

# ION 6-Slot Chassis

(ION106-A and ION106-D)



**User Guide**

**33658 Rev. D**

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ION 6-Slot Chassis (ION106-A and ION106-D) User Guide, 33658 Rev. D

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## Record of Revisions

Rev	Date	Description of Changes
A	6/27/16	Initial release for ION Chassis Software Revision 1.3.14.
B	11/29/16	Update contact information and add MTBF data.
C	3/23/18	Update DC Input voltage specs.
D	11/1/18	Update for ION106 FW v1.3.16 which adds support for RMPS (Remote Manage Power Supply) and Local Management of Cards in a Remote Un-managed Chassis. ION106 FW v1.3.16 requires IONMM FW v 1.4.2.

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## 1. Introduction

The ION106-x is an intelligent, multi-service integration platform that offers first-rate solutions for integrating, optimizing and navigating networks. By cost-effectively integrating copper and fiber equipment with infrastructure, the ION Platform equips networks for the bandwidth, distance, and security demands of today, tomorrow, and every point in between. Designed for service providers, data centers, and core network applications, the ION Platform provides the secure network management of fiber interface points required for both carrier-class and enterprise-class services.

Transition Networks' ION media converters provide a quick, inexpensive method for connecting new or embedded fiber with copper-based networking devices that have RJ-45 ports. Transition Networks' ION solutions let you easily integrate copper and fiber in order to extend networks within a building, between buildings, or throughout a campus where multiple points of fiber integration and secure network management of the fiber interface devices is essential.

An end-to-end fiber integration solution can be achieved by pairing the modules in an ION chassis with the modules in another ION chassis, or a Transition Networks' stand-alone device. To take full advantage of all the features and functions available with the ION Chassis, an ION Management Module (IONMM or IONMM-232) is required.

The IONMM connects to the chassis backplane and communicates with the individual cards in the ION Chassis. Each slide-in module for the ION Chassis has specific features and functions that are controlled via the IONMM. A network administrator can configure, monitor and troubleshoot ION slide-in modules remotely via the IONMM.

## Product Description

The ION106-x is intended for installing up to six ION slide-in cards (SICs) or five SICs and an IONMM module. The ION106-x can house and power six single-wide ION media converters or three "double-wide" converters such as the C6120-1013. The following Transition Networks slide-in cards (SICs) are supported:

**ION:** for 100Base, 10/100, 1000Base, 10/100/1000, 10Gig Eth, T1/E1/J1 and DS3-T3/E3.

**Point System:** for Ethernet, Fast Ethernet, 10/100, 10/100 Bridging, 10/100/1000 Ethernet, 802.3ah Remotely Managed OAM, Gigabit Ethernet, 10 Gigabit Ethernet, ATM/OC-X, DS3-T3/E3, High Speed Serial, RS232, RS422/485, T1/E1, 4x T1/E1 Transport Mux, E&M, 2/4-wire, Analog CCTV Video (NTSC, PAL, SECAM).

## Product Numbers

The ION106-x models are described below.

Product #	Description
<b>ION106-A</b>	6-Slot ION Chassis with (1) AC power supply.
<b>ION106-D</b>	6-Slot ION Chassis with (1) DC power supply.
<b>ION106-AAB</b>	6-Slot ION Chassis with (2) AC power supplies.
<b>ION106-AAMB</b>	6-Slot ION Chassis with (2) AC power supplies and (1) ION Management Module.

## Options

The ION106-x options listed below are sold separately.

Product #	Description
<b>IONMM</b>	Management Module for the ION Chassis with a USB Type B CLI port.
<b>IONMM-232</b>	Management Module for the ION Chassis with a RS232 RJ-45 CLI port.
<b>IONPS6-A</b>	Optional second AC power supply for the ION106-x. Redundant AC power supply for ION 6-Slot Chassis, 100 to 250 VDC input.
<b>IONPS6-D</b>	Optional second DC power supply for the ION106-x. Redundant DC power supply for ION 6-Slot Chassis, -21 to -72 VDC and +21 to +72 VDC input.
<b>IONRE6-23</b>	23-Inch Rack Mount Ears for the 6-Slot ION Chassis.
<b>IONFP</b>	ION Blank face plate.

## Features

### Management Features:

- Provides 6 slots for installing Transition Networks media converters
- Occupies 1 unit of rack space (1RU)
- Has 2 bays for hot-swappable power supplies
- Supports IONMM or IONMM-232 with management access via CLI, Web, and FocalPoint
- Redundant power supplies provide instant fail-over
- Management VLAN
- Based on Public MIBs; Multiple community strings
- Two 10/100 Ethernet interfaces and one USB Console port
- TFTP upgrade/backup of slide-in modules
- Import/Export configuration files in human readable/editable format
- RMPS (Remote Manage Power Supply) feature
- Local Management of Cards in a Remote Un-managed Chassis

### Security Features:

When the optional management module is used, the following security features are available, letting you control access to the ION Chassis via the ION Management Module, ensuring that only authorized personnel are able to view and change the settings to the slide-in modules.

- Management VLAN
- SSL
- SSH
- 802.1x
- SNMPv1, v2c, and v3

### Access Methods:

- Web-browser: Access the ION Management Module using a standard web browser such as Internet Explorer or Mozilla Firefox.
- CLI (Command Line Interface): CLI access can be done via telnet remotely or via the local console port on the ION Management Module.

- **SNMP:** Since the ION platform is based on public MIBs you can easily manage the ION with a standard network management system (NMS) such as SNMPC, HPOV or any other standard SNMP platform.
- **Focal Point:** Transition Networks offers free SNMP GUI software for management purposes. Focal Point offers full read and read/write capabilities in a user friendly GUI.

## Specifications

The ION106-x chassis was designed to meet these specifications:

<b>Standards</b>	IEEE 802.3 2012
<b>Compliance</b>	UL listed, EN55022 Class A, EN55024, CE Mark, FCC Class A, CISPR Class A
<b>Safety Compliance</b>	N/A
<b>Power Consumption</b>	10 W
<b>Power Source</b>	Supplied from installed Power supply module (IONPS6-A or IONPS6-D). Two open bays for ION 6-slot power supply modules supporting: AC: 100-250VAC DC: -21 to -72VDC and +21 to +72VDC Note: Power supply module supplies +12VDC maximum to each card slot in the chassis. Only one power supply module is required to power the chassis and the installed modules; the optional second power supply module provide redundancy for instant fail-over.
<b>Weight</b>	ION106-A with one Power Supply: 9.4 lbs. ION106-A with two Power Supplies: 10.1 lbs.
<b>Dimensions</b>	Width: 17" [430 mm] x Depth: 10" [254 mm] x Height: 1.75" [44.45 mm]
<b>Operating Temp</b>	0°C to 50°C (32° F to 122° F)
<b>Storage Temp</b>	-40°C to +85°C (-40° F to 185° F)
<b>Operating Humidity</b>	5% to 95% (non-condensing)
<b>Altitude</b>	0-10,000 feet
<b>MTBF</b>	<u>IONPS6-D:</u> MTBF to be greater than 65,000 MIL-HDBK-217F Hours. MTBF to be greater than 178,750 Bellcore Hours. <u>IONPS6-A:</u> MTBF to be greater than 65,000 MIL-HDBK-217F Hours. MTBF to be greater than 178,750 Bellcore Hours. <u>ION106-x with no power supply:</u> MTBF to be greater than 250,000 MIL-HDBK-217F Hours MTBF to be greater than 687,500 Bellcore Hours <u>ION106-x with 1 power supply:</u> Bellcore >165,000 hrs. <u>ION106-x with 2 power supplies:</u> Bellcore >82,500 hrs.
<b>Warranty</b>	Lifetime limited warranty

The information in this install guide is subject to change without notice.

## Package Contents

Contact your sales representative if you have not received the following items. Save the packaging for possible future use.

- One ION106-x Six-Slot ION Chassis with one power supply
- Four IONFP blank Face Plates with #4 Screws (TN 6531)
- Four rubber feet
- One Documentation Post Card (33504)
- One PolyBag
- One Power Cord: the country specific power cord has an extension after the SKU: -NA = North America, -LA = Latin America, -EU = Europe, -UK = United Kingdom, -SA = South America, -JP = Japan, -OZ = Australia, -BR = Brazil. For example, ION106-A-NA is the power cord for North America.

## Document Overview

The purpose of this manual is to provide the information needed to install the ION106-x to the point of operation. Note that there are separate manuals for the ION slide-in-cards.

## Related Manuals and Online Help

A printed documentation card is shipped with each ION device. For Transition Networks Drivers, Firmware, etc. go to the [Product Support](#) webpage (login required). For Transition Networks Manuals, Brochures, Data Sheets, etc. go to the [Support Library](#) (no registration required). Note that this manual provides links to third party web sites for which Transition Networks is not responsible.

Other ION system and related device manuals are listed below.

1. Product Documentation Postcard, 33504
2. ION Management Module (IONMM) Install Guide, 33420 and User Guide, 33457
3. IONMM-232 Install Guide, 33725
4. ION System x323x Remotely Managed NID User Guide, 33342
5. ION Systems CLI Reference Manual, 33461
6. ION x222x & x32xx Multi-port NIDs Installation Guide, 33433
7. ION System NID User Guides (33432, 33457, 33472, 33493, 33494, 33495, 33496)
8. Focal Point SNMP Software Management Platform: see the TN [Focal Point](#) webpage.
9. IONADP PointSystem Card Adapter for ION Chassis, 33413
10. Release Notes (firmware version specific)

**Note:** Information in this document is subject to change without notice. All information was deemed accurate and complete at the time of publication.



## Safety Warnings and Cautions

These products are not intended for use in life support products where failure of a product could reasonably be expected to result in death or personal injury. Anyone using this product in such an application without express written consent of an officer of Transition Networks does so at their own risk, and agrees to fully indemnify Transition Networks for any damages that may result from such use or sale.



**Attention:** this product, like all electronic products, uses semiconductors that can be damaged by ESD (electrostatic discharge). Always observe appropriate precautions when handling.



**Warning:** Potential for damage to equipment or personal injury.



**Warning:** Risk of Electrical Shock



Functional grounding point



Protective grounding point

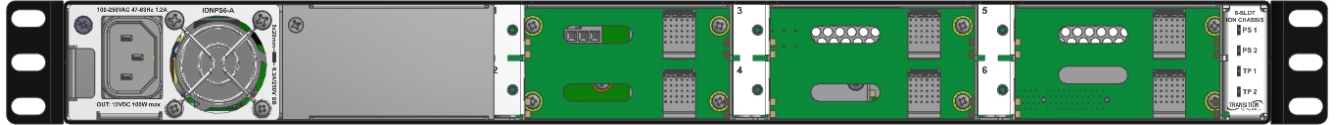
**CAUTION:** Copper based media ports, e.g., Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are intended to be connected to intrabuilding (inside plant) link segments that are not subject to lightening transients or power faults. Copper based media ports are NOT to be connected to interbuilding (outside plant) link segments that are subject to lightening transients or power faults. Failure to observe this caution could result in damage to equipment.



**Warning:** Only the proper Service Personnel will have access to remove and replace the Power Supply modules (Model numbers IONPS6-A and IONPS6-D).

## 2. Installation

ION106-x installation can involve mounting the chassis, installing the ION SICs, grounding the Chassis, and powering the Chassis. Installing an optional second Power Supply may also be involved. **Note:** Make cable connections before connecting Power. The ION106-x is described and shown below.



### Mounting Options

The ION106-x can be mounted in a standard 19-inch equipment rack or on a desktop or shelf. Mounting instructions for each type are provided below.

The ION106-x comes with four rubber feet that you can use for desktop installation. The **IONRE6-23** option provides two 23-Inch Rack Mount Ears for the 6-Slot ION Chassis rack mounting. See the related option install guide for additional information.

#### Desktop or Shelf Mounting

1. Attach the four adhesive rubber feet to the bottom of the first switch.
2. Set the device on a flat surface near an AC power source, making sure there are at least two inches of space on all sides for proper air flow.
3. If installing a single chassis only, go to [Grounding the Chassis](#) on page 11.
4. If installing multiple chassis, attach four adhesive feet to each one. Place each device squarely on top of the one below, in any order.

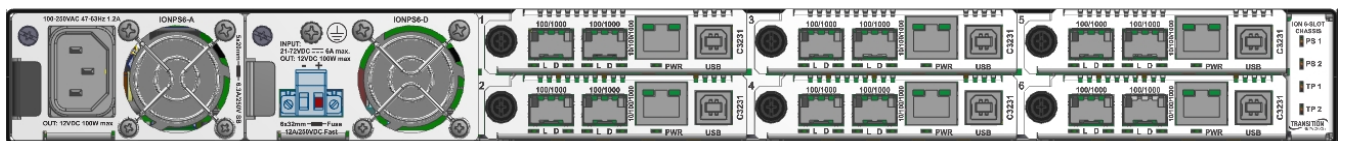
#### Rack Mounting (Optional)

Before rack mounting the ION106-x, please pay attention to the following factors:

- **Temperature:** Since the temperature within a rack assembly may be higher than the ambient room temperature, check that the rack-environment temperature is within the specified operating temperature range (0 °C to +50 °C).
- **Mechanical Loading:** Do not place any equipment on top of a rack-mounted unit.
- **Circuit Overloading:** Be sure that the supply circuit to the rack assembly is not overloaded.
- **Grounding:** Rack-mounted equipment should be properly grounded.

