



an EnerSys® company

DM31

DOCSIS® 3.1 Transponder



Add DOCSIS® 3.1 technology to existing XM3-HP Broadband UPS systems — supports standard SCTE-ANSI HMS MIBs for compatibility with network monitoring system.

CableLabs® DOCSIS® 3.1 & 3.0 certified to ensure network compatibility.

Software selectable frequency splits for each hardware model supports compatibility with current networks and future upgrades.

Automatic RF Attenuation minimizes manual RF padding for simplified installations.

Designed and tested for reliable operation in extreme outdoor environments.

The Alpha® DM31 DOCSIS® transponder provides real-time insight into the health of your network.

Power is critical to every network active device. Knowing that reliable power will be available under any conditions is essential to network integrity. With the DM31 transponder installed in Alpha® XM3-HP CableUPS® systems, network operators receive real-time insight about network power. Advanced notifications of battery depleting utility outages provide time to act, keeping your network running through the most severe conditions.

DM31 transponder supports standard ANSI/SCTE alarms, data and integrates with Continuity SBS advanced monitoring software. A web user interface provides advanced diagnostics to analyze UPS performance, utility grid anomalies and RF spectrum performance. DM31 transponder incorporates advanced RF network test capabilities, including full spectrum capture tools, micro reflections and constellations. The 1 Gb Ethernet interface enables data backhaul from equipment located near the power supply installation. Backhaul applications include 5G / CBRS radios, Wi-Fi access points and surveillance cameras.

The Alpha® DM31 transponder has been tested to operational extremes and harsh operating conditions. In addition to CableLabs® certification, the DM31 transponder has successfully completed over 1,500 hours of industry standard physical, environmental, interoperability and performance testing. Our firmware undergoes hundreds of hours of intensive qualification testing, resulting in meeting and exceeding power supply monitoring standards.

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Specifications

General																													
Power supply compatibility		Alpha [®] XM3-HP CableUPS [®] series, platform 14 (V1.14.0) firmware or higher.																											
Hardware																													
LAN Port (ETH)		1Gb/s Ethernet (RJ45)																											
WAN Port (RF)		F-connector, 75 Ohms, DOCSIS [®] 3.0, 3.1 compliant, tested to 35 in-lbs tightening torque using test method ANSI/SCTE 149 2019																											
LEDs		ALM/RDY – DM31 ready, major/minor alarm RX/TX PWR – RF power level COM – XM3 communications PWR – DM31 power		DS – Downstream RF carrier detection/lock US – Upstream RF carrier detection/lock OL – Registration lock LNK – Ethernet link																									
Tamper (TPR)		Tamper switch input connection, compatible with normally open or normally closed magnetic enclosure door switch.																											
Environmental Interface (ENV)		General purpose monitoring and control signals.																											
Hardware Models / Diplexer Options		<table><tr><td></td><td colspan="2">Diplexer Range 1</td><td colspan="2">Diplexer Range 2</td></tr><tr><td></td><td>Upstream</td><td>Downstream</td><td>Upstream</td><td>Downstream</td></tr><tr><td>DM31-H2</td><td>5-42 MHz</td><td>108-1002 MHz</td><td>5-85 MHz</td><td>108-1002 MHz</td></tr><tr><td>DM31-H3</td><td>5-45 MHz</td><td>258-1218 MHz</td><td>5-204 MHz</td><td>258-1218 MHz</td></tr><tr><td>DM31-H4E (EURO)</td><td>5-85 MHz</td><td>108-1218 MHz</td><td>5-204 MHz</td><td>258-1218 MHz</td></tr></table> 1. Dual hardware diplexers per model. Range 1 & 2 software selectable per model. 2. Factory Default = Range 1				Diplexer Range 1		Diplexer Range 2			Upstream	Downstream	Upstream	Downstream	DM31-H2	5-42 MHz	108-1002 MHz	5-85 MHz	108-1002 MHz	DM31-H3	5-45 MHz	258-1218 MHz	5-204 MHz	258-1218 MHz	DM31-H4E (EURO)	5-85 MHz	108-1218 MHz	5-204 MHz	258-1218 MHz
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XM3-HP Interface		DM31 transponder installs in XM3-HP communications module slot (RHS). Power and communications is via internal 18-pin ribbon cable. DM31 transponder maximum power draw 15W.																											
Reset / Watchdog		Multi-level watchdog timers reset modem in the event of unforeseen lock-up. Eliminates truck rolls to reset unresponsive units.																											
Environmental																													
Operating temperature range		-40°C to +60°C																											
Storage temperature range		-40°C to +85°C																											
Humidity		0 to 95% non-condensing																											
Agency Compliance																													
Safety		CSA/UL 60950-1 (2nd), UL 1778 (4th) CSA No. 107.3, C/US																											
EMC		FCC Part 15 Class B																											
Surge		IEEE C62.41, 6kV combined wave																											
RoHS		Directive 2011-65-EU																											

