AlphaNet™ DSM3 Family
DOCSIS® Status Monitor for XM2 Family, GMX and VMX

Network enable your XM2, GMX and VMX power supply and access powerful diagnostic tools using the DSM3 embedded Web interface and standard SNMP.

Poll power supply, battery and generator data in real-time and receive alerts when power system alarms indicate noteworthy events. Troubleshoot network impairments through web tools. Monitor and control extra I/O devices such as emergency DC generators.

The transponders are completely configurable from the standard cable modem configuration file and can be provisioned using default cable modem settings. Customize your monitored information with configurable settings that are used to set alarm thresholds and power supply operating parameters.

- Embedded network management for Alpha broadband power supplies
- Battery and power supply advanced diagnostics reduces truck rolls and overall operating expense of maintaining a network
- Supports both IPv4 and IPv6 Internet Protocols to operate in today's advanced broadband networks
- Web-accessible QAM constellation diagram and microreflections meter provide sophisticated network quality and impairment analysis throughout network
- Three models available:
  1. DSM3 (standard)
  2. DSM3x (advanced)
  3. DPM (used with AlphaGuard option)

Web Interface Screenshots:

QAM Constellation Diagram

Microreflections Meter
**AlphaNet DSM3 Family** Specifications for XM2 Family, GMX and VMX

**General Details**

- **Battery Monitoring:** DSM3: Up to two strings of 36 or 48V batteries, DSM3x: Up to four strings of 36 or 48V batteries, DPM: One 12V battery
- **Power System Management (DSM3x Only):** Up to five power supplies and an Alphagen Generator are managed from a single DSM3x including coordinated battery charging, system test and aggregated alarm.
- **Management Protocol:** Standard ANSI/SCITE HEMS MIBs support basic power supply monitoring. Advanced diagnostics with battery and power module analytics available via secure SNMP.

**Advanced Diagnostics**

- **Intelligent Power Supply Interface:** Power supply user interface displays advanced diagnostics including: DOCSIS modem upstream and downstream RF levels, IP address assigned by network DHCP server, MAC address and firmware levels.
- **Battery State of Health (requires AlphaAPPs):** Power supply internal diagnostic analytics report when batteries should be serviced.
  - Battery String Runtime Remaining
  - Battery Life Remaining
- **Utility Status & Events (requires AlphaAPPs):** AC Line Status
  - Utility Performance Status (outages, sags, surges, frequency)
  - Utility Events (24-hour and lifetime number of events)
- **Network Tools:** GAM constellation diagram
  - Identify types of interference and distortion in downstream RF signals.
  - Microinterferences meter
  - Locate microinterferences detected in Coax caused by physical impairments.
- **History Log Reports:**
  - Power Supply Event Log (events of daily power supply operation)
  - Power Supply Configuration Log (events that occur infrequently)
  - Battery Event Log (battery conductance measurements and battery manufactured dates)

**Hardware**

- **RF Cable Interface:** F-connector, female, 750hm, connector angle accommodates cox bend radius when installed in some enclosures
- **Local Interface:** RI-45, Ethernet, multi-mode operation
- **LED Indicators:** Ready/Alarm, Upstream registration, Downstream lock, Alphaluss, RF level, Link, CPE traffic, Battery Harness Correct
- **I/O Control (DSM3x Only):** 6-Pin Molex: Digital Input, Digital output, 5V, Common
- **AlphaBus:** RJ-11 offset tab: Multi-power supply and Alphagen communications
- **Battery Monitoring:**
  - DSM3: 9-pin Molex battery string A/B
  - DSM3x: 9-pin Molex battery string A/B and 8-pin Molex battery string C/D
- **Tamper:** N0 or NC, software configurable, reads enclosure door magnetic switch

**Environment**

- **Operating Temperature:** -40 to 65˚C / -40 to 149˚F
- **Storage Temperature:** -40 to 85˚C / -40 to 185˚F
- **Humidity:** 10 to 90% non-condensing