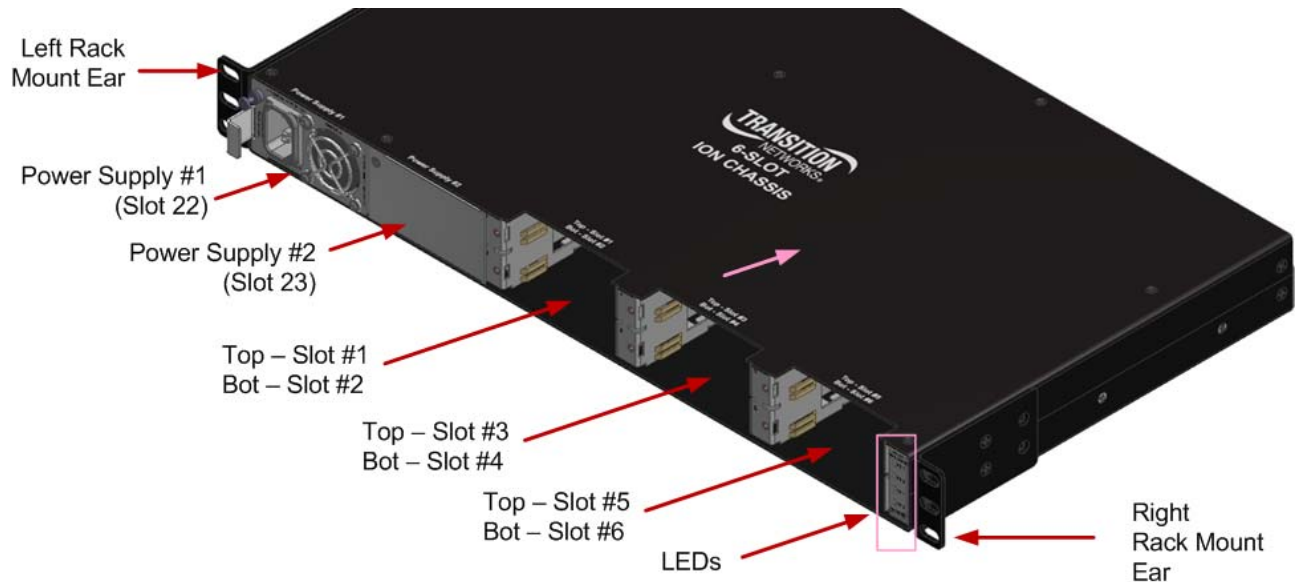
Follow the steps below for rack mounting the ION106-x:

1. Attach the brackets to the device using the screws provided in the Mounting Accessory.
2. Mount the device in the rack (via Rack-Mount kit), using four rack-mounting screws (not provided). Secure the lower rack-mounting screws first so the brackets aren't bent by the ION106-x weight.
3. If installing a single chassis only, go to [Grounding the Chassis](#) on page 11.
4. If installing multiple chassis, mount them in the rack, one below the other, in any order.



## Slot Numbering

The ION106-x front panel components and slot numbering are shown below.

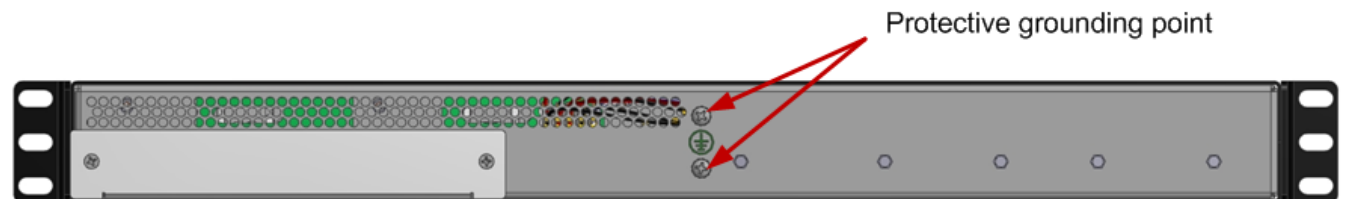


## Grounding the Chassis

The ION106-x chassis comes equipped with dual, #6-32 x ¼" SEMS (bonded screw-washer combo), ¾" spaced grounding screws, located on its back panel. They require a grounding conductor wire terminated with a two-hole, compression-type, grounding connector (not provided). The grounding wire (must be a copper conductor) is not included with the chassis and must be provided by the customer/installer.

The electrical-conducting path from the ION106-x chassis must:

- Flow via the grounding screws, to the common bonding network (CBN) for telecom installations, or to an alternative approved grounding system (if required) for non-telecom installations.
- Be of sufficiently low impedance to conduct fault currents likely to be imposed on the chassis.
- Enable proper operation of any over-current protection devices.



**Rack Mount C. GND (Chassis Ground) Note:** a device bonded to metallic shelf that houses ION106-x jacks should be bonded directly by either 1) an independent conductor to the central office ground via rack ground bar, or 2) connection to the rack itself, or 3) other metal-to-metal bond to ground. To connect the ION106-x to a ground point on the rack, follow your organization's or IT department's standard procedure or the US NFPA 70®: National Electrical Code.

## Grounding Wire Size

The wire size of the Protective Earth (ground) conductor should be greater than or equal to the wire size of the power source conductors. The power-source conductor wire size is installation dependent and sized to accommodate acceptable IR losses between the power source and the device terminal block.

## Connecting the Ground Wire

The conductor must be fastened using the included #6-32 x ¼” SEMS Screws (bonded screw-washer combo) antirotation fasteners. The torque requirement for the connector lug-nut fasteners is specified by the connector’s manufacturer.

## Grounding Method

The conductor must be fastened to the Chassis, using the included #6-32 SEM screws. To properly ground the ION106-x chassis:

1. Obtain one (1) two-hole, compression-type, grounding connector.
2. Attach the grounding conductor to the Chassis by, using the included #6-32 SEMS Screw-washer combo.
3. Attach the opposite end of the grounding conductor to the common-bonding network (CBN) for telecom, or to earth ground (if required) for non-telecom installations.

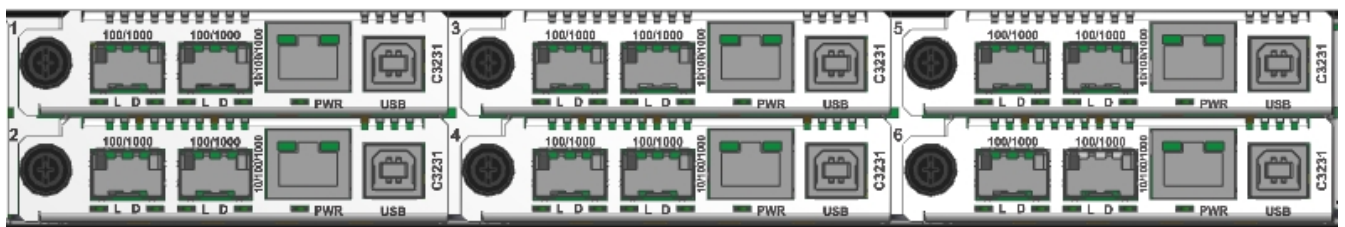
## Installing ION Slide-In Cards (SICs)

**CAUTION:** Wear a grounding device and observe electrostatic discharge precautions when installing slide-in cards into the 6-slot chassis. Failure to observe this caution could result in damage to the slide-in cards.

**Note:** The maximum power delivery capacity for the ION106-x Six Slot chassis is 8.5 watts per slot.

To install a slide-in-card into the ION106-x chassis:

1. Refer to the manuals for the slide-in card to ensure that any DIP switches or jumpers on the module’s circuit board are set correctly for the site installation.
2. Carefully align the slide-in card to the chassis installation guides and slide it fully into the installation slot, as shown below.
3. Ensure that the slide-in card is firmly seated inside the chassis.
4. Push in and rotate the attached panel fastener screw to secure the slide-in card to the ION106-x chassis frame.
5. Repeat steps 1-4 to install one or more additional ION slide-in cards.



6. If only one card is being installed in the chassis, it is suggested that the Face Plate (provided) is used to cover up the unused slot.

## Installing a Second Power Supply

The ION106-x ships with one power supply standard, either an AC or DC version. An optional second Power Supply, again either AC or DC, may be installed in the field.



**Warning:** power supply must not be powered during installation. The unit can be powered while installing or removing a power supply (just the supply being serviced must not be powered).

**Warning:** Risk of electrical shock.

**Power Supply “Hot Swap” Feature:** After the Power Supply module(s) are installed you can replace a Power Supply module without powering down the ION106-x. This lets you change the configuration or repair a module without interrupting ION106-x overall operation.

You can insert and remove a power supply, while another power supply is powering the ION106-x, however, the supply being inserted/removed cannot be connected to a power source while it’s being inserted / removed from the ION106-x. In other words: a power source should only be applied to a power supply after the supply has been installed in the chassis, and that power source should be disconnected from a power supply before the power supply is removed from the chassis.

**For multiple power sources:** Energy hazard if both power supply modules are not disconnected. Disconnect both power sources before servicing.

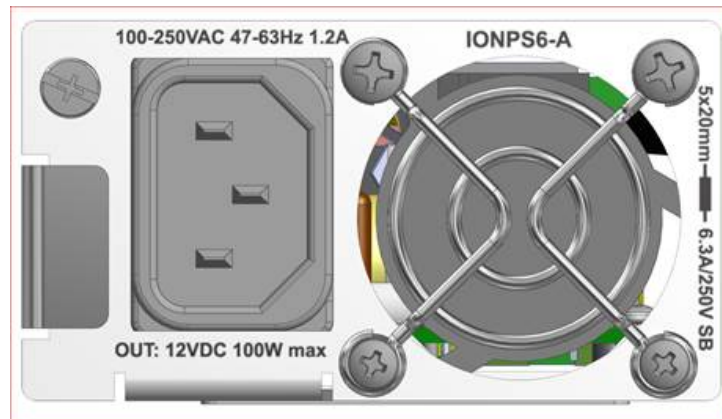
**Warning:** Only the proper Service Personnel will have access to remove and replace the Power Supply modules (Model Numbers IONPS6-A and IONPS6-D).

## Powering the Chassis (AC Power Supply)

To supply power to the ION106-x chassis with an optional IONPS6-A AC Power Supply:

1. Disconnect all Power sources before servicing.
2. Remove the blank face plate.
3. Slide the AC power supply into the desired slot.
4. Using a small Phillips head screwdriver, tighten the Panel Fastener Phillips head screw to hold the Power Supply securely to the chassis.
5. Connect the AC Power Cord (provided) to the AC receptacle.
6. Re-connect the Power sources removed in step 1 above.

**Disconnect all  
Power sources  
before servicing**



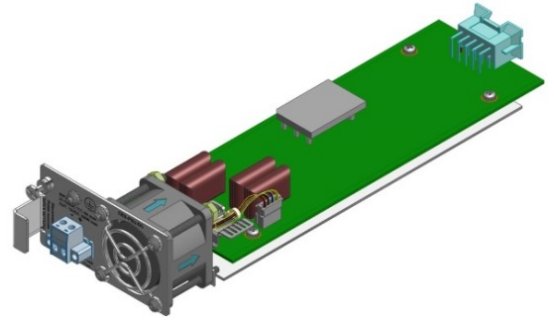


## Powering the Chassis (DC Power Supply)

**Equipment for restricted access locations:** This equipment intended only for installation in a RESTRICTED ACCESS LOCATION.

**Note:** Make cable connections before connecting Power.

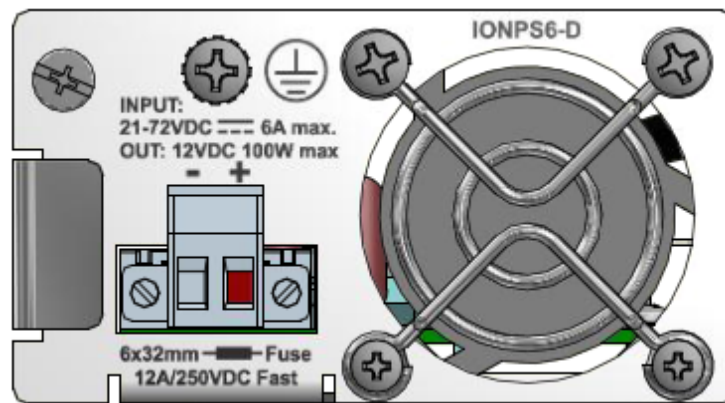
**Disconnect all** Power sources before servicing.



To supply power to the ION106-x chassis with an optional IONPS6-D DC Power Supply:

1. Disconnect all Power sources before servicing.
2. Remove the blank face plate.
3. Slide the DC power supply in to the desired slot.
4. Using a small Phillips head screwdriver, tighten the Panel Fastener Phillips head screw to hold the Power Supply securely to the chassis.
5. Connect the Power Wires to the Terminal Block (see next page).
6. Re-connect the Power sources disconnected in step 1 above.

**Disconnect all  
Power sources  
before servicing**



## Removing and Replacing the AC or DC Power Supply



**Warning:** Only the proper Service Personnel will have access to remove and replace the Power Supply modules (Model numbers IONPS6-A and IONPS6-D).

