

Power

Transponder Review

July 12, 2013



Agenda

➤ Transponder Overview

- Hardware
- Local Access
- Data Flow

- Diagnostic Scenarios – Common Problems
- Questions and Answers

DSM3 Transponders Summary

FEATURES	MODEL		
	DPM	DSM3	DSM3X
DOCSIS 2.0, ANSI/SCTE HMS compatible	✓	✓	✓
Local /Remote Diagnostics via Web Interface	✓	✓	✓
Broadcom CM chipset	✓	✓	✓
Supports XM2 and XM3	✓	✓	✓
Single IP and Dual-IP Operation	✓	✓	✓
Harness Installation and RF Level Indicators	✓	✓	✓
Maximum number of batteries monitored	1	2 x 3,4	4 x 3,4
External Equipment Monitoring			✓
AlphaGen Monitoring Support			✓
Designed for XM2-300HP Power Supply	✓		
XM3 Smart Harness Voltage Sensing	✓		



DPM

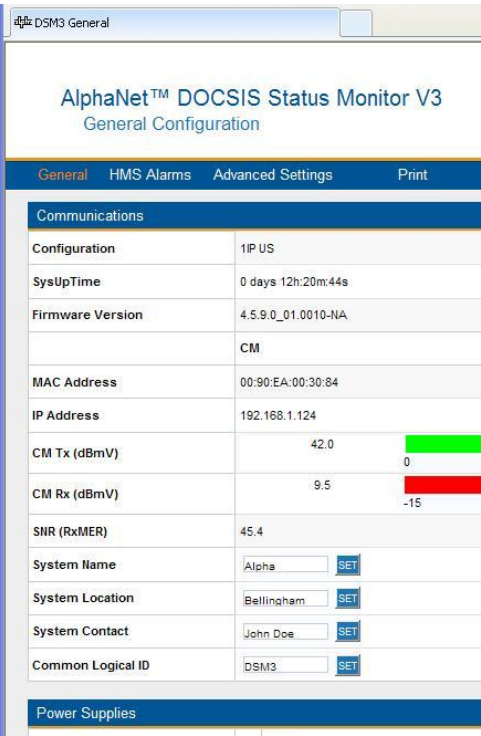


DSM3



DSM3X

DSM3 Series Features



Local & Remote Web Access

External Monitor

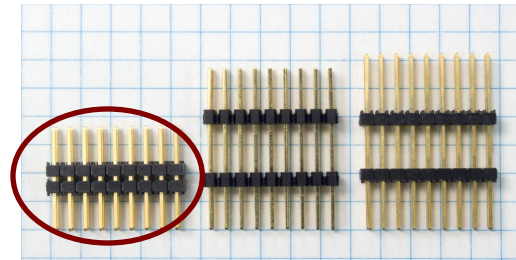
RF Level

Angled F-connector

“Battery Harness Installed” LED,
Up to 4 battery strings
Also supports 6 Volt x 6 Battery Configuration



XM2 with DSM3



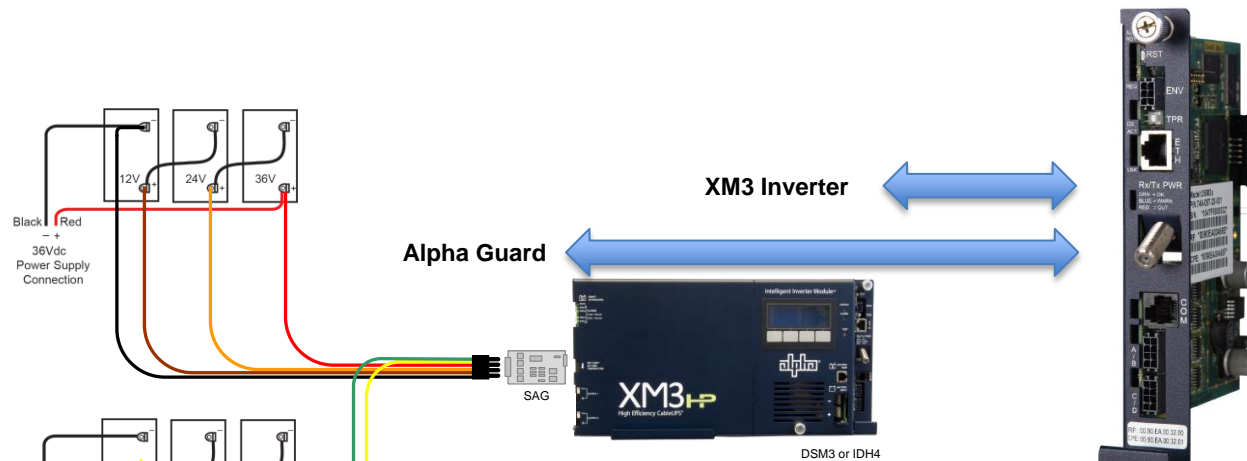
- DSM3 DOCSIS 2.0 Transponder
- Battery monitoring and all connections direct to DSM3
- Power supply connection via 2x9 connector (see installation guide for more details)
- Local access via Ethernet connector – default IP address 192.168.100.1

