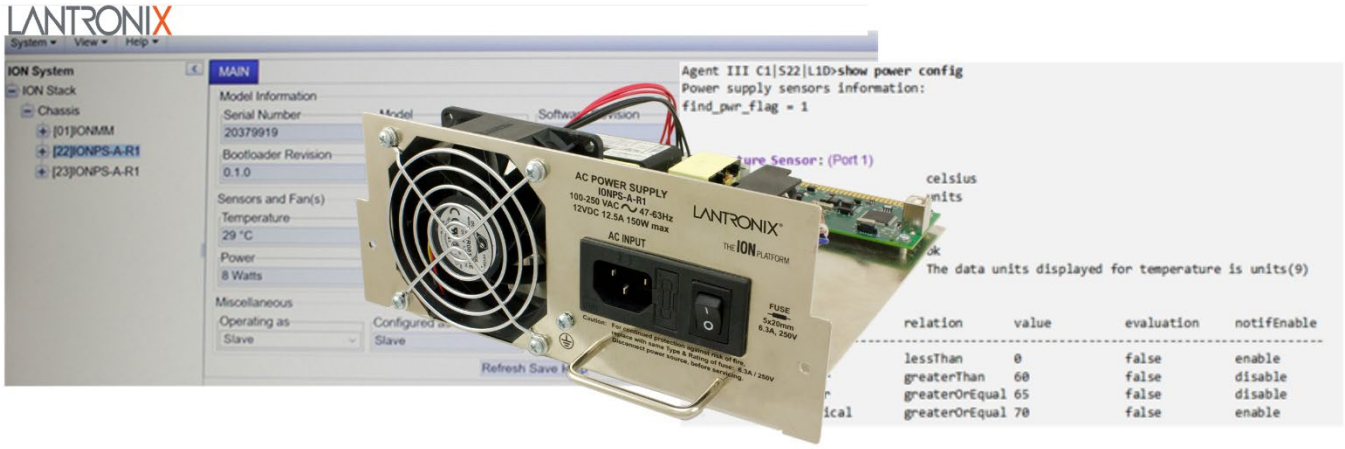

IONPS-A-R1 Power Supply

AC Power Supply Module for the ION 19-Slot Chassis

User Guide

Part Number 33614

Revision G March 2025

Intellectual Property

Warranty

For details on the Lantronix warranty policy, go to http://www.lantronix.com/support/warranty.

Contacts

Lantronix Corporate Headquarters
48 Discovery, Suite 250
Irvine, CA 92618, USA
Toll Free: 800-526-8766
Phone: 949-453-3990
Fax: 949-453-3995

Technical Support
Online: https://www.lantronix.com/technical-support/

Sales Offices
For a current list of our domestic and international sales offices, go to www.lantronix.com/about/contact.

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Revision History

Date	Rev	Notes
5/24/17	B	Update weight spec, CLI commands, and interoperability information at v 1.2.4.
5/3/21	C	Fix floating pin issue that could cause a Power Status value of “Nonoperational”. Change default power sensor low value to ‘0’ to prevent sending an invalid trap. Change Thresholds ‘edit’ to ‘Save’ at IONMM v1.3.20. FW v1.2.9: improve trap notification messages generated by the power supply module. Update MTBF and specs.
8/17/21	D	Update the Input Power specs on page 7.
1/28/22	E	Initial Lantronix rebrand.
11/6/23	F	Update IEC 60950-1 to IEC 62368-1. Add IEC 60417-6042 (2010-11) and IEC 60417-6172 (2012-09). Add Package Label and Device Label, add note to “Disconnect all power sources” in English and French, and update Technical Support contact info. Remove references to Focal Point (EoL).
3/21/2025	G	Remove references to Slo-Blo for fuse.

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 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.

Caution: While installing or servicing the power module, wear a grounding device and observe all electrostatic discharge precautions. Failure to observe this caution could result in damage to, or failure of the power module.

Warning: Do not connect the power module to an external power source before installing it into the chassis. Failure to observe this caution could result in an electrical shock, even death.

WARNING: The power module has a provision for grounding. Equipment grounding is vital to ensure safe operation. The installer must ensure that the power module is properly grounded during and after installation. Failure to observe this warning could result in an electric shock, even death.

WARNING: A readily accessible, suitable National Electrical Code (NEC) or local electrical code approved disconnect device and branch-circuit protector must be part of the building's installed wiring to accommodate permanently connected equipment. Failure to observe this warning could result in an electric shock, even death.

WARNING: Turn the external power source OFF and ensure that the power module is disconnected from the external power source before performing any maintenance. Failure to observe this warning could result in an electrical shock, even death.

WARNING: Ensure that the disconnect device for the external power source is OPEN *(turned OFF)* before disconnecting or connecting the power leads to the power module. Failure to observe this warning could result in an electric shock, even death.

See Electrical Safety Warnings on page 42 for Electrical Safety Warnings translated into multiple languages.

Contents

Figures

1 Introduction and Description

Product Description

The IONPS-A-R1 is a 100-250 VAC power supply for the ION219 chassis and is a replacement for the IONPS-A power supply. The IONPS-A-R1 does not have the dry contact relay (DCR) option. The ION 19-slot chassis can support up to two power supply modules which mount in the rear of the chassis. A single power supply can be used to power all the devices installed in the chassis; however, the system can be made redundant with the use of a second power supply. In this configuration, the power supplies operate in an instant-fail-over mode and can be installed in either an AC or DC powered chassis. IONPS-A-R1 key features include:

- Current, power, temperature and voltage monitoring
- Primary / Secondary setting through software
- 200 watt power supply (8.5 watts per slot)
- Fan control is set to 'automatic' control

The IONPS-A-R1 is shown below:

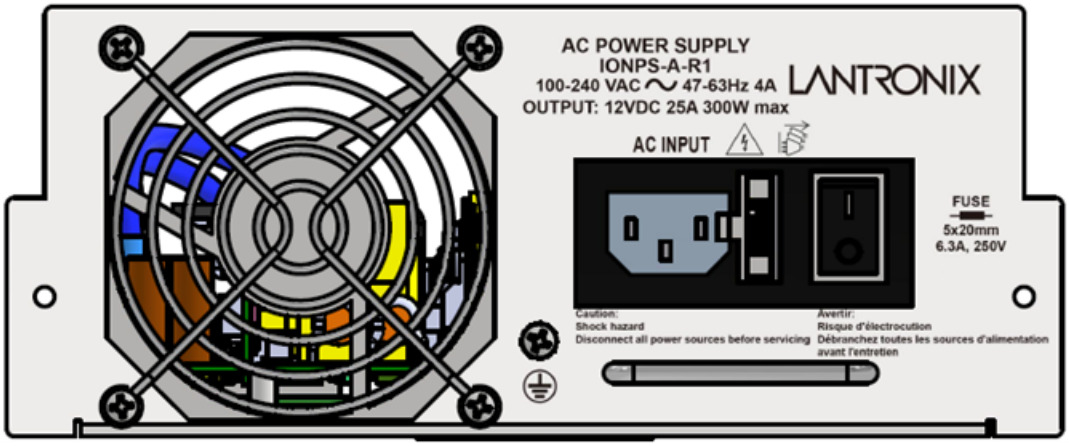


Figure 1: IONPS-A-R1 (AC) Power Supply

Specifications

The IONPS-A-R1 is designed to these standards:

Application	Up to 2 power supply modules can be used in the 19-slot ION™ chassis, ION219-A
IEEE Standards	IEEE 802.3™-2000
Compliance	FCC Class A (US and Canada). EMC Directive 2010/108/EC; EN 55022:2006+A1:2010 Class A; EN55024:1998+A1:2001+A2:2010; EN61000-3-2; EN61000-3-3; CFR Title 47 Part 15 Subpart B Class A; EN 62368-1 2nd Clause 5.6.4.2.1 CISPR Class A, CE Mark
Certifications	EN 62368-1, FCC Class A, CISPR Class A, CE Mark
Power Consumption	Up to 10 watts
Power Source	AC supply: 100-240VAC 50-60Hz
Power Input	100 – 240 VAC, 47 – 63 Hz, 3.5 A @ 100 VAC
Voltage Tolerance	3% max.

Low-Line Input Current	2.5A max.
Inrush Current	35A max. (peak starting current) @ high line
Power Factor	>0.6 – 0.95, 10 to 100% load respectively
Fuse	6.3 Amp/250 Volts 5x20mm
Unit LEDs	PWR (Power): Indicates the power supply module is providing power to the ION219-x chassis via ION219-x front panel LEDs
MTBF	Greater than 25,000 hours (MIL-HDBK-217F) Greater than 68,750 hours (Bellcore7 V5.0)
Dimensions	Width: 8.3" [211 mm] x Depth: 9.0" [229 mm] x Height: 3.4" [86 mm]
Weight	2.75 lbs. [1.24 kg] / 3.4 lbs. [1.5 kg]
Operating Temperature	0 to 50 deg. C
Storage Temperature	-40 to 85 deg. C
Altitude	0-10,000 feet
Operating Humidity	5% to 95% (non-condensing)
Warranty	Lifetime

Primary/Secondary Mode

Only one power supply is needed to power the ION219 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 Secondary mode.
2. If there is only one power supply it will set itself to Primary mode.
3. The IONPS-A-R1 default setting is Primary mode.

The Primary/Secondary mode is set via the ION software (Web GUI or CLI command). When two IONPS-A-R1 modules are installed in an ION chassis, you can select either Primary or Secondary for either or both of the power supplies via ION software.

The IONPS-A-R1 default setting is Primary mode. A warning message and a control system exist that prevents both modules from being set to Secondary mode.

Primary means the IONPS-A-R1 always attempts to provide power to the chassis.

Secondary means the IONPS-A-R1 always attempts to standby, only providing power to the chassis when no other source is providing sufficient power.

The IONPS-A-R1 is shipped in Primary mode by default, meaning it will always attempt to power the chassis; if two IONPS-A-R1s are installed in a chassis, they will both attempt to power the chassis, resulting in load-sharing, with the constant ability for either one to take on the full load of the chassis, should a failure occur. If you prefer to have primary/secondary operation instead of load-sharing (still maintaining constant fail-over ability), just change the role of one IONPS-A-R1 from Primary to Secondary.