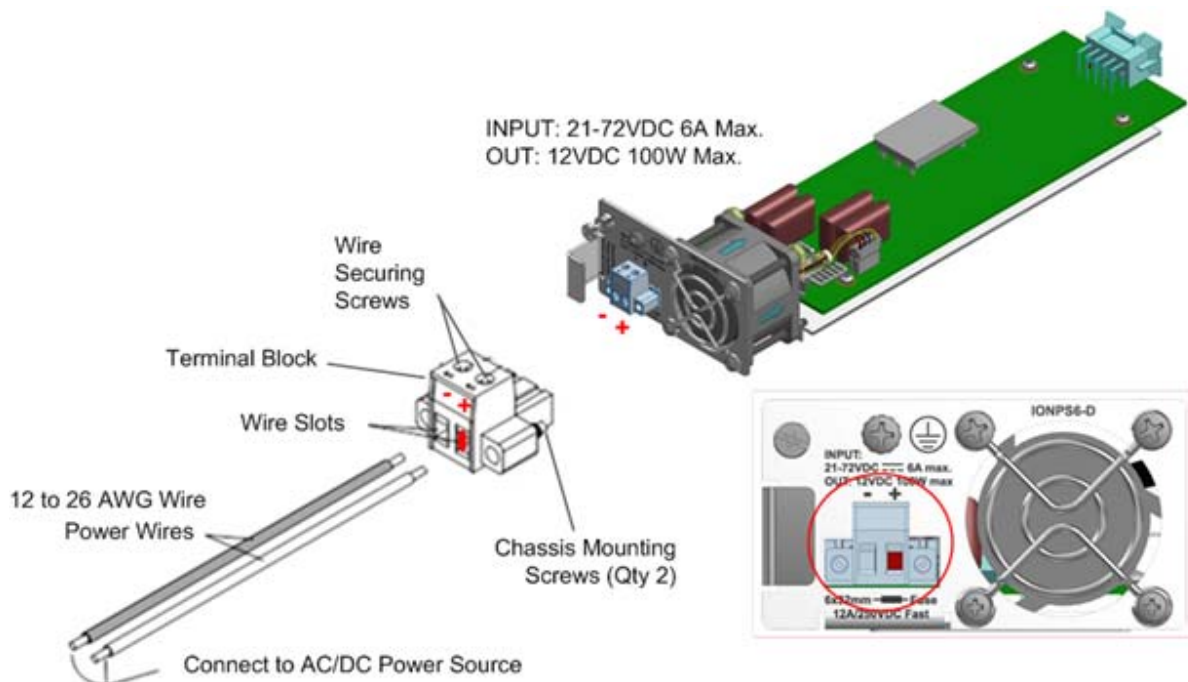
When removing and replacing the AC (IONPS6-A) or DC (IONPS6-D) Power Supply:

1. Remove the Power Input Source to the Power Supply module.
2. Undo the Panel Fastener. Using a small Phillips head screwdriver, loosen the Panel Fastener Phillips head screw holding the Power Supply to the chassis.
3. Pull the Power Supply from the Chassis and set the Power Supply aside.
4. Wait approximately 1 minute before handling Power Supply, due to possible stored energy in the Power Supply assembly.

### Power via the DC INPUT (EuroBlock) Connector

#### Connecting Power Wires to the Terminal Block:

1. Strip the wires to the proper length.
2. Insert the positive and negative power wires into **V+** and **V-** contacts respectively of the Terminal Block (note polarity on the ION106-x chassis). Make sure the wires are secure. See the figure below.
3. Insert the positive and negative power wires into **V+** and **V-** contacts respectively into the power source; make sure the wires are secure. See the figure below. Insert the positive and negative power wires into **V+** and **V-** contacts respectively into the power source; make sure the wires are secure. See the figure below.



4. Tighten the two screws to secure the Terminal Block to the ION106-x chassis.
5. Turn the power source ON and observe that the front panel **PWR** (power) LED is lit, indicating that power is applied to the ION106-x.



## Master/Slave Mode

Only one power supply is needed to power the ION106-x chassis; however, there is a second slot to house a redundant power supply module. If a redundant power supply is used, please note that:

1. Both power supplies cannot be put in Slave mode.
2. If there is only one power supply it will set itself to Master mode.

In **Master** mode, a power supply will continuously attempt to power to the chassis.

In **Slave** mode, a power supply will primarily stand by. It will continuously sense whether the chassis is being powered by another supply, and only attempt to provide power if the Master supply stops providing sufficient power.

**Power Supply Master and Slave Status and States**

#	PS-1	PS-2	PS-1	PS-2
1	present_powered	present_powered	Master	Slave
2	present_powered	present_not_powered	Master	Slave
3	present_not_powered	present_powered	Slave	Master
4	not_present	present_powered	none	Master
5	present_not_powered	not_present	Master	none

## Monitoring the ION 6-Slot Chassis LEDs

The ION106-x LEDs are shown and described below.

**PS 1:** Power Supply 1 status - Slot 1:

- Green On (lit) = Power applied to PS1.
- Red On (lit) = Fault on PS1.

**PS 2:** Power Supply 2 status - Slot 2:

- Green On (lit) = Power applied to PS2.
- Orange On (lit) = Fault on PS2.

**TP 1:** For future use.

**TP 2:** For future use.



### PS Status LED Summary

LED	Present and Powered	Present Not Powered	Not Present	Present Not Operational
PS1	Green	Blinking Green	Red	Red
PS2	Green	Blinking Green	Red	Red

## Installing IONMM and Slide-In Cards

Refer to [Section 2: Installation](#) of the *ION Management Module (IONMM) User Guide* to install the IONMM in an ION Chassis, and access and initially set up the IONMM through either a local serial interface (USB) or a remote Ethernet connection (Telnet session or Web interface). Refer to the applicable ION slide in card (SIC) install guide for install instructions for the various ION SICs.

The ION106-x chassis also supports the insertion and use of Point System™ Converter Cards via the ION Adapter (IONADP). The IONADP adapter card allows the ION Platform chassis to be backwards compatible with Point System modules. This IONADP is designed to sit between a Point System module and the backplane of the ION chassis. The IONADP lengthens the Point System™ module so it can securely mount in an ION chassis while also connecting to the backplane allowing the ION chassis to power the Point System module. SNMP management of the Point System modules installed in the ION chassis is possible by using a Point System management module along with IONADP. The ION modules and the Point System™ modules are managed independently by their own respective management modules. The IONMM and the Point System management module each require a unique IP address assigned to them, while Focal Point can be used to access the management information from each management module simultaneously.

**Note:** if installing the IONADP with a PS card, be sure to properly mount the provided support bracket using the four mounting screws provided in the IONADP kit.



## Checking Power Supply Status

After the module(s) are installed you can use the CLI or web GUI to verify SIC and Power Supply module status.

## For More Information

See [Related Manuals and Online Help](#) on page 8 for information on Point System and ION slide in cards:

- Pre-Installation
- DIP Switch settings
- Installation and Setup
- Cabling
- Cable Specifications
- Cable Types
- Installing slide-in-cards and SFP/SFP+ Devices
- Operation (CLI and Web GUI)
- Power and Status LEDs
- Management (CLI or web GUI)
- Troubleshooting

## Replacing Power Supply Fuses

The IONPS6-A fuse must be a 5x20mm 6.3A/250V SB fuse. The IONPS6-D fuse must be a 6x32mm 12A/250VDC FAST fuse. See the figure below for fuse locations.

### Replacing the IONPS6-A Fuse

**CAUTION:** Ensure that the IONPS106-A has been disconnected from the external power source and the ON/OFF switch is at “O.” Failure to observe this caution could result in Power Supply damage or failure.

**Caution:** for continued protection against risk of fire, replace with same type and Rating of fuse: 6x32mm 12A/250VDC FAST. Disconnect power source before servicing.

To replace the fuse in the IONPS6-A:

1. Disconnect the AC power cord from the external power source and from the IONPS6-A.
2. Insert a small flat blade screwdriver into the groove on the front, inside edge of the fuse holder.
3. Carefully pry the fuse from the fuse holder and remove the fuse.  
**Note:** The replacement fuse must be the same amperage and voltage rating. See Caution above.
4. Insert the replacement fuse into the fuse holder.
5. Slide the IONPS6-A fully into the IONPS6-x chassis.
6. Connect the power cord to the IONPS6-A and to the external power.

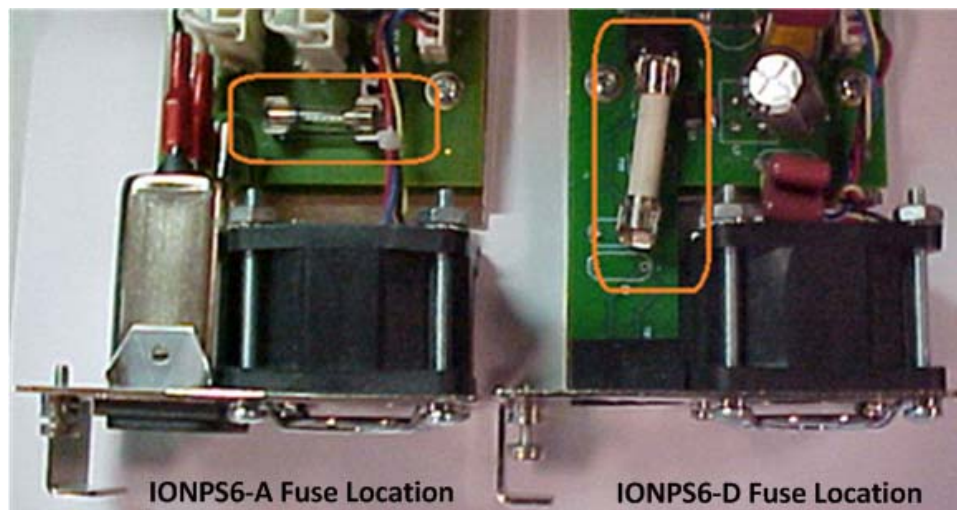
### Replacing the IONPS6-D Fuse

**CAUTION:** Ensure that the IONPS106-D has been disconnected from the external power source. Failure to observe this caution could result in Power Supply damage or failure.

**Caution:** for continued protection against risk of fire, replace with same type and Rating of fuse: 5x20mm 6.3A/250V SB. Disconnect power source before servicing.

To replace the fuse in the IONPS6-D:

1. Disconnect power from the external power source and from the IONPS6-A.
2. Use a fuse puller to carefully remove the old fuse.  
**Note:** The replacement fuse must be the same amperage and voltage rating. See Caution above.
3. Insert the new fuse into the fuse holder.
4. Slide the IONPS6-D fully into the IONPS6-x chassis.
5. Connect the power cord to the IONPS6-D and to the external power.



### 3. Configuration via Web GUI

Install the IONMM module to access the ION106-x chassis.

**Accessing the IONMM:** The IONMM can be accessed by using either a local serial interface via a USB connection or through an Ethernet network connection. The network connection can be done via a Telnet session or a Web graphical user interface (GUI).

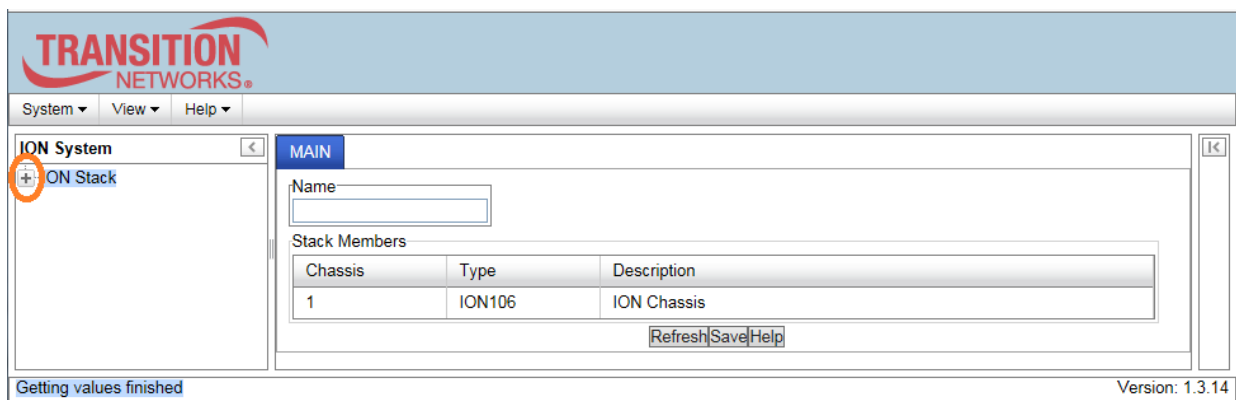
**Using a Local Serial Interface (USB):** The IONMM can be connected to a local management station (PC) through a serial interface using a USB connection. The IONMM is controlled by entering Command Line Interface (CLI) commands at the local management station.

See the *IONMM Install Guide (33420)* for additional details on CLI and Web GUI access.

#### ION106-x Stack

The ION Stack displays by default. The Stack node consists of a standalone ION chassis, its local devices (e.g., an IONMM, and one or more C3230, C3231, IONPS6-A and/or IONPS6-D power supplies, and the remote device attached to the local chassis via the slide-in-cards.

The ION System pane displays the Stack Name (the default is "ION stack") and the Stack Members table, which provides information on Chassis (1), Type (e.g., ION106), and a Description (e.g., ION Chassis).



Click the plus sign [+] next to ION Stack to unfold the "ION Stack" node in the left tree view and refresh chassis and device status.

The ION stack parameters are described below.

Parameter	Associated MIB Variable	Description
<b>Name</b>	xxxxxxxxxx	View / edit the ION stack name. The default is blank. Enter up to 64 ASCII printable characters, except the space character.
<b>Chassis</b>	xxxxxxxxxx	Displays the ION chassis instance (i.e., 1).
<b>Type</b>	xxxxxxxxxx	Displays the ION chassis model type (e.g., <i>ION106</i> ),
<b>Description</b>	xxxxxxxxxx	Displays the ION stack description (i.e. <i>ION Chassis</i> ).

#### Buttons

**Refresh:** Click to update page data. **Save:** Click to save the updated page data. **Help:** Display online help.

## ION106-x Chassis

The ION Management Module (IONMM) connects to the chassis backplane and communicates with the individual cards in the ION Chassis. Each slide-in-module for the ION Chassis has specific features and functions that are controlled via the IONMM. A network administrator can configure, monitor and troubleshoot ION slide-in-cards remotely via the IONMM.

