</u> : B1, B2, MS-REI, B3, HP-REI, BIT, NDF errors (performance measurements per G.821, G.826, M.2101.1)		
<b>Error Injection</b>	<u>OC-48</u> : B1, B2, REI-L, B3, REI-P, BIT <u>STM-16</u> : B1, B2, MS-REI, B3, HP-REI, BIT		
<b>Error Injection Rate</b>	BIT: Single, 10 <sup>-10</sup> to 10 <sup>-3</sup> , user-programmable; other errors: Single, 10 <sup>-10</sup> to maximum, user-programmable		
<b>Alarm Detection</b>	<u>OC-48</u> : LOF, LOS, SEF, AIS-L, RDI-L, LOP-P, AIS-P, RDI-P, UNEQ-P, pattern sync, concatenation: RS-TIM, HP-TIM, HP-PLM; <u>STM-16</u> : LOF, LOS, OOF, MS-AIS, MS-RDI, AU-AIS, AU-LOP, HP-RDI, HP-UNEQ, RS-TIM, HP-TIM, HP-PLM, pattern sync, concatenation		
<b>Alarm Generation</b>	<u>OC-48</u> : LOF, LOS, AIS-L, RDI-L, LOP-P, AIS-P, RDI-P, UNEQ-P <u>STM-16</u> : LOF, LOS, MS-AIS, MS-RDI, AU-AIS, AU-LOP, HP-RDI, HP-UNEQ		

Specifications are subject to change without notice.



www.lightwave.com  
info@lightwave.com

United States/Caribbean  
15550 Lightwave Drive  
Clearwater, FL 33760  
Toll free: +1 877 442 DIGL  
T: +1 727 442 6677  
F: +1 727 442 5660

Europe/Middle East/Africa  
Eastway Enterprise Centre  
7 Paynes Park  
Hitchin Hertfordshire  
England SG5 1EH  
T: +44 (0) 1462 429719  
F: +44 (0) 1462 429760

Asia/Pacific Rim  
Digital Lightwave Asia Pacific Pty. Ltd.  
236 Balaclava Road  
Caulfield North, Victoria  
Australia 3161  
T: +61 3 9509 4610  
F: +61 3 9509 4615

Latin America  
Digital Lightwave Ltd.  
Rua Helade, 81  
Sao Paulo, Brazil 04634-000  
T: +55 11 5034 7277  
F: +55 11 5034 7424

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