Power Modules Interoperability Guideline: If you will be using the older IONPS-A or IONPS-D with the newer IONPS-A-R1 or IONPS-D-R1 in the same ION219 chassis, then you should place the newer IONPS-A-R1 or IONPS-D-R1 power supply in the right-hand slot (when facing the back of the ION219 chassis). For more details on the use of dual power supplies in the ION219 chassis, see the following section.

Failover and Load Sharing

Load Sharing is achieved when both Power Supplies are set to Primary. Failover is achieved when one Power Supply is set to Primary and the other is set to Secondary.

There are two modes for the IONPS-A-R1:

1. If both are in Primary mode, both power supplies are in an un-balanced “Auctioneered” load share mode.

2. If one is Primary and the other is Secondary, then they will work in an instant fail-over mode.

The new IONPS-A-R1 can be used in conjunction with the old IONPS-A. The old IONPS-A will always set itself to Primary when installed in Power Supply slot #1 (chassis slot #22). Likewise, the IONPS-A will always set itself to Secondary when installed in Power Supply slot # 2 (Chassis slot # 23).
The table below shows how the two power supply modules can be configured and how they will interact with each other.

#	Control	PS #1	PS #2	Function
1	User control	IONPS-A-R1 Primary/Secondary	IONPS-A-R1 Primary/Secondary	Instant Fail-over or loadshare based on software configuration.
2	Automatic	IONPS-A Primary	IONPS-A Secondary	Instant Fail-over
3	Automatic	IONPS-A Primary	IONPS-A-R1 Primary	Un-balanced “Auctioneered” loadshare
4	Automatic	IONPS-A-R1 Primary	IONPS-A-R1 Primary	Un-balanced “Auctioneered” loadshare, but the IONPS-A will carry most of the load.

The IONPS-A-R1 default setting is Primary mode. If you try to set both P/S #1 and P/S #2 are set to Secondary mode, a warning message displays (a control system exist that prevents both modules from being set to Secondary mode).

For redundant operation where two identical power supplies are connected in parallel, diode 'auctioneering' modules are used to eliminate the possibility of a back feed from one power supply to the other, and to allow power supply failure alarms to be operated.

Note that the IONPS-A-R1 can also be used with the DC power supply, IONPS-D or IONPS-D-R1.

Fan Speed

The IONPS-A-R1 fan control mode is pre-configured for “automatic” mode; the fan speed is controlled by PWM (pulse width modulation) according to a temperature sensor. The IONPS-A-R1 uses an intelligent temperature monitor and fan controller in Auto Temperature-Fan mode. Auto Temperature-Fan mode is an intelligent, closed-loop control that optimizes fan speed according to pre-defined parameters. This mode allows the IONPS-A-R1 to run as a stand-alone device without intervention.

ION Power Supply Interoperability

The table below shows ION power supply module interoperability. In the table below, where **IONPS-x-R1** is referenced, the **x** indicates **A** or **D** (IONPS-A-R1 or IONPS-D-R1).

#	PS #1 (Slot #22)	PS #2 (Slot #23)	Notes
1	IONPS-x-R1 (Primary)	(empty)	VALID
2	IONPS-x-R1 (Secondary)	(empty)	VALID
3	(empty)	IONPS-x-R1 (Primary)	VALID
4	(empty)	IONPS-x-R1 (Secondary)	VALID
5	IONPS-x-R1 (Primary)	IONPS-x-R1 (Primary)	VALID
6	IONPS-x-R1 (Primary)	IONPS-x-R1 (Secondary)	VALID
7	IONPS-x-R1 (Secondary)	IONPS-x-R1 (Secondary)	INVALID
8	IONPS-A	IONPS-x-R1 (Primary)	VALID
9	IONPS-A	IONPS-x-R1 (Secondary)	VALID
10	IONPS-x-R1 (Primary)	IONPS-A	VALID
11	IONPS-x-R1 (Secondary)	IONPS-A	INVALID
12	IONPS-D	IONPS-x-R1 (Primary)	VALID
13	IONPS-D	IONPS-x-R1 (Secondary)	VALID
14	IONPS-x-R1 (Primary)	IONPS-D	VALID
15	IONPS-x-R1 (Secondary)	IONPS-D	INVALID

- IONPS-x-R1 Primary/Secondary functionality is user configurable, and works in all scenarios (*except where both supplies are set to* Secondary).
- IONPS-A and IONPS-D Primary/Secondary functionality is determined by which slot the Power Supply is installed in Slot 22 (PS1) = Primary, Slot 23 (PS2) = Secondary.
- IONPS-x-R1 can be manually configured to Load Share (default, Primary/Primary).

Minimum Firmware/Software Versions Required:

- IONMM v 1.3.15 for IONPS-A-R1
- IONPS-A-R1 v 1.2.3
- MIB v 1.3.14

Related Manuals and Online Help

A printed documentation card is shipped with each device. Context-sensitive Help screens, as well as cursor-over-help (COH) facilities are built into the web UI.

For Lantronix Documentation, Firmware, App Notes, etc. go to https://www.lantronix.com/technical-support/ (logon required).

Note that this manual provides links to third part web sites for which Lantronix is not responsible. Other ION System and related device manuals include:

1. Product Documentation Postcard, 33504
2. ION219-x 19-Slot Chassis Install Guide, 33412
3. ION Management Module (IONMM) Install Guide, 33420 and User Guide, 33457
4. IONPS-A-R1 Power Supply User Guide, 33614
5. SFP manual (model specific; see Lantronix SFP webpage)
6. 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. This manual documents the latest software/firmware version. While all screen examples may not display the latest version number, all of the descriptions and procedures reflect the latest software/firmware version, noted in the Revision History on page 2. Transition Networks is now Lantronix. Some products/firmware items are still in process of being re-branded and may still reflect the Transition Networks name/logo.

Package Contents

Contact your sales representative if you have not received the following:

- ☐ One IONPS-A-R1 AC Power Supply
- ☐ One AC Power Source and Power Cord
- ☐ One Documentation Postcard, 33504

Save the packaging for possible future use.

Unpacking

1. Carefully unpack all IONPS-A-R1 contents.
2. Verify receipt of all IONPS-A-R1 components.
3. Place the IONPS-A-R1 and related materials near the installed ION chassis.
4. Save the IONPS-A-R1 shipping carton and packing materials for future use.

Pre-installation

The IONPS-A-R1 release at 1.2.3 requires these software/firmware versions:

- ☐ IONMM v 1.3.16
- ☐ MIB v 1.3.16

2 Installation

This chapter describes IONPS-A-R1 cautions/warnings, installation and setup. The ION chassis can support up to two power supply modules which mount in the rear of the chassis.

A single power supply can be used to power all the devices installed in the chassis; however the system can be made redundant with the use of a second power supply. In this configuration, the power supplies operate in an instant-fail-over mode.

Cautions and Warnings

Definitions

Cautions indicate potential damage to equipment.

Warnings indicate a potential hazard or injury to people.

Cautions and warnings in this manual

Cautions and warnings are explained here and placed throughout this manual where appropriate.

CAUTION: While installing or servicing the Power Supply, wear a grounding device and observe all electrostatic discharge precautions. Failure to observe this caution could result in damage or failure of the Power Supply.

WARNING: Do not connect the Power Supply to an external power source before installing it into the chassis. Failure to observe this warning could result in an electrical shock, even death.

WARNING: A readily accessible, suitable National Electrical Code (NEC) or local electrical code approved disconnect device and branch-circuit protector must be part of the building's installed wiring to accommodate permanently connected equipment. Failure to observe this warning could result in an electric shock, even death.

WARNING: Turn the Power Supply and external power source OFF and ensure that the Power Supply is disconnected from the external power source before performing any maintenance. Failure to observe this warning could result in an electrical shock, even death.

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

Site Requirements

To assure normal operation and avoid unnecessary maintenance, plan the site configuration and prepare the site before installation. After installation, make sure that the site maintains an ambient temperature of 0ºC to 50ºC (32ºF to122ºF).

Caution: The power outlet must be located near the equipment and must be easy to access.

WARNING: If the voltage indication on the label is different from the power outlet voltage, DO NOT plug the chassis into that receptacle. A voltage mismatch can cause equipment damage and may pose a fire hazard.

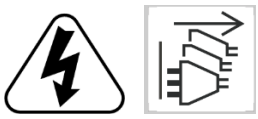
WARNING: Take care not to overload the circuit that supplies power to the chassis. Failure to observe this warning could result in a fire.

IMPORTANT

- All installation and service must be performed by qualified personnel only.
- Read, understand, and follow all CAUTION and WARNING notices, instructions marked on the product, including in this manual.

The IONPS-A-R1 AC Power Supply can replace an existing IONPS-A or IONPS-A-R1, or it can be installed as the redundant Power Supply in an AC powered ION219-A chassis.

CAUTION: While installing or servicing the Power Supply, wear a grounding device and observe all electrostatic discharge precautions. Failure to observe this caution could result in damage or failure of the Power Supply.



Caution: Shock hazard. Disconnect all power sources before servicing.

Avertir: Risque d'electrocution. Debranchez toutes les sources d'alimentation avant l'entretien.

Grounding Screw

The IONPS-A-R1 back panel provides access to the AC Power Input, Fuse, Power On/Off Switch, and Grounding Screw.