Click the plus sign [+] next to Chassis to unfold the chassis devices.

The Model Information section details the Serial Number, Model Name, Software Revision, Hardware Revision, and Bootloader Revision of the system.

### Model Information

Parameter	Associated MIB Variable	Description
<b>Serial Number</b>	<i>entPhysicalSerialNum(11)</i>	The Transition Networks (TN) serial number string for the ION106-x chassis physical entity. The serial number of the chassis itself. Each individual Slide-In Card also has its own serial number.
<b>Model Name</b>	<i>entPhysicalModelName(13)</i>	The specific ION106-x chassis model (e.g., <i>ION106-A</i> ). The Transition Networks model name identifier string for the ION106-x chassis physical entity. The exact model name of this device (e.g., <i>ION106-D</i> ). When contacting Technical Support, please be sure to give this name.
<b>Software Revision</b>	<i>entPhysicalSoftwareRev(10)</i>	The current ION106-x chassis software version (e.g., v 1.3.14). The Transition Networks software revision string for the ION106-x chassis physical entity.

Parameter	Associated MIB Variable	Description
<b>Hardware Revision</b>	<i>entPhysicalHardwareRev(8)</i>	The current power supply hardware version (e.g., v 1.1). The Transition Networks hardware revision string for the ION106-x chassis physical entity.
<b>Bootloader Revision</b>	<i>entPhysicalFirmwareRev(9)</i>	The current Chassis bootloader version (e.g., v 0.1.0).

## Chassis Members

The Chassis Members table lists the Stack's Chassis Member(s) Slot number, Slot Status, Description, and Power Status as described below.

Parameter	Associated MIB Variable	Description
<b>Slot</b>		The chassis slot index number (i.e., 1-6).
<b>Slot Status</b>		Indicates whether a chassis slot is <i>Empty</i> or <i>Occupied</i> . A 2-high SIC such as the C6120 will show one slot as <i>Empty</i> and the adjacent slot as <i>Occupied</i> .
<b>Description</b>		The card type. All descriptions start with "ION BPC Media Conversion Card" followed by the actual card type (e.g., IONMM or C3220-1040 or S6120-1013).
<b>Power Status</b>	<i>entPhySensorOperStatus(5)</i>	The current slot power status. This is the operational status of the sensor. For the IONMM, the status displays (e.g., OK, which is a read only field). The other cards in the chassis slots provide buttons for <b>Off</b> and <b>Reset</b> . You can click the <b>Off</b> button to remove power from the slot. You can click the <b>Reset</b> button to reset (reboot) the card in the slot.

## Buttons

**Refresh:** Click to update page data.

**Help:** Click to display online help for the page.



## IONPS6-x Power Supply Device Details

Click the plus sign [+] next to IONPS6-A or IONPS6-D to unfold the device details. A status reading of voltage, current, power, fan rpm, and temperature is reported once per second. Select an index item and click the **Edit** button, edit the desired parameter(s), and then click the **Save** button.

The screenshot shows the ION System web interface. On the left, a tree view under 'ION Stack' shows 'Chassis' containing several components, with '[22] IONPS6-A' selected and circled in orange. The main panel, titled 'MAIN', displays configuration details for the selected device. It is divided into sections: 'Model Information' with fields for Serial Number (N/A), Model (IONPS6-A), Software Revision (1.3.14), Hardware Revision (1.0.0), and Bootloader Revision (0.1.1); 'Sensors and Fan(s)' with fields for Temperature (29 °C), Temperature Status (OK), Voltage (11000 milliVolts), Voltage Status (Nonoperational), Power (49 Watts), Power Status (OK), Fan Speed (5639), and Fan Status (OK); and 'Miscellaneous' with fields for Module Type (AC Module) and Master/Slave Mode (Master). At the bottom right, there are buttons for 'Refresh', 'Save', and 'Help'.

The following attributes of the IONPS6-x are manageable via SNMP or the Web interface. A few other configuration settings are not part of the MIB and therefore can be changed only at the Command Line Interface. See the *ION System CLI Reference* manual for more information.

### Model Information

Parameter	Associated MIB Variable	Description
<b>Serial Number</b>	<i>entPhysicalSerialNum(11)</i>	The Transition Networks (TN) serial number string for the IONPS6-A physical entity or <i>N/A</i> if not available.
<b>Model</b>	<i>entPhysicalModelName(13)</i>	The specific ION power supply model (e.g., <i>IONPS6-A</i> or <i>IONPS6-D</i> ). The Transition Networks model name identifier string for the IONPS6-x physical entity.
<b>Software Revision</b>	<i>entPhysicalSoftwareRev(10)</i>	The current power supply software version (e.g., v <i>1.3.14</i> ). The Transition Networks software revision string for the IONPS6-A physical entity.
<b>Hardware Revision</b>	<i>entPhysicalHardwareRev(8)</i>	The current power supply hardware version (e.g., v <i>1.1</i> ). The Transition Networks hardware revision string for the IONPS6-A physical entity.
<b>Bootloader Revision</b>	<i>entPhysicalFirmwareRev(9)</i>	The current power supply hardware version (e.g., v <i>0.1.0</i> ). The Transition Networks firmware revision string for the IONPS6-A physical entity.

### Buttons

**Refresh:** Click to update page data. **Help:** Click to display online help for the page.

**Help:** Click to display online help for the page.

## Sensors and Fan(s)

The IONPS6-x power supply fan speed automatically increases as the temperature sensed increases.

Parameter	Associated MIB Variable	Description
<b>Temperature</b>	<i>entPhySensorValue(4)</i>	The existing power supply temperature (e.g., 25 °C). The most recent measurement obtained by the agent for this sensor.
<b>Temperature Status</b>	<i>entPhySensorOperStatus(5)</i>	The existing power supply temperature status (e.g., OK). The operational status of the sensor.
<b>Voltage</b>	<i>entPhySensorValue(4)</i>	The existing power supply voltage (e.g., 12000 <i>miliVolts</i> ). The most recent measurement obtained by the agent for this sensor.
<b>Voltage Status</b>	<i>entPhySensorOperStatus(5)</i>	The existing power supply voltage status (e.g., OK or Nonoperational). The operational status of the sensor.
<b>Power</b>	<i>entPhySensorValue(4)</i>	The existing power supply power reading (e.g., 49 <i>Watts</i> ). The most recent measurement obtained by the agent for this sensor.
<b>Power Status</b>	<i>entPhySensorOperStatus(5)</i>	The existing power supply power status (e.g., OK). The operational status of the sensor.
<b>Fan Speed</b>	<i>entPhySensorValue(4)</i>	The existing power supply fan speed in revolutions per minute (e.g., 5639 <i>RPM</i> ). The most recent measurement obtained by the agent for this sensor (in RPM).
<b>Fan Status</b>	<i>entPhySensorOperStatus(5)</i>	The existing power supply fan status (e.g., OK). The operational status of the sensor.

## Miscellaneous

Parameter	Associated MIB Variable	Description
<b>Module Type</b>	xxxxxxxxxx	The currently installed IONPS module type, either: <i>AC Module = IONPS6-A</i> , or <i>AC Module = IONPS6-D</i>
<b>Master/Slave Mode</b>	<i>ionEntSensorExtOperMode(4)</i>	The current power supply mode ( <i>Master</i> or <i>Slave</i> ). Displays/sets the operational mode of the power supply when redundant PS modules exist (read / write). The Slave power supply is the fail-over or redundant (backup) power supply.

## Buttons

**Refresh:** Click to update page data.

**Help:** Click to display online help for the page.



## Temperature Sensor

The IONPS6-x Temperature Sensor page is shown and described below. Select an index item and click the **Edit** button, edit the desired parameter(s), and then click the **Refresh** button.

Index	Severity	Relation	Value	Notification	Last Evaluation
1	Other	Less Than	0	Disabled	False
2	Minor	Greater Than	0	Disabled	False
3	Major	Greater Or Equal	60	Disabled	False
4	Critical	Greater Or Equal	70	Enabled	False

Parameter	Associated MIB Variable	Description
<b>Temperature</b>	xxxxxxxxxxx	Displays the most recent temperature measurement obtained by the agent for this sensor.
<b>Temperature Status</b>	xxxxxxxxxxx	Displays the operational status of the physical sensor: <b>OK:</b> indicates the agent can obtain the sensor value. <b>Unavailable:</b> indicates that the agent presently cannot obtain the sensor value. <b>Nonoperational:</b> indicates that the agent believes the sensor is broken. The sensor could have a hard failure (disconnected wire), or a soft failure (e.g., out-of-range, jittery, or wildly fluctuating readings).
<b>Threshold Settings</b>		
<b>Index</b>	<i>ionEntSensorThresholdIndex(1)</i>	An index that uniquely identifies an entry (row) in the Sensor Threshold Table. Select an index line / number that uniquely identifies an entry in the Threshold Table. The index permits the same sensor to have several different threshold values set.
<b>Severity</b>	<i>ionEntSensorThresholdSeverity(2)</i>	The Severity field indicates the severity of this threshold: <b>Other:</b> a severity other than one listed below. <b>Minor:</b> Minor Problem threshold. <b>Major:</b> Major Problem threshold. <b>Critical:</b> Critical problem threshold. A system might shut down the sensor associated FRU automatically if the sensor value reaches this threshold.

Parameter	Associated MIB Variable	Description
<b>Relation</b>	<i>ionEntSensorThresholdRelation(3)</i>	Sets / indicates the relation between sensor value (Sensor Value) and threshold value (Sensor Threshold Value), required to trigger the alarm. Valid values are: <b>Less Than:</b> if the sensor value is less than the threshold value. <b>Less Or Equal:</b> if the sensor value is less than or equal to the threshold value. <b>Greater Than:</b> if the sensor value is greater than the threshold value. <b>Greater Or Equal:</b> if the sensor value is greater than or equal to the threshold value. <b>Equal To:</b> if the sensor value is equal to the threshold value. <b>Not Equal To:</b> if the sensor value is not equal to the threshold value.
<b>Value</b>	<i>ionEntSensorThresholdValue(4)</i>	This field indicates the value of the threshold (read only). See the individual parameter descriptions above for details.
<b>Notification</b>	<i>ionEntSensorThresholdNotification Enable(6)</i>	Controls generation of Sensor Threshold Notification for this threshold. When 'true', generation of Sensor Threshold Notification is enabled for this threshold. When 'false', generation of Sensor Threshold Notification is disabled for this threshold.
<b>Last Evaluation</b>	<i>ionEntSensorThresholdEvaluation (5)</i>	Indicates the result of the most recent threshold evaluation. The Last Evaluation field displays 'True' if parameters were included in the most recent measurement, otherwise displays 'False'.

### **Buttons**

**Refresh:** Click to update page data.

**Help:** Click to display online help for the page.

**Edit:** Click to modify page data. A save is required to retain the new data.

## Voltage Sensor

The IONPS6-x Voltage Sensor page is shown and described below. Select an index item and click the **Edit** button, edit the desired parameter(s), and then click the **Refresh** button.

Index	Severity	Relation	Value	Notification	Last Evaluation
1	Critical	Less Than	10000	Enabled	False
2	Minor	Greater Than	10500	Disabled	False
3	Major	Greater Or Equal	14000	Disabled	False
4	Critical	Greater Or Equal	14500	Enabled	False

Parameter	Associated MIB Variable	Description
<b>Voltage</b>	<i>entPhySensorValue(4)</i>	The current power supply voltage (e.g., 12 <i>miliVolts</i> ). The most recent measurement obtained by the agent for this sensor.
<b>Voltage Status</b>	<i>entPhySensorOperStatus(5)</i>	The current power supply voltage status (e.g., OK or <i>Nonoperational</i> ). The operational status of the sensor.
<b>Threshold Settings</b>		
<b>Index</b>	<i>ionEntSensorThresholdIndex(1)</i>	An index that uniquely identifies an entry (row) in the Sensor Threshold Table. Select an index line / number that uniquely identifies an entry in the Threshold Table. The index permits the same sensor to have several different threshold values set.
<b>Severity</b>	<i>ionEntSensorThresholdSeverity(2)</i>	The Severity field indicates the severity of this threshold: <b>Other</b> : a severity other than those listed below. <b>Minor</b> : Minor Problem threshold. <b>Major</b> : Major Problem threshold. <b>Critical</b> : Critical problem threshold. A system might shut down the sensor associated FRU automatically if the sensor value reaches this threshold.
<b>Relation</b>	<i>ionEntSensorThresholdRelation(3)</i>	Sets / indicates the relation between sensor value (Sensor Value) and threshold value (Sensor Threshold Value), required to trigger the alarm. Valid values are: <b>Less Than</b> : if the sensor value is less than the threshold value.

Parameter	Associated MIB Variable	Description
		<p><b>Less Or Equal:</b> if the sensor value is less than or equal to the threshold value.</p> <p><b>Greater Than:</b> if the sensor value is greater than the threshold value.</p> <p><b>Greater Or Equal:</b> if the sensor value is greater than or equal to the threshold value.</p> <p><b>Equal To:</b> if the sensor value is equal to the threshold value.</p> <p><b>Not Equal To:</b> if the sensor value is not equal to the threshold value.</p>
<b>Value</b>	<i>ionEntSensorThresholdValue(4)</i>	This field indicates the value of the threshold (read only). See the individual parameter descriptions above for details.
<b>Notification</b>	<i>ionEntSensorThresholdNotificationEnable(6)</i>	Controls generation of Sensor Threshold Notification for this threshold. When 'true', generation of Sensor Threshold Notification is enabled for this threshold. When 'false', generation of Sensor Threshold Notification is disabled for this threshold.
<b>Last Evaluation</b>	<i>ionEntSensorThresholdEvaluation(5)</i>	Indicates the result of the most recent threshold evaluation. The Last Evaluation field displays 'True' if parameters were included in the most recent measurement, otherwise displays 'False'.