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Specifications

Modem	
Processor	Puma 7
DOCSIS 3.0 Bonded Channels	Up to 32 downstream, 1,216 Mbit/s ¹ Up to 8 upstream, 216 Mbit/s ¹
DOCSIS 3.1 OFDM Channels (receiver)	24MHz to 192MHz OFDM channels downstream, 10Gbit/s ¹ Supports 2 OFDM channels and 32 SC-QAM channels SC channel modulation up to 4096 QAM
DOCSIS 3.1 OFDMA Channels (transmitter)	96MHz maximum OFDMA channel bandwidth upstream, 2 Gbit/s ¹ Supports 2 OFDMA channels <i>NOTE: dual 96MHz OFDMA operation requires 204MHz upstream split</i>
Digital Step Attenuation (DSA)	Pre-diplexer, digital step attenuator (DSA) for RF receiver 0-31dB attenuation range in 0.5dB steps Manual (default) or automatic settings available.
SNMP MIB Support	- Standard SCTE-HMS MIBs supported for power supply monitoring - Proprietary MIBs supported for XM3-HP firmware upgrades - Full spectrum capture (CableLabs® MIB) - Full spectrum diagnostics (proprietary MIB)
LAN Services over Ethernet	- IPv4, IPv6, UDP, TCP - DNS address resolution (WAN pass-through DNSSEC & EDNSO requests and responses, dynamic DNS support, SRV & A-records supported) - Static IPv4, IPv6 configurable
WAN Services over DOCSIS	- IPv4, IPv6, UDP, TCP, DHCP, TOD, TFTP, BPI, SNMPv1, SNMPv2c, SNMPv3, SSH, HTTP - TR-181 parameters over TR-069 and SNMP - BSoD (Business Services over DOCSIS) supports L2VPN encrypted traffic - DNS address resolution WAN-LAN pass-through modes supported, see LAN DNS - Static IPv4, IPv6 configurable - Micro-reflections (HTML) - Constellation diagrams (HTML)
Web User interface	HTTP/HTTPS web interface accessible through WAN interface and local IP address LAN port Write access password controlled, can be disabled using TLV in configuration file Web user interface displays operating parameters including: - XM3 power supply and battery status and alarms - DOCSIS® parameters - Ethernet diagnostics (e.g., latency, jitter, frame loss) - Full band capture statistics - Micro-reflection statistics - Constellation statistics.
Password of the Day (PotD) option	Operator provided date and seed. PotD encryption from 3DES/AES algorithm
Software Implementation	RDK-M / RDK-B (reference design kit modem / broadband)
CableLabs® Compliance	Models DM31-LM, DM31-LH: DOCSIS 3.1 and DOCSIS 3.0 cable modem certified Model DM31-E: DOCSIS 3.1 and EURO-DOCSIS 3.0 cable modem certified



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