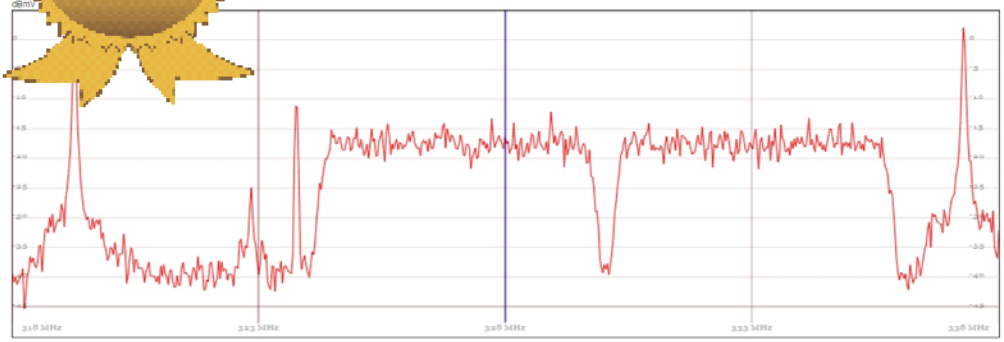
Convertible Transponder

DOCSIS 3.0 - HMS

Status Monitoring for HFC Power Supplies

NEW Convertible Transponder



Description

The DHT3 model series is the next generation of DOCSIS-HMS transponders and is the first DOCSIS 3.0 Transponder. Electroline takes advantage of the advanced of functionality built into the DOCSIS SoCs to provide added value no others can provide. A Spectrum Analyzer is built in to each transponder and therefore each power supply location becomes an "always on" test point for not only power supplies but also for the downstream broadband HFC network. For the price of a transponder you also get a Spectrum Analyzer. All models have an integrated web server that provide up to the minute display of all power supply metrics and states. Also available in a modem-only configuration (DRM3).

The Electroline Advantage

As pioneers in power supply status monitoring using HMS and DOCSIS® technology, Electroline knows the importance of what is inside its transponder and accessories. Electroline uses field-proven DOCSIS® and EuroDOCSIS integrated circuits and builds each unit with components rated for extreme temperatures, thus setting the industry standard for quality and performance. Forward-looking and innovative, Electroline is also leading the way in enhanced network monitoring that harnesses the power of DOCSIS®-based field units.

Features

- More than just a transponder – It's a **Spectrum Analyzer**
- Convert from DOCSIS backhaul to Ethernet backhaul
- DOCSIS 3.0 embedded modem
- Temperature Hardened
- Standby Power Metrics and Alarming
- Integrated Web server
- Embedded or External Applications
- For all popular brands of power supplies
- SCTE - HMS compliant

DOCSIS® 3.0 – HMS STATUS MONITORING TRANSPONDER for HFC POWER SUPPLIES

POWER SUPPLY MONITORING / CONTROL		note
Monitored Power supplies	Most major brands and models including Alpha, Myers, Multilink, Belden	3
Battery Monitoring	Up to 4 strings or either 3 or 4 batteries per string	
	Voltage of each battery	
	String Voltage	
	String Current	
	Temperature	
State Monitoring	Standby Status	
	Standby Event History	
	Tamper / cabinet door	
	Alarm State	
Power Supply Metrics	Output Voltage	
	Output Current	
	Output Power	
	Input Voltage	
Standby Control	Start / Stop Standby Test	

EMBEDDED CABLE MODEM			note
	DOCSIS®	EuroDOCSIS®	
Specification Compliance	DOCSIS 3.0	EuroDOCSIS 3.0	
Upstream Mode	QPSK, QAM, SCDMA	QPSK, QAM, SCDMA	
Max operating Level (1 channel)	QPSK: 61 dBmV 8/16 QAM: 58 dBmV 32/64 QAM: 57 dBmV	QPSK: 121 dBuV 8/16 QAM: 118 dBuV 32/64 QAM: 117 dBuV	
Receiver Range	-15 to + 15 dBmV	64 QAM 43 to +73 dBµV 256 QAM 47 to +77 dBµV	
Downstream Channel bandwidth	6 MHz	8 MHz	

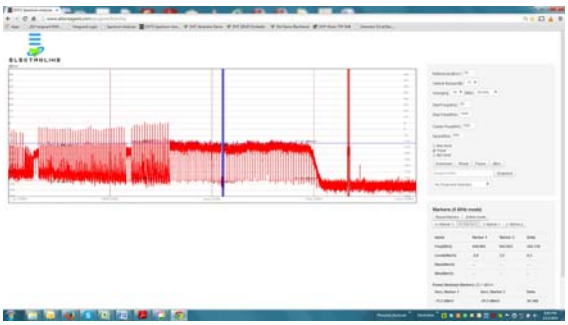
INTERFACE and I/O		note
ETHERNET	1Gbps, RJ45, Craft Mode or CPE mode, Provisionable	
Visual LED State Indicators	4 LEDs for modem state, 2 LED Ethernet status, 1 LED(bicolor) for RF Status	
Battery Connectors	Connects wiring harness to battery strings to derive power and monitor voltages	
HMS standard extension port	RJ-45 – Connect Generators and Battery testing devices for Remote control and monitoring	
RF port	Female "F"	
Expansion Port	Use for added value and specialized applications	
Heater Control	Interface for Battery heaters	
Battery Tester	Charge manager and Conductance testing option available	
Generator Interface	Via HMS port. Monitors: On/off status, alarm state, gas hazard, battery voltage, fuel state, remote test control	
WEB-UI	Power supply metrics, Cable modem metrics, network metrics, standby event log, trouble shooting event logs, generator metrics	