### **Buttons**

**Refresh:** Click to update page data.

**Help:** Click to display online help for the page.

**Edit:** Click to modify page data. A save is required to retain the new data.

## Power Sensor

The IONPS6-x Power Sensor page is shown and described below. Select an index item and click the **Edit** button, edit the desired parameter(s), and then click the **Refresh** button.

Index	Severity	Relation	Value	Notification	Last Evaluation
1	Critical	Less Or Equal	5	Enabled	False
2	Minor	Greater Than	75	Disabled	False
3	Major	Greater Or Equal	65	Disabled	False
4	Critical	Greater Or Equal	75	Enabled	False

Parameter	Associated MIB Variable	Description
<b>Power</b>	<i>entPhySensorValue(4)</i>	The current power supply power reading (e.g., <i>3606 Watts</i> ). The most recent measurement obtained by the agent for this sensor.
<b>Power Status</b>	<i>entPhySensorOperStatus(5)</i>	The current power supply power status (e.g., <i>OK</i> ). This is the operational status of the sensor.
<b>Threshold Settings</b>		
<b>Index</b>	<i>ionEntSensorThresholdIndex(1)</i>	An index that uniquely identifies an entry (row) in the Sensor Threshold Table. Select an index line / number that uniquely identifies an entry in the Threshold Table. The index permits the same sensor to have several different threshold values set.
<b>Severity</b>	<i>ionEntSensorThresholdSeverity(2)</i>	The Severity field indicates the severity of this threshold: <b>Other</b> : a severity other than those listed below. <b>Minor</b> : Minor Problem threshold. <b>Major</b> : Major Problem threshold. <b>Critical</b> : Critical problem threshold. A system might shut down the sensor associated FRU automatically if the sensor value reaches this threshold.
<b>Relation</b>	<i>ionEntSensorThresholdRelation(3)</i>	Sets / indicates the relation between sensor value (Sensor Value) and threshold value (Sensor Threshold Value), required to trigger the alarm. Valid values are: <b>Less Than</b> : if the sensor value is less than

Parameter	Associated MIB Variable	Description
		the threshold value. <b>Less Or Equal:</b> if the sensor value is less than or equal to the threshold value. <b>Greater Than:</b> if the sensor value is greater than the threshold value. <b>Greater Or Equal:</b> if the sensor value is greater than or equal to the threshold value. <b>Equal To:</b> if the sensor value is equal to the threshold value. <b>Not Equal To:</b> if the sensor value is not equal to the threshold value.
<b>Value</b>	<i>ionEntSensorThresholdValue(4)</i>	This field indicates the value of the threshold (read only). See the individual parameter descriptions above for details.
<b>Notification</b>	<i>ionEntSensorThresholdNotificationEnable(6)</i>	Controls generation of Sensor Threshold Notification for this threshold. When 'true', generation of Sensor Threshold Notification is enabled for this threshold. When 'false', generation of Sensor Threshold Notification is disabled for this threshold.
<b>Last Evaluation</b>	<i>ionEntSensorThresholdEvaluation(5)</i>	Indicates the result of the most recent threshold evaluation. The Last Evaluation field displays 'True' if parameters were included in the most recent measurement, otherwise displays 'False'.

### Buttons

**Refresh:** Click to update page data.

**Help:** Click to display online help for the page.

**Edit:** Click to modify page data. A save is required to retain the new data.

**Error:** With power supply off, Power Status still displays "OK".

**Meaning:** On the 6-slot and the 19-slot chassis, the Power is shown as 0 Watts and the Voltage Status is "Nonoperational" but Power Status shows "OK". On the 19-slot the Power Status shows "Nonoperational".

This doesn't affect functionality or traps.

**Recovery:** None. Be aware that this is a known issue and will be fixed in an upcoming release.

## Fan

The IONPS6-x Fan page is shown and described below. Select an index item and click the **Edit** button, edit the desired parameter(s), and then click the **Edit** button.

Index	Severity	Relation	Value	Notification	Last Evaluation
1	Critical	Equal To	0	Enabled	True
2	Minor	Greater Than	2000	Disabled	False
3	Major	Greater Or Equal	9500	Disabled	False
4	Critical	Greater Or Equal	9999	Enabled	False

Parameter	Associated MIB Variable	Description
<b>Fan Speed</b>	<i>entPhySensorValue(4)</i>	The current power supply fan speed in revolutions per minute (e.g., <i>5181RPM</i> ). The most recent measurement obtained by the agent for this sensor (in RPM).
<b>Fan Status</b>	<i>entPhySensorOperStatus(5)</i>	The current power supply fan status (e.g., <i>OK</i> ). The operational status of the sensor.
<b>Threshold Settings</b>		
<b>Index</b>	<i>ionEntSensorThresholdIndex(1)</i>	An index that uniquely identifies an entry (row) in the Sensor Threshold Table. Select an index line / number that uniquely identifies an entry in the Threshold Table. The index permits the same sensor to have several different threshold values set.
<b>Severity</b>	<i>ionEntSensorThresholdSeverity(2)</i>	The Severity field indicates the severity of this threshold: <b>Other</b> : a severity other than those listed below. <b>Minor</b> : Minor Problem threshold. <b>Major</b> : Major Problem threshold. <b>Critical</b> : Critical problem threshold. A system might shut down the sensor associated FRU automatically if the sensor value reaches this threshold.
<b>Relation</b>	<i>ionEntSensorThresholdRelation(3)</i>	Sets / indicates the relation between sensor value (Sensor Value) and threshold value (Sensor Threshold Value), required to trigger the alarm. Valid values are: <b>Less Than</b> : if the sensor value is less than the threshold value. <b>Less Or Equal</b> : if the sensor value is less than or equal to the threshold value.

Parameter	Associated MIB Variable	Description
		<p><b>Greater Than:</b> if the sensor value is greater than the threshold value.</p> <p><b>Greater Or Equal:</b> if the sensor value is greater than or equal to the threshold value.</p> <p><b>Equal To:</b> if the sensor value is equal to the threshold value.</p> <p><b>Not Equal To:</b> if the sensor value is not equal to the threshold value.</p>
<b>Value</b>	<i>ionEntSensorThresholdValue(4)</i>	This field indicates the value of the threshold (read only). See the individual parameter descriptions above for details.
<b>Notification</b>	<i>ionEntSensorThresholdNotificationEnable(6)</i>	Controls generation of Sensor Threshold Notification for this threshold. When 'true', generation of Sensor Threshold Notification is enabled for this threshold. When 'false', generation of Sensor Threshold Notification is disabled for this threshold.
<b>Last Evaluation</b>	<i>ionEntSensorThresholdEvaluation(5)</i>	Indicates the result of the most recent threshold evaluation. The Last Evaluation field displays 'True' if parameters were included in the most recent measurement, otherwise displays 'False'.

Refer to the *IONMM User Guide* for additional information.

### **Buttons**

**Refresh:** Click to update page data.

**Help:** Click to display online help for the page.

**Edit:** Click to modify page data. A save is required to retain the new data.



## 4. Configuration via CLI

Install the IONMM module to access the ION106-x chassis.

**Accessing the IONMM:** The IONMM can be accessed by using either a local serial interface via a USB connection or through an Ethernet network connection. The network connection can be done via a Telnet or Terminal Emulator session or a Web graphical user interface (GUI). Refer to chapter 3. [Configuration via Web GUI](#) on page 20 for additional Web UI information.

**Using a Local Serial Interface (USB):** The IONMM can be connected to a local management station (PC) through a serial interface using the USB connection. The IONMM is controlled by entering command line interface (CLI) commands at the local management station running a Terminal Emulator program. Terminal Emulator session setups vary; basic setup via HyperTerm and Tera Term are discussed below. See the terminal emulator manuals and helps for additional information specific to your OS, terminal emulator package, and version.

### *Operating Systems Supported*

USB drivers for The following Operating Systems are available on the Transition Networks website at [www.transition.com/TransitionNetworks/Products2/Family.aspx?Name=IONMM&ProductID=39596](http://www.transition.com/TransitionNetworks/Products2/Family.aspx?Name=IONMM&ProductID=39596). Login and select the SUPPORT FILES tab.

Windows® 7	Windows 7 x64	Windows XP® 32 bit
Windows 8 (32- and 64-bit)	Windows 2003 32 bit	Windows Vista®
Windows Vista x64	Windows XP 64 bit	Windows 10

The Virtual COM port (VCP) drivers make the USB device appear as an additional COM port available to the PC. Application software can access the USB device in the same way as it would access a standard COM port.

### **Installing the USB Driver**

The following driver installation instructions are for the Windows XP operating system only. Installing the USB driver using another operating system is similar, but not necessarily identical to the following procedure. To install the USB driver on a computer with the Windows XP operating system:

1. Extract the driver from the website and place it in an accessible folder on the local drive of the PC.
2. Connect the IONMM to the USB port on the PC. The “Welcome to the Found New Hardware Wizard” window displays.
3. Select No, not this time.
4. Click Next. The installation options window displays.
5. Select Install from a list or specific location (Advanced).
6. Click Next. The driver search installation options window displays.
7. Click Browse.
8. Locate and select the USB driver downloaded in step 1.
9. Click Next. Installation of the driver begins.
10. When the finished installing screen displays, click Finish.

USB driver install is complete. You must now configure the COM port to be used by the terminal emulator.

## Configuring HyperTerminal

After the USB driver has been installed you must set up the terminal emulator software (e.g., HyperTerminal) to use the USB COM port.

1. On the desktop, right-click on My Computer.
2. Select Manage. The Computer Management window displays.
3. Click Device Manager. The Device Manager window displays.
4. In the right panel, expand the list for Ports (COM & LPT). Note the USB COM port number; you will need to provide this information in step 8 below.
5. Launch the HyperTerminal software.
  - a) Click Start.
  - b) Select All Programs > Accessories > Communications.
  - c) Click HyperTerminal. The Connection Description window displays.
6. Type in a name and select an icon that will be used for this connection.
7. Click OK. The Connect To window displays.
8. From the drop-down list in the Connect using field, select the COM port noted in step 4.
9. Click OK. The Port Settings window displays.
10. Set the COM port properties as follows:
  - Bits per second: 115200
  - Data bits: 8
  - Parity: None
  - Stop bits: 1
  - Flow control: None

Note: the IONMM can autodetect the rate (Bits per second setting).

11. Click **OK**. A blank HyperTerm window displays.
12. In the HyperTerm window, select File>Properties.
13. Click the Settings tab.
14. In the Emulation field, select VT100.
15. Click ASCII Setup....
16. Verify that Wrap lines that exceed terminal width is selected (checkbox is checked).
17. Click OK twice.
18. Login (see "Starting a USB Session" below).

## Starting a USB Session in HyperTerminal

The following procedure describes how to access the IONMM via a USB connection.

1. Start the terminal emulator program (e.g., HyperTerminal).
2. After the emulator screen displays, press Enter. The login prompt displays. Note: if a “*Login incorrect*” message displays, ignore it.

Note: If your systems uses a security protocol (e.g., RADIUS, SSH, etc.), you must enter the login and password required by that protocol.

3. Type your login (the default is ION). Note that the login is case sensitive (all capital letters)
4. Press Enter. The HyperTerminal password prompt displays.
5. Type your password (the default is private). Note that the password is case sensitive (all lower case letters).
6. Press Enter. The command line prompt displays.

You can now enter commands to set up the various configurations for the IONMM (see “[Section 3: Configuration](#)” on page 50). For a description of all available CLI commands see the ION Systems CLI Reference Manual, 33461.

## Terminating a USB Connection

To terminate the USB connection, do the following.

1. At the command prompt, type quit.
2. Press Enter.
3. Click Call > Disconnect.
4. Click File > Exit.

## Set Up Tera Term in Windows 7

1. Select Windows Start > HyperTerminal.
2. At HT - Properties - Connect To select the Settings tab.
3. At HT - Properties - Settings in the Emulation section select *VT100*.
4. Click the ASCII Setup button.
5. At ASCII Setup, make sure the *Wrap lines that exceed terminal width* checkbox is checked and click OK.
6. Click the Terminal Setup button.
7. At Terminal setup dialog configure the Tera Term parameters.
8. Click the **OK** button and enter CLI commands as described in the next section.

## Set Up HyperTerminal in Windows 7

1. Select Windows Start > Tera Term. Select an existing connection and enter CLI commands, or create a new connection and continue to step 2 below.
2. At the Tera Term: New connection dialog, select the Serial radio button and the COM Port, and click **OK**.
3. Select Setup > Terminal to display the Tera Term - Terminal setup dialog.
4. At Tera Term > Terminal setup select
5. Click the **OK** button and enter CLI commands as described in the next section.

## CLI Commands

The IONPS106-x supports these CLI commands:

- set slot power mode**=(on/off/reset)
- show slot info**
- show card info**
- show cardtype**
- set ps sensor threshold** (stid = xx) (notif / relation / severity / value)
- show power config** (PS sensor / threshold config)
- stat** (show chassis topology)

The supported ION106-x CLI commands are described below. See the related *ION CLI Reference* for the full set of CLI command descriptions.

**Command:**      **Set Slot Power Mode**

**Syntax:**        **set slot xx power**=(on/off/reset)

**Description:**   Set the current IONPS106-x power mode for a selected slot. The default is power on. You cannot set slot power on the power supply modules (slot 22 and 23).