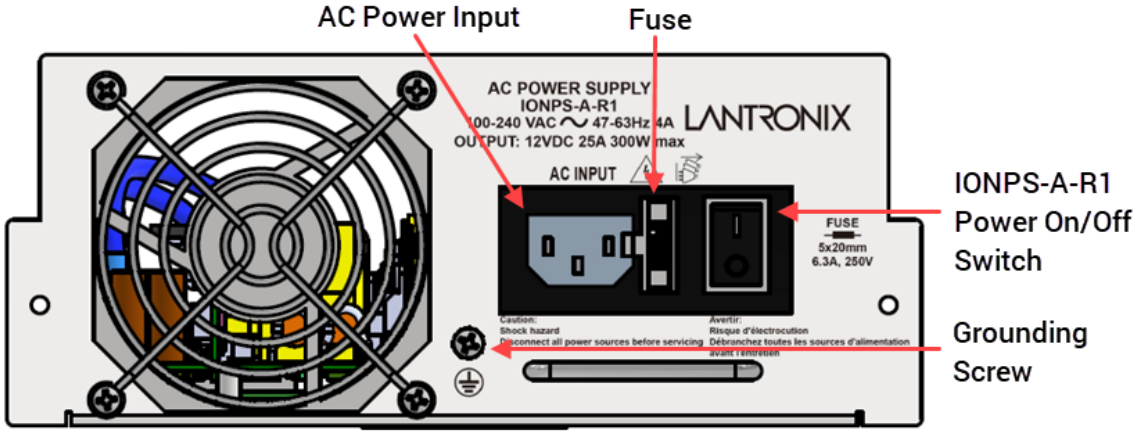
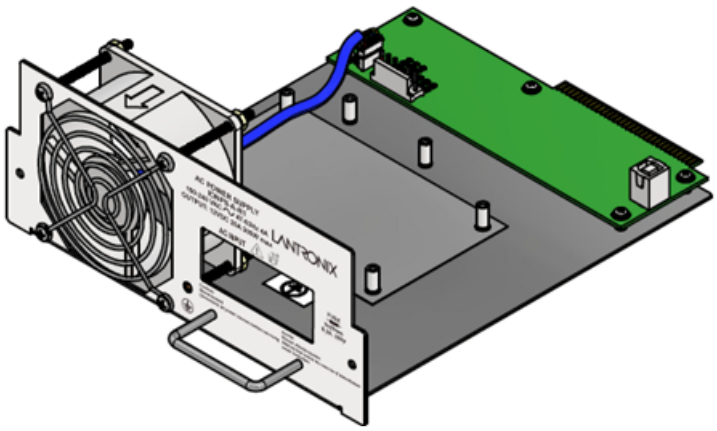
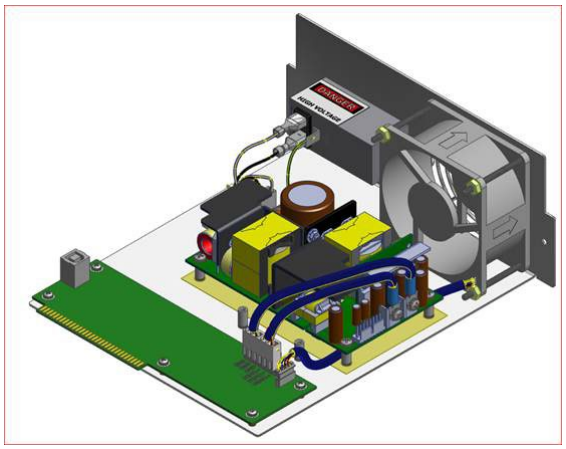


Figure 2: Components





Installing an Optional Power Supply into the ION Chassis

Note: The Power Supply is hot swappable (i.e., swapped while the chassis is in operation) provided the ON/OFF switch of the Power Supply is in the OFF position, and it has been disconnected from its external power source.

Note: When you use the IONPS-A and IONPS-A-R1 together, install the IONPS-A in slot # 22 and install the IONPS-A-R1 in slot # 23. The IONPS-A is pre-set to Primary mode and cannot be changed; the IONPS-A-R1 is pre-set to Primary mode, but you can change it to Secondary mode.

To install the Power Supply in the ION chassis, do the following:

1. Push the Power Supply ON/OFF switch to the OFF position. See above.

2. If necessary, remove the grounding hardware (below) from the chassis before installing the Power Supply.

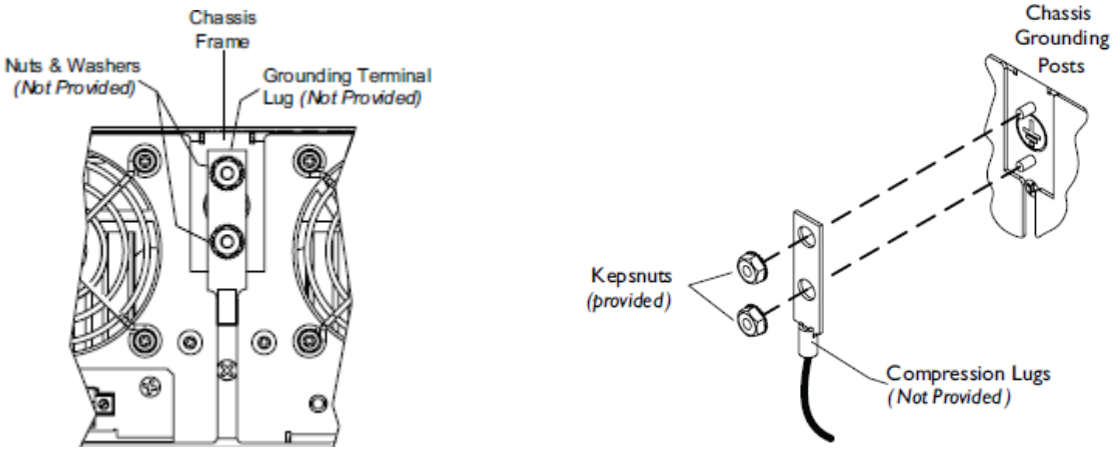


Figure 3: Grounding Hardware (optional)

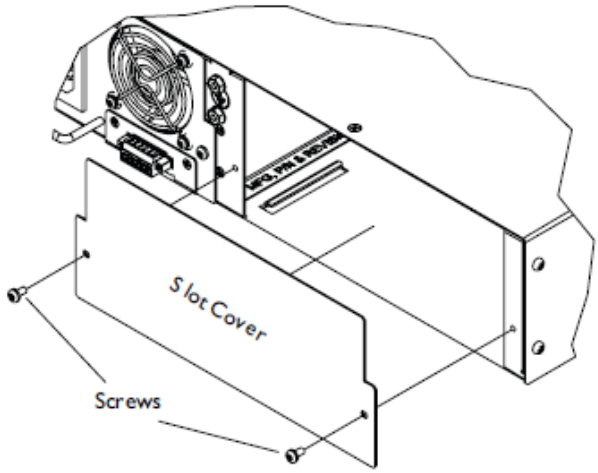


Figure 4: Slot Cover

3. Remove the slot cover from the right chassis slot (see above) and keep the two screws.

4. Position the Power Supply at the chassis slot. The IONPS-A-R1 must be in ION Chassis slot #23.

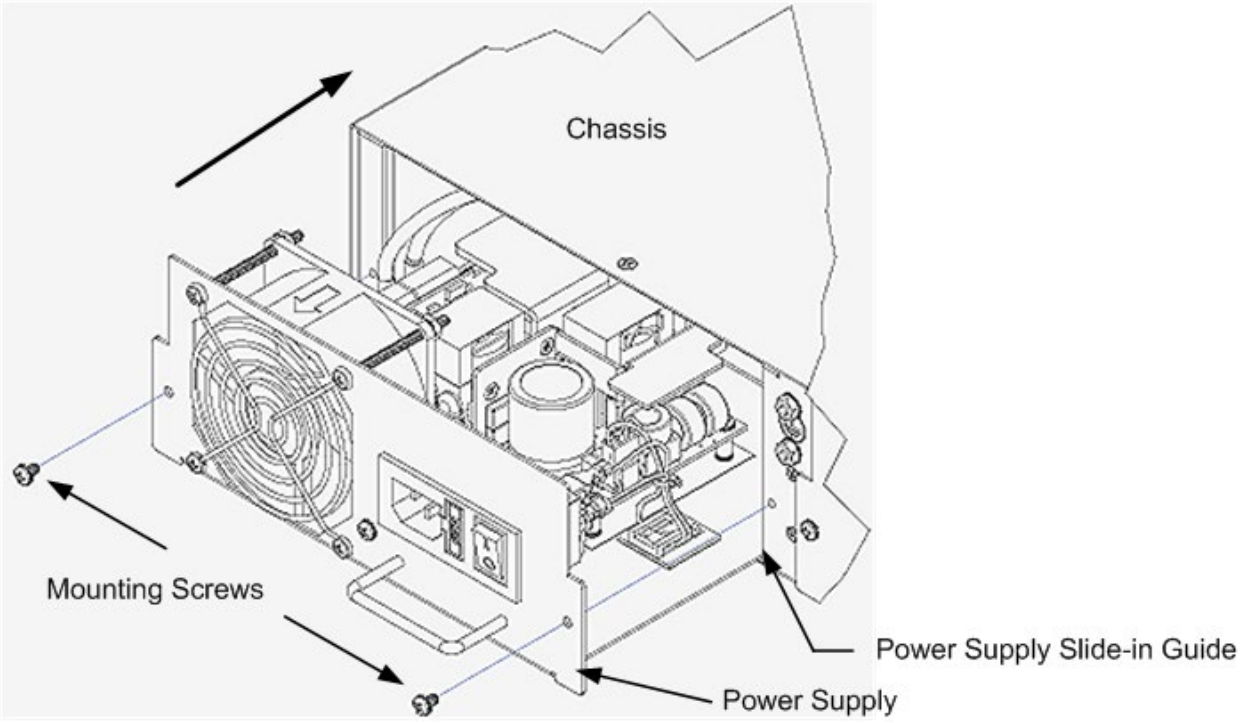


Figure 5: Slide-in Guide

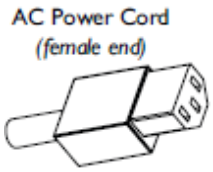
5. Side the Power Supply completely into the chassis. **Note**: When the optional Power Supply is seated to the backplane of the chassis, the fan becomes operational.

6. Insert the two screws to mount the Power Supply to the chassis.

Power Cord Included

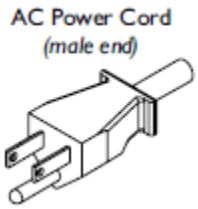
To order the corresponding country-specific power supply, add the extension to the end of the SKU:
Ex: IONPS-A-R1-NA= North America, -LA = Latin America, -EU = Europe, -UK = United Kingdom, -SA = South Africa, -JP = Japan, -OZ = Australia.

Connecting the IONPS-A-R1 to External Power



To connect external power to the IONPS-A-R1:

1. Locate the power cord for the IONPS-A-R1.
2. Plug the female end of the AC power cord into the AC power receptacle on the IONPS-A-R1.
3. Plug the male end of the AC power cord into the AC power source.