XM3 with DSM3



- DSM3 for XM3 DOCSIS 2.0 Transponder
- Same transponder as DSM3 for XM2 except for front panel
- Connects to XM3 via 2x9 interface (See Quick Start Guide for details)
- Details next slides...

DSM3 Data Flow Summary



- If battery sense harness connected to DSM3, voltage read directly into DSM3
- If battery sense harness connected to Alpha Guard, voltage read through internal connections via 2x9 header
- All readings are digital internal
- XM3 data read via 2x9 connection

IDH4 Series Overview

FEATURES	IDH4L	IDH4	IDH4X
DOCSIS 2.0, ANSI/SCTE HMS compatible	✓	✓	✓
SNMP, Web and Ethernet Craft Access	✓	✓	✓
Single image firmware	✓	✓	✓
Supports XM2 and XM3 smart display	✓	✓	✓
Single module supports one-IP and dual-IP	✓	✓	✓
Harness Installation and RF Level Indicators	✓	✓	✓
Maximum number of batteries monitored	1	2 x 3,4	4 x 3,4
External equipment monitoring and control			✓
Multiple XM2 or XM3 and AlphaGen Support			✓
Designed for XM2-300HP Power Supply	✓		
XM3 Smart Harness Voltage Sensing	✓		

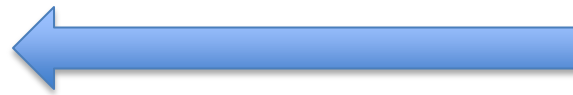
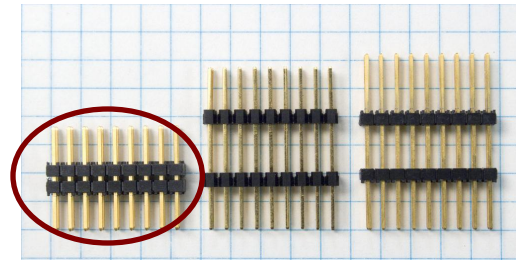


IDH4L

IDH4

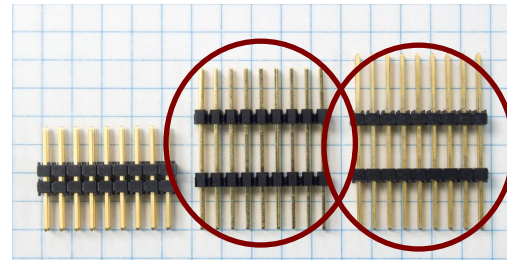
IDH4X

XM2 with IDH4

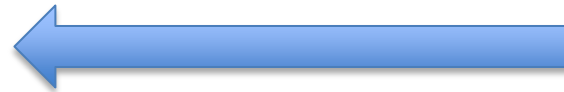


- IDH4 DOCSIS 2.0 Transponder
- Battery monitoring and all other inputs connect to IDH4
- Connects to XM2 via 2x9 interface (See Quick Start Guide for details)
- Local access via Ethernet connector – default IP address 192.168.100.1
- Details next slides...