**Example:**       Configure the power mode for a selected slot.

```
Agent III C1|S1|L1D>set slot 2 power ?
  off
  on
  reset
Agent III C1|S1|L1D>set slot 2 power on
Agent III C1|S1|L1D>set slot 2 power off
Agent III C1|S1|L1D>set slot 2 power reset
Agent III C1|S1|L1D>show slot info
Chassis BPC information:

Serial number:      106005
Model name:         ION106
Software:           1.3.5
Hardware:           1.0.0
Bootloader:        0.1.1

Slot information:
slot      slot status      description                               power status
-----
-
1         occupied          ION Management Module AGENT              on
2         occupied          ION Media Conversion Module C2220-1014   on
3         occupied          ION Media Conversion Module C3220-1040   on
4         occupied          ION Media Conversion Module C3230-1040   on
5         occupied          ION Media Conversion Module C6010-3040   on
6         occupied          ION Media Conversion Module C6210-3040   on
Agent III C1|S1|L1D>
```

**Message:** *Cannot set slot power on this card!*

**Command:** Show Slot Information**Syntax:** show slot info

**Description:** Displays current ION Chassis slot information when entered from the IONMM. Power supplies will not display in CLI. A “double-wide” converter such as the C6120-1013 will show one slot as empty and the adjacent slot as occupied. This command is only valid on an IONMM.

**Examples:** Display current slot information from the IONMM.

```
Agent III C1|S1|L1D>show slot info
Chassis BPC information:

Serial number:      106005
Model name:         ION106
Software:           1.3.5
Hardware:           1.0.0
Bootloader:         0.1.1

Slot information:
slot      slot status      description                                     power status
-----
-
1         occupied          ION Management Module AGENT                    on
2         occupied          ION Media Conversion Module C2220-1014         on
3         occupied          ION Media Conversion Module C3220-1040         on
4         occupied          ION Media Conversion Module C3230-1040         on
5         occupied          ION Media Conversion Module C6010-3040         on
6         empty              ION Media Conversion Module C6010-3040         on
Agent III C1|S1|L1D>
```

```
Agent III C1|S1|L1D>show slot info
Chassis BPC information:

Serial number:      106005
Model name:         ION106
Software:           1.3.5
Hardware:           1.0.0
Bootloader:         0.1.1

Slot information:
slot      slot status      description                                     power status
-----
-
1         occupied          ION Management Module AGENT                    on
2         occupied          ION Media Conversion Module C2220-1014         on
3         occupied          ION Media Conversion Module C3220-1040         on
4         occupied          ION Media Conversion Module C3230-1040         on
5         occupied          ION Media Conversion Module C6010-3040         on
6         occupied          ION Media Conversion Module C6210-3040         on
Agent III C1|S1|L1D>
```

**Command:** Show Card Information

**Syntax:** show card info

**Description:** Displays current ION Chassis card information when entered from the IONMM or from the SIC.

**Example:** Display current card information from the IONMM (Agent III), and then from the C2220 SIC:

```
Agent III C1|S1|L1D>show card info
System name:      Agent III
Uptime:          00:39:28
CPU MAC:         00-c0-f2-20-de-7f
Port number:     2
Serial number:   9444
Config mode:     software
Software:        1.3.14
Bootloader:      1.2.1

Hardware:        1.0.0
Agent III C1|S1|L1D>go c=1 s=2 l1d
Agent III C1|S2|L1D>show card info
System name:      C2220-1014
Uptime:          00:34:29
CPU MAC:         00-c0-f2-21-02-b3
Port number:     2
Serial number:   11673589
Config mode:     software
Software:        1.3.1
Bootloader:      1.2.1

Hardware:        1.0.0
Agent III C1|S2|L1D>
```

**Command:** Show Card Type

**Syntax:** show cardtype

**Description:** Display the current slot's model number.

**Example:** Show the card type info for the IONMM card in slot 1, the power supplies in slots 22 and 23, and the C3220 card in slot 3:

```
Agent III C1|S1|L1D>show cardtype
Card type:        IONMM
Agent III C1|S1|L1D>go c=1 s=22 l1d
Agent III C1|S22|L1D>show cardtype
Card type:        IONPS6-A
Agent III C1|S22|L1D>go c=1 s=22 l1p=1
Agent III C1|S22|L1P1>show cardtype
Error: this command should be executed on a device!
Agent III C1|S22|L1P1>go c=1 s=23 l1d
Agent III C1|S23|L1D>show cardtype
Card type:        IONPS6-D
Agent III C1|S22|L1D>go c=1 s=3 l1d
Agent III C1|S3|L1D>show cardtype
Card type:        C3220-1040
Agent III C1|S3|L1D>
```

**Command:** Set PS Sensor Threshold Parameters**Syntax:** set sensor stid=(notification/relation/severity/value)**Description:** Sets the current IONPS106-x Sensor Threshold ID (stid) settings. Note that this command should be executed on a sensor. Access the power supply sensors as ports on the module. This is a port level command. The stid (Sensor Transaction ID) parameters are:**notification:** select *true* to be informed of Temperature Sensor events, or select *false* to not receive notification of Temperature Sensor events. If this value is false (disabled), then no SensorThresholdNotification will be generated on this device. If this value is true (enabled), then whether a SensorThresholdNotification for a threshold will be generated or not depends on the instance value of SensorThresholdNotificationEnable for that threshold.**relation:** Less Than (<), Less Or Equal (>=), Greater Than (>), Greater Or Equal (>=), Equal To (=), or Not Equal To (≠), where:

- lessThan: if the sensor value is less than the threshold value.
- lessOrEqual: if the sensor value is less than or equal to the threshold value.
- greaterThan: if the sensor value is greater than the threshold value.
- greaterOrEqual: if the sensor value is greater than or equal to the threshold value.
- equalTo: if the sensor value is equal to the threshold value.
- notEqualTo: if the sensor value is not equal to the threshold value.

Relation indicates the relation between sensor value (entSensorValue) and threshold value (ionEntSensorThresholdValue), required to trigger the alarm.

When evaluating the relation, entSensorValue is on the left of SensorThresholdRelation, and SensorThresholdValue is on the right (e.g., entSensorValue ≥ SensorThresholdValue).

**severity:** select minor, major, critical or other. Critical is the most severe, Major is the next most severe, and Minor is the least severe. The system might shut down the sensor associated FRU automatically if the sensor value reaches the Critical problem threshold.**value:** defines the value of the threshold (e.g., for a Major threshold severity selection, set a relation of Greater than or equal to 65 as the requirement for notification). To correctly display or interpret this variable's value, you must also know the SensorType, SensorScale, and SensorPrecision. However, you can directly compare SensorValue with the threshold values given in the SensorThresholdTable without any semantic knowledge.**Example:** Use the ? to display valid values for each parameter:

```
Agent III C1|S23|L1P2>set sensor stid 1 notif ?
  disable
  enable
Agent III C1|S23|L1P2>set sensor stid 1 relation ?
  equalTo
  greaterOrEqual
  greaterThan
  lessOrEqual
  lessThan
  notEqualTo
Agent III C1|S23|L1P2>set sensor stid 1 severity ?
```

```

critical
major
minor
other
Agent III C1|S23|L1D>set sensor stid 1 value value ?
<cr>
Agent III C1|S23|L1D>set sensor stid 1 value value
Error: Please input a digital number to specify sensor threshold value!
Agent III C1|S23|L1D>set sensor stid 1 value value 100
% Unknown command.
Agent III C1|S23|L1D>set sensor stid 1 value 100
Error: this command should be executed on a sensor!
Agent III C1|S23|L1D>go l1p=1
Agent III C1|S23|L1P1>set sensor stid 1 value 100
Agent III C1|S23|L1P1>

```

**Note** that this command should be executed on a sensor. Access the power supply sensors as ports (i.e., stid 1 = l1p1) as shown below:

```

Agent III C1|S23|L1D>set sensor stid 1 notif enable
Error: this command should be executed on a sensor!
Agent III C1|S23|L1D>go c=1 s=23 l1p=1
Agent III C1|S23|L1P1>set sensor stid 1 notif enable
Agent III C1|S23|L1P1>go c=1 s=23 l1p=2
Agent III C1|S23|L1P2>set sensor stid 1 notif enable
Agent III C1|S23|L1P2>

```

**Note** that the **relation** parameter is case-sensitive, with the two words run together, the first word in lower case, and the second word and third word in Upper case:

equalTo    greaterOrEqual    greaterThan    lessOrEqual    lessThan    notEqualTo

The message “% *Unknown command.*” displays if the **relation** parameter is entered incorrectly in terms of case and spacing.

Use the **show power config** command to display the related current status; see below for description.



**Command:** Show PS Sensor / Threshold Information**Syntax:** show power config**Description:** Displays the current IONPS6-x Temperature, Voltage, Power, and Fan data.**Example:** Show the existing Power Supply Sensor and Fan information:

```

Agent III C1|S23|L1P1>show power config
Error: this command should be executed on a device!
Agent III C1|S23|L1P1>go c=1 s=23 l1d
Agent III C1|S23|L1D>show power config
Power supply sensors information:

Temperature Sensor:
  Type:          celsius
  Scale:         units
  Precision:     0
  Value:         30
  Operation status: ok
  Units display: The data units displayed for temperature is units(9)

Threshold information:
index      severity      relation      value      evaluation      notifEnable
-----
1          other         lessThan      0          false          disable
2          minor         greaterThan   0          false          disable
3          major         greaterOrEqual 60         false          disable
4          critical      greaterOrEqual 70         false          enable

Voltage Sensor:
  Type:          voltsAC
  Scale:         milli
  Precision:     0
  Value:         12000
  Operation status: ok
  Units display: The data units displayed for volts is milli(8)

Threshold information:
index      severity      relation      value      evaluation      notifEnable
-----
1          critical      lessThan      10000      false          enable
2          minor         greaterThan   10500      false          disable
3          major         greaterOrEqual 14000      false          disable
4          critical      greaterOrEqual 14500      false          enable

Power Sensor:
  Type:          watts
  Scale:         units
  Precision:     0
  Value:         2
  Operation status: ok
  Units display: The data units displayed for watts is in units(9)

Threshold information:
index      severity      relation      value      evaluation      notifEnable
-----
1          critical      lessOrEqual   5          false          enable
2          minor         greaterThan   75         false          disable

```

```

3          major      greaterOrEqual 65          false      disable
4          critical    greaterOrEqual 75          false      enable

Relay:
  Type:          zetta
  Scale:         ration
  Precision:     0
  Value:         6048
  Operation status: ok
  Units display:

  Installed:    false
  State:        dcModule
  Moduel type:  dcModule
  Oper mode:    slave

Fan-1:
  Type:          rpm
  Scale:         units
  Precision:     0
  Value:         0
  Operation status: ok
  Units display: The data units displayed for Fan 1 in RPM is in units(9)

Threshold information:
index      severity      relation      value      evaluation      notifEnable
-----
1          critical     equalTo      0          false          enable
2          minor       greaterThan   2000       false          disable
3          major       greaterOrEqual 9500       false          disable
4          critical     greaterOrEqual 9999       false          enable

Fan-2:
Error: Get power operation status no such object.
Agent III C1|S23|L1D>

```

**Message:** *Error: Get power operation status no such object.*

**Meaning:** indicates that a second fan does not exist; the device is designed with a single fan.

**Recovery:** Information only. No action is required.

**Message:** *This is an unmanaged chassis!*

**Meaning:** When the ION106-x chassis performed a cold reboot, some layer 2 cards are no longer recognized. When the chassis powers up, the IONMM takes longer to initialize than the TDM cards (C6010, C6120, C6210).

**Recovery:** Upgrade the IONMM and TDM cards to the latest firmware version.

**Command:** Show Chassis Topology Information**Syntax:** stat

**Description:** Display the current ION chassis stack configuration in terms of its slots, devices, and ports. A “double-wide” converter such as the C6120-1013 will not show in the first slot will display fully in the adjacent slot. In the example below, the S6120-1013 displays in slot 6, while it actually occupies slots 5 and 6.

**Example:** Show the existing ION chassis stack configuration.

```
Agent III C1|S23|L1D>stat
ION statck
  Chassis -- BPC
    [ 1] IONMM
        Port 1
        Port 2
    [ 2] C2220-1014
        Port 1
        Port 2
    [ 3] C3220-1040
        Port 1
        Port 2
    [ 4] C3230-1040
        Port 1
        Port 2
    [ 6] S6120-1013
        Port 1
        Port 2
        Port 3
        Port 4
        Port 5
        Port 6
    [ 22] IONPS6-A
        Temperature Sensor
        Voltage Sensor
        Power Sensor
        Fan-1
        Fan-2
    [ 23] IONPS6-D
        Temperature Sensor
        Voltage Sensor
        Power Sensor
        Fan-1
        Fan-2
Agent III C1|S23|L1D>
```

**Message:** Error: The specified module does not exist

**Problem:** The Point System Card sees ION106 as 18-slot Chassis. The Point System card sees the ION106-x chassis, but it sees the chassis as an 18-slot Point System chassis (CPSMC1800-100).

**Message:** CPSMM100-120> stat

```
Point System Agent Summary polltime=5.80(5.80)
>CABINET: Serial=1 model=CPSMC1800-100 desc=""
> [ 6] CPSMM100-120 - Base Management Module
Link=Up Primary=Y IP=192.251.180.216 F/W="160114FD" S/N=11518753
```

**Meaning:** For Point System to work in the ION106 chassis, the BIA EEPROM must be initialized. The CPSMM100-120 (Point System Management Module) firmware must be updated to include a 6-Slot chassis.