Note: Once the power ON/OFF switch is in the ON position, the power ON LED lights. This means that the optional IONPS-A-R1 is ready to power the chassis if the primary IONPS-A-R1 fails.

***Important**: There is no power sharing between the two Power Supplies.*

Replacing the IONPS-A-R1

To replace the IONPS-A-R1:

1. Disconnect the AC power cord from the power source.
2. Loosen the screws securing the IONPS-A-R1 to the ION chassis.
3. Carefully pull the IONPS-A-R1 from the chassis.
4. Locate the new IONPS-A-R1 and push its power ON/OFF switch to the OFF position.
5. Position the new IONPS-A-R1 at the chassis slot.
6. Slide the new IONPS-A-R1 completely into the chassis slot.
7. Tighten the screws to secure the IONPS-A-R1 to the ION chassis.
8. Plug the AC power cord into the AC receptacle on the IONPS-A-R1.
9. Turn toe power switch on.
10. Plug the other end of the cord into an external AC power source. The ION chassis **PS1 ON** LED lights and the fans are operational.

Replacing the Fuse

CAUTION: Ensure that the IONPS-A-R1 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: 6.3A / 250V. Disconnect power source before servicing.

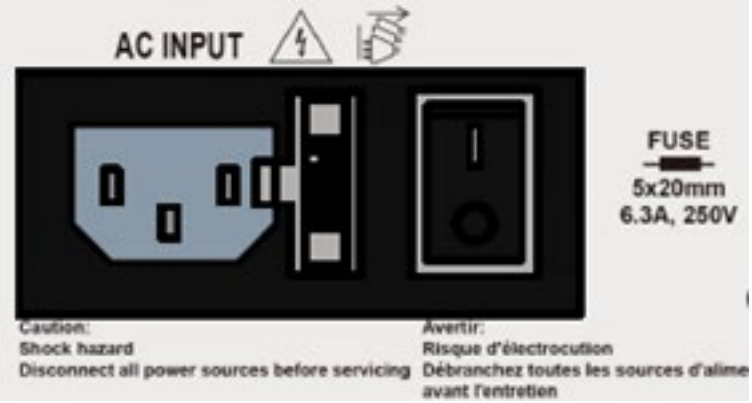


Figure 6: Fuse

To replace the fuse in the IONPS-A-R1:

1. Disconnect the AC power cord from the external power source.
2. Insert a small flat blade screwdriver into the groove on the front, inside edge of the fuse holder.
3. Carefully pull the fuse holder from the IONPS-A-R1.
4. Remove the fuse from the fuse holder.
5. The replacement fuse **must** be the same amperage and voltage rating. See Cautions above.
6. Insert the replacement fuse into the holder.
7. Slide the fuse holder fully into the IONPS-A-R1.
8. Connect the power cord to the IONPS-A-R1 and to the external power.

Jumper J5 – USB Connector

The USB connector (J5) is not used.

3 IONPS-A-R1 Software Configuration

This section provides information on configuring the IONPS-A-R1 in an ION chassis:

- IONPS-A-R1 Redundant AC Power Supply for 19-Slot ION Chassis
- ION Power Supply Temperature, Voltage, Power, and Fan sensors

The ION chassis can support up to two power supply modules which mount in the rear of the chassis.
A single power supply can be used to power all the devices installed in the chassis; however the system can be made redundant with the use of a second power supply. In this configuration, the power supplies operate in an instant-fail-over mode.

The ION Power Supply can be configured using either the CLI or Web method.

Power Supply Config – CLI Method

1. Access the Power Supply through either a USB connection (see "Starting a USB Session" in the IONMM User Guide) or a Telnet session (see "Starting a Telnet Session" in the IONMM User Guide).
2. To enable the Power Supply's Power Relay, type **set power relay state=enable** and press **Enter**.
3. Set the Power Supply or Fan's Sensor Notification / Relation / Severity / Value. Below is an example of CLI commands for a port (sensor) and all thresholds:

```
Agent III C1|S23|L1P3>go s=22 l1d
Agent III C1|S22|L1D>go l1p=1
Agent III C1|S22|L1P1>set sensor stid=1 notif=enable
Agent III C1|S22|L1P1>set sensor stid=1 value=10
Agent III C1|S22|L1P1>set sensor stid=2 severity=major
Agent III C1|S22|L1P1>set sensor stid=2 notif=enable
Agent III C1|S22|L1P1>set sensor stid=3 notif=enable
Agent III C1|S22|L1P1>set sensor stid=4 relation=greaterThan
```

4. Press **Enter**.

Note: Use the **stat** command to view the chassis slot assignments. Power Supplies are assigned slot 22 and slot 23 by default. The ION chassis has **PS 1 ON** and **PS 2 ON** LEDs to indicate power supply presence and function.

Note: Use the **show power config** command to view the existing power supply configuration.

IONPS-A-R1 Commands

The IONPS-A-R1 supports these CLI commands:

```
show ionpsr1 mode
set ionpsr1 mode=(master/slave)
show cardtype
show power config
set sensor stid=(notification/relation/severity/value)
stat
```

The supported IONPS-A-R1 CLI commands are described below.

Command: **Show IONPS-A-R1 Mode**

Syntax: **show ionpsr1 mode**

Description: Display the current IONPS-A-R1 Master or Slave mode setting. The default is "Master".

Configuration Mode indicates whether this is currently configured as the 'Master' power supply or the 'Slave' power supply. The Slave power supply is the fail-over or redundant (backup) power supply.

Example:

```
Agent III C1|S22|L1D>show ionpsr1 mode
IONPS-A/D-R1 configured as:             master
IONPS-A/D-R1 operating as:              master
Agent III C1|S22|L1D>set ionpsr1 mode slave
Agent III C1|S22|L1D>show ionpsr1 mode
IONPS-A/D-R1 configured as:             slave
IONPS-A/D-R1 operating as:              slave
Agent III C1|S22|L1D>
```

Command: **Set IONPS-A-R1 Mode**

Syntax: **set ionpsr1 mode**<master | slave>

Description: Configures the current IONPS-A-R1 'master' or 'slave' mode setting. The default is 'master'.

This is the configured (running) mode that exists in IONPS-A-R1 flash. This value is always equal to '*ionpsr1OperMode*' except for the case of two IONPS-A-R1s in slave mode being inserted in a chassis; one or both of them will be changed to master mode.

Example:

```
Agent III C1|S23|L1D>set ionpsr1 mode master
Agent III C1|S23|L1D>show ionpsr1 mode
IONPS-A-R1 operating as:              master
IONPS-A-R1 configured as:             master
Agent III C1|S23|L1D>set ionpsr1 mode slave
Agent III C1|S23|L1D>show ionpsr1 mode
IONPS-A-R1 operating as:              slave
IONPS-A-R1 configured as:             slave
```

Messages: *There are 2 IONPS-A-R1 in chassis, you can not set all of them to slave mode!*

Command: **Show Card Type**

Syntax: **show cardtype**

Description: Display the current slot's model number.

Example:

```
Agent III C1|S23|L1D>show cardtype
Card type:                    IONPS-A-R1
Agent III C1|S23|L1D>
```

Command: **Set PS Sensor Threshold Parameters**

Syntax: **set sensor stid**=(notification/relation/severity/value)

Description: Sets the current IONPS-A-R1 Sensor Transaction ID (stid) settings. The STID is used for power supply / sensor configuration via the set sensor stid command to define notification, relation, severity, and value parameters. The **show power config** command displays the power supply sensors information. The STID is shown in the Web interface at the Power Supply tab > Temp, Volt, Power, and Fan sub-tabs.

The ***stid*** is the port number, where Temperature = port 1, Voltage = port 2, Power = port 3, and Fan = port 4.

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: Below is an example of CLI commands for all 4 ports (sensors) and all thresholds:

```
Agent III C1|S22|L1D>go l1p=1 (Temperature)
Agent III C1|S22|L1P1>set sensor stid=1 notif=enable
Agent III C1|S22|L1P1>set sensor stid=1 value=10
Agent III C1|S22|L1P1>set sensor stid=2 severity=major
Agent III C1|S22|L1P1>set sensor stid=2 notif=enable
Agent III C1|S22|L1P1>set sensor stid=3 notif=enable
Agent III C1|S22|L1P1>set sensor stid=4 relation=greaterThan

Agent III C1|S22|L1P1>go l1p=2 (Voltage)
Agent III C1|S22|L1P2>set sensor stid=1 relation=lessOrEqual
Agent III C1|S22|L1P2>set sensor stid=2 value=12900
Agent III C1|S22|L1P2>set sensor stid=3 severity=other
Agent III C1|S22|L1P2>set sensor stid=4 value=14600

Agent III C1|S22|L1P2>go l1p=3 (Power)
Agent III C1|S22|L1P3>set sensor stid=1 value=9
Agent III C1|S22|L1P3>set sensor stid=2 severity=major
Agent III C1|S22|L1P3>set sensor stid=3 notif=enable
Agent III C1|S22|L1P3>set sensor stid=4 value=199

Agent III C1|S22|L1P3>go l1p=4 (Fan)
Agent III C1|S22|L1P4>set sensor stid=1 relation=lessThan
Agent III C1|S22|L1P4>set sensor stid=2 notif=enable
Agent III C1|S22|L1P4>set sensor stid=3 value=9499
Agent III C1|S22|L1P4>set sensor stid=4 relation=greaterThan
```

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

Command: **Show PS Sensor Information**

Syntax: **show power config**

Description: Displays current IONPS-A-R1 Temperature, Voltage, Power, and Fan data.

