



an EnerSys® company

XM3.1-HP™ Broadband UPS

Next-Generation Uninterruptible Power Supply



XM3.1-HP 3A, 5A models



XM3.1-HP 8A, 10A, 15A, 18A models

- **Advanced Ferro Technology:** Maximum power efficiency under all modes of operation
- **Compact 3A and 5A Models Available:** Optimized for lower power MDU and fiber-deep applications
- **AlphaGuard Embedded Battery Balancing:** Maximize battery life and optimize performance (select models only)
- **Advanced Battery Management:** Dynamic 5-stage charger technology maximizes AlphaCell® and PowerSafe® battery life
- **Integrated DOCSIS® 3.1 Communications:** Intelligent power management, RF network diagnostics and high speed backhaul
- **AlphaApps+:** Intelligent diagnostics for remote battery maintenance and power train—advanced power monitoring and data logging
- **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
- **Digital Step Attenuator:** Automatically or manually adjusts the RF receiver power level, simplifies product installation—eliminating the need for external attenuators
- **AlphaDOC:** Dual output controller manages two fault isolated outputs for advanced network power designs (select models only)
- **Extended Run Time (XRT) Capability:** Enhanced charger for large capacity battery systems in extended run time applications

The Alpha® XM3.1-HP™ platform continues to incorporate the ground-breaking transformer design of our award winning XM3-HP power supply with significant technological advancements across the entire power technology platform.

These advancements focus on delivering DOCSIS® 3.1 status monitoring and data backhaul, SFP optical monitoring for new fiber deep architectures and AlphaApps+ for advanced battery and power supply performance metrics. The enhanced XM3.1-HP platform also continues to leverage remote firmware upgrades for the latest power supply features. All of these advancements focus on providing the industry maximum value centered around three primary benefits—improved efficiency, optimized performance and reduced operating costs.

