

High-Density Ethernet Module Technical Specifications

Gigabit Ethernet

Ports	4 SFP user-pluggable module with LC connector	Data Rate	1 Gbps
Duplex Mode	Full duplex		

10/100/1000 BaseT

Ports	8 ports, fully independent, RJ-45 connectors	Data Rate	10 Mbps/100 Mbps/1 Gbps
Duplex Mode	Full or half duplex	Panel Indicators	Link, activity

General Specifications

Frame Type	Statistics and generation of Ethernet frames with UDP/IP, IPv4	<u>Per stream transmit statistics:</u> Transmitted bandwidth %; count of transmitted packets/bytes
Results/Statistics	LOS and link state alarms, code violation error counts, current rate, average rate, errored seconds; Each port accumulates statistics in real time; event log result analysis with time stamp; user-defined test duration time <u>LED indicators:</u> LOS, link state and pattern sync alarms, FCS, code, and payload BIT errors	<u>Per-stream receive statistics:</u> Received bandwidth %; count of received packets/bytes; count of VLAN tagged packets; out-of-sequence packets, bit errors <u>Error measurements per port:</u> FCS, IP checksum, and oversized/undersized frame error counts, current rates, average rates, and errored seconds, code errors
External Clocks	BNC 50 ohms AC coupled with TTL levels 10MHz, 5MHz, 2.048MHz and 1.544MHz	<u>Error insertion:</u> FCS and IP checksum—single and user-specified rates from 1E ⁻³ to 1E ⁻⁵
Traffic Stream Generation/Analysis	<u>Streams per port:</u> 4 independently configurable traffic generation and analysis streams <u>Configurable stream parameters:</u> Include: Transmitted bandwidth %: 0.1 to 100 Frame length: 60 to 9220 bytes MAC source/destination address: User-defined IP source/destination address: User-defined UDP source/destination port addresses: User defined VLAN tagging 802.1q,p: Enabled/disabled VLAN ID: 0 to 4095, VLAN QoS Levels: 0 to 7 UDP payload pattern: All ones, all zeros, PRBS 31, user-defined 32-bit <u>Pause frame generation:</u> Supports the generation of pause frames with a user specified time of 0 to 65535 Quantas <u>Per-port transmit statistics:</u> Transmitted Mbps and bandwidth % rates; count of transmitted packets/bytes <u>Per-port receive statistics:</u> Received Mbps and bandwidth % rates; count of received packets/bytes; count of received jumbo frames, pause packets, pause end packets, and pause Quantas taken; count of received IP, ICMP, TCP, UDP, IGMP, BGP, and OSPF packets; count of received VLAN tagged frames and VLAN tagged frames per QoS levels 0 to 7	<u>APS Measurements</u> Last, shortest, longest, and average protection switch times in ms; user-definable guard band thresholds for filtering receive traffic <u>RFC 2544 Throughput Test</u> Measurements are provided for 64, 128, 256, 512, 1024, 1280, and 1518 byte frame lengths, user defined User-selectable trial duration time (1 to 600 secs), acceptable loss rate (0 to 100%); resolution rate (1 to 100%) parameters <u>Measurements:</u> Passing rate %, number of transmitted/received packets, and min/max/average latency values in µsec resolution <u>RFC 2544 Frame Loss Test</u> Measurements are provided for 64, 128, 256, 512, 1024, 1280, & 1518 byte frame lengths, user defined; user-selectable trial duration time (1 to 600 secs) <u>Measurements:</u> Tested frame rate %, number of transmitted/received frames Tested frame rates are user selectable



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