Example: ION Power Supply SENSORID: The ION power supplies have four sensors: Temperature, Voltage, Power, and Fan. You can view a summary of the current status and settings by accessing the power slot- device level (e.g., **go s=22 L1D**) and performing a "**show power config**" command.

```
Agent III C1|S22|L1D>show power config
Power supply sensors information:
find_pwr_flag = 1


Temperature Sensor: (Port 1)
        Type:                   celsius
        Scale:                  units
        Precision:              0
        Value:                  25
        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          enable
2              minor          greaterThan    60             false          disable
3              major          greaterOrEqual 65             false          disable
4              critical       greaterOrEqual 70             false          enable


Voltage Sensor: (Port 2)
        Type:                   voltsDC
        Scale:                  milli
        Precision:              0
        Value:                  11940
        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       11220          false          enable
2              minor          greaterThan    13000          false          disable
3              major          greaterOrEqual 14000          false          disable
4              critical       greaterOrEqual 14673          false          enable

Power Sensor: (Port 3)
        Type:                   watts
        Scale:                  units
        Precision:              0
        Value:                  14
        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    10             false          enable
2              minor          greaterThan    250            false          disable
3              major          greaterOrEqual 260            false          disable
4              critical       greaterOrEqual 280            false          enable
```

```
Fan: (Port 4)
        Type:                   rpm
        Scale:                  units
        Precision:              0
        Value:                  1456
        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       lessThan       1000           false          enable
2              minor          greaterThan    8500           false          disable
3              major          greaterOrEqual 9500           false          disable
4              critical       greaterOrEqual 9900           false          enable
find_pwr_flag = 1
Agent III C1|S22|L1D>
```

Command: **Show Current Stack Status**

Syntax: **stat**

Description: Display the current ION chassis stack configuration in terms of slots, devices and ports.

Example:

```
Agent III C1|S23|L1D>stat
ION statck
        Chassis -- BPC
                [  1]  IONMM
                        Port 1
                        Port 2
                [  2]  C2110-1013
                        Port 1
                        Port 2
                [  5]  C3110-1013
                        Port 1
                        Port 2
                [ 10]  C3231-1040
                        Port 1
                        Port 2
                        Port 3
                [ 15]  C6210-3040
                        Port 1
                        Port 2
                [ 23]  IONPS-A-R1
                        Temperature Sensor
                        Voltage Sensor
                        Power Sensor
                        Fan
        Agent III C1|S23|L1D>
```

Sample IONPS-A-R1 CLI Commands for Sensors

Enabling many different thresholds causes many alarms notifications to be seen. You must determine if these notifications are useful for your application.

The example below shows various IONPS-A-R1 sensor commands for all thresholds on all ports:

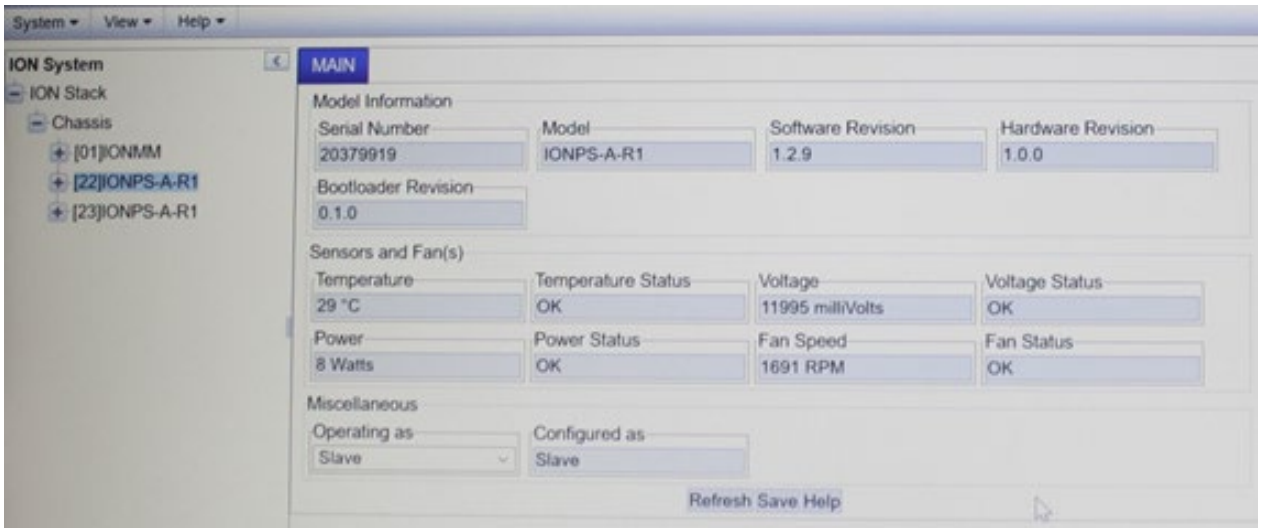
```
Agent III C1|S23|L1P3>go s=22 l1d
Agent III C1|S22|L1D>go l1p=1
Agent III C1|S22|L1P1>set sensor stid=1 notif=enable
Agent III C1|S22|L1P1>set sensor stid=1 value=10
Agent III C1|S22|L1P1>set sensor stid=2 severity=major
Agent III C1|S22|L1P1>set sensor stid=2 notif=enable
Agent III C1|S22|L1P1>set sensor stid=3 notif=enable
Agent III C1|S22|L1P1>set sensor stid=4 relation=greaterThan

Agent III C1|S22|L1P1>go l1p=2
Agent III C1|S22|L1P2>set sensor stid=1 relation=lessOrEqual
Agent III C1|S22|L1P2>set sensor stid=2 value=12900
Agent III C1|S22|L1P2>set sensor stid=3 severity=other
Agent III C1|S22|L1P2>set sensor stid=4 value=14600

Agent III C1|S22|L1P2>go l1p=3
Agent III C1|S22|L1P3>set sensor stid=1 value=9
Agent III C1|S22|L1P3>set sensor stid=2 severity=major
Agent III C1|S22|L1P3>set sensor stid=3 notif=enable
Agent III C1|S22|L1P3>set sensor stid=4 value=199

Agent III C1|S22|L1P3>go l1p=4
Agent III C1|S22|L1P4>set sensor stid=1 relation=lessThan
Agent III C1|S22|L1P4>set sensor stid=2 notif=enable
Agent III C1|S22|L1P4>set sensor stid=3 value=9499
Agent III C1|S22|L1P4>set sensor stid=4 relation=greaterThan

Agent III C1|S22|L1P4>go s=22 l1d
Agent III C1|S22|L1D>show power config

Power supply sensors information:

Temperature Sensor:

Type: celsius Scale: units Precision: 0 Value: 28 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 10 false enable 2 major greaterThan 60 false enable 3 major greaterOrEqual 65 false
enable 4 critical greaterThan 70 false enable

Voltage Sensor:

Type: voltsAC Scale: milli Precision: 0 Value: 12135 Operation status: ok Units display: The data
units displayed for volts is milli(8)

Threshold information: index severity relation value evaluation notifEnable



--------------------------------------------------------------------------------

1 critical lessOrEqual 11220 false enable 2 minor greaterThan 12900 false disable 3 other
greaterOrEqual 14000 false disable 4 critical greaterOrEqual 14600 false enable
```

```
Power Sensor:

Type: watts Scale: units Precision: 0 Value: 1 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 9 true enable 2 major greaterThan 180 false enable 3 major greaterOrEqual 190
false enable 4 critical greaterOrEqual 199 false enable

Fan:

Type: rpm Scale: units Precision: 0 Value: 1619 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 lessThan 1600 false enable 2 minor greaterThan 8500 false enable 3 major greaterOrEqual
9499 false disable 4 critical greaterThan 9900 false enable
Agent III C1|S22|L1D>
```

Power Supply Config – Web Method

The ION Web interface allows configuration of the IONPS-A-R1 Power Supply's Temperature Sensor, Voltage Sensor, Power Sensor, and Fan.

1. Select the IONPS-A-R1 Power Supply. The **MAIN** tab displays the current power supply information.



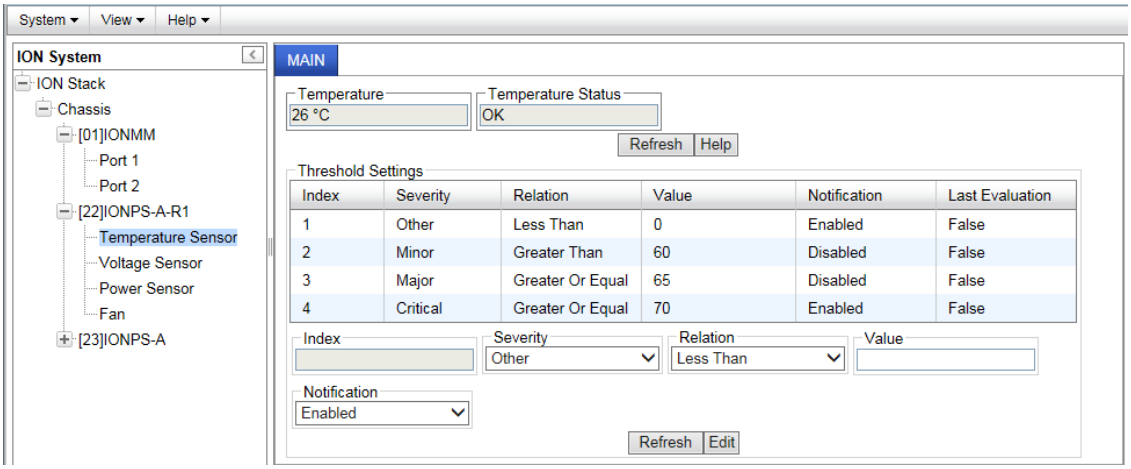
The **MAIN** tab displays an overview of power supply model information, data on the sensor and fan(s), and miscellaneous information. The **MAIN** tab's **Miscellaneous** section includes:

- **Operating As** (Primary/Secondary Mode): if a redundant module exists, this value sets/indicates whether this is currently operating as the Primary power supply or the Secondary power supply. The Secondary power supply is the fail-over or redundant (backup) power supply. This value is always equal to 'ionpsr1OperMode' except for the case of two IONPS-A-R1s in 'Secondary' mode being inserted in a chassis; one or both of them will be changed to 'Primary' mode.
- **Configured As**: indicates whether this is currently configured as the 'Primary' power supply or the 'Secondary' power supply. After changing the 'Operating as' setting, you may have to click the **Refresh** button to change the 'Configured As' parameter displayed.

2. From the Power Supply's **MAIN** tab, click the ⊞ next to the IONPS-A-R1 to expand the menu and then select the Temperature Sensor, Voltage Sensor, Power Sensor, or Fan for configuration and status information, as described in the following sections.

Temperature Sensor Configuration

The Threshold Settings table lists the threshold severity, relation, and comparison value for a sensor listed in the Entity-MIB Physical Table.



