SMART RACKGUARD iQ RF11iQP

8 X REMOTE CONTROLLED DUAL CIRCUIT PROTECTION AND FILTRATION

MODEL: RF11iQP

USER MANUAL

THOR®

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RF11iQP Warranty & User Manual

Thor Technologies Pty Ltd reserves the right to alter or change the specifications and/or product as and when deemed necessary to keep in line with the Company policy of ongoing improvement in research, development and features of the product range.

1.   INTRODUCTION

Thank you for choosing the THOR Smart Rack Guard iQ (RF11iQP).

The Smart Rack Guard iQ (RF11iQP) has been designed with industry leading technology for the integration of secure IP based monitoring functions and has the ability to communicate via a web browser application using Microsoft Edge, Firefox, Chrome or Safari. This remote access will allow users, particularly service technicians, immediate advice via email of any power loss causing the controller to reboot. This manual will explain how to set up and use the features of this product to ensure integrity and security standards are maintained.

Purpose

Why is there a need to communicate with a filtered surge protector? Today many electrical appliances have the ability to be turned on or off remotely. In many instances service personnel can monitor systems and equipment to ensure they are performing correctly. Instant advice of a problem can save on downtime and reduce associated call outs. Early detection to faults and the ability to reset equipment remotely can relieve expensive call out costs.

The RF11iQP can alert via email should the product sustain any damage from a power surge or other high voltage incident. If inbuilt power circuits are affected and the system has had to self reboot, an email will be sent immediately to advise of such an event.

Once the email has alerted a service technician of a potential problem (providing power is correctly restored and the RF11iQP has not suffered major damage) if connected equipment is not functioning correctly service personnel are able to log in and reset this equipment. The ability to turn each circuit on or off becomes an invaluable time and cost saving function.

RF11iQP may still need a follow-up visit to the site to ensure the Power LEDs are still both 'Green"

If the LEDs on the front panel are both not 'Green' then damage has been sustained and the product needs replacing.

Conventions

The product programming software will run a web server that serves simple and uncluttered HTML and/or XML pages to indicate system status. Industry Standard Internet Protocols are used. In addition the software has inbuilt email functionality.

2.   OVERVIEW

The RF11iQP has two circuits. One circuit set contains 7 individually controlled Australian pin outlets while the other circuit set contains a single control for 4 IEC outlets giving a combined 11 outlet configuration. Each circuit has spike and surge protection as well as filtered technology to ensure safe and clean power is supplied to any connected devices.

Given the nature of rack applications often being in mission critical installations, the design of the RF11iQP if there has bean a power incident that forces the unit to automatically reboot, the RF11iQP provides an immediate alert re the incident which highlights that it has reduced or exhausted its protection capacity but it will still continues to allow power through. This allows service technicians to work on a replacement unit while not affecting the site operations.

2.1 FEATURES

Current Limits

240VAC Total unit current is 10A Max

Each Australian pin individual outlet (1 – 7) has capacity to supply 10A maximum per outlet; REAR CIRCUIT 8 – IEC x 4 outlets combined can supply 10A output in total.

NOTE: The total output across all 11 outlets can only be maximum of the unit, which is 10A.

Individually controlled switchable circuits

Seven individually controlled Australian pin outlets and a single control for 4 IEC outlets via the web browser available through a PC or via a Smartphone. This allows the user to select outlets to be switched off when not in use or required remotely as well as controlling individual circuits if a fault condition is apparent while allowing other sections to still remain operational (Providing the RF11iQP unit is fully functioning and has not sustained any damage).

NOTE: If output 1 has an auto-restart time set, it will definitely be switched on at reset regardless of what it was doing prior to reboot. Only outlets that were 'ON' before an event/power outage will automatically be switched 'ON' when unit is restarted. For example, if only outlets 3 and 4 were 'OFF' before an event/power outage then these will be the only outlets that will remain off when the unit is restarted. To activate the outlets that are "OFF" you must use the web browser through a PC or via a Smartphone to switch the outlets "ON". The unit MUST be LAN connected and all the parameters in your browser and server network set correctly. See the section on setting up the web browser 'Configuration' through a PC or via a Smartphone web browser outlined later in this booklet.

