

AIMA-RFSW

RF A/B

PROTECTION

SWITCH

Product user manual



technetix

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1 About this manual

1.1 Related documentation

The following documents may be used in conjunction with this manual:

- AIMA3000 - Product User Manual
- AIMA ASMM - Product User Manual
- AIMA3000 NMS Web Management System Product User Manual
 - NMS3-EPSM - Basic Inventory Management
 - NMS3-EPSM - Basic Alarm Management
 - NMS3-EPSM - Basic System Management
 - NMS3-EPSM - Basic Template Management

1.2 Technical Support

If you need help in the process of setting up and maintaining RFSW, please contact Technetix customer service:

Europe:

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NL-3900 AJ Veenendaal
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2 Precautions



WARNING!

This equipment is intended for indoor applications. To prevent fire or electrical shock, or damage to the equipment, do not expose units to water or moisture.

- You should carefully read and thoroughly understand the contents of the manual before installing and using this equipment.
- At any time, there may be dangerous voltage inside the device.
- **DO NOT** power up before the cover and the panels of the equipment are installed and the enclosure is closed.

Cleaning

Only use a damp cloth to clean the front panel. Use a soft dry cloth to clean the top of the unit. **DO NOT** use any spray cleaners or chemicals of any kind.

Outage or overload requiring service and repairs

Unplug the unit and refer the servicing to Technetix qualified service personnel only.

Servicing and repairs

DO NOT attempt to service this unit yourself. Refer all servicing needs to Technetix qualified service personnel only.

3 Overview

3.1 About the Product

The RF A/B Protection Switch (RFSW) is designed to plug into the latest generation Advanced Intelligent Multi-services Access platform - the AIMA3000.

Providing reliable radio signal stability, the RFSW is an RF-based switching device designed for automatic or manual switching of radio signals. It maintains the RF output in the event of a loss or degraded signal of one of the two signals connected to its inputs.

Engineered for high-isolation, the impedance-matched RF switch relay, is controlled by microcontroller-based logic circuits. This intelligent microcontroller manages the switch based on the detection of RF input signal levels. In addition, the switch can operate based on user-defined minimum and maximum RF threshold levels. The RFSW switching module provides self-monitoring and communicates with the ASMM (AIMA3000 System Management Module) within the AIMA3000 chassis.

The switching action may be set to by automatic or manual operation. When in manual mode, the switch can be controlled through the ASMM's Web Interface, the AIMA hand-held controller, or through the NMSE. The module's microcontroller determines when to switch signals based on total RF power as commonly used in forward transmission, or based on pilot tone detection of a single frequency as specified by the customer.

3.2 Product Key Features

- Plug-and-play AIMA3000 platform module
- Forward-path version (5 MHz to 1218 MHz) suits CENELEC and NTSC up to 158 channels (both analog and digital)
- Highly reliable, compact design
- Operates in AUTO or MANUAL mode
- Operator defined adjustable thresholds for both inputs with the maximum and minimum signal parameters
- Comprehensive remote monitoring
- Configurable alarm threshold levels
- Remote firmware upgrade and auto upload/download of configuration files through ASMM webinterface or using the NMSE
- Bulk firmware updates through the NMSE
- FCC, CE and RCM⁽¹⁾ compliant

⁽¹⁾ See Declaration of Conformity for current status.

3.3 Specifications

RF performance

RF bandwidth	5 - 1218 MHz
RF flatness	± 0.5 dB
Insertion loss	3 dB maximum
Isolation	< 65 dB (5 to 1000 MHz) < 60 dB (1000 to 1218 MHz)
RF impedance	75 Ω
RF return loss	> 16 dB
RF test point relative to RF output port	-20 ± 1 dB
RF connectors	3 x GSK-type female
RF test points	3 x Mini-SMB
Switching time	< 15 ms
Alarms and status	Front-panel LEDS and SNMP traps

General

Power supply	Powered via AIMA3000 backplane
Power consumption	< 0.5 W
Operating temperature	-5 - 55°C
Operating humidity	Maximum 90 % (Non-condensing)
Storage temperature	-25 - 70°C
Storage humidity	90% (non-condensing)
Dimensions (W*D*H)	24.6 * 410 * 152.5 mm
Weight	0.88 kg
Supported network management options	The NMSE or through ASMM's Web Interface

3.3.1 Block Diagram

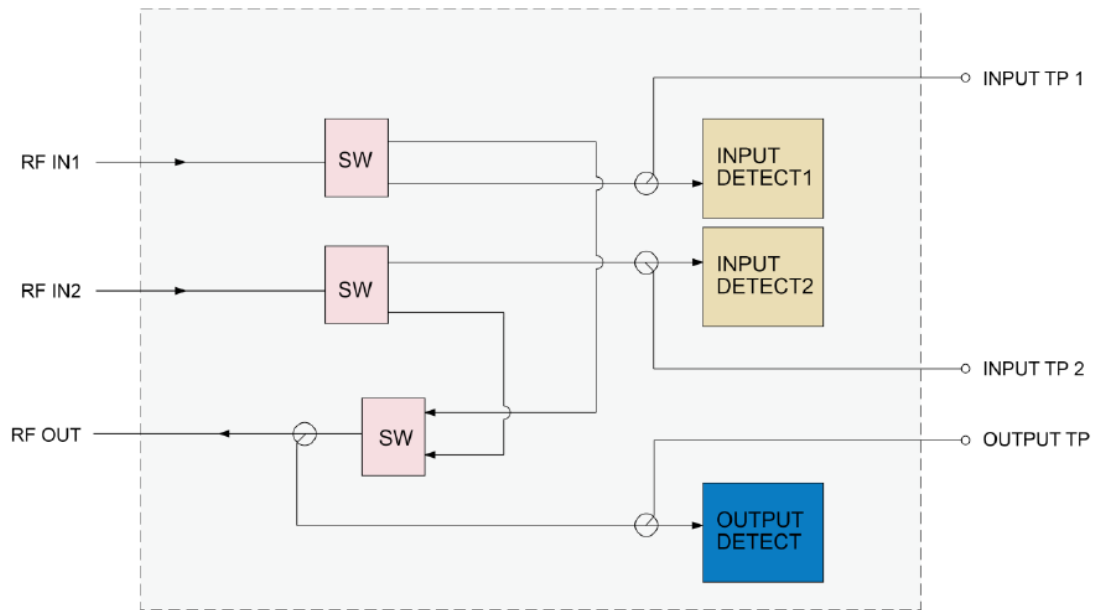


Figure 3-1 RFSW block diagram

3.4 Order Details

A-RFSW-[Z] RF A/B protection switch

Options:

Z Bandwidth

1G 45 - 1000 MHz (Standard)

12 5 - 1218MHz

4 Module Characteristics

4.1 Module Appearance and Port Layout

4.1.1 Overview

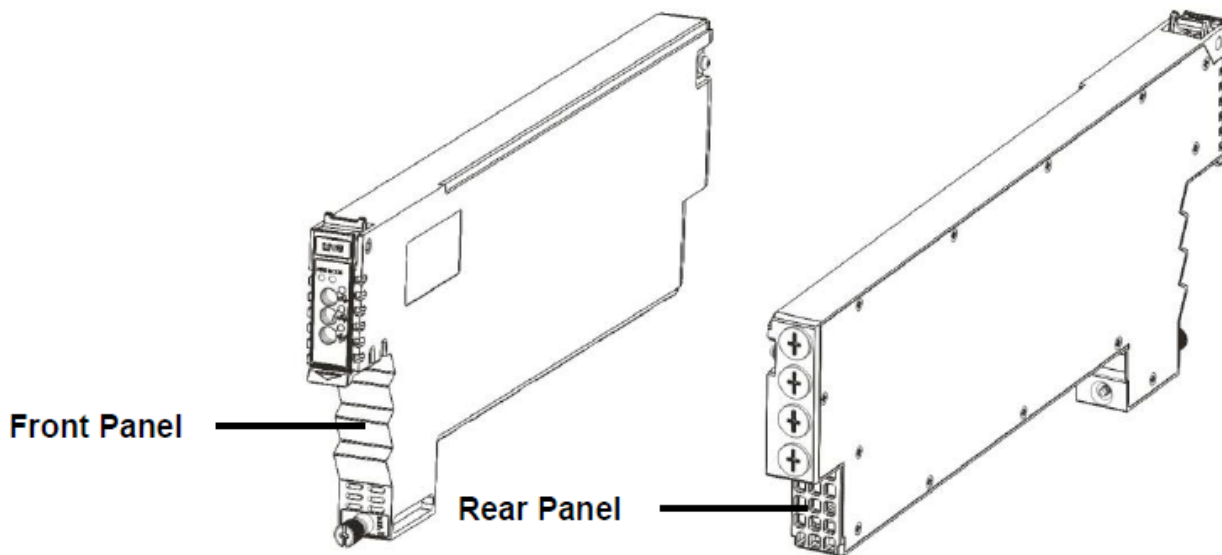


Figure 4-1 Module appearance

4.1.2 Front panel view

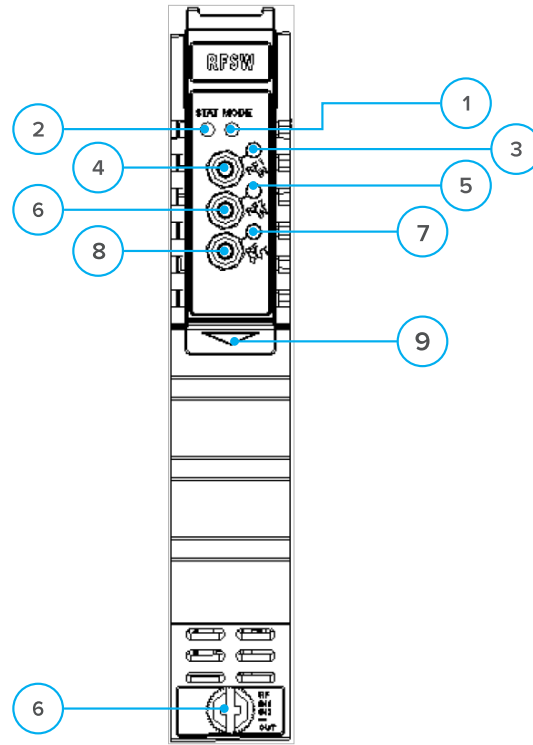


Figure 4-2 FPAS Front panel layout

Table 4-1 FPAS Front Panel Functions

Item Number	Item	Description
1	MODE	Module working mode indicator Manual: Green Light Blinking, 1 time per second Automatic: Green
2	STAT	Module working status indicator Normal: Green Minor Alarm: Orange Major Alarm: Red
3	RF 1 IN LED	Input A working mode indicator (Select input A, light blinking), 1 time per second Normal: Green Minor Alarm: Orange Major Alarm: Red
4	RF 1 IN TP	Input A testing point
5	RF 2 IN LED	Input B working mode indicator (Select input B, light blinking), 1 time per second Normal: Green Minor Alarm: Orange Major Alarm: Red
6	RF 2 IN TP	Input B testing point
7	RF OUT LED	RF working mode indicator Normal: Green Major Alarm: Red Minor Alarm: Orange
8	RF OUT TP	RF output testing point
9	Tab-retaining clip	Plug and fix the module. The tab-retaining clip will pop-up after pressing the release and plug module.
10	Front screw	Fix RFSW Module

4.1.3 Rear panel view

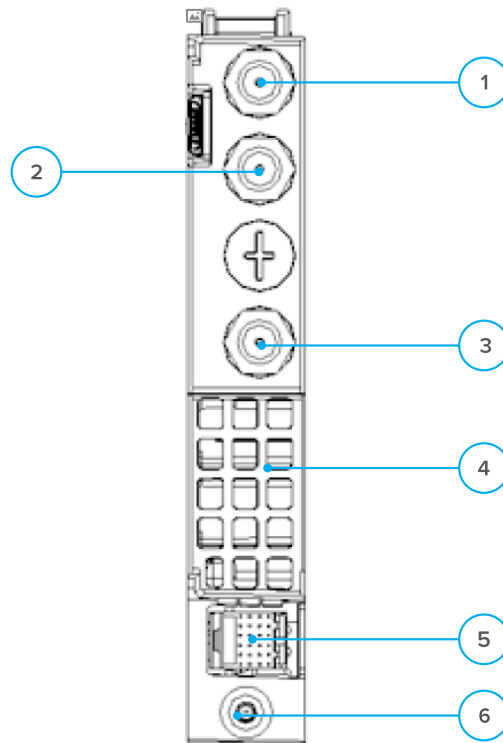


Figure 4-3 Rear panel layout

Table 4-2 FPAS rear panel functions

Item Number	Item	Description
1	Input In A	RF input A
2	Input In B	RF input B
3	RF out	RF output
4	Air vent	Air vent allowing air to flow out of the module
5	Multi-pin connector	Power and communication port
6	Placement Pin	Used to position the module in the chassis

5 Installation

5.1 Preparatory Work for Installation

Before installing this device, you must ensure that the unit is intact and ready for installation. Unpack and check the unit: Open the box to check for any damage that may have occurred during shipment.