- **Temperature**: displays the most recent temperature measurement obtained by the agent for this sensor.
- **Temperature Status**: displays the operational status of the physical sensor.
  - **OK** - indicates that the agent can obtain the sensor value.
  - **Unavailable** - indicates that the agent presently cannot obtain the sensor value.
  - **Nonoperational** - 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).
- **Index**: 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.
- **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. By default, MIB Notifications are enabled for thresholds past 70C (Critical).
- **Relation**: Less Than (<), Less Or Equal (≤), Greater Than (>), Greater Or Equal (≥), Equal To (=), or Not Equal To (≠).
  - 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.

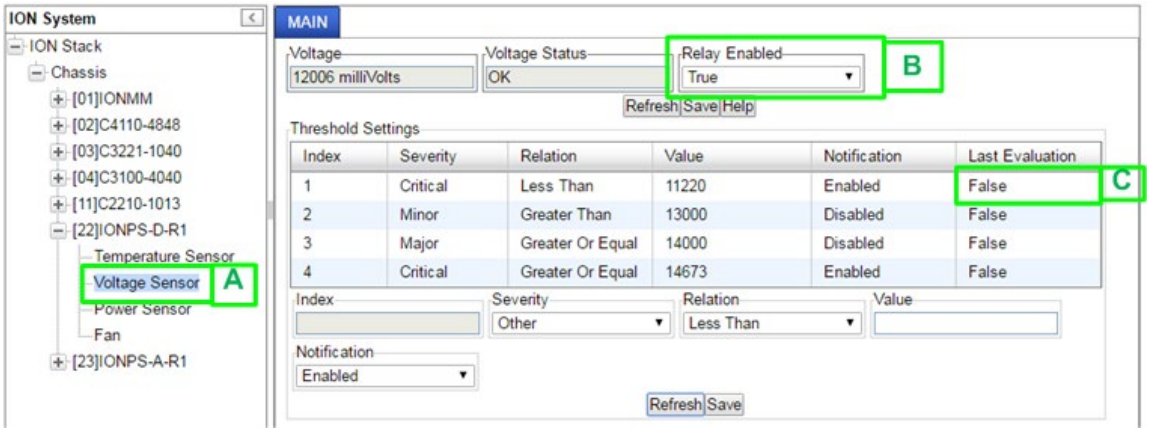
  Indicates the relation between sensor value (entSensorValue) and threshold value (ionEntSensorThresholdValue), required to trigger the alarm. When evaluating the relation, entSensorValue is on the left of SensorThresholdRelation, and SensorThresholdValue is on the right (e.g., entSensorValue ≥ SensorThresholdValue).

- **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.
- **Notification**: select **Enabled** to be informed of Temperature Sensor events, or select **Disabled** to not receive notification of Temperature Sensor events. If this value is **Disabled**, then no SensorThresholdNotification will be generated on this device. If this value is **Enabled**, then whether a SensorThresholdNotification for a threshold will be generated or not depends on the instance value of SensorThresholdNotificationEnable for that threshold.
- **Last Evaluation**: displays **True** if parameters were included in the most recent measurement, otherwise displays **False**. This value indicates the result of the most recent evaluation of the threshold. If the threshold condition is True, then SensorThresholdEvaluation is True. If the threshold condition is False, then SensorThresholdEvaluation is False. Thresholds are evaluated at the rate indicated by the SensorValueUpdateRate (e.g., 0= on demand (when polled), when the sensor value changes (event-driven), or the agent does not know the update rate).

3. Click the **Save** button when finished with Temperature Sensor configuration.

Temperature Sensor Voltage Sensor Relay Operation Example

The example below outlines the relay operation.



Looking at Box B "Relay Enabled" in the picture above:

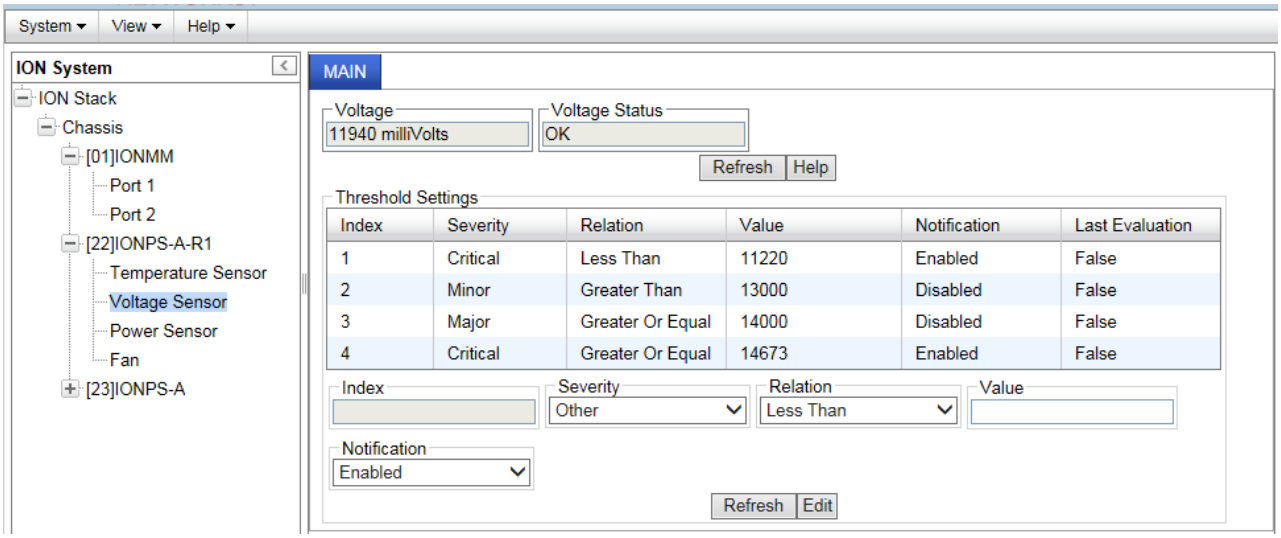
- When "Relay Enabled "is set to False, it means the Voltage Sensor readings of the IONPS-A-R1 in slot 22 [Box A] will **not** have any effect on the Dry Contact Relay alarm indications. No alarm will ever be set based on power supply voltage output.
- When "Relay Enabled is set to True, it means the Voltage Sensor readings of the IONPS-A-R1 in slot 22 [Box A] will affect the Dry Contact Relay alarm indications. Power supply voltage output that is too high or too low will set an alarm.

When the Relay Enabled is set to "True", the Threshold settings show the conditions that will indicate alarm. Those conditions are editable. Any condition showing "True" in the Last Evaluation column means an alarm was occurring when the webpage was loaded or last refreshed.

With v 1.2.4 firmware or above, the relay operates per the table below:

ION219 with ...	**IONPS-A-R1 operation with the relay's energized state = alarm:**
One PS installed, in slot 22	When power is provided to PS, it indicates no alarm.
	When no power is provided to the PS, it does not indicate alarm.
One PS installed, in slot 23	When power is provided to PS, it indicates no alarm.
	When no power is provided to the PS, it does not indicate alarm.
Two PS installed: one PS in slot 22 one PS in slot 23	When power is applied to both PS, both indicate no alarm.
	When power is applied to the PS in slot 22, but not the PS on slot 23, slot 22 indicates no alarm and slot 23 indicates alarm.
	When power is applied to the PS in slot 23, but not the PS on slot 22, slot 23 indicates no alarm and slot 22 indicates alarm.
	When power is not supplied to either PS, both do not indicate alarm.

Voltage Sensor Configuration



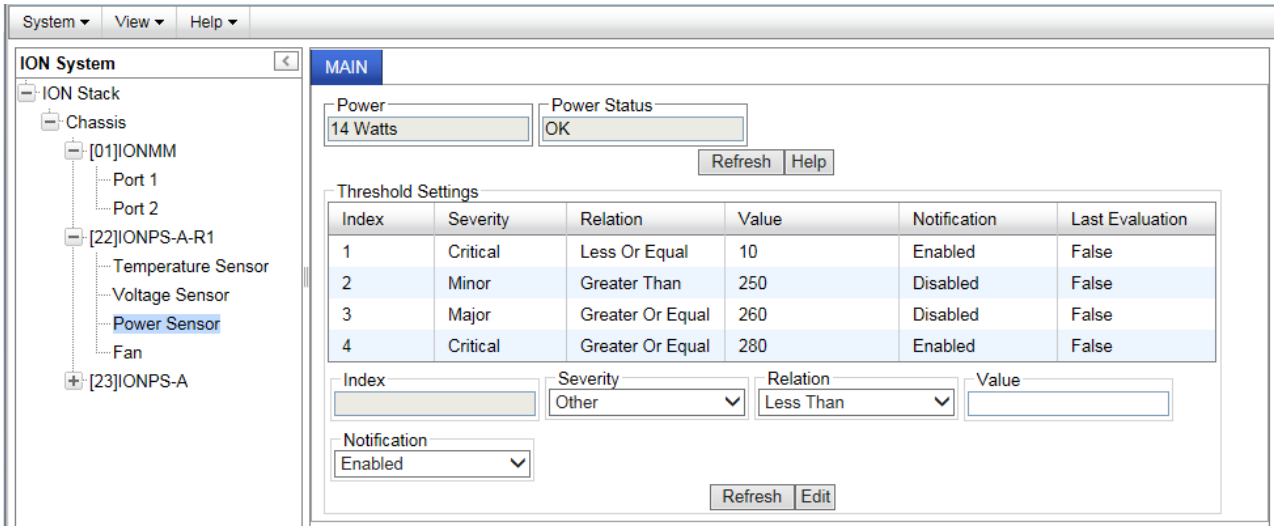
- **Voltage**: displays the most recent voltage measurement obtained by the agent for this sensor in milliVolts.
- **Voltage Status**: displays the operational voltage status of the sensor.
  - **OK** - indicates that the agent can obtain the sensor value.
  - **Unavailable** - indicates that the agent presently cannot obtain the sensor value.
  - **Nonoperational** - 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).
- **Relay Enabled**: select **False** to disable DCR (Dry Contact Relay) operation or select **True** to enable it. This selection enables or disables the relay contact if it is installed (ExtRelayInstalled) in the power supply. (Note that the IONPS-A-R1 does not have the dry contact relay (DCR) option.)
- **Index**: 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.
- **Severity**: select **Other**, **Minor**, **Major**, or **Critical**. 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.
- **Relation**: Less Than (<), Less Or Equal (≤), Greater Than (>), Greater Or Equal (≥), Equal To (=), or Not Equal To (≠).
  - 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.