XM3.1-HP™ Broadband UPS Specifications

| Model: | 903-HP | 905-HP | 908-HP | 910-HP | 915-HP | 918-HP |
|--|--|---|---|---|---|---|
| Fine Mode Parameters | | | | | | |
| Nominal AC Input Voltage: | 120VAC | 120VAC, 240VAC (factory ordered) | 120VAC | 120VAC | 120VAC, 240VAC (factory ordered) | 120VAC, 240VAC (factory ordered) |
| Nominal Input Frequency: | 60Hz | 60Hz | 60Hz | 60Hz | 60Hz | 60Hz |
| Input Frequency Tolerance: | ±3% | ±3% | ±3% | ±3% | ±3% | ±3% |
| Input Voltage Operating Range Tolerance: | −30 to +15% (120VAC) | −30 to +15% (120VAC), −30 to +20% (230VAC) | −25 to +15% | −25 to +15% | −25 to +15% | −25 to +15% |
| Input Voltage Range: | 84 to 138VAC | 84 to 138VAC, 161 to 276VAC | 90 to 138VAC | 90 to 138VAC | 90 to 138VAC, 173 to 276VAC | 90 to 138VAC, 173 to 276VAC |
| Output Voltage: | 60/89VAC | 60/89VAC | 63/89VAC | 63/89VAC | 63/89VAC | 63/89VAC |
| Output Voltage Regulation (Based on Nominal Input Voltage at 50% Load, 25°C): | −4 to +1% | −4 to +1% | −2.5 to +1% | −2.5 to +1% | −2.5 to +1% | −2.5 to +1% |
| Maximum Rated Output Current: | 3A | 5A | 8A | 10A | 15A | 18A |
| Maximum Output Power: | 270VA | 450VA | 720VA | 900VA | 1350VA | 1620VA |
| Line Mode Efficiency: | Up to 90% | Up to 90% | Up to 92% | Up to 92% | Up to 92% | Up to 92% |
| Standby Efficiency: | Up to 88% | Up to 88% | Up to 91% | Up to 91% | Up to 91% | Up to 91% |
| Output Waveform: | Quasi-square wave | Quasi-square wave | Quasi-square wave | Quasi-square wave | Quasi-square wave | Quasi-square wave |
| Short Circuit Protection: | <150% of max current rating | <150% of max current rating | <150% of max current rating | <150% of max current rating | <150% of max current rating | <150% of max current rating |
| Transfer Characteristics: | Uninterrupted output | Uninterrupted output | Uninterrupted output | Uninterrupted output | Uninterrupted output | Uninterrupted output |
| Auxiliary Output Voltage: | 110VAC | 110VAC, 220VAC | N/A | N/A | N/A | N/A |
| Auxiliary Output Current: | 0.4AAC maximum | 0.4AAC maximum | N/A | N/A | N/A | N/A |
| Battery Voltage: | 12VDC single battery or parallel battery configurations | 12VDC single battery or parallel battery configurations | 36VDC | 36VDC | 36VDC | 36VDC |
| Mechanical | | | | | | |
| Inverter Module: | Integrated | Integrated | Front plug in, hot swappable | Front plug in, hot swappable | Front plug in, hot swappable | Front plug in, hot swappable |
| Dimensions W × D × H (in/mm): (Handle Folded) | 8 × 11.63 × 8.84 / 203.2 × 295.5 × 224.6 | 8 × 11.63 × 8.84 / 203.2 × 295.5 × 224.6 | 16.43 × 10.57 × 7.76 / 417 × 268 × 197 | 16.43 × 10.57 × 7.76 / 417 × 268 × 197 | 16.43 × 10.57 × 7.76 / 417 × 268 × 197 | 16.43 × 10.57 × 7.76 / 417 × 268 × 197 |
| Net Weight (lb/kg): | 31 / 14.1 | 31 / 14.1, 32.2 / 14.5 | 49 / 22.3 | 49 / 22.3 | 61 / 27.6 | 61 / 27.6 |
| Input Power Connector (IEC 320/C20): | NEMA® 5-15P plug | NEMA® 5-15P, NEMA® 6-15P plug | NEMA® 5-15P plug | NEMA® 5-15P plug | NEMA® 5-20P, NEMA® 6-15P plug | NEMA® 5-20P, NEMA® 6-15P plug |
| Input Power Interface: | IEC® 320/C14 inlet connection accepts a variety of detachable cord sets to match country-specific wall receptacles | | | | | |
| Output 1 & 2 Interface: | 2-position terminal block | 2-position terminal block | 2-position Anderson™ style connector | 2-position Anderson™ style connector | 2-position Anderson™ style connector | 2-position Anderson™ style connector |
| Auxiliary Output Interface: | 2-position terminal block | 2-position terminal block | N/A | N/A | N/A | N/A |
| Vout Selector: | 2-position terminal block | 2-position terminal block | Terminal block | Terminal block | Terminal block | Terminal block |
| Battery Connector: | 2-position red 50A Anderson™ style | 2-position red 50A Anderson™ style | Anderson™ style 75A | Anderson™ style 75A | Anderson™ style 75A | Anderson™ style 75A |
| 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, 10/100/1000Mbps, data backhaul: complies with DOCSIS® 3.1 CPE interface operations | | | | | |
| SFP Optical Module Port: | SFP optical module (small form-factor pluggable) may be installed. Optional/supplied by the operator for status monitoring purposes. Supports common SFP module communication standards to 1Gbps. | | | | | |
| SFP Port Power Rating: | Element Monitoring Module (EMM) with red PCBA (p/n 704-00304-20-002) supports SFP modules drawing up to 3.3W. EMM with blue or green colored PCBA (p/n 704-00304-20-001 or 704-00272-20-002) supports SFP modules drawing up to 1.0W. | | | | | |
| Battery Temperature Sensor: | Ring lug fastens to negative terminal on battery | | | | | |
| Finish: | TGIC free polyester powder coat | | | | | |
| Lifting Handle: | Foldable handle | | | | | |