If damage is found, please contact a Technetix customer support representative.

Necessary equipment and tools for installation:

Table 5-1 Necessary equipment and tools for installation

Tools/Modules	Description
Phillips screwdriver PH1/PH2	For use with the AIMA3000 chassis
RFSW Module	The module to install into the AIMA3000 chassis

5.2 Unpacking

Unpack the module. Keep the packaging materials for future transport needs.

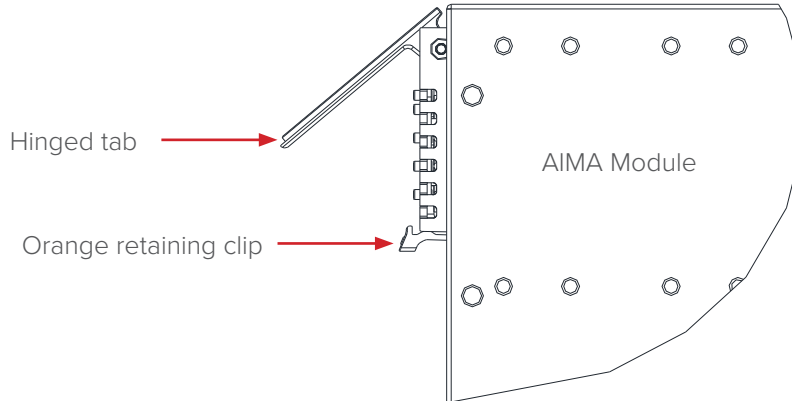
Check the package manifest, record the product module type, serial number, purchase date, and any other relevant information to facilitate later management and maintenance.

Table 5-2 Packing Manifest

No.	Description	Qty
1	RFSW module	1
2	Individual test sheet (Certificate of Performance)	1

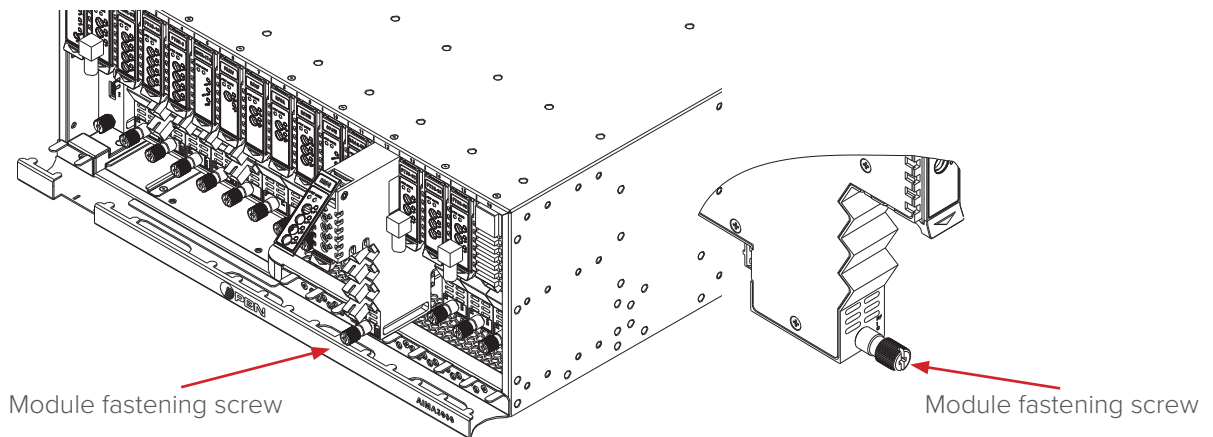
5.3 Module Installation

1. Gently depress the retaining clip and release the hinged tab



2. Hold the AIMA module casing upright, align it with the AIMA3000 slide rails for the correct slot, and insert the module until it reaches the multi-pin connector.

DO NOT use excessive force when inserting the module, but ensure the RF connectors at the rear of the module are securely connected with the chassis's RF connectors.



CAUTION!

The module **MUST** be installed correctly to ensure a proper connection of the module's multi-pin connector and the backplane.

Tip:

When inserting the module into the guide rails, vertically tilt the module slightly to check that the guides are properly seated on the rails. The module is guided to the correct position using the large metal fastening screw on the lower part of the front panel.

3. After the module is inserted, gently push the hinged tab until it snaps into the retaining clip. While pushing down on the hinged tab, the AIMA module will mate with the power bus and will lock in into the chassis.



CAUTION!

If force is required to insert a module, then it may not be correctly seated on the slide rails, or the mounting screw may be misaligned.

4. When the module is fully seated within the chassis, on the AIMA module, fasten the spring-loaded mounting screw. **Only use fingers to fasten the mounting screw. DO NOT use a screwdriver.**

5.4 Check Module LEDs

When the module has been installed, and power is supplied to the module, the status LEDs will show a blinking green light indicating that the input signal is normal. If the signal is normal the module STAT status indicator will show a green light, and the 'RF 1 IN' and 'RF 2 IN' input port status indicators will also show a green light (when "RF 1 IN" / "RF 2 IN" input ports both have an input signal).

5.5 Test the RF Input Signal

Measure the RF level at 'RF 1 IN TP'. Add 20 dB to the RF reading to compensate for RF loss. Set the RF settings in RFSW page in the ASMM's web interface. Measure 'RF 2 IN TP' at the -20 dB test point to ensure that the RF level present at 'RF 2 IN' is within 1 dB range of 'RF 1 IN'.