Soft Start

The RF11iQP has an in built 'Soft Start' feature to allow the unit to be switched on without causing a major overload of the 10A Circuit Breaker. If there has been an outage the RF11iQP will switch back on incrementally with a few milliseconds between each outlet turning back on (that was previously on before outage).

OTA (Over The Air Programming)

The RF11iQ has the added feature of OTA Firmware upgrades through the Configuration Screen by using a downloadable file from Thor Technologies (*.Bin) reducing the need to return the unit to Thor Technologies for upgrades. See 'Firmware' in this manual.

Individual Naming of Outlets

The RF11iQP allows for each Outlet to be individually named in the 'Configuration' allowing for easy tracing of connected equipment.

3. INSTRUCTION

Procedures

Please note whilst effort has been made to simplify the setup, some of these procedures have been produced assuming an experienced IT person is carrying out the configuration.

Knowledge of networking protocols would assist greatly with understanding the configuration.

3.1 IP BASED MONITORING

It's highly recommended to connect the RF11iQP to a network with a DHCP server (generally your internet router).

To log into the RF11iQP admin console, please enter : **http://RF11iQP.local** in the top address field of a browser such as Chrome, Edge, Firefox or Safari and the following screen should appear.

The hostname RF11iQP.local can be entered with or without connecting to a DHCP server. Without DHCP, your PC will communicate via Multicast DNS or mDNS. The default IP address is 10.1.1.18.

NOTE: If configuring multiple RF11iQP suggest use the default (RF11iQP.local) to get the initial connection and then change the hostname so other devices can then be detected.

Enter text to field User name: admin

- Enter text to field Password: THORRF11
- Press "OK" or "Log In" button (once Username and Password fields are populated) and this screen should appear below.

You are now looking inside the browser of the RF11iQP. Icons show which outlets are energised and allow you to toggle the outputs on or off. Outlets 1 & 2 are currently OFF (Grey)... ALL OTHER OUTLETS ARE ON (White).

3.2 CONFIGURATION

Please select "Configure" button on the bottom of the page to access the network settings. This will allow you to change the default IP address, User name and password and email configuration. Changing these settings is strongly recommended to maintain security protocols.

3.2.1 Enable DHCP

When enabled, the device uses Dynamic Host Configuration Protocol to determine network settings. When DHCP is enabled you may not edit the network settings. If you open the configuration screen when DHCP is already enabled, the disabled fields will show the settings currently issued to the unit from your DHCP server. *(Note - when DHCP is disabled the current IP address will be retained even after a restart)*

IP Address
The IP address of the unit.

Gateway
The IP address of the default gateway, i.e. the address to which any traffic not destined within the local network will be sent for further routing.

Subnet Mask
The bitmask which determines what portion of the IP address describes the network, and what part identifies a node within the network.

Primary DNS
Address of the main DNS server. This is required to translate URLs to IP addresses (eg mail. yourcompany.com to 10.1.1.13).

Secondary DNS
Address of the backup DNS server, used if communication to the primary server fails.

3.2.2 Delays

After Outlet 1

On power-up, this allows for a delay between the first outlet and the rest, to allow (for example) the router or DHCP server to boot ready to serve the other devices when they in turn are powered up.

Outlet 1 Auto-restart

Setting the Outlet 1 Auto Restart Delay allows for Outlet 1 to automatically restart after the preset delay period (sec). Placing your router on Outlet 1 and setting this delay means that you can remotely repower your router using the web browser and, after the delay, have it start up again. If the Outlet 1 Auto Restart is set to "0". Then the feature is disabled and Outlet 1 will not automatically restart.