XM2 with IDH3



Either

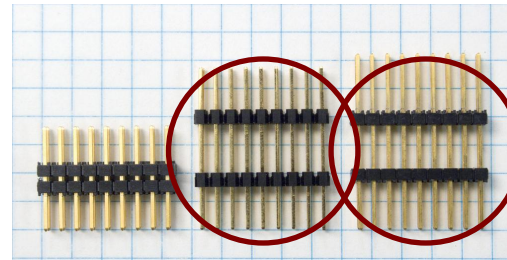


EDSM Card

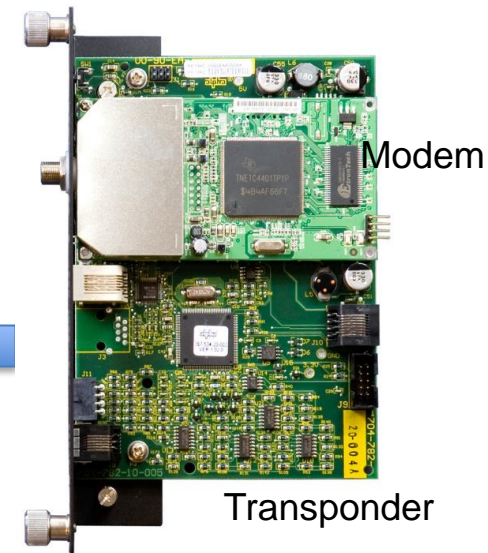
IDH3 Transponder

- IDH3 DOCSIS 2.0 Transponder
- Data flow: Power supply (2x9) to EDSM (ribbon cable) to IDH3
- EDSM Function:
 - Converts proprietary data format to SCTE standard format
 - Inputs for battery voltage, tamper and AlphaBus
- Local access via Ethernet connector – default IP address 192.168.100.1

XM2 with DSM1



Either



- DSM1 has two boards: a DOCSIS 2.0 Cable Modem and a transponder board
 - Transponder board: battery voltage and tamper inputs
 - Cable Modem: RF connection and internal (board to board) header to transponder
- Power supply to DSM1 via 2x9 connector
- Local Craft Interface requires Local Port Adapter – P/N 745-826-21 and HyperTerminal equivalent program.

DSM1 Local Port

Text Table

```

>tex
TEXT
0 [ro] DHCP STATE          : DISCOVER SENT
1 [ro] DHCP TIMER         : 0
2 [ro] DHCP SERV          : 0.0.0.0
3 [ro] DHCP SERV 54       : 0.0.0.0
4 [ro] DOWN STAT          :
5 [rw] DOWN NAME 1        :
6 [rw] DOWN NAME 2        :
7 [rw] DOWN IP            : 0.0.0.0
8 [rw] DOWN CFG           :
9 [rw] DOWN CFG IP        : 0.0.0.0
10 [rw] NTP SERV           : 0.0.0.0
11 [ro] NTP DHCP           : 0.0.0.0
12 [ro] NTP TIME UTC       : 01/01/70 00:00:00
13 [ro] ENET ADDR          : 00.90.EA.A0.1E.5F
14 [ro] IP ADDR IN USE     : 0.0.0.0
15 [ro] NETMASK IN USE    : 0.0.0.0
16 [ro] GATEWAY IN USE    : 0.0.0.0
17 [rw] IP ADDR STATIC    : 0.0.0.0
18 [rw] NETMASK STATIC    : 0.0.0.0
19 [rw] GATEWAY STATIC    : 0.0.0.0
20 [rw] SNMP TRAP TARGET  : 0.0.0.0
21 [rw] SNMP TRAP TARGET  : 0.0.0.0
22 [rw] SNMP TRAP TARGET  : 0.0.0.0
23 [rw] SNMP TRAP TARGET  : 0.0.0.0
24 [rw] SNMP ACCESS LIST  : 0.0.0.0
25 [rw] SNMP ACCESS LIST  : 0.0.0.0
26 [rw] SNMP ACCESS LIST  : 0.0.0.0
27 [rw] SNMP ACCESS LIST  : 0.0.0.0
28 [ro] sysDescr           : ATI P01V1.08.0
29 [rw] sysName            :
30 [rw] sysContact         :
31 [rw] sysLocation        :
32 [rw] comLogicalID       :
33 [ro] CHECK CODE         : 146.51.132.199
34 [rw] PING IP            : 0.0.0.0
35 [rw] ATICONFIG IP       : 0.0.0.0
36 [rw] ATICONFIG NAME     :
37 [ro] TIME UP            : 0 00:00:29
38 [ro] CM/RF ENET         : 00.03.08.0B.9A.EA
39 [ro] CM IP               : 192.168.1.192
40 [ro] CM SUBNET           : 255.255.255.0
41 [ro] CM GATEWAY         : 192.168.1.1
42 [ro] CM TOD              : 192.43.244.18
43 [ro] CM TFTP             : 192.168.1.51
44 [rw] SNMP GET            : AlphaGet
45 [rw] SNMP SET            : AlphaSet
46 [rw] SNMP TRAP          : public
47 [rw] ALPHA SNMP SETS    : CIBSET
  