Please note that the insertion loss of the RFSW is 2 dB. When measuring RF levels using the -20 dB test point, the RF levels measured at the input port and output port will read a 2 dB difference due to the RFSW insertion loss.

When the RF output of the RFSW is not connected to another AIMA module, the RF readings at the RF test point of the RF output port may not be accurate. In this case, install a 75 Ω terminator to terminate the output port and improve the accuracy of the RF test point readings.

When testing the RF signal at TP port, make sure that the RF output port is either connected with an RF load or has 75 Ω terminator installed.

6 Module configuration & alarm setup

The module configuration settings can be implemented using the ASMM's web interface and the NMSE network management software. This manual only provides web interface configuration methods. For NMSE configuration methods please refer to the NMSE network management software manual.

6.1 Port Configuration screen

After the logging in to the AIMA-ASMM controller's web interface, select the **'Modules'** tab from the top row and then the **'RFSW'** from the left column to configure the RFSW. After selecting the **'RFSW'**, the main RFSW settings page will appear to configure the module parameters.

The screenshot displays the web interface for configuring the RFSW module. The top navigation bar includes 'System', 'Modules', 'Alarms', 'Logs', and 'Upgrade'. The left sidebar lists various modules, with '9 RFSW' selected. The main configuration area is divided into several sections:

- Module Information:** Displays details such as Model (AIMA-RFSW), Serial No. (13015746), HW Assembly No. (A04330_2h), FW Part No. (S08620), and FW Version (V01.00.03). A 'Refresh' button is present.
- Configuration:** Includes an 'Alarm Control' dropdown set to 'Enable' and a 'Module Alias' text field containing 'RFSW'. A 'Submit' button is located at the bottom right.
- Alarm Settings:** A table with columns for Parameter, Current Value, HiHi, Hi, Lo, LoLo, and Deadband.

Parameter	Current Value	HiHi	Hi	Lo	LoLo	Deadband
Temperature(°C)	36.3	<input type="checkbox"/> 70.0	<input type="checkbox"/> 65.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> -5.0	2.0
+12V Input Voltage(V)	11.8	<input type="checkbox"/> 13.5	--	--	<input type="checkbox"/> 10.5	0.2
+5V Input Voltage(V)	5.0	<input type="checkbox"/> 6.0	--	--	<input type="checkbox"/> 4.4	0.1

 A 'Submit' button is located at the bottom right of this section.
- Commands:** Includes 'Factory Defaults' and 'Reboot' buttons, each with an 'Apply' button. Warnings are provided for both actions.

On the main window in the **'Alarm Setting'** section, various alarms can be toggled.

Selecting 'Port 1' below the RFSW module on the left column will open up the port configuration page.

Parameter	Current Value	HiHi	Hi	Lo	LoLo	Deadband
Path A Input Level(dBmV)	58.2	<input checked="" type="checkbox"/> 70.8	<input checked="" type="checkbox"/> 66.8	<input checked="" type="checkbox"/> 48.8	<input checked="" type="checkbox"/> 44.8	2.0
Path B Input Level(dBmV)	58.7	<input checked="" type="checkbox"/> 70.8	<input checked="" type="checkbox"/> 66.8	<input checked="" type="checkbox"/> 48.8	<input checked="" type="checkbox"/> 44.8	2.0
Output Power(dBmV)	56.4	<input checked="" type="checkbox"/> 68.8	<input checked="" type="checkbox"/> 64.8	<input checked="" type="checkbox"/> 46.8	<input checked="" type="checkbox"/> 42.8	2.0

In the port settings page, the switch parameters can be set.

Setting	Description
Switch Mode	Toggle manual or automatic operation
Wait to Restore Time	After the input has been switched, a timer can be set for the switch to return it to the default input. It prevents the switch from continuously toggling between states.
Switch Control	Sets the primary switch port

On the 'Port 1' configuration page, the 'Switch Control' can be set to:

- Path A

Input limits can be set by configuring the parameters for the 'Critical Alarm' and 'Low Alarm'. When a 'Critical High' or 'Critical Low' Alarm occurs, the RFSW will automatically switch to 'Path B' (when no critical high or low alarms exist on 'Path B').

- Path B

Input limits can be set by configuring the parameters for the 'Critical Alarm' and 'Low Alarm'. When a 'Critical High' or 'Critical Low' Alarm occurs, the RFSW will automatically switch to 'Path A' (when no critical high or low alarms exist on 'Path A').

6.2 Restoring factory default

Loading factory defaults can restore the device to the original settings.
Detailed operations:

Click on the **'Modules'** tab and click the module to be configured as shown in **Figure 6-1**. Click **'Apply'** to the right of the **'Factory Default'** label in the commands section. When finished, the device configuration will be reset. For more detailed factory reset information, please refer to the factory restore and upgrade configuration parameters table as in **Table 6-1**.

Note:
All the powers displayed on the webpage are total power.