XM3.1-HP™ Broadband UPS Specifications

| Environment | | | | | |
|---|---|------------------|--------------------|------------------|--------------------|
| Operating Temperature: | −40 to 60°C / −40 to 140°F (derate by 2°C / 3.6°F per 1000ft above 3000ft) | | | | |
| Storage Temperature: | −40 to 70°C / −40 to 158°F (derate by 2°C / 3.6°F per 1000ft above 3000ft) | | | | |
| Relative Humidity: | 0 to 95% non-condensing | | | | |
| Battery Charger | | | | | |
| Temperature Compensation: | Programmable (0 to 5mV / Cell / °C) | | | | |
| Bulk Charger Current: | 10A | | | | |
| Charger Stages: | 3 to 5 stages (refresh, bulk, accept, float, rest) | | | | |
| Charger Profiles: | Selectable, AlphaCell® models or other (customized settings) | | | | |
| XRT Capability: | <div>Enhanced charger for large capacity battery systems maximizing charger current (XM3.1-918-HP model only)</div> <div><div>• Front Terminal TPPL Batteries:</div>Maximum power supply output 6A</div> <div><div>• PowerSafe® Lithium Batteries:</div>Maximum power supply output 12A</div> | | | | |
| Advanced Functions | | | | | |
| Smart Alpha Guard (SAG) Option (Models 908, 910, 915 & 918) | | | | | |
| Advanced Functionality: | Embedded battery balancer with multiple string capability and integrated intelligent functions | | | | |
| Indicators: | LEDs provide visual indicators of the battery sense wiring, balancer state and alarms | | | | |
| Connector: | 10 position connector—SAG battery sense harness | | | | |
| Number of Battery Strings: | <div>SAG-2: Supports up to 2 battery strings</div> <div> </div> <div>SAG-4: Supports up to 4 battery strings</div> | | | | |
| Firmware: | Remote firmware upgrade capable | | | | |
| Dual Output Controller (AlphaDOC) Option (Models 908, 910, 915 & 918) | | | | | |
| Advanced Functionality: | Dual output controller manages two fault isolated outputs; short circuit trip capable | | | | |
| Programmable Parameters: | Programmable overcurrent thresholds, retry delays, retry limits, overcurrent tolerance periods and output resets | | | | |
| Output Transient Suppression: | 150V peak clamped output | | | | |
| Firmware: | Remote firmware upgrade capable | | | | |
| Advanced Analytics (AlphaApps+) Option (All Models) | | | | | |
| Advanced Analytics: | Battery health, battery remaining run time, utility event log, 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 | | | | |
| Agency Compliance | | | | | |
| Safety: | <div>North America (NRTL): ANSI®/UL® 62368-1, CAN/CSA-C22.2 No. 62368-1</div> <div>International (CB Scheme): IEC® 62368-1</div> | | | | |
| EMC: | <div>North America: FCC CFR47 Part 15 Class B* (US), ICES-003 (Canada)</div> <div>*Precision temperature sensor (PTS) with ferrite bead required for Class B installations for models XM3.1-HP-908, 910, 915 & 918</div> | | | | |
| Cable Modem Specifications | | | | | |
| Hardware | | | | | |
| CPU: | Single chip Intel® Puma™ 7 CE2753i, industrial temperature rated | | | | |
| Memory: | <div>FLASH: 8Gb (NAND)</div> <div>DRAM: 8Gb (DDR3L)</div> | | | | |
| LAN Port: | 1Gb/s (2.5Gb/s optional) MDI/MDIX | | | | |
| Diplexer Options*: | Modem Model | Upstream Range 1 | Downstream Range 1 | Upstream Range 2 | Downstream Range 2 |
| | CMOA-4285 | 5 to 42MHz | 54 to 1002MHz | 5 to 85MHz | 108 to 1002MHz** |
| | CMOA-45204 | 5 to 45MHz | 258 to 1218MHz | 5 to 204MHz | 258 to 1218MHz |
| 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 | | | | |

* Dual hardware diplexers per model. Range 1 and Range 2 are software selectable within each model. (Factory default: Range 1)
** A downstream upper limit frequency of 1218MHz available with firmware upgrade.

XM3.1-HP™ Broadband UPS Specifications

| Cable Modem Specifications | |
|---|---|
| Standards | |
| Regulatory/Standards (Verified with CMOA installed in application product): | <ul style="list-style-type: none">• UL® 60950-1: Information Technology Equipment - Safety - Part 1• UL®/CSA® 1778 (5th): Uninterruptible Power Systems as a guide for backfeed• IEC® 60728-11 (4th): 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, 6,000V peak, combination wave, ten 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 8kV at the RF connector shield without data loss• RoHS® Compliant/Directive 2002/95/EC |
| Advanced Diagnostics | |
| RF Network: | <ul style="list-style-type: none">• 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 XM3.1-HP app card, utility performance status including outages, sags, surges and out-of-frequency events |
| Battery Diagnostics: | With 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 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 <ul style="list-style-type: none">• 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: | <ul style="list-style-type: none">• Up to 32 downstream, 1,216Mbit/s***• Up to 8 upstream, 216Mbit/s*** |
| DOCSIS® 3.1 OFDM Channels (Receiver): | <ul style="list-style-type: none">• 24 to 192MHz OFDM channels downstream, 10Gbit/s***• Supports (2) OFDM channels and 24 SC-QAM channels• SC channel modulation up to 4096 QAM |
| DOCSIS® 3.1 OFDMA Channels (Transmitter): | <ul style="list-style-type: none">• 96MHz maximum OFDMA channel bandwidth upstream, 2Gbit/s***• Supports (2) OFDMA channels (requires 204MHz upstream split, future version) |
| WAN/LAN Bridging and Routing: | 802.1d transparent bridging OR routing modes configurable |
| LAN Services over Ethernet: | <ul style="list-style-type: none">• IPv4, IPv6, UDP, TCP, DHCP Server, NAT, RIPv2• 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®: | <ul style="list-style-type: none">• IPv4, IPv6, UDP, TCP, DHCP, TOD, TFTP, NAT, BPI, RIPv2, 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• Full spectrum capture (CableLabs® MIBs and HTML)• Full spectrum diagnostics (proprietary MIB)• Micro reflections (HTML) |
| Web Page: | <ul style="list-style-type: none">• 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 (e.g., 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 |

***Maximum theoretical DOCSIS® payload throughput



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