**Resolution:** Contact Transition Networks Tech Support for firmware and upgrade instructions.

## SNMP Service and Function

The ION106-x can be managed with the SNMP protocol via the IONMM. The ION106-x supports SNMP V1, V2c, and V3. The ION106-x complies with IETF RFCs 1157, 1158, and 2578 for SNMP. See <http://tools.ietf.org/html/> for details. The ION106-x implements these MIBs:

### root/MIBS

Agent_III_private	public
ION-DEV-SYS-ACL-MIB.my	8021ag81.mib
ION-DEV-SYS-HTTPS-MIB.my	BRIDGE-MIB
ION-DEV-SYS-IONPSAL-MIB.my	DOT3-OAM-MIB.mib
ION-DEV-SYS-IPMGMT-MIB.my	ENTITY-MIB
ION-DEV-SYS-ipv6ACL-MIB.my	ENTITY-SENSOR-MIB.mib
ION-DEV-SYS-PROV-MIB.my	EtherLike-MIB
ION-DEV-SYS-RADIUS-MIB.my	IANA-MAU-MIB.mib
ION-DEV-SYS-SNMPMGMT-MIB.my	IEEE8021-CFM-MIB.mib
ION-DEV-SYS-SNTP-MIB.my	IEEE8021-CFM-V2-MIB.mib
ION-DEV-SYS-SSH-MIB.my	IEEE8021-TC-MIB.mib
ION-DEV-SYS-STATE-MIB.my	IF-MIB
ION-DEV-SYS-TACPLUS-MIB.my	LLDP-MIB.mib
ION-DEV-SYS-TFTP-MIB.my	MAU-MIB
ION-DEV-SYS-UPGRADER-MIB.my	NOTIFICATION-LOG-MIB.mib
ION-DEV-SYS-USER-MIB.my	P-BRIDGE-MIB.mib
ION-DEV-SYSLOG-MIB.my	Q-BRIDGE-MIB.mib
	RFC1213-MIB.mib
	RMON2-MIB
	RMON-MIB
	SNMP-COMMUNITY-MIB.mib
	SNMP-FRAMEWORK-MIB.my
	SNMP-NOTIFICATION-MIB.mib
	SNMP-TARGET-MIB.mib
	SNMP-USER-BASED-SM-MIB.my
	SNMP-VIEW-BASED-ACM-MIB.my
	TOKEN-RING-RMON-MIB
	TN-ION-BPC-MIB.smi
	TN-ION-CHASSIS-MIB.smi
	TN-ION-ENTITY-SENSOR-MIB.smi
	TN-ION-LOAM-EXT-MIB.smi
	TN-ION-MGMT-MIB.smi
	TN-ION-SOAM-EXT.smi
	TN-ION-SOAM-IDX-MIB.smi
	TN-ION-VLAN-MGMT-MIB.mib
	TN-PROV-BRIDGE-MIB.smi
	TRANSITION-SMI.my
	TRANSITION-TC.smi

## 5. Troubleshooting

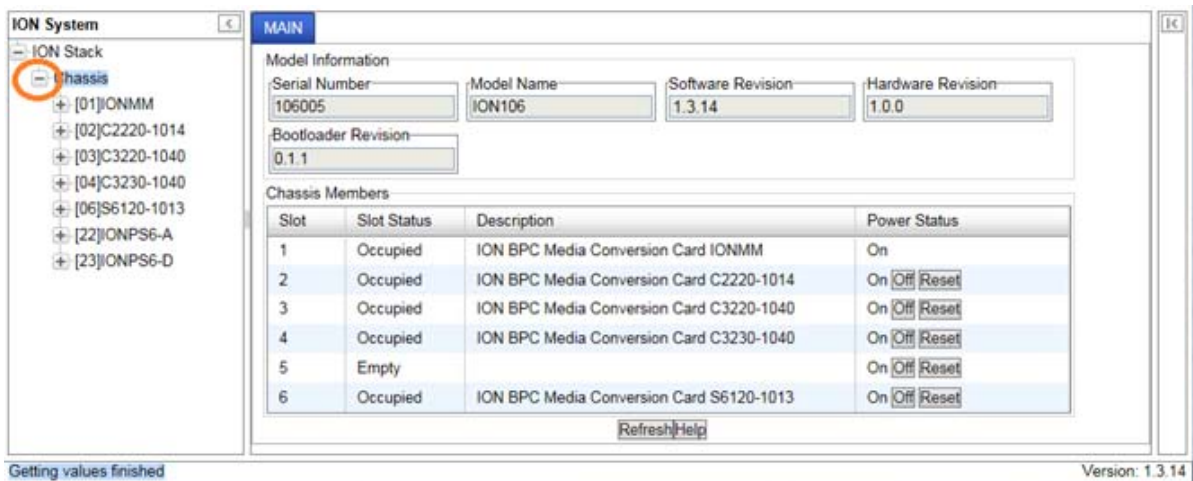
If the ION106-x chassis fails, isolate and correct the failure by performing these steps.

1. Verify the “[Specifications](#)” on page 7 of this manual.
2. Verify the procedures in section 2. [Installation](#) on page 10 were followed.
3. If the ION106-x chassis **PS** LED is lit (orange) make sure the power cord, power outlet, and ION Power Supply are operational.
4. Make sure the power supply is properly installed in the ION106-x and in the grounded AC outlet.
5. Make sure the SICs are properly seated.
6. Make sure the fuse on the ION106-x is intact.
7. Make sure the Power Supply is inserted properly into the chassis and to the external power source.
8. Make sure the external power source provides power.
9. Check the power requirement for the installed slide-in card. For SIC information, see the related SIC manual.
10. Check if newer firmware is available and upgrade if necessary.
11. See the *IONMM User Guide* for general and specific troubleshooting.
12. Check the specific ION SIC for proper configuration (DIP switches or jumper settings, etc.).
13. Record model and system information as discussed below.
14. Contact Technical Support: See [Contact Us](#) on page 48.

## Record Model and System Information

After performing the troubleshooting procedures, and before calling or emailing Technical Support, please record as much information as possible in order to help the TN Technical Support Specialist.

1. Select the ION system Chassis **MAIN** tab. (From the CLI, use the commands needed to gather the information requested below, such as **show card info**, **show slot info**, **show system info**, **show ether config**, **show ip-mgmt config**, **show snmp config**, or others requested by the Tech Support Specialist.



2. Record **Model Information** for your system: Serial Number: \_\_\_\_\_  
 Model Name: \_\_\_\_\_ Software Revision: \_\_\_\_\_  
 Hardware Revision: \_\_\_\_\_ Bootloader Revision: \_\_\_\_\_
3. Record the **System Configuration** information for your system.  
 System Up Time: \_\_\_\_\_ Console Access: \_\_\_\_\_  
 Number of Ports: \_\_\_\_\_ MAC Address: \_\_\_\_\_  
 IP Address Mode: \_\_\_\_\_ IP Address: \_\_\_\_\_  
 Slot Status, Description, and Power Status for each chassis slot (e.g., *Slot 1, Occupied, ION BPC Media Conversion Card IONMM, On*): \_\_\_\_\_  
 \_\_\_\_\_
4. Provide additional Model and System information to your Technical Support Specialist.  
 Your Transition Networks service contract number: \_\_\_\_\_  
 A description of the failure: \_\_\_\_\_  
 \_\_\_\_\_  
 Describe any action already taken to fix the problem (e.g., changing switch mode, rebooting, etc.): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

The serial # and revision # of each involved Transition Networks product in the network:

---

---

5. A description of your network environment (layout, cable type, etc.): \_\_\_\_\_

---

---

---

Network load and frame size at the time of trouble (if known): \_\_\_\_\_

The device history (i.e., have you returned the device before, is this a recurring problem, etc.):

---

---

6. Any previous Return Material Authorization (RMA) numbers: \_\_\_\_\_

---

## 6. Service, Warranty and Tech Support

### Contact Us

**Technical Support:** Technical support is available 24-hours a day

US and Canada: 1-800-260-1312

International: 00-1-952-941-7600

#### Main Office

tel: +1.952.941.7600 | toll free: 1.800.526.9267 | fax: 952.941.2322

[sales@transition.com](mailto:sales@transition.com) | [techsupport@transition.com](mailto:techsupport@transition.com) | [customerservice@transition.com](mailto:customerservice@transition.com)

#### Address

Transition Networks

10900 Red Circle Drive

Minnetonka, MN 55343, U.S.A.

**Web:** <https://www.transition.com>

### Warranty

This warranty is your only remedy. No other warranties, such as fitness for a particular purpose, are expressed or implied. Transition Networks is not liable for any special, indirect, incidental or consequential damages or losses, including loss of data, arising from any cause or theory. Authorized resellers are not authorized to extend any different warranty on transition networks' behalf. Effective for products shipped May 1, 1999 and after. Every Transition Networks' labeled product purchased after May 1, 1999 will be free from defects in material and workmanship for the lifetime of the product. This warranty covers the original user only and is not transferable.

#### *What the Warranty Does Not Cover*

This warranty does not cover damage from accident, acts of God, neglect, contamination, misuse or abnormal conditions of operation or handling, including over-voltage failures caused by use outside the product's specified rating, or normal wear and tear of mechanical components. If the user is unsure of the proper means of installing or using the equipment, contact Transition Networks' free technical support services.

#### *Establishing Original Ownership*

To establish original ownership and provide date of purchase, please complete and return the registration card accompanying the product or register the product on-line on our product registration page.

Transition Networks will at its option:

- Repair the defective product to functional specifications at no charge
- Replace the product with an equivalent functional product
- Refund the purchase price of a defective product



### ***Who to Contact for Returns***

To return a defective product for warranty coverage, contact Transition Networks' technical support department for a return authorization number. Transition's technical support department can be reached through any of the following means:

### ***How and Where to Send Returns***

Send the defective product postage and insurance prepaid to the following address:

Transition Networks, Inc.

10900 Red Circle Drive

Minnetonka, MN 55343 USA

Attn: RETURNS DEPT: CRA/RMA # \_\_\_\_\_

Failure to properly protect the product during shipping may void this warranty. The return authorization number must be written on the outside of the carton to ensure its acceptance. We cannot accept delivery of any equipment that is sent to us without a CRA or RMA number.

CRA's are valid for 60 days from the date of issuance. An invoice will be generated for payment on any unit(s) not returned within 60 days.

Upon completion of a demo/ evaluation test period, units must be returned or purchased within 30 days. An invoice will be generated for payment on any unit(s) not returned within 30 days after the demo/ evaluation period has expired.

The customer must pay for the non-compliant product(s) return transportation costs to Transition Networks for evaluation of said product(s) for repair or replacement. Transition Networks will pay for the shipping of the repaired or replaced in-warranty product(s) back to the customer (any and all customs charges, tariffs, or/and taxes are the customer's responsibility).

Before making any non-warranty repair, Transition Networks requires a \$200.00 charge plus actual shipping costs to and from the customer. If the repair is greater than \$200.00, an estimate is issued to the customer for authorization of repair. If no authorization is obtained, or the product is deemed 'not repairable', Transition Networks will retain the \$200.00 service charge and return the product to the customer not repaired. Non-warranted products that are repaired by Transition Networks for a fee will carry a 180-day limited warranty. All warranty claims are subject to the restrictions and conventions set forth by this document.

Transition Networks reserves the right to charge for all testing and shipping incurred, if after testing, a return is classified as "No Problem Found."

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. TRANSITION NETWORKS IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE OR THEORY. AUTHORIZED RESELLERS ARE NOT AUTHORIZED TO EXTEND ANY DIFFERENT WARRANTY ON TRANSITION NETWORKS'S BEHALF.

### ***Customer Pays Non-Compliant Return Costs***

The customer must pay the non-compliant product(s) return transportation cost to Transition Networks for evaluation of said product(s) for repair or replacement. Transition Networks will pay for shipping the repaired or replaced in-warranty product(s) back to the customer (any and all customs charges, tariffs, or/and taxes are the customer's responsibility).

### ***Non-Warranty Repair Costs***

Before making any non-warranty repair, Transition Networks requires a \$200 charge, plus actual shipping costs to and from the customer. If the repair is greater than \$200, an estimate is issued to the customer for authorization before making the repair. If no authorization is obtained, or the product is deemed not repairable, Transition Networks will retain the \$200 service charge and return the product to the customer not repaired.

### ***Repaired Non-Warranty Products***

Non-warranted products repaired by Transition Networks for a fee will carry a 180-day limited warranty. All warranty claims are subject to the restrictions and conventions set forth by this document. Transition Networks reserves the right to charge for all testing and shipping incurred, if after testing, a return is classified as “No Problem Found.”

## **Compliance Information**

### **FCC Regulations**

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **Canadian ICES-003**

This Class A digital apparatus complies with Canadian ICES-003.  
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

### **CE Marking**

This is a Class A product. In a domestic environment, this product could cause radio interference; as a result, the customer may be required to take adequate preventative measures.

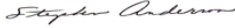
### **UL Listed Power Supply**

The Power Supply is tested and recognized by the Underwriters Laboratories, Inc.

