



an EnerSys® company

Alpha® XM3.1-HP™ Broadband UPS

Uninterruptible Power Supply



- **Advanced Ferro Technology:** Maximum power efficiency under all modes of operation
- **Compact 5 A Models Available:** Optimized for lower power MDU and fiber-deep applications
- **Advanced Battery Management:** Dynamic 5-stage charger technology maximizes AlphaCell® and PowerSafe® battery life
- **Small Form Factor Pluggable (SFP) Optical:** Optical power supply status monitoring for fiber-deep architectures
- **Remote Firmware Upgrades:** Latest features and firmware enhancements
- **Smart-Display:** Four-line display with intelligent, virtual keypad for optimal provisioning and diagnostics
- **Integrated DOCSIS® 3.1 Communications:** Intelligent power management, radio-frequency (RF) network diagnostics, and high speed backhaul
- **AlphaApps+:** Intelligent diagnostics for remote battery maintenance and power train—advanced power monitoring and data logging
- **Digital Step Attenuator:** Automatically or manually adjusts the RF receiver power level, simplifies product installation—eliminating the need for external attenuators

The Alpha® XM3.1-HP™ platform builds on the proven transformer design of the award-winning Alpha® XM3-HP™ power supply to deliver reliable, efficient power for broadband networks.

The platform supports DOCSIS® 3.1 status monitoring and data backhaul, SFP optical monitoring for fiber-deep architectures, and AlphaApps+ for advanced battery and power supply performance metrics. Remote firmware upgrade capability helps operators maintain system functionality throughout the product's service life. Together, these capabilities improve efficiency, optimize network performance and reduce operating costs.

Alpha® XM3.1-HP™ Broadband UPS International Specifications

Model	905E-HP
Fine Mode Parameters	
Nominal AC Input Voltage	200 to 240 VAC
Nominal Input Frequency	50 Hz
Input Frequency Tolerance	±3%
Input Voltage Operating Range Tolerance	−30 to +25%
Input Voltage Range	161 to 288 VAC
Output Voltage	63/89 VAC (field selectable)
Output Voltage Regulation; Based on Nominal Input Voltage at 50% Load, 77°F (25°C)	−5 to +1%
Maximum Rated Output Current	5 A
Maximum Output Power	450 VA
Line Mode Efficiency	Up to 90%
Standby Efficiency	Up to 88%
Output Waveform	Quasi-square wave
Short Circuit Protection	<150% of maximum current rating
Transfer Characteristics	Uninterrupted output
Auxiliary Output Voltage	220 VAC
Auxiliary Output Current	0.2 AAC maximum
Battery Voltage	12 VDC single battery or parallel battery configurations
Mechanical	
Inverter Module	Integrated
Dimensions H × W × D (Handle Folded)	8.84 × 8 × 11.63 in. (224.6 × 203.2 × 295.5 mm)
Net Weight	31 lb (14.1 kg)
Input Power Interface	IEC® 320/C14 inlet connection accepts a variety of detachable cord sets to match country-specific wall receptacles
Output 1 and 2 Interface	2-position terminal block
Auxiliary Output Interface	2-position terminal block
Vout Selector	2-position terminal block
Battery Connector	2-position red 50 A Anderson™ style
Status Display	4 line × 20 character white LCD with soft-key menu controls
Indicators	LEDs for output status and major/minor alarm status
Self Test Mode	Push-to-test switch to initiate local self-test mode
Tamper Connector	2-position MTA-100 connector
Environmental Control Connector (ENV)	10-position connector — input/output sense control
LRI Connector	2-position Anderson™ style connector
Local Ethernet Port	1 port, auto-MDX, RJ-45, 10/100/1000 Mbps, data backhaul: complies with DOCSIS® 3.1 CPE interface operations
SFP Optical Module Slot	SFP optical module may be installed. Optional/supplied by customer for status monitoring purposes.
Battery Temperature Sensor	Ring lug fastens to negative terminal on battery
Finish	TGIC-free polyester powder coat
Lifting Handle	Foldable handle