**Network Communications**

- **DOCSIS (F) Port Protocols:** IP, UDP, TCP, DHCP, TFTP, SNMPv1, SNMPv2c, HTTP
- **Ethernet Port:** Local Mode: HTTP interface for local craft diagnosis.
  - CPE Mode: DOCSIS Cable modem Ethernet CPE functionality
- **MIBs:**
  - Power supply (ANSI/SCITE 38-4)
  - Other SCTE HEMS MIBs as defined by the SCTE for power supply and generator status monitoring
  - Alpha proprietary advanced UPS diagnostics

**Power Supply Monitored Parameters**

- **Major Alarm:** Aggregate alarm consisting of: Test fail, battery fail, line isolation alarm, output overload, inverter, over-temperature, N+1 active, fuse fail.
- **Minor Alarm:** Aggregate alarm consisting of: Temperature probe error, AC line loss, N+1 error
- **Input Voltage:** Reported from power supply Vinj measurement
- **Output Voltage:** Reported from power supply Voutputj measurement
- **Output Current:** DSM3 and DSM3x: 0 to 25A standard on port 1. Ports 2-4 require power supply option. DPM: Dual outputs do not exceed 300W combined. 3.5A@80VAC output voltage, 5A@60VAC output voltage.
- **Output Power:** Reported in AC Watts
- **UPS Status:** AC line, standby, test in process, test alarm

**Power Supply Monitored Parameters (Cont.)**

- **Battery Voltage:** DSM3x: Individual battery voltage, up to four strings of 3-4 batteries (maximum 16 batteries), ±100mV per battery. DSM3: Individual battery voltage, up to two strings of 3-4 batteries (maximum 8 batteries), ±100mV per battery. DPM: Individual battery voltage.
- **Battery Temperature:** Reported from power supply battery Remote Temperature Sensor (RTS)
- **Remote Test Control:** Start/Stop power supply test cycle
- **Enclosure Door:** Open or Closed

**AlphaGen Generator Monitored Parameters (DSM3x Only)**

- **Status:** Generator On, Running, Alarm
- **Generator Alarms:** Aggregate alarm consisting of: low oil pressure, engine over-temp, engine over-speed, crank limit, over voltage, low fuel, water intrusion, pad shear, gas hazard, test fail.
- **Gas Hazard:** OK, Alarm
- **Water Intrusion:** OK, Alarm
- **Pad Shear:** OK, Alarm
- **Enclosure Door:** Open, Alarm
- **Ignition Battery Voltage:** Reported in DC volts, ±100mV
- **Enclosure Temperature:** Reported in Celsius, ±2°C
- **Low Fuel:** OK, Alarm
- **Remote Test Control:** Start/Stop generator test cycle

**AlphaGen DCX Generator (DSM3x and DPM Only)**

- **Status:** Generator Detected, Powering Load

**Time Powering Load:** An incremental timer that reports the amount of time in minutes the generator has been powering the load. Alarm threshold can be set to notify when to refuel generator

**Cable Monogram**

- **Transmit Frequency Range:** 5 to 42MHz
- **Receive Center Frequency Range:** 91 to 857MHz
- **Output Power Range:**
  - TDMA: +8 to +54 dBmV (32QAM, 64QAM)
  - +8 to +55 dBmV (80AM, 160AM)
  - +8 to +58 dBmV (QPSK)
  - +8 to +53 dBmV (All modulations of S-CDMA)
  - S-CDMA: +68 to +113 dBuV (All modulations of S-CDMA)
- **Input Signal Range:** -15 to +15dBm
- **Channel Bandwidth:** 6MHz
- **Additional Equipment**
  - XP-BSC-3-6: Wire Kit, Battery Sense, 1x36V, 6’
  - XP-BSC-6-6: Wire Kit, Battery Sense, 3x36V, 6’
  - XP-BSC-3-6: Wire Kit, Battery Sense, 1x48V, 6’
  - Surge Arrester: Female/Female connector configuration, “F” Type connector with integral ground block required for all installations.

**MIBs**

- Power supply (ANSI/SCITE 38-4)
- Other SCTE HEMS MIBs as defined by the SCTE for power supply and generator status monitoring
- Alpha proprietary advanced UPS diagnostics

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*Advanced diagnostics are available through Alpha Certified network monitoring systems.*