### **Standards**

CISPR22/EN55022 Class A, CE Mark, and IEC 61850-3  
EMC Directive 2004/108/EC; EN 55022:2010  
EN55024: 2010; EN61000-3-2; EN61000-3-3; CFR Title 47 Part 15  
Subpart B Class A; IEC 60950-1 2nd Edition: 2009; UL 60950-1, 2nd Edition: 2007;  
EN 60950-1 2nd Edition: 2006 + A11: 2009

## EU Declaration of Conformity

<b><i>DECLARATION OF CONFORMITY</i></b>	
ION106-A, ION106-D, IONPS6-A, IONPS6-D	
<i>Transition Networks, Inc.</i>	
<small>Manufacturer's Name</small>	
<i>10900 Red Circle Drive, Minnetonka, Minnesota 55343 U.S.A.</i>	
<small>Manufacturer's Address</small>	
<b>DECLARES THAT THE PRODUCT</b>	
ION106-A, ION106-D, IONPS6-A, IONPS6-D	
<b>CONFORMS TO THE FOLLOWING PRODUCT REGULATIONS:</b>	
<b>Directive 2014/30/EU</b>	
FCC Part 15 Class A, EN 55022:2010, EN 55024:2010	
EN 61000-3-2:2006 + A1:2009 + A2:2009	
EN61000-3-3:2008	
IEC /EN 60950-1	
 I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standards(s).	
<i>Minnetonka, Minnesota</i>	<i>5/5/2016</i>
<small>Place</small>	<small>Date</small>
 <hr style="width: 100%;"/>	
<i>Stephen Anderson</i>	<i>Vice President of Engineering</i>
<small>Full Name</small>	<small>Position</small>
<small>28141B</small>	

## European Regulations

**WARNING:** This is a Class A product. In a domestic environment, this product could cause radio interference in which case the user may be required to take adequate measures.

**Achtung !** Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fall ist der Benutzer für Gegenmaßnahmen verantwortlich.

**Attention !** Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.



In accordance with European Union Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003, Transition Networks will accept post usage returns of this product for proper disposal. The contact information for this activity can be found in the 'Contact Us' portion of this document.



**CAUTION:** RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentliches Telekommunikationsnetz in den EG-Mitgliedstaaten verstößt gegen die jeweiligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

## Electrical Safety Warnings

### Electrical Safety

**IMPORTANT:** This equipment must be installed in accordance with safety precautions.

### Elektrische Sicherheit

**WICHTIG:** Für die Installation dieses Gerätes ist die Einhaltung von Sicherheitsvorkehrungen erforderlich.

### Elektrisk sikkerhed

**VIGTIGT:** Dette udstyr skal installeres i overensstemmelse med sikkerhedsadvarslerne.

### Elektrische veiligheid

**BELANGRIJK:** Dit apparaat moet in overeenstemming met de veiligheidsvoorschriften worden geïnstalleerd.

### Sécurité électrique

**IMPORTANT :** Cet équipement doit être utilisé conformément aux instructions de sécurité.

### Sähköturvallisuus

**TÄRKEÄÄ :** Tämä laite on asennettava turvaohjeiden mukaisesti.

### Sicurezza elettrica

**IMPORTANTE:** questa apparecchiatura deve essere installata rispettando le norme di sicurezza.

### Elektrisk sikkerhet

**VIKTIG:** Dette utstyret skal installeres i samsvar med sikkerhetsregler.

### Segurança eléctrica

**IMPORTANTE:** Este equipamento tem que ser instalado segundo as medidas de precaução de segurança.

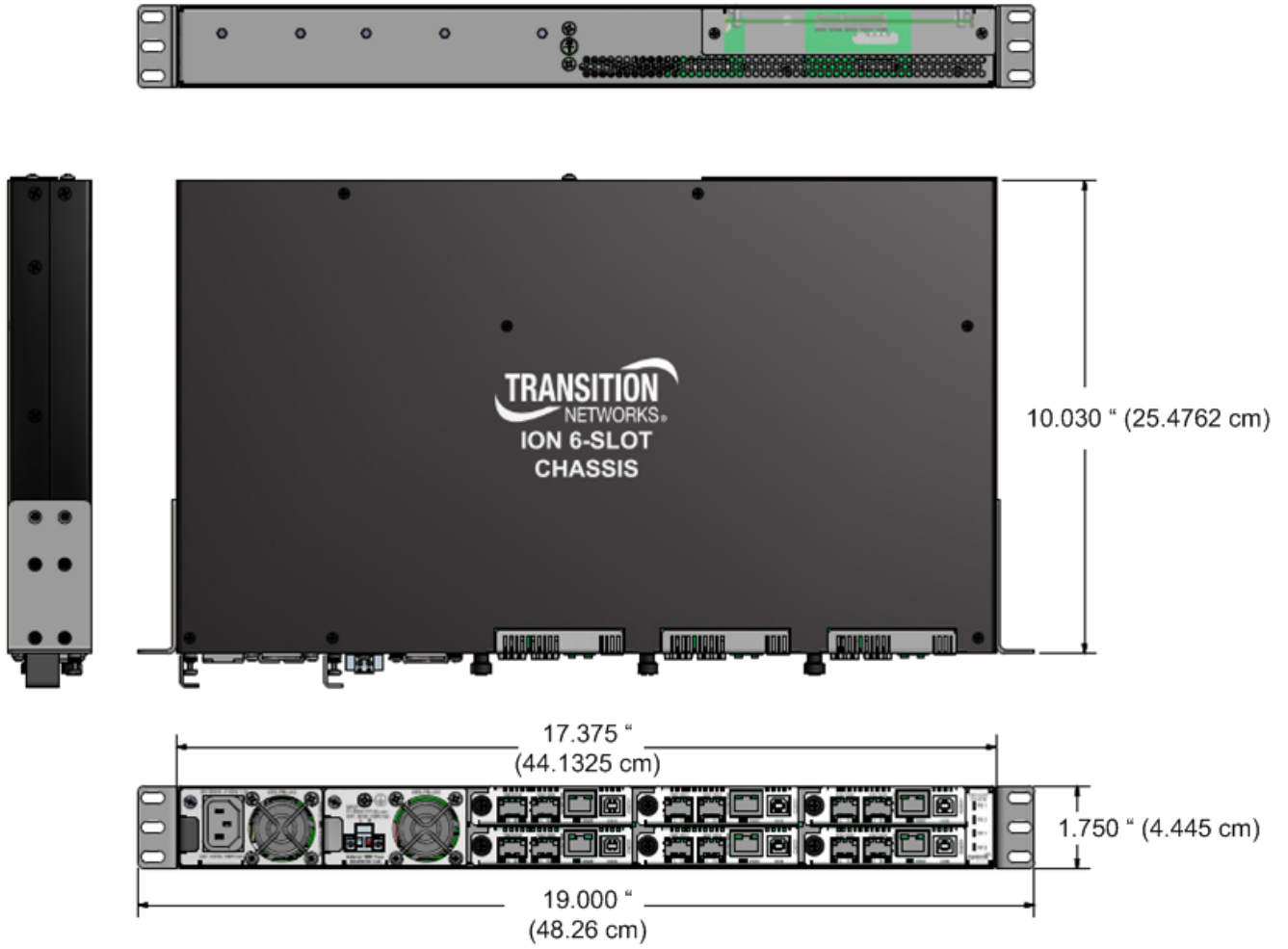
### Seguridad eléctrica

**IMPORTANTE:** La instalación de este equipo deberá llevarse a cabo cumpliendo con las precauciones de seguridad.

### Elsäkerhet

**OBS!** Alla nödvändiga försiktighetsåtgärder måste vidtas när denna utrustning används.

## Dimensions



## Appendix A - Cautions and Warnings

### Definitions

Cautions indicate that there is the possibility of poor equipment performance or potential damage to the equipment. Warnings indicate that there is the possibility of injury to a person. Cautions and Warnings appear here and may appear throughout this manual where appropriate. Failure to read and understand the information identified by this symbol could result in poor equipment performance, damage to the equipment, or injury to persons.

### Cautions

---



**Do not** ship or store devices near strong electrostatic, electromagnetic, magnetic, or radioactive fields.



**Caution:** When handling the devices observe electrostatic discharge precautions. This requires proper grounding (i.e., wear a wrist strap).



**Caution:** Copper based media ports, e.g., Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are intended to be connected to intra-building (*inside plant*) link segments that are not subject to lightning transients or power faults. They are **not** to be connected to inter-building (*outside plant*) link segments that are subject to lightning.



**Caution:** **Do not** install the devices in areas where strong electromagnetic fields (EMF) exist. Failure to observe this caution could result in poor performance.



**Caution:** Read the installation instructions before connecting the chassis to a power source. Failure to observe this caution could result in poor performance or damage to the equipment.



**Caution:** Only trained and qualified personnel should install or perform maintenance on the devices. Failure to observe this caution could result in poor performance or damage to the equipment.



**Caution:** Do not let optical fibers come into physical contact with any bare part of the body since they are fragile, and difficult to detect and remove from the body.



**Caution:** Do not bend any part of an optical fiber/cable to a diameter that is smaller than the minimum permitted according to the manufacturer's specification (usually about 65 mm or 2.5 in)!

## Warnings

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**Warning:** Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.



**Warning:** Visible and invisible laser radiation when open. **Do not** look into the beam or view the beam directly with optical instruments. Failure to observe this warning could result in an eye injury or blindness.



**Warning:** DO NOT connect the power supply module to external power before installing it into the chassis. Failure to observe this warning could result in an electrical shock or death.



**Warning:** Select mounting bracket locations on the chassis that will keep the chassis balanced when mounted in the rack. Failure to observe this warning could allow the chassis to fall, resulting in equipment damage and/or possible injury to persons.



**Warning:** Do not work on the chassis, connect, or disconnect cables during a storm with lightning. Failure to observe this warning could result in an electrical shock or death.



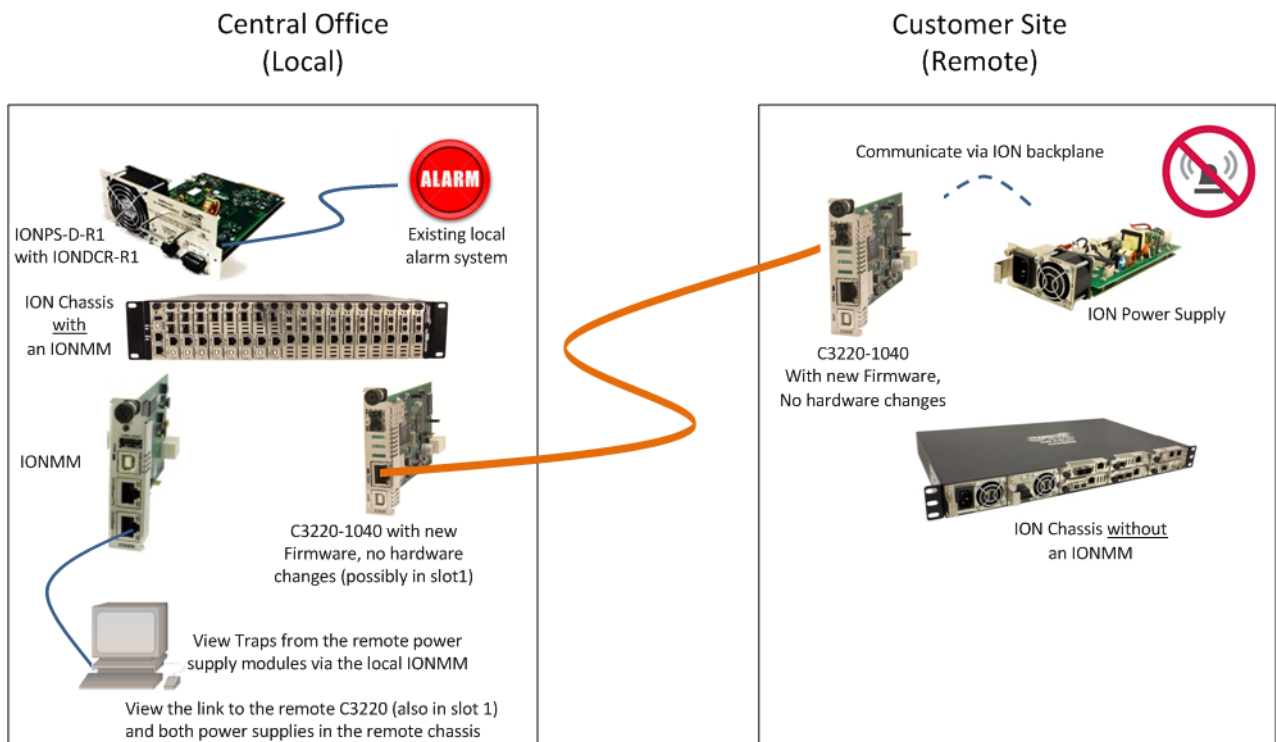
**Warning:** Shock hazard exists if power supply is ejected while powered on.

## Appendix B. Remote Manage Power Supply (RMPS) Feature

This feature is provided with ION C3220-1040 firmware version 1.3.17 or above and IONMM firmware version 1.3.20 or above. ION Power supply support includes IONPS-D, IONPS-A, IONPS-D-R1 and IONPS-A-R1.

ION Chassis support includes the ION 6-slot chassis (ION106) or the ION 19-slot chassis (ION219) deployed as the remote chassis.

The RMPS feature lets you view and manage ION power supplies in a remote unmanaged chassis, in-band, over the fiber, using a pair of C3220-1040 converters. This feature improves visibility of equipment installed in areas with limited accessibility such as a service provider’s customer site.



The RMPS feature depends on the particular chassis, power supply, and NID in terms of CLI and Web UI operation. See the related C3220-1040 manuals for details.



## **Appendix C. Local Management of Cards in a Remote Un-managed Chassis**

ION C222x software v1.3.13 adds a new feature that allows a chassis card to be seen in an unmanaged chassis (UC). Remote firmware upgrade of cards in an UC is also supported. See the ION x222x/x32xx User Guide for more information.



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Fax: 952-941-2322  
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ION System ION106PS-x Install Guide, 33658 Rev. D