Scientific Atlanta

Phoenix™ -
HFC Network Monitoring Gateway

Description

Phoenix™ is the gateway between the operator's network management system and the network equipment in the outside HFC plant, such as optical nodes, UPS systems, generators and amplifiers.

The unit is a compact HMTS (Hybrid fiber-coax Monitoring Termination System) - similar to what the CMTS is for cable modems - that is designed for compliance to the SCTE standards of network monitoring (SCTE HMS standards).

The Phoenix HMTS passes SNMP data transparently forward and back between the LAN/WAN network and the HFC network elements equipped with and SCTE HMS transponder. The unit houses one (1) downstream transmitter and up to eight (8) independent upstream receivers in just one (1) RU rack space. The cutting-edge RF technology used in the Phoenix allows operation in networks that suffer from a high level of ingress noise in the return path.

The HMTS interoperates seamlessly with Scientific-Atlanta's proven ROSA™ Network Management System (NMS) as well as with any other SNMP management system. In this setup, the Phoenix connects to the ROSA Copernicus™ Network Management Server.

In today's strive for open standards, the Phoenix offers the operator a freedom of choice of network equipment, independently from the network monitoring system.

The Phoenix can also bridge the installed base of legacy transponders (Scientific-Atlanta's SMC transponders as well as AM Communications transponders for Scientific-Atlanta equipment) into the ROSA NMS. In this operating mode, the Phoenix interoperates with the ROSA Element Manager (TNCS). The ROSA Element Manager translates the legacy protocols into SNMP.

Features

Designed for SCTE HMS compliance
- Complies to SCTE 25-1 Physical layer (HMS005)
- Complies to SCTE 25-2 MAC protocol layer (HMS004)
- Adjustable default protocol timings
- Auto-detection of HMS transponders with programmable registration interval
- Automatic synchronization of date and time of Phoenix and HMS transponders with an external time server
- Complies to HMS070 RS485 headend interface
- Fully manageable though SNMP (incl. MIB II)

Transparent SNMP gateway
- Gateway for all SNMP data between the IP (Ethernet) network and the RF network
- Each network element gets its own virtual IP address (IP addressing scheme)
- Collects alarms and promotes events to (multiple) network management system(s)
- Interoperates with any SNMP management system and any brand of HMS transponder

Phoenix - HFC Network Monitoring Gateway

Features - continued

Cost-Effective, Compact and Reliable
- Reliable and maintenance free solution: no fans, no hard disks
- Quick installation and easy configuration
- Embedded design requires no maintenance efforts
- One (1) transmitter and up to eight (8) receivers in one rack unit
- Integrated RS85 port to connect HMS headend equipment
- Enforce configuration can be saved and restored to other Phoenix devices
- Remote software upgrades

Leading-edge RF technology
- Agile over the entire tuning range (downstream and upstream)
- High receiver noise resistance since
- Programmable squelch level for each receiver
- High throughput and response times: no collisions between different receivers

Complete status monitoring of the network elements
- Instant status of each individual network element: responding state (periodic health check), registration state, last registration time, communication errors (packet loss on the RF network), etc.
- Collects alarms in contention mode as well as polling mode (user selectable)
- Return path RF level measured real-time and individually for each network transponder.
- HMS transponder device inventory
- In non-HMS mode, the Phoenix Interoperates with Scientific-Atlanta's ROSA Element Manager to support legacy (non HMS) protocols

Phoenix - HFC Network Monitoring Gateway

Specifications

RF Transmitter	
Connector	F-type, 75 Ω -AC coupled
Frequency	48 MHz to 162 MHz in 50 kHz increments
FSK Modulator	HMS 005 compliant ± 67 kHz
Output level	36 dBmV to 51 dBmV
Spurious	< -65 dBc

RF Receivers	
Connector	F-type, 75 Ω -AC coupled
Frequency	5 MHz to 65 MHz in 50 kHz increments
FSK Modulator	HMS 005 compliant ± 67 kHz (can also demodulate ± 50 kHz for legacy transponders)
Input Range	-20 dBmV to 20 dBmV
BER	$10E^{-6}$ at 12 dB CNR (in 400 kHz bandwidth)

Interface to Management System	
Ethernet port 10/100BaseT	

Measurement of Incoming RF Levels
On the fly measurements on incoming packet level; measured levels for each transponder are accessible in the SNMP MIB.

Communication Ports
RS 485 port (HMS070 compliant)
This port is intended for managing headend fiber equipment through the SCTE HMS MAC protocol or other future serial protocols
RS 232 port
Craft interface / reserved for future extensions

Environmental Specifications	
Operating temperature	+32°F to +104°F (0° to 40° C)
Storage temperature	-4°F to +176 F (-20° to 80°C)
Power supply (nominal)	90 -240 V AC ± 10% 47 to -63 Hz or 30 to 60 V DC (±20%)
Power consumption (nominal)	25 W

Mechanical Specifications	
Height	1 RU
Width	19" / 482 mm
Depth	18,5" / 470 mm
Weight	12 lbs / 5 kg

Remark :
- *The unit is designed to comply with the Physical Layer Spec SCTE HMS 005.*
- *The embedded software complies with the SCTE HMS 004 MAC Layer Spec. Embedded software updates can be done through FTP to adapt the unit to future versions.*

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Ordering Information

PHOENIX HFC HMTS (RF Modem)	Part Number
Tx (1), Rx (1)	
Phoenix HMTS 110/220 V AC EU, Tx (1) and Rx (1)	V9528341
Phoenix HMTS 110/220 V AC UK, Tx (1) and Rx (1)	V9528342
Phoenix HMTS 110/220 V AC AUS, Tx (1) and Rx (1)	V9528343
Phoenix HMTS 110/220 V AC US, Tx (1) and Rx (1)	V9528082
Tx (1), Rx (2)	
Phoenix HMTS 110/220 V AC EU, Tx (1) and Rx (2)	V9528344
Phoenix HMTS 110/220 V AC UK, Tx (1) and Rx (2)	V9528345
Phoenix HMTS 110/220 V AC AUS, Tx (1) and Rx (2)	V9528347
Phoenix HMTS 110/220 V AC US, Tx (1) and Rx (2)	V9528346
Tx (1), Rx (4)	
Phoenix HMTS 110/220 V AC EU, Tx (1) and Rx (4)	V9528348
Phoenix HMTS 110/220 V AC UK, Tx (1) and Rx (4)	V9528349
Phoenix HMTS 110/220 V AC AUS, Tx (1) and Rx (4)	V9528351
Phoenix HMTS 110/220 V AC US, Tx (1) and Rx (4)	V9528350
Tx (1), Rx (8)	
Phoenix HMTS -48 V DC, Combicon, Tx (1) and Rx (8)	V9523551
Phoenix HMTS -48 V DC, Mate-N-Lock, Tx (1) and Rx (8)	4002043
Phoenix HMTS 110/220 V AC EU, Tx (1) and Rx (8)	V9523552
Phoenix HMTS 110/220 V AC UK, Tx (1) and Rx (8)	V9528338
Phoenix HMTS 110/220 V AC AUS, Tx (1) and Rx (8)	V9528340
Phoenix HMTS 110/220 V AC US, Tx (1) and Rx (8)	V9528339

PHOENIX OPTIONS	Part Number
Phoenix Receiver Kit (one receiver)	4002230