Alpha® XM3.1-HP™ Broadband UPS International Specifications

Environment					
Operating Temperature	−40 to 140°F (−40 to 60°C); derate by 3.6°F (2°C) per 1,000 ft (304.8 m) above 3,000 ft (914.4 m)				
Storage Temperature	−40 to 158°F (−40 to 70°C); derate by 3.6°F (2°C) per 1,000 ft (304.8 m) above 3,000 ft (914.4 m)				
Relative Humidity	0 to 95% non-condensing				
Battery Charger					
Temperature Compensation	Programmable: 0 to 2.78 mV/Cell/°F (0 to 5 mV/Cell/°C)				
Bulk Charger Current	10 A				
Charger Stages	3 to 5 stages (refresh, bulk, accept, float, rest)				
Charger Profiles	Selectable, AlphaCell® battery models or other (customized settings)				
Advanced Functions					
Advanced Analytics (AlphaApps+) Option (All Models)					
Advanced Analytics	Battery health, battery remaining run time, utility event log, power supply (PS) event log, active drop alarming, system downtime				
User Inputs	Battery model, battery manufacturing date, battery siemens values, technician code/ID				
Firmware	Remote firmware upgrade capable				
Regulatory Compliance					
Safety	CB, CE, IEC 62368-1-18, IEC/EN 60950-1: ED 2, EN 60728-11				
EMC	CISPR 32 (55032) Class B, CISPR 24/35 (55024/55035), EN62040-2 (UPS) Category C2, EN50083-2 (CATV) (Class B Conducted Limits)				
Cable Modem Specifications					
Hardware					
CPU	Single chip Intel® Puma™ 7 CE2753i, industrial temperature rated				
Memory	FLASH: 8 Gb (NAND)				
	DRAM: 8 Gb (DDR3L)				
LAN Port	1 Gbps (2.5 Gbps optional) MDI/MDIX				
Diplexer Options¹	Alpha® Cable Modem Model	Upstream Range 1	Downstream Range 1	Upstream Range 2	Downstream Range 2
	CMOA-4285	5 to 42 MHz	54 to 1,002 MHz	5 to 85 MHz	108 to 1,002 MHz²
	CMOA-45204	5 to 45 MHz	258 to 1,218 MHz	5 to 204 MHz	258 to 1,218 MHz
	CMOA-85204 (Euro)	5 to 85 MHz	108 to 1,218 MHz	5 to 204 MHz	258 to 1,218 MHz
WAN Port	F connector, 75 Ohm (DOCSIS® 3.0, 3.1 compliant)				
LEDs	Upstream ranging and registration lock, downstream RF carrier detection and lock, CPE link, CPE activity				
Regulatory Compliance					
Regulatory Compliance (Verified with CMOA modem installed in application product)	UL® 60950-1: Information Technology Equipment - Safety - Part 1				
	UL/CSA® 1778 (5 th): Uninterruptible Power Systems as a guide for backfeed				
	IEC® 60728-11 (4 th): 2016 CATV Networks - Part 11 - Safety (applicable parts)				
	EN 50083 2:2006: EMC requirements for CATV equipment				
	EN 62040 2:2006: Uninterruptible Power Systems (UPS) - Electromagnetic Compatibility (EMC) Requirements - Category C2				
	FCC Part 15 – Class B				
	CISPR24/EN55024: 10V/m radiated susceptibility				
	IEEE® 587 - Category B3: Surge, test method: 10 positive cycles/10 negative cycles, alternating				
	IEEE C62.41: RF surge, 6,000 V peak, combination wave, 10 events, alternating positive and negative, using a 2 Ohm source impedance with Outcome 1 per IEEE 62.45				
	IEC/EN 61000-4-2: Direct electrostatic contact discharge at 8 kV at the RF connector shield without data loss				
	RoHS® Compliant/Directive 2002/95/EC				