```

TEXT TABLE

- DSM Processor Firmware (sysDescr)
- Mac Address (CM ENET)
- IP Address (CM IP)

ANALOG TABLE

- Analog measurements from XM2
- Battery Voltages

COUNTERS TABLE

- XM2 Counter items (Self test countdown, number of standby events, etc)

DISCRETES TABLE

- XM2 Alarms
- DSM custom settings



Local Port Adapter
P/N 745-826-21

XM1 with EDH4

Batteries



USM

- XM requires USM Card. USM to EDH4 connection via wire harness
- Battery monitoring connects directly to EDH4
- Tamper connects to USM
- Local access via Ethernet connector – default IP address 192.168.100.1
- XM Series MicroController Comm Kit - Part Number 745-698-20 includes XM MCU, USM MCU, USM Bracket, and Instructions.
 - The XM MCU (Inverter Board) – minimum version required for status monitoring
 - Part Number 367-204-10-001 Rev. P11 or Part Number 367-204-10-002 Version 1.11
 - Refer to Alpha Tech Note 017-039-C1-001 Rev. A for removal and installation
 - The USM card – minimum version required for status monitoring
 - Part Number 367-205-10-104 Version 1.04
 - Refer to Alpha Tech Note 017-039-C1-001 Rev. A for removal and installation
- **Important: Select the power supply model via the Config menu on the transponder Web Page**

Common Transponder Problems

1. Power supply data will not display on the transponder Web Page or Status Monitoring System.
2. Individual battery voltages will not display on the Web Page or Status Monitoring System.
3. Transponder is offline.
4. Laptop will not connect to transponder Web page.



 *Total Power Solutions*

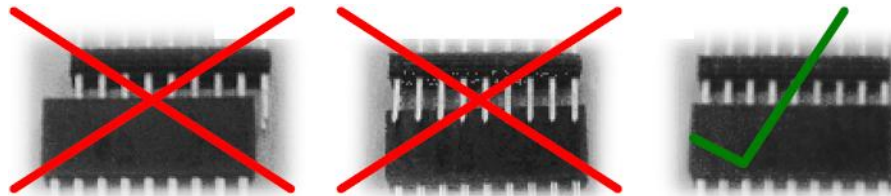
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1. Power Supply Data Will Not Display

Possible Troubleshooting Steps:

- Verify Device Address is set on the Inverter Module LCD display. (Recommend Device Address "1" for single PS installations.)
- Verify 2x9 Connector (18 pin jumper) installed correctly. Power down inverter module and shut off battery breaker before installing the transponder. The 18 pin jumper is not required for XM3s.



- Try the Reset or Stat button on transponder front panel.
- Replace the Inverter Module with known good unit.
- Replace the transponder with a known good unit. For XM3 installations, the transponder firmware version must be V4.4.9.0_3.02 or higher.

2. Battery Voltages Will Not Display

Possible Troubleshooting Steps:

- Verify battery sense harness is connected to A/B connector for strings 1 & 2 and Bat C/D for strings 3 & 4.
- For DSM3, verify A/B LED indicator is solid Green.
- Verify the battery sense harness is wired per instructions provided with kit or in transponder manual.
- Using a digital voltmeter, measure the voltages at the connector pins that plugs into the A/B connector on transponder.

3. Transponder Is Offline

Possible Troubleshooting Steps:

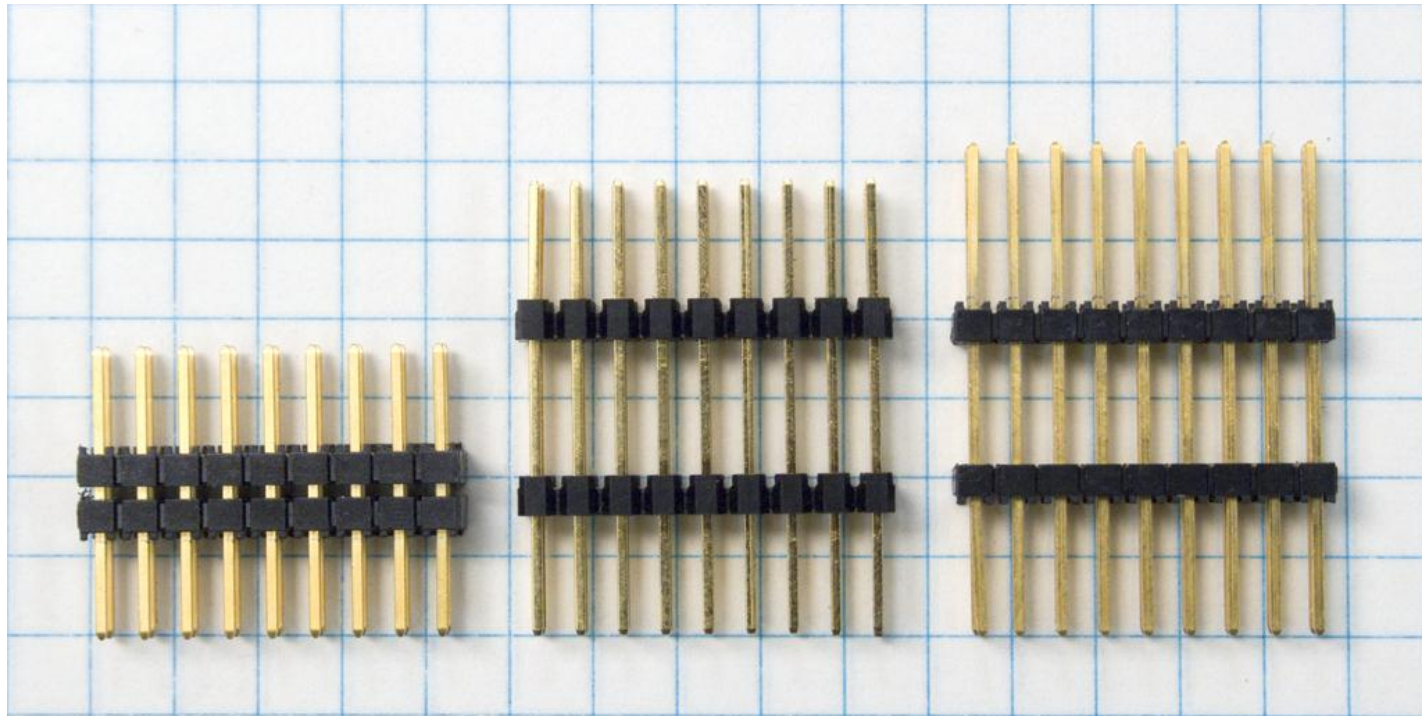
- Verify the status for the DS (Downstream) and REG (Registration) LED indicators.
- Verify coax cable is connected to the RF input connection on transponder.
- Verify RF levels using a DSAM meter and/or RF LED indicators – DSM3/IDH4 Series only.
- Try the Reset or Stat button on transponder front panel.
- Replace the transponder with a known good unit.
- Contact the network/modem administrator – DOCSIS Config file, MAC Filtering, etc.

4. Laptop Not Connecting To Web Page

Possible Troubleshooting Steps:

- Verify a standard straight through Ethernet cable is connected from the Laptop NIC to the Ethernet port on transponder.
- Disable wireless connection on laptop.
- Configure a static IP Address on the laptop Local Area Connection – refer to transponder manual.
- Try a different Web Browser such as Firefox, Chrome, etc.
- Re-boot the laptop Operating System

2x9 Connector (18 pin jumper)



*P/N 540-286-19
DSM3 in XM2*

P/N 540-581-19

*P/N 540-492-19
Older - Phased out.*



Total Power Solutions



Links to Documents

➤ DSM3

http://www.alpha.com/index.php/products-mobile/cable-tv-broadband-products/item/alphanet-dsm3-family?category_id=453

➤ IDH4

TBA

➤ EDH4

http://www.alpha.com/index.php/products-mobile/cable-tv-broadband-products/item/alphanet-edh4?category_id=453

➤ DSM1

http://www.alpha.com/index.php/products-mobile/cable-tv-broadband-products/item/alphanet-dsm?category_id=452

➤ IDH3

http://www.alpha.com/index.php/products-mobile/cable-tv-broadband-products/item/alphanet-idh3?category_id=453

➤ Transponder Firmware

<http://www.alpha.com/media/documents/StatusMonitoringFirmware0.htm>