3.2.3 SNMP

The RF11iQP supports Simple Network Management Protocol (SNMP) version 2C management and traps for connection into network management systems. The community names can (and should) be changed for slightly improved security. If the IP address in this section is set, alerts (traps) will be sent to the specified IP address on powerup.

The MIB for the RF11 can be downloaded from the device at http://RF11iQP.local/RF11_MIB.mib

This MIB allows for interrogation of network and outlet state, and allows (to the write community) the ability to switch outlets on and off.

3.2.4 Outputs

Each output may be assigned a label which is displayed on the status screen and mobile apps to help identify what is connected to each output.

3.2.5 Email

Email Server

The IP address or name (eg mail.yourcompany.com) of the SMTP server used to relay outgoing messages.

Email Server Port

The port number on which your email server accepts inbound SMTP connections for email. Traditionally 25, modern servers use 587. Sometimes, 465 or 2525 may be used. If none of these work please consult your email/ SMTP server provider for the recommended settings, and ensure outbound ports aren't blocked with your ISP.

Email User & Email Password

The user id and password the device will use to log onto the SMTP server. Note that only clear text logins are supported (no SSL etc).

Email Address

The email address to which alerts will be sent.

3.2.6 Network Access

Host Name
The name of the device on the network. It will be included in alert messages to help you identify which device is having a problem.

Admin Password
Required to access the web interface for the device. Username is fixed as "admin", the password defaults to "THORRF11" on factory reset.

MAC Address
This is the low-level hardware address of the device, which must be unique on your network and any network containing a machine trying to access the device.

The factory supplied MAC Address is guaranteed unique worldwide. It is recommended that you do not change it unless you have a very specific reason for doing so.

mDNS (Multicast DNS)
The RF11iQ has had the mDNS capability added to help with name resolution in smaller networks without routers/DHCP servers.

The device's mDNS name will be <hostname>.local, by default RF11IQP.local.

Security: *Although every effort is made to maximise Internet security within the unit, the capabilities of such a small device are limited, thus it is recommended that the unit be operated with an external firewall and other such security measures. The other advantage of this is that the firewall will be more up to date and better integrated with the site security policy.*

3.2.7 Firmware

Choose File
Click on this button to locate a Thor RF11iQP *.BIN (binary) file to upload into the firmware.

Upload
Once a bin file has been chosen, click upload to program the new firmware into the unit. Do not disconnect network or power until the operation is complete.

Save
Click save to store any changes into the device's permanent Flash memory.

You will then be re-directed to the status page.

Note that the unit must be restarted for any changes to network configuration to take effect.

If you have changed the Admin Password, the status page will then ask you for the new username and password.

Cancel
Aborts changes and returns to the status screen.

3.2.8 Remote Access and Security

Remote access :

RF11iQP is listening on ports 80 and 443 (http and https, respectively).

Port forwarding on your firewall/router would point to 80.

Security

It's recommended to restrict remote access to only trusted external IPs

For example : if using port forwarding for external access, and opening ports 8081 forwarding 8081 to 80 of the IP address of the RF11iQP, external access to port 8081 is recommended to be limited too.

3.3 MAIN PAGE

The main page shows a button for each output switch and its current status. Clicking on an icon will toggle the output.

3.4 FACTORY RESET

If a unit requires a "Factory Reset", the user must follow these instructions.

- Turn OFF power to the unit (Power ON / OFF Switch on the Front Panel)
- Push and hold the CPU RESET Switch (Located on the rear of the unit near the LAN Connector) and Turn ON the unit. (Power ON / OFF Switch on the Front Panel) Keep holding the CPU RESET Switch for 10-15 seconds until you hear the relays sequence through (Click...Click... Click), then release the CPU RESET switch.

The unit will now be reset to the factory default firmware and configuration.

3.5 OPERATIONAL AND PROTECTION STATUS

RF11iQP PROTECTION FUNCTIONING CORRECTLY

Power On LEDs. 'AUS' – Green, 'IEC' – Green.