Alpha® XM3.1-HP™ Broadband UPS International Specifications

Cable Modem Specifications (Continued)	
Advanced Diagnostics	
RF Network	Full band capture data available through CableLabs® MIB and internal web server Micro-reflection diagram available via internal web server
Power Supply Display	Power supply display will show advanced network diagnostics including: Upstream and downstream frequencies and RF levels, IPv4 or IPv6 address assigned by network DHCP server, MAC address, DOCSIS® timeout error codes and firmware versions
Utility Power Diagnostics	With Alpha® XM3.1-HP app card, utility performance status including outages, sags, surges and out-of-frequency events
Battery Diagnostics	With Alpha® XM3.1-HP app card, power supply diagnostics report when batteries should be serviced including battery string run time remaining and battery life remaining
Event Logging	With Alpha® XM3.1-HP app card, logs include power supply events, power supply configurations and battery events
Status Monitoring	
Standards	ANSI®/SCTE® 38-4: Hybrid fiber/coax outside plant status monitoring SCTE-HMS-PS-MIB management information base
	ANSI®/SCTE® 38-6: Hybrid fiber/coax outside plant status monitoring - Alpha® proprietary, portable generator management information base - Cheetah proprietary, KPI management information base
Power Supply Monitored Parameters (ANSI-HMS)	Major alarm, minor alarm, input voltage, output voltage, output current, output power, input current, input power, UPS status, charger current, battery discharge current, battery voltage, battery temperature, remote test control, enclosure door
Features	
DOCSIS® 3.0 Bonded Channels	Up to 32 downstream, 1,216 Mbps ³
	Up to 8 upstream, 216 Mbps ³
DOCSIS® 3.1 OFDM Channels (Receiver)	24 to 192 MHz OFDM channels downstream, 10 Gbps ³
	Supports (2) OFDM channels and 24 SC-QAM channels
	SC channel modulation up to 4,096 QAM
DOCSIS® 3.1 OFDMA Channels (Transmitter)	96 MHz maximum OFDMA channel bandwidth upstream, 2 Gbps ³
	Supports (2) OFDMA channels (requires 204 MHz upstream split, future version)
WAN/LAN Bridging and Routing	802.1d transparent bridging or routing modes configurable
LAN Services over Ethernet	IPv4, IPv6, UDP, TCP, DHCP Server, NAT, RIPv2
	DNS address resolution (WAN pass through DNSSEC and EDNSO requests and responses, dynamic DNS support, SRV, and A records supported)
	Static IPv4, IPv6 configurable
WAN Services over DOCSIS®	IPv4, IPv6, UDP, TCP, DHCP, TOD, TFTP, NAT, BPI, RIPv2, SNMPv1, SNMPv2c, SNMPv3, SSH, HTTP, HTTPS
	TR-181 parameters over TR-069 and SNMP
	Business Services over DOCSIS® (BSoD) supports L2VPN encrypted traffic
	DNS address resolution WAN LAN pass through modes supported, see LAN DNS
	Static IPv4, IPv6 configurable
	Full spectrum capture (CableLabs® MIBs and HTML)
	Full spectrum diagnostics (proprietary MIB)
	Micro reflections (HTML)
Web Page	Web interface accessible through WAN interface (Port 80 enabled via TLV) and local IP address LAN port
	Write access password controlled (can be disabled using TLV in configuration file)
	Web interface displays operating parameters including: DOCSIS® parameters, Ethernet diagnostics (for example, RFC 2544, latency, jitter, frame loss), full band capture statistics, micro-reflection statistics, application specific parameters
Password of the Day (PotD) Option	Operator provided date and seed; PotD encryption from 3DES/AES algorithm
Software Implementation	Modem uses RDK-M/RDK-B (reference design kit modem/broadband)
CableLabs® Compliance	DOCSIS® 3.1 cable modem, DOCSIS® 3.0 cable modem, IPv4, IPv6 eRouter specifications

¹ Dual hardware duplexers per model. Range 1 and Range 2 are software selectable within each model. (Factory default: Range 1).

² A downstream upper limit frequency of 1,218 MHz available with firmware upgrade.

³ Maximum theoretical DOCSIS® payload throughput.



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