  Indicates the relation between sensor value (SensorValue) and threshold value (SensorThresholdValue), required to trigger the alarm.
  When evaluating the relation, SensorValue is on the left of SensorThresholdRelation, and SensorThresholdValue is on the right (e.g., SensorValue ≥ SensorThresholdValue).

- **Value**: defines the value of the threshold (e.g., for a Major threshold severity selection, set a relation of Greater than or equal to 14000 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.
- **Notification**: select Enabled to be informed of Voltage Sensor events, or select Disabled to not receive notification of Voltage Sensor events. If this value is **Disabled**, then no SensorThresholdNotification will be generated on this device. If this value is **Enabled**, then whether a SensorThresholdNotification for a threshold will be generated or not depends on the instance value of SensorThresholdNotificationEnable for that threshold.
- **Last Evaluation**: displays **True** if parameters were included in the most recent measurement, otherwise displays **False**. This value indicates the result of the most recent evaluation of the threshold. If the threshold condition is True, then SensorThresholdEvaluation is True. If the threshold condition is False, then SensorThresholdEvaluation is False. Thresholds are evaluated at the rate indicated by the SensorValueUpdateRate (e.g., 0 = on demand (when polled), when the sensor value changes (event-driven), or the agent does not know the update rate).

4. Click the **Save** button when finished with Voltage Sensor configuration.

Power Sensor Configuration



- **Power**: displays the most recent power measurement obtained by the agent for this sensor in Watts.
- **Power Status**: displays the operational power status of the sensor.
  - **OK** - indicates that the agent can obtain the sensor value.
  - **Unavailable** - indicates that the agent presently cannot obtain the sensor value.
  - **Nonoperational** - 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).
- **Index**: 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.
- **Severity**: select **Other**, **Minor**, **Major**, or **Critical**. 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.
- **Relation**: Less Than (<), Less Or Equal (≤), Greater Than (>), Greater Or Equal (≥), Equal To (=), or Not Equal To (≠).
  - 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.

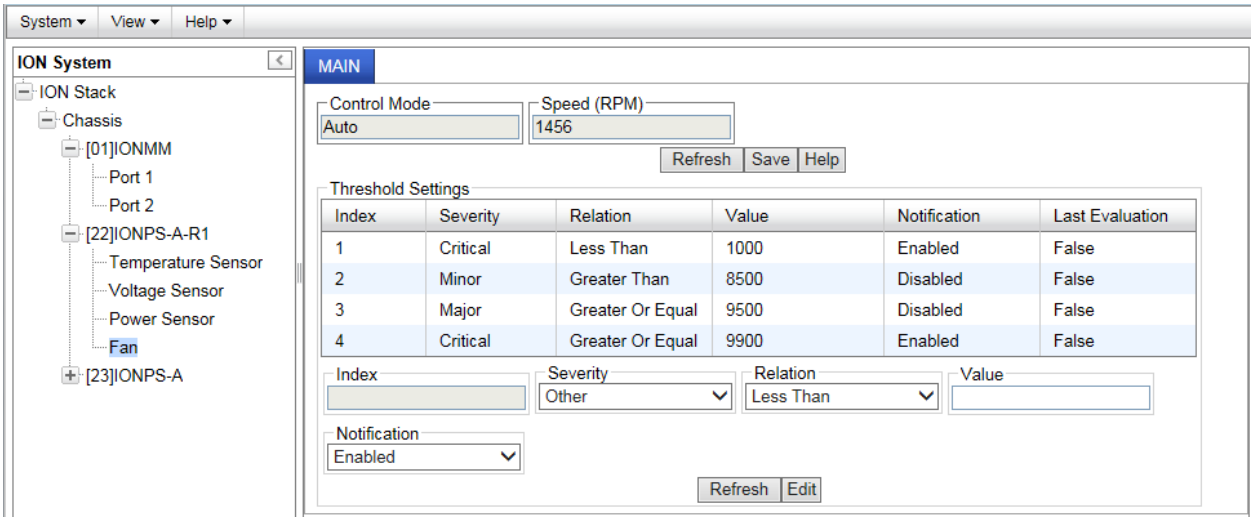
  Indicates the relation between sensor value (entSensorValue) and threshold value (ionEntSensorThresholdValue), required to trigger the alarm.
  When evaluating the relation, entSensorValue is on the left of SensorThresholdRelation, and SensorThresholdValue is on the right (e.g., entSensorValue ≥ SensorThresholdValue).
- **Value**: defines the value of the threshold (e.g., for a Major threshold severity selection, set a relation of Greater than or equal to 14000 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.

- **Notification**: select Enabled to be informed of Power Sensor events, or select Disabled to not receive notification of Power Sensor events. If this value is **Disabled**, then no SensorThresholdNotification will be generated on this device. If this value is **Enabled**, then whether a SensorThresholdNotification for a threshold will be generated or not depends on the instance value of SensorThresholdNotificationEnable for that threshold.
- **Last Evaluation**: displays **True** if parameters were included in the most recent measurement, otherwise displays **False**. This value indicates the result of the most recent evaluation of the threshold. If the threshold condition is True, then SensorThresholdEvaluation is True. If the threshold condition is False, then SensorThresholdEvaluation is False. Thresholds are evaluated at the rate indicated by the SensorValueUpdateRate (e.g., 0= on demand (when polled), when the sensor value changes (event-driven), or the agent does not know the update rate).

5. Click the **Save** button when finished with Power Sensor configuration.

Fan Configuration

The IONPS-A-R1 fan control mode can be viewed via the ION software. The IONPS-A-R1 uses an intelligent temperature monitor and fan controller.



- **Control Mode**: displays the fan's current operational mode (read only). Fan control mode is pre-set to "**Auto**matic"; the fan speed is controlled by IONPS-A-R1 internal temperature sensor components. Auto Temperature-Fan mode is an intelligent, closed-loop control that optimizes fan speed according to pre-defined parameters. This mode allows the IONPS-A-R1 to run as a stand-alone device without intervention.
- **Speed**: displays the current actual (measured) fan speed in RPMs from 1000 - 8300 RPMs (read only).

1. **Index**: select an index line that uniquely identifies an entry in the Threshold Table. The index permits the same sensor to have several different threshold values set.

2. **Severity**: select **Other**, **Minor**, **Major**, or **Critical**. 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.

3. **Relation**: select Less Than (<), Less Or Equal (≤), Greater Than (>), Greater Or Equal (≥), Equal To (=), or Not Equal To (≠).
    - **LessThan**: if the sensor value is less than the threshold value.
    - **Less Or Equal**: if the sensor value is less than or equal to the threshold value.
    - **Greater Than**: if the sensor value is greater than the threshold value.
    - **Greater Or Equal**: if the sensor value is greater than or equal to the threshold value.
    - **Equal To**: if the sensor value is equal to the threshold value.
    - **Not Equal To**: if the sensor value is not equal to the threshold value.

    Indicates the relation between sensor value and sensor threshold value, required to trigger the alarm. When evaluating the relation, SensorValue is on the left of SensorThresholdRelation, and SensorThresholdValue is on the right (e.g., SensorValue ≥ SensorThresholdRelation ≥ SensorThresholdValue).

4. **Value**: select the value of the threshold (e.g., for a Major threshold severity selection, set a relation of Greater than or equal to 1000 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.

5. **Notification**: select Enabled to be informed of Fan Sensor events, or select Disabled to not receive notification of Fan Sensor events. If this value is **Disabled**, then no SensorThresholdNotification will be generated on this device. If this value is **Enabled**, then whether a SensorThresholdNotification for a threshold will be generated or not depends on the instance value of SensorThresholdNotificationEnable for that threshold.

6. **Last Evaluation**: displays **True** if parameters were included in the most recent measurement, otherwise displays **False**. This value indicates the result of the most recent evaluation of the threshold. If the threshold condition is True, then SensorThresholdEvaluation is True. If the threshold condition is False, then SensorThresholdEvaluation is False. Thresholds are evaluated at the rate indicated by the SensorValueUpdateRate (e.g., 0= on demand (when polled), when the sensor value changes (event-driven), or the agent does not know the update rate).

5. Click the **Save** button when finished with Fan configuration.

Upgrading the IONPS-A-R1

You can upgrade IONPS-A-R1 to a specific (newer) firmware revision via the IONMM. The upgrades do not require the reconfiguration of the SNMP management or device feature settings.

Note that there are some cases which cause upgrade fail:

- Communication between the IONPS-A-R1 and IONMM is corrupted, causing an upgrade protocol timeout.
- There is no valid IONPS-A-R1 firmware file stored in the IONMM, such as no specific revision IONPS-A-R1 firmware, or a corrupted firmware file.
- An internal FLASH failure occurred.

If the IONPS-A-R1 bootloader cannot detect a valid firmware installed after the device is powered up or rebooted, it will enter upgrade mode automatically to request a valid firmware from the IONMM. When the IONPS-A-R1 finishes upgrading successfully, it will reboot itself and let the bootloader check the firmware again. If a valid firmware file is found, the IONPS-A-R1 will load the firmware and enter normal operating mode; otherwise, the IONPS-A-R1 will continue entering upgrade mode.

There are three ways to upgrade the firmware revision via the IONMM:

- Via the ION Web interface: see the *ION Management Module (IONMM) User Guide* for procedures.
- Via CLI command: see the *ION Management Module (IONMM) User Guide* for procedures.

Note: See the Release Notes for known limitations when using IONMM v1.4.3 or earlier to upgrade the IONPS-A-R1 power supply modules to FW v 1.2.9 at: https://ltrxdev.atlassian.net/wiki/spaces/LTRXTS/pages/1844510973/Latest+firmware+for+the+IONPS-A-R1.