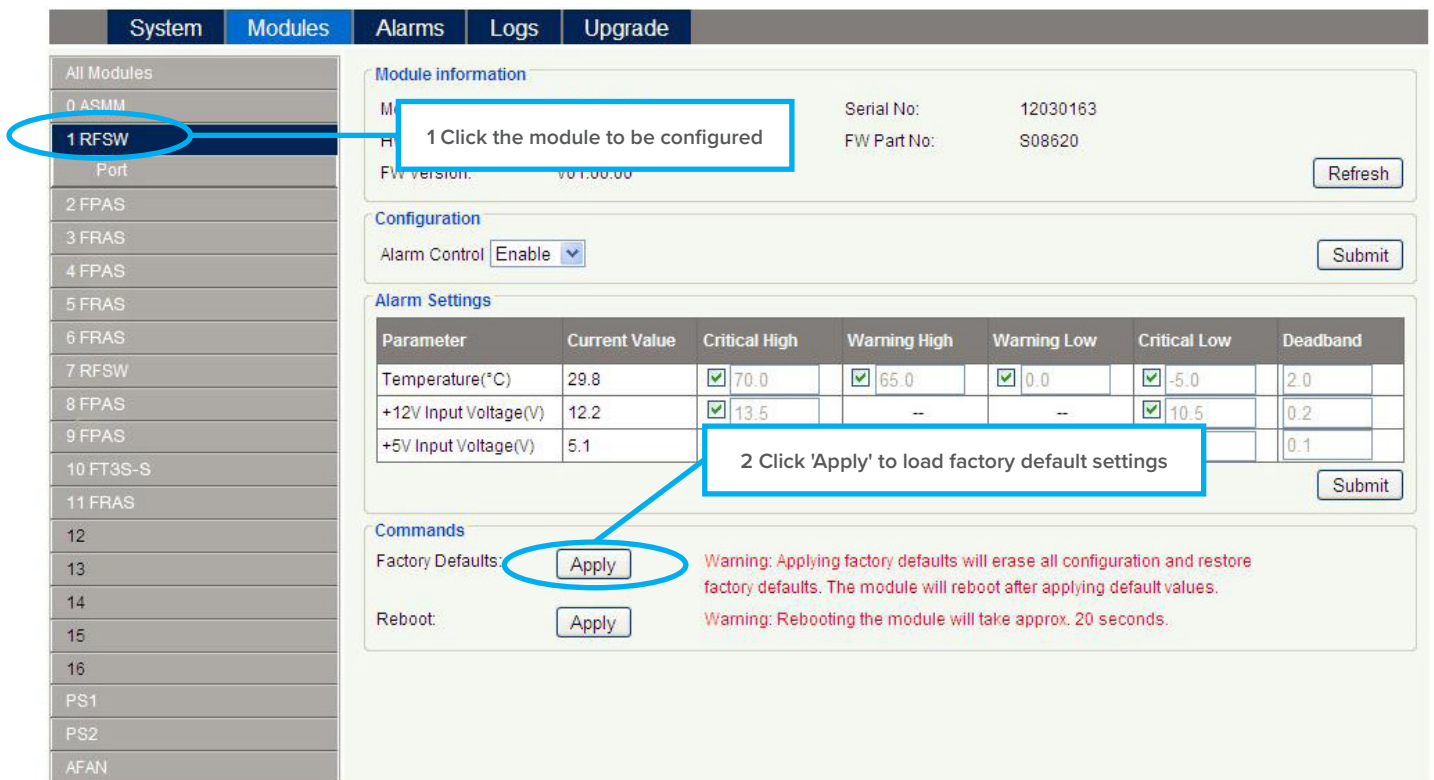


Figure 6-1

Table 6-1 Factory default parameter table

Name	Configuration	Factory Default Value	After Software Upgrade
Alarm Control	ON/OFF	ON	Same as the configuration before upgrade
Switch Mode	Automatic/Manual	Automatic	Same as the configuration before upgrade
Revert Enable	ON/OFF	ON	Same as the configuration before upgrade
Switch control	Path A/Path B	Path A	Same as the configuration before upgrade
Wait to Restore Time	1-10 s	10 s	Same as the configuration before upgrade

6.3 Reboot

The module can be made to reboot remotely, shown in **Figure 6-2** below.

Detailed operations:

Click on the **'Modules'** tab on the top row, and then click the corresponding **'RFSW'** module from the left column. In the command section, click the **'Apply'** button next to the Reboot label. Next, click **'Submit'** to confirm, and the module will automatically restart. The module's configuration will not be lost after rebooting.