PROTOCOLS / STANDARDS /COMPLIANCE		note
DOCSIS	IP / TCP / UDP / ARP / ICMP / DHCP / TP / TFTP / SNMP / HTTP	
Firmware Remote Upgrade	Single image same a DOCSIS Modem	
SNMP	SNMPv1, SNMPv2c, SNMP v3	
MIBS	Electroline Added Value, Private, ANSI/ SCTE-38-4, DOCSIS 3.0	
Power Supply interface	ANSI/SCTE 25-3 2005	
Regulatory	FCC part 15 Class A; IEEE C62.41:1991 B3; ROHS directive2002/95/EC	

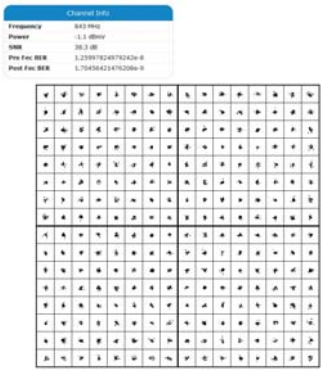
ENVIRONMENTAL		note
Operating Temperature	-40 to +158ºF; -40 to +70ºC	
Humidity	10 to 90% non-condensing	

Notes:

1) Specifications are subject to change without notice, 2) Contact your Electroline Sales representative for ordering information specific to your make and model of power supply, 3) Some features are power supply dependant, 4) DOCSIS® is a registered trademark of Cable Television Laboratories.



WEB-UI Spectrum Analyzer



WEB-UI QAM Channel Constellation

For more information on our products, please visit: www.electroline.com or call: 800-461-3344

Convertible DOCSIS based Status Monitoring Transponder
Another Electroline Innovation

Background:

DOCSIS based status monitoring transponders hit the market about the turn of the century. This sound like a really long time but it's been about 18 years. Since the introduction, DOCSIS has gone through 5 generations from DOCSIS 1.0 through DOCSIS 3.1. Further evolution is expected soon. These changes in DOCSIS technology resulted in a ripple effect on applications that use it. So for example, a DOCSIS based status monitoring transponder has gone through the evolution along with DOCSIS. Cable operators have updated transponders from DOCSIS 1.1 to DOCSIS 2.0 then to DOCSIS 3.0. A convertible transponder offers a solution to the need to upgrade the transponder when the backhaul communications technology changes.

What is a Convertible Transponder?

A "Convertible DOCSIS Transponder" is just like a normal DOCSIS transponder except that it can be converted from a backhaul over DOCSIS to an Ethernet backhaul transponder. The Transponder can be switched in the Field to bypass the embedded modem so that the front panel Ethernet port can be connected to an alternate mode of communication for backhaul to the management station. The benefit of the new feature is the preservation if the investment of the status monitoring functionality when backhaul technology changes.

Application Scenario:

Consider this scenario: A DOCSIS 3.0 transponder is purchased and installed. The backhaul communication to the management system is carried via the DOCSIS modem that is embedded in the transponder. At some time in the future the DOCSIS 3.0 network becomes obsolete and is replaced by a DOCSIS 3.1 network. If an Electroline Convertible Transponder is in place there is no need to replace the Transponder. The transponder would simply be set to bypass the now obsolete DOCSIS 3.0 modem and communicate to the management system via the front panel Ethernet port that is standard on all Electroline DOCSIS 3.0 modems.

There would be options for provisioning the Ethernet backhaul. One option is to install a less expensive DOCSIS 3.1 cable modem (or whatever the current level of DOCSIS happens to be at the time). A cable modem would be significantly less expensive than a full blown Transponder with an embedded DOCSIS 3.1 modem.

Or perhaps there would be a cost effective Wireless backhaul available in the future. You would have the choice and the flexibility to choose the most cost effective mode for backhaul without the expense of replacing the status monitoring hardware.

Summary

Cable Operators can protect their investment in the status monitoring of Power Supply in Hybrid Fiber and Coaxial networks. The DOCSIS transponder is a cost efficient integrated solution that contains both the monitoring functionality and the DOCSIS communication technology. However, DOCSIS is a moving target with a history of change. Ethernet is stable, backwards compatible and universal. The embedded Ethernet interface is an alternative for backhaul to management stations. This capability to fall back to Ethernet preserves the investment made in the original status monitoring hardware.

About Electroline:

Electroline has been in business since 1953. A small, flexible and focused organization specializing in Hardened DOCSIS technology, we made the DOCSIS modem work in the extreme and embedded environment to make it suitable to outside cable plant operation. Electroline invented the DOCSIS based transponder, and was the first to deliver it starting in 2003. Our Hardened DOCSIS products have been reliably operating in the field since then. Electroline was the driving force that changed the industry from a proprietary based status monitoring implementation to the standards based product it is today. Visit our website to learn about our complete portfolio of Optical Access network product for FTTH and FTTN, HFC Amplifiers and Nodes, as well as DOCSIS Ethernet Backhaul solutions for wireless, surveillance and other applications.