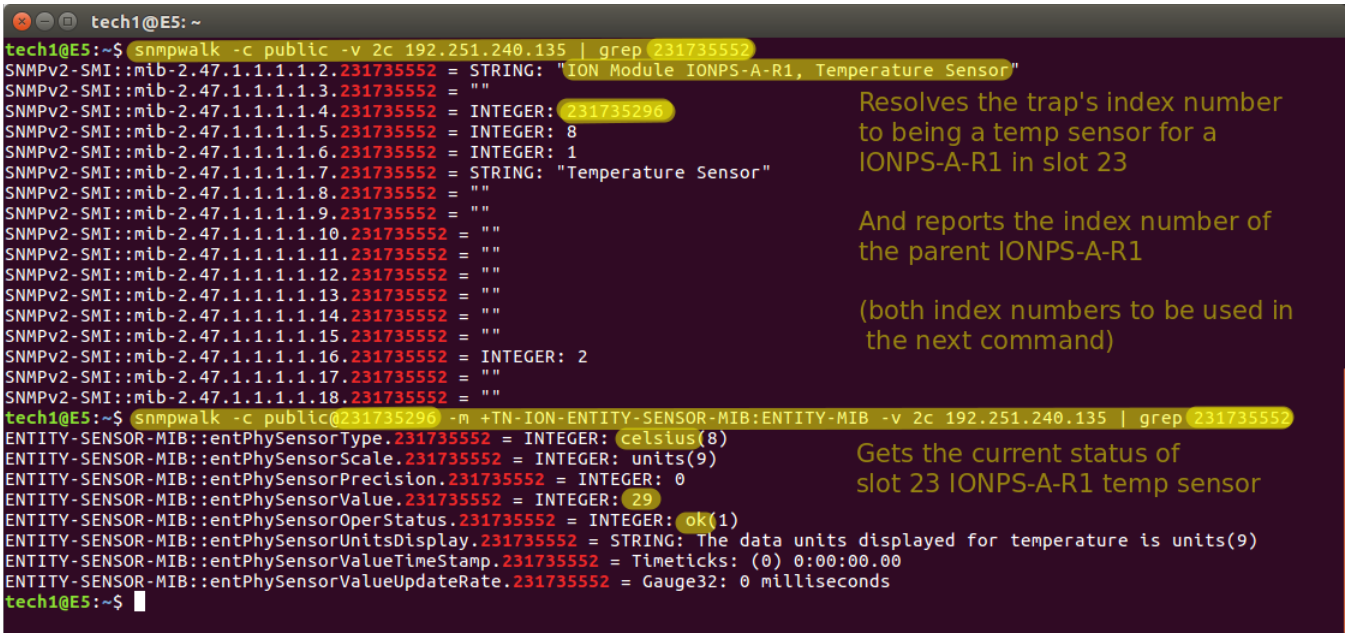
SNMP Service and Function

When installed in an ION chassis, the IONPS-A-R1 can be managed with the SNMP protocol via the IONMM (the ION platform management unit). The IONPS-A-R1 supports SNMP V1, V2c, and V3.

The IONPS-A-R1 implements these MIBs:

- entPhySensorTable
- ionEntSensorExtTable
- ionEntSensorThresholdTable
- ionpsr1CfgTable
- ionpsr1FanCfgTable

The IONPS-A-R1 complies with IETF RFCs 1157, 1158, and 2578 for SNMP. See https://datatracker.ietf.org/ for details.



4 Troubleshooting, Support, and Compliance Information

Messages

Message:

Primary power supply is at critical temperature: %d

Secondary power supply is at critical temperature: %d

Meaning: Notification that an IONPS-A-R1 is overheated. The Power Supply temperature trap "tnPowerSupplyEnvMonTemperatureNotif" was sensed.

Recovery: 1.

Message: *Error: only IONPS-A-R1 can run this command!*

Meaning: You tried to enter an unsupported command.

Recovery: 1. Try another command on this device. 2. Switch to another device (***go*** command) and re-try the original command.

Message: *Error: System is busy, please retry this command later!*

Meaning: You tried to enter a command while the system is processing another command.

Recovery: 1. Wait a few moments and then re-try the command.

Message: *Error: this command should be executed on a device!*

Meaning: You tried to enter a port-level command while at the CLI command device level.

Recovery: 1. Try another command. 2. Switch to the port level (***go*** command) and then re-try the command.

Message: *Fail to get IONPS-A-R1 operating as!*

Meaning: You entered the **show ionpsr1 mode** command but the information requested could not be returned.

Recovery: 1. Make sure this is the command you want. 2. Make sure this is the device on which you want to enter the command. 3. Try another command or try another device.

Message: *Fail to get IONPS-A-R1 configure mode!*

Meaning: You entered the **show ionpsr1 fan config** command but the information requested could not be returned.

Recovery: 1. Make sure this is the command you want. 2. Make sure this is the device on which you want to enter the command. 3. Try another command or try another device.

Message: *There are 2 power supplies in the chassis, you can not set both of them to slave mode!*

Warning: IONPS-A/D-R1 operation mode is different from configured mode, you can not insert 2 slave mode power supplies in chassis!

Meaning: You tried to configure both IONPS-A-R1 power supplies as "Secondary" devices.

Recovery: 1. Review the "Primary/Secondary Mode" section on page 8.

2. Re-configure one of the two IONPS-A-R1 devices as the "Primary" supply (see chapter 3. IONPS-A-R1 Software Configuration on page 17.

Message: *Error: Relay state can only be set on IONPS-A!*

Meaning: You tried to enter an unsupported command for this device.

Recovery:

1. Try another command on this device.

2. Switch to another device (***go*** command) and re-try the original command.

Message: *Error: Cannot set IONPS-A-R1 fan control mode on this card!*

Error: Cannot set IONPS-A-R1 operating as on this card!
Error: only IONPS-A-R1 can run this command!
Fail to get IONPS-A-R1 fan control mode!
Fail to set IONPS-A-R1 fan control mode!
Fail to set IONPS-A-R1 fan speed!
Fail to set IONPS-A-R1 operating as!
The Operation Mode can not be set as Slave on both power supplies!

Meaning: You misconfigured the IONPS-A-R1.

Recovery:

1. Review chapter. 3. IONPS-A-R1 Software Configuration on page 17.

2. Re-configure one or more of theIONPS-A-R1 parameters (see chapter 3. IONPS-A-R1 Software Configuration on page 17).

Message: *IONPS-A-R1 fan speed is out of range, its range is 2500 - 8300!*

Meaning: You misconfigured the IONPS-A-R1 fan speed.

Recovery:

1. Re-configure the IONPS-A-R1 fan speed.

2. See Power Supply Config – CLI Method on page 17 or Power Supply Config – Web Method on page 25.

Note: If the LEDs on the front of the ION219 or the IONMM indicate one of the power supplies modules has failed, remember that when looking at the rear of the chassis that the power supply on the left is PS1 / slot #22 and the power supply on the right is PS2 / slot # 23.

Looking at the front of the chassis, the LEDs are labeled PS1 and PS2. Looking in the IONMM module, the power supply slots are labeled 22 and 23. Looking at the back of the chassis where the power supplies are, there is no labeling to indicate which slot is 22 or PS1 or 23 or PS2.

Troubleshooting

If the Power Supply fails, isolate and correct the failure by determining the answers to the following questions and then taking the indicated action:

1. Is the Power LED on the IONPS-A-R1 lit?

    NO

    • Is the Power Supply inserted properly into the chassis?

    • Is the Power Supply properly connected to the external power source?

    • Does the external power source provide power?

    • Contact Technical Support.

    YES

    • Proceed to step 2.

2. Is the fuse on the IONPS-A-R1 intact?

    NO

    • CAUTION: See the “Replace the Fuse” section for the proper method to replace the Power Supply fuse.

    • Contact Technical Support.

    YES

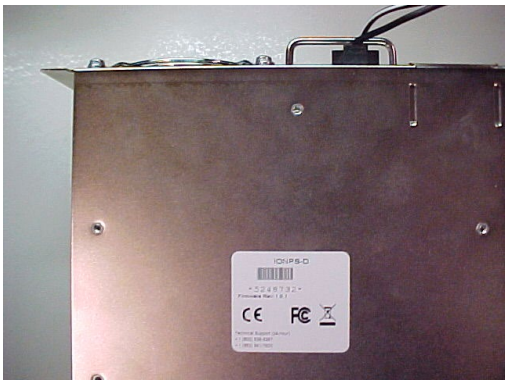
    • Contact Technical Support.

3. Verify the IONMM firmware version. See the Release Notes for the required IONMM firmware version.

4. When a problem or exception occurs, the IONPS-A-R1 sends the related Trap messages.

5. Use MGSoft to check the MIB value, and/or use other Ethernet tools to capture the traffic package for further analysis.

Recording Information



Gather information needed for the Tech Support Specialist, including information on the ID Sticker on the bottom of the IONPS-A-R1:

Model Number: _____

Serial Number: _____

Firmware Rev. _____

Related Lantronix and 3rd party devices: _____

_____

Note any error messages, failure codes, operating characteristics, etc. for contacting Technical Support:

_____

_____

_____

_____

_____

_____

_____

_____

Compliance Information

FCC Regulations

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 the user's own expense.

Canadian Regulations

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

EU Declaration of Conformity

Manufacture's Name: Lantronix, Inc.
Manufacture's Address: 48 Discovery, Suite 250, Irvine, California 92618 USA

Declares that the products: IONPS-A-R1, IONPS-D-R1

Conforms to the following Product Regulations:
FCC Part 15 Class A, EN 55032/AC:2013, EN 55024:2010
Directive 2014/30/EU, Directive 2015/863/EU
Low-Voltage Directive 2014/35/EU
EN 62368-1 2nd Clause 5.6.4.2.1
EN 50581:2012
IEC 60417-6042 (2010-11) and IEC 60417-6172 (2012-09)
With the technical construction on file at the above address, this product carries the CE Mark

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).
Place: Irvine, California
Date: June 14, 2023
Signature: *Eric Bass*
Full Name: Eric Bass
Position: Vice President of Engineering

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.

Lantronix Corporate Headquarters
48 Discovery, Suite 250
Irvine, CA 92618, USA
Toll Free: 800-526-8766
Phone: 949-453-3990
Fax: 949-453-3995

Technical Support
Online: https://www.lantronix.com/technical-support/

Sales Offices
For a current list of our domestic and international sales offices, go to the Lantronix web site at www.lantronix.com/about/contact.