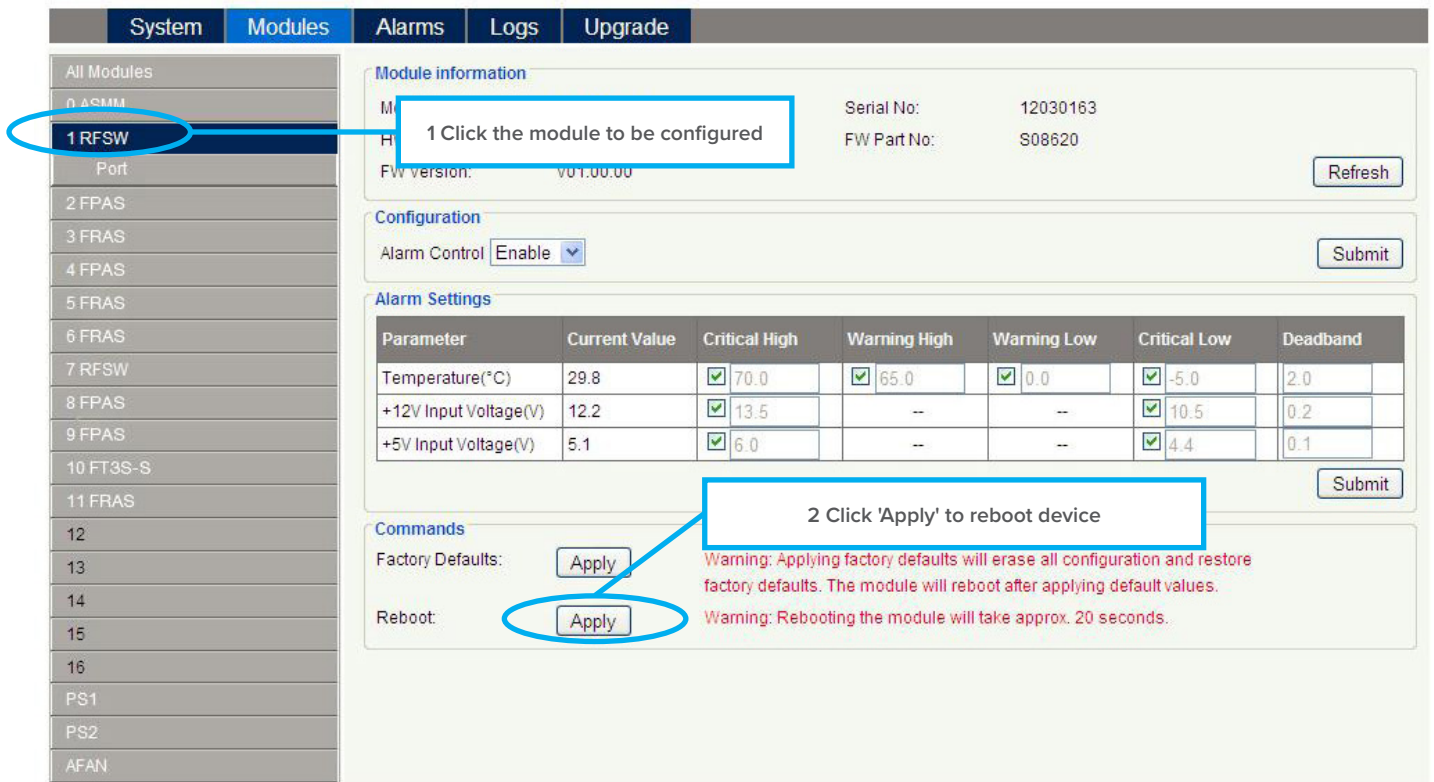


Figure 6-2

Items	Sub Items	Effect and Configuration method	Configuration
Module Information	Model	-	-
	HW Assembly No	-	-
	FW Version Firmware version	-	-
	Serial No	-	-
	FW Part No Firmware package number	-	-
Configuration	Alarm Control	Control Alarm Indicator ON/OFF	Enable/Disable
Alarm Setting	Critical High	Alarm level setting, alarm parameters are not allowed to be changed	
	Warning High		
	Warning Low		
	Critical Low		
	Deadband		

6.4 Alarms Monitoring

All alarm information is monitored by the ASMM module. If an alarm occurs, view the associated pages to find more detailed alarm information.

6.4.1 Alarm Status Pages

Click the 'Alarms' tab on the top menu bar to display an overview of the alarm status of all the installed modules as shown in Figure 6-3 below.

There are three alarm statuses:

- Normal: Green light
- Major alarm: Orange light
- Major alarm: Red light

System	Modules	Alarms	Logs	Upgrade
All Modules				
0	ASMM			
2	FPAS			
3	FRAS			
4	FPAS			
5	FRAS			
6	FRAS			
7	RFSW			
8	FPAS			
9	FPAS			
10	FT3S-S			
11	FRAS			
12	--			
13	--			
14	--			
15	--			
16	--			
PS1	PS			
PS2	PS			
AFAN	AFAN			

Figure 6-3

6.4.2 Module Operating Voltage and Temperature Alarm

Click on the corresponding module, as shown in the following figure, to view the module alarm information. By clicking on the corresponding 'RFSW' on the left column, under 'Alarms' tab, the operator can view the module temperature and supply voltage alarms. The operator can utilize the status indicators to judge whether the module is working properly.

There are three alarm statuses:

- Normal: Green light
- Major alarm: Orange light
- Major alarm: Red light

The screenshot shows a web interface with a navigation bar containing 'System', 'Modules', 'Alarms', 'Logs', and 'Upgrade'. The 'Alarms' tab is selected. On the left, a list of modules is shown, with '1 RFSW' highlighted. The main content area displays 'Slot 1 RFSW Alarm Status' with a table of alarm data and a 'Refresh' button.

No.	Alarm Type	Current Value	Critical High	Warning High	Warning Low	Critical Low	Deadband	Status
1	Temperature(°C)	29.5	70.0	65.0	0.0	-5.0	2.0	●
2	+12V Input Voltage(V)	12.2	13.5	--	--	10.5	0.2	●
3	+5V Input Voltage(V)	5.1	6.0	--	--	4.4	0.1	●

Figure 6-4

Use the status indicators to determine if the module is working properly. If the device is replaced or reset, click 'Refresh' to update the alarm information.

6.4.3 Module port alarms

Click on 'Port' under the associated RFSW from the left column, as shown in **Figure 6-5**. From the 'Port' screen, the operator can view the Input Total Power, and the Input Level alarms status.

There are three alarm statuses:

- Normal: Green light
- Major alarm: Orange light
- Major alarm: Red light

No.	Alarm Type	Current Value	Critical High	Warning High	Warning Low	Critical Low	Deadband	Status
1	Failover Status	normal	--	--	--	--	--	Green
2	Both Path Status	fault	--	--	--	--	--	Red
3	Path A Input Status	fault	--	--	--	--	--	Red
4	Path B Input Status	fault	--	--	--	--	--	Red
5	Path A Input Level(dBmV)	31.0	70.8	66.3	51.3	46.8	2.0	Red
6	Path B Input Level(dBmV)	32.2	70.8	66.3	51.3	46.8	2.0	Red
7	Output Power(dBmV)	24.6	68.8	64.3	49.3	44.8	2.0	Red

Figure 6-5

6.5 Alarm monitoring configuration

6.5.1 Monitoring Function ON / OFF

The Monitoring Function is labeled as '**Alarm Control**' and it can be toggled from the '**Configuration**' section on the '**Modules**' page.

6.5.2 Temperature, +12V / +5V voltage alarm level management

By default, temperature, +12 V, +5 V, - 5V voltage alarms are all set to ON. The check box as shown in Figure 6-6, toggles the monitoring function. When the check box is checked (detection ON), the text in the text box will be solid black. When the check box is unchecked (detection OFF), the text in the text box will be light gray and cannot be changed. The default parameters are shown in **Table 6-2** below.

Table 6-2 default alarm parameters

Parameters	Critical High	Warning High	Normal	Warning Low	Critical Low	Dead Band	Factory Default
Temperature (°C) Temperature	70.0	65.0	N/A	0.0	-5.0	2.0	ON
+5V Input Voltage (V) Input Voltage	6.0		5.0		4.4	0.1	ON
+12V Input Voltage (V) Input Voltage	13.5		12.0		10.5	0.2	ON

