



Cheetah DOCSIS-based transponders provide unparalleled visibility into the HFC network and can be upgraded to be advanced VoIP test points.

Cheetah CMD-P+™ DOCSIS®-based Transponder for Cable Power Systems

Cheetah Technologies' CMD-P+™ transponder enables cable operators to pro-actively monitor power supplies in the outside cable plant using the existing DOCSIS infrastructure. Power supply data is sent via the DOCSIS channels from the transponder through the existing CMTS to SNMP software managers such as Cheetah Technologies CheetahXD™. With the Cheetah hardware and software solution, cable operators are able to pro-actively respond to plant performance issues, minimizing plant downtime, lowering costs and protecting the revenue stream generated by advanced services.

The CMD-P+™ has been designed to monitor a wide range of power supply equipment from multiple manufacturers, including:

- APC SM7
- Alpha USM series for the XM / XM2
- Lectro ZTT and ZTT+
- Multipower Blackhawk
- HMS-enabled Power Supplies

Please see your Cheetah Technologies representative for a complete listing.

By using the existing DOCSIS infrastructure and frequencies, Cheetah CMD-P+ transponders can be easily and cost-effectively deployed within the cable network.

The CMD-P+ can also be optionally enabled as an E-MTA to perform an advanced suite of IP and VoIP tests, thus turning it into a true cross-domain test point combining the measurements available from the HFC, DOCSIS, IP and VoIP domains.

Features

- Uses the existing DOCSIS infrastructure
- Is ANSI/SCTE-HMS standards-compatible
- Requires no dedicated frequencies
- Can be optionally field-upgraded for IP and/or VoIP testing
- Supports downloadable firmware for new features and applications
- Features generic I/O to monitor co-located equipment Generic I/O/Fault Management

Generic I/O

The CMD-P+™ has been designed with an available generic input/output port to allow monitoring of co-located equipment or to allow use of the CMD-P+™ as a low-cost remote monitoring device. The CMD-P+™ has six analog inputs, two digital inputs, and supports an external SPI bus.

Pin	Name	Definition
1	Common	CMD-P+ ground
2	Digital Out 1	Open drain output 53.6 ohm series resistor
3	Digital Out 2	Open drain output 53.6 ohm series resistor
4	Digital In 1	Digital input clamped to 3.3 Volts
5	Digital In 2	Digital input clamped to 3.3 Volts
6	Analog DC Low 1	20 VDC max
7	Analog DC Low 2	20 VDC max
8	Analog DC High 1	40 VDC max
9	Analog AC Low 1	10 VAC max
10	Analog AC High 1	170 VAC max
11	Analog AC High 2	170 VAC max
12	SPI Clock	3.3 VDC 53.6 ohm series resistor
13	SPI MOSI	3.3 VDC 53.6 ohm series resistor
14	SPI MISO	3.3 VDC 53.6 ohm series resistor
15	SPICS	3.3 VDC 53.6 ohm series resistor
16	Handshake 2	3.3 VDC 53.6 ohm series resistor
17	Handshake 1	3.3 VDC 53.6 ohm series resistor
18	RESET	3.3 VDC 53.6 ohm series resistor
19	AUX Power	12 - 60 VDC supply input
20	+3.3 VDC	0.75 A fuse

Battery Mat Heater Support

The CMD-P+™ is also configured with a four-pin control connector designed to control battery mat heaters. This connector can be configured for other applications

Pin	Name	Definition
1	Ground	Ground
2	+5 VDC	5 V through 0.75 PTC resettable fuse
3	Digital Output	Open drain digital output 3 driver, 53.6 ohm series resistor current limiter (1/16W)
4	Digital Input	Digital Input 3, pulled up 3.3 with 10k, then 10k resistor to processor

General

Devices Monitored Power supplies, batteries, generators reported as per ANSI/SCTE 25-3 2002 (HMS-022)
 DOCSIS Version 2.0
 DOCSIS Monitoring Protocol SNMP v1, v2, v3
 HMS Monitoring Protocol SNMP v1, v2c
 RF Cable Interface F-connector, Female, 75 ohm impedance
 Local/Craft Interface RJ-12, RS-232, 19.2kb, N, 8, 1
 Required: Adapter to connect to PC serial port, Hyperterminal or equivalent)
 Operating Temperature -40°C to +75°C
 Humidity 10% to 90% (non-condensing)
 EMI/EMC FCC Part 15 Class A, CE EN50022 Class A

RF Transmit/Receive

Tx Frequency Range 5 to 42 MHz
 Tx Output Power +8 to +58 dBmV
 Rx Frequency Range 91 to 857 MHz (Center frequency of Standard, HRC, IRC)
 Rx Input Level -15 to +15 dBmV
 Channel Bandwidth 6 MHz

Management

NMS/EMS CheetahXD Software/Standard SNMP Management Tools
 MIBs Supported ANSI/SCTE 25-3 2002 (restricted bydevice monitored), DOCSIS 1.1

Parametric Measurements, Inputs/Outputs, Mechanical/Power

Detailed technical specification sheets are available for each target device that has been integrated. Please contact your Cheetah Technologies representative for more information.