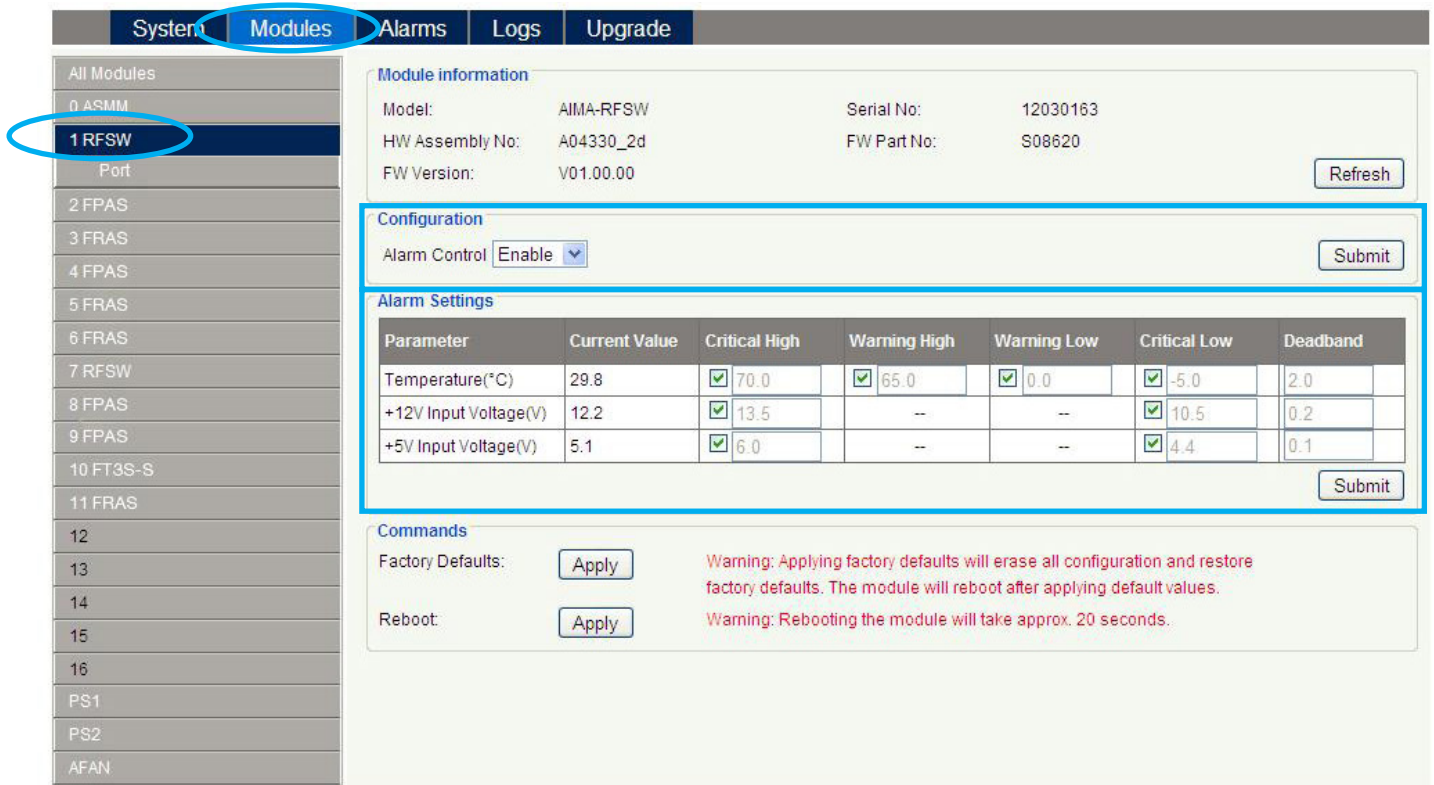


Figure 6-6

6.5.3 Input / Output status monitoring

To setup Input / Output Status Monitoring, select the 'Port' from the left menu, and the monitoring parameters are listed in the 'Alarm Settings' section. Click the to toggle the alarms. The monitoring parameters can be changed by the user. See Figure 6-7 below:

Table 6-3 Port page alarms threshold parameters instruction

Parameters	Critical High	Warning High	Normal	Warning Low	Critical Low	Dead Band	Factory Default
Path A Input Level (dBmV)	70.8	66.8	N/A	48.8	44.8	-58.0	ON
Path B Input Level (dBmV)	70.8	66.8	N/A	48.8	44.8	-58.0	ON
Output Power (dBmV)	68.8	64.8	N/A	46.8	42.8	-58.0	ON

The screenshot shows the configuration page for a port. The 'Alarm Settings' section is highlighted with a blue box and contains the following table:

Parameter	Current Value	HiHi	Hi	Lo	LoLo	Deadband
Path A Input Level(dBmV)	25.1	<input checked="" type="checkbox"/> 70.8	<input checked="" type="checkbox"/> 66.8	<input checked="" type="checkbox"/> 48.8	<input checked="" type="checkbox"/> 44.8	2.0
Path B Input Level(dBmV)	25.5	<input checked="" type="checkbox"/> 70.8	<input checked="" type="checkbox"/> 66.8	<input checked="" type="checkbox"/> 48.8	<input checked="" type="checkbox"/> 44.8	2.0
Output Power(dBmV)	18.5	<input checked="" type="checkbox"/> 68.8	<input checked="" type="checkbox"/> 64.8	<input checked="" type="checkbox"/> 46.8	<input checked="" type="checkbox"/> 42.8	2.0

Figure 6-7

Table 6-4 Module alarm indicator definitions

Parameters (Common)	Description	Definitions	Related Indicators	Lighting Conditions
Power OFF	Power OFF	Power OFF	All	All OFF
Initiating AM	Power ON	During Module Power ON	All	Green (1 time/sec)
No Alarm	Normal operation	Normal	All	Green
AM-Critical-ALM	Critical Alarm	Module Status Critical Alarm	STAT	Red
AM-Minor-ALM	Warning Alarm	Module Status Warning Alarm	STAT	Orange
RF-input-Critical-ALM	RF Input Power Critical Alarm	RF Input Power is too high or too low	STAT RF IN	Red
RF-input-Minor-ALM	RF Input Power Warning Alarm	RF Input Power is higher or lower	STAT RF IN	Orange
RF-output-Critical-ALM	RF Output Power Critical Alarm	RF Output Power is too high or too low	STAT RF OUT	Red
RF-output-Minor-ALM	RF Output Power Warning Alarm	RF Output Power is higher or lower	STAT RF OUT	Orange

6.6 Logs management

The operator can view all the alarms of the modules in the chassis on the 'Logs Management' page. Click 'Logs' on the top menu bar to enter the 'Logs Management' page. See **Figure 6-8** below:

System		Modules		Alarms		Logs		Upgrade	
All Logs									
No.	Slot	Port	Type	Alarm Value	State	Time	Content		
1	12	--	Module Status	--	Critical	2012-10-10 09:26:36	FPAS is removed		
2	11	--	Module Status	--	Critical	2012-10-10 09:26:49	FPAS is removed		
3	3	--	Module Status	FPAS	Warning	2012-10-10 09:26:58	FPAS is discovering		
4	3	--	Module Status	FPAS	Normal	2012-10-10 09:27:02	FPAS is inserted in sync		
5	4	--	Module Status	FPAS	Warning	2012-10-10 09:27:13	FPAS is discovering		
6	4	--	Module Status	FPAS	Normal	2012-10-10 09:27:17	FPAS is inserted in sync		
7	1	--	Module Status	--	Critical	2012-10-10 09:44:03	FRAS is removed		
8	10	--	Module Status	--	Critical	2012-10-10 09:44:20	FPAS is removed		
9	11	--	Module Status	FRAS	Warning	2012-10-10 09:44:30	FRAS is discovering		
10	16	--	Module Status	--	Critical	2012-10-10 09:44:34	FT3S is removed		
Total Pages: 11 Current Page: 1 First Page Page Up Page Down Last Page <input type="button" value="Delete All"/>									

Figure 6-8

6.7 Device upgrade

The module supports firmware the upgrade function.

To upgrade the firmware, click the **'Browse...'** button and locate the firmware file. Then click **'Start Upgrade'** to begin the upgrade process. After the upgrade is complete, you will be redirected to the Network Administration page. See **Figure 6-9**.

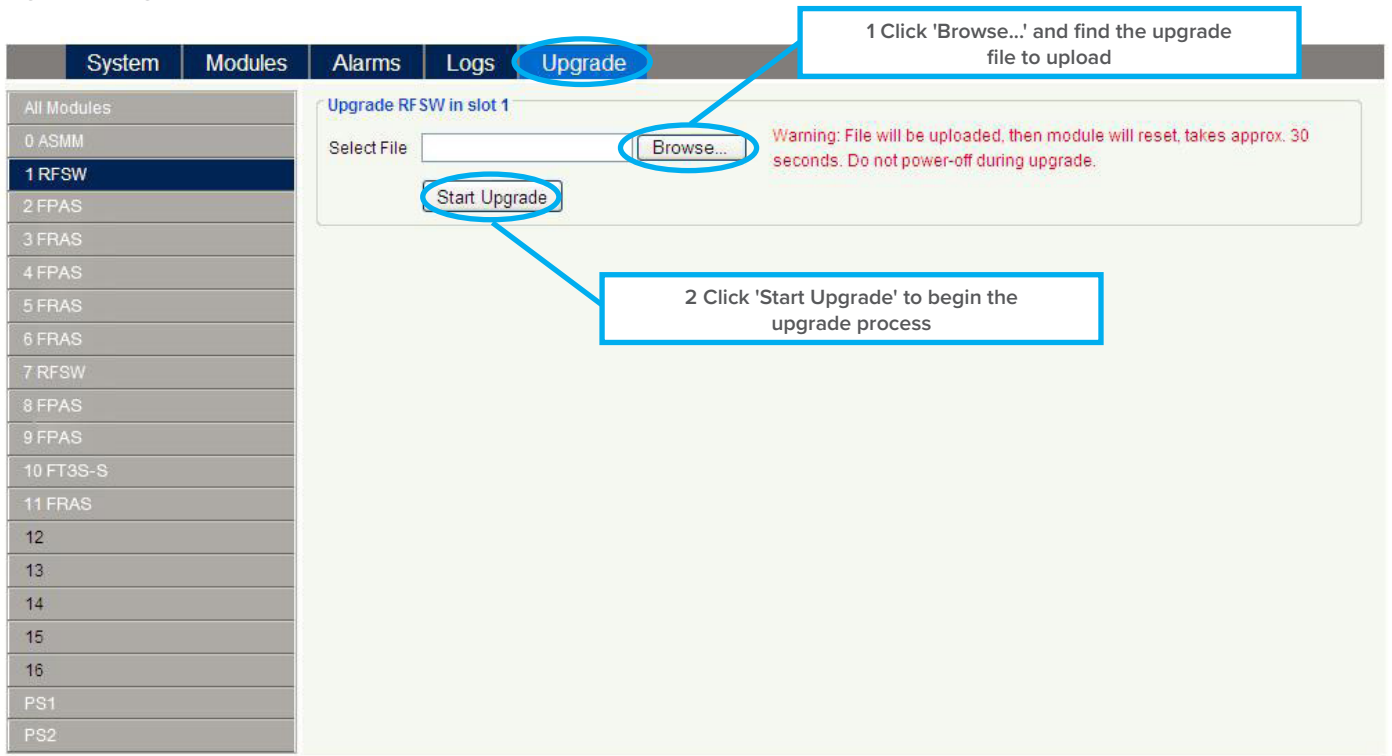


Figure 6-9

* The upgrade file needs to be located on the PC that is connected to the ASMM

* The RFSW supports automated firmware updates and automatic backup/restore features through TFTP when managed via the NMSE management software. Please refer to the NMSE Product User Manual for more information.

Note:

The above instructions are based on:

- RFSW software version V01.00.03
- RFSW hardware version A04330_2g



CAUTION!

Module will be upgraded after the firmware is uploaded. The upgrading and reboot process will take about 30 seconds. During the upgrading, please don't power off the device and don't plug any module in the same chassis, or it may lead to upgrade fail or data sync error.

7 Troubleshooting

Indicator for determining faults

If there is a fault, the operator can use the status LEDs to determine the location and condition of the fault. Please see **Table 7-1** below:

Table 7-1 Fault Judgment Table

Alarm Indicator status	Common Faults	Trouble Shooting
RF IN A/B status is Red	Channel A/B Input level is too high or too low	Adjust channel A/B input signal
	Channel A/B Input level is too high or too low	Adjust channel A/B input signal
STAT is Red	Power failure	Please contact Technetix technical support
	RF output level is too high or too low	Adjust channel A/B input signal
	Operating environment temperature is too high	Lower the room temperature if the temperature is normal, please contact Technetix technical support

Appendix A: Default alarm limit settings

Parameters	Critical High	Warning High	Normal	Warning Low	Critical Low	Dead Band	Factory Default
Temperature (°C)	70.0	65.0		0.0	-5.0	2.0	ON
+5V Input Voltage (V)	6		5.0		4.4	0.1	ON
+12V Input Voltage (V)	13.5		12.0		10.5	0.2	ON

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