PROTECTION NOT FUNCTIONING

If any condition displayed on the LED's is other than both 'Green' please contact Thor Technologies immediately.

3.6 SMARTPHONE APP

Access

Enter the hostname or IP address into your Smart phone web browser.
e.g. http://RF11iQP.local

Operation

The RF11iQP has a revolutionised remote control of a power filtration & distribution system using a Smartphone web browser

It is the same as the web server page but oriented to fit a Smartphone screen

- Indication of circuits that are turned "ON" (White)
- **(Circuit 1) - Aus** 1 Outlet Preset Auto switch ON Delay and Manual OFF/ON Control
  Delay is set up in the Configuration Page 'DELAYS'
- **(Circuit 2-7) - Aus** 2-7 Outlets OFF/ON CONTROL
- **(Circuit IEC) - IEC** IEC X 4 Outlet Alarm indication and reset
- **(Circuit 2-7 & IEC)** can be set to turn "ON" after Circuit 1 by setting a preset delay.
  The 'Delay period is set up in the Configuration Page 'DELAYS'

The RF11iQP can also be Configured by selecting 'CONFIGURE' now from the SMARTPHONE Web Browser'

Configuration

The RF11iQP can also be configured from the Web portal in the same WAY as on a standard PC. Image samples below... *(Screen split over 4 images)*

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4.   APPLICATION NOTE (HOW TO TURN ON/OFF STAND-BY POWER)

Use of HTTP interface to remotely control the RF11iQP unit.

The RF11iQP exposes an HTML interface via the /cpan.cgi url which allows the user to power up/ down the output and enable the buzzer for faults on each circuit. It also allows the user to silence the buzzer if it is active.

The full syntax is as follows:

http://<address>/cpan.cgi?param=<p>&value=<v>

<address>

The address of the unit, either as an IP address (eg 10.1.1.7) or as a DNS name if this has been configured (eg rf11.yourcompany.com)

<p>	**<v>**	
p<n>		Circuit <n> power.
	0	Power off.
	1	Power on.

Example

To turn circuit 1 off:
"http://10.1.1.7/cpan.cgi?param=p1&value=0"

Note that the login details are still required to perform these commands, as you will discover if you enter them straight into the address bar of your browser.

The authentication method used is BASIC, the username is fixed as "admin" and you choose the password – which defaults on factory reset to THORRF11.

Given that the device has a HTML interface which displays status and provides a user interface for this cpan.cgi command interface, the URL is not especially useful on its own. When, however, it is combined with the cURL utility (available for Linux, Mac and Windows) it means that any of these functions on the unit may be operated from the command line on any application.

NOTE: These methods all rely on the IP address remaining valid. It is recommended that you either configure your RF11iQP with a static IP address or assign it a permanent lease in the DHCP server if these scripting methods will be used long term, as by default the DHCP server may change the assigned IP address periodically with lease renewals.

The syntax required for using cURL in this manner is as follows:

curl --user admin:<pass> "http://<address>/cpan.
cgi?param=<p>&value=<v>"

<address>, <p> and <v> are the same as above.

<pass> is your currently configured admin password for the unit.

Make sure you wrap the url in double quotes.

cURL is a built-in command on Linux, BSD and the Mac. There are several implementations available for Windows and a simple search will reveal them.

Once this is configured, you can use other applications or utilities to drive (for example) the outputs of the RF11 units based on a schedule or other network management alarms and so on.

A classic example – some devices may only be required during the day. By using the task scheduler (Windows), cron (linux/BSD) or launchd (Mac) you can power up your rack in the morning and shut it down in the evening to conserve power.

NOTE: Obviously, you will need to ensure that the appropriate shut-down of any equipment powered off the controlled circuit has been performed or that the equipment is tolerant of repetitive, unexpected power outages before using this procedure.

Linux Example

From a terminal type:

export EDITOR=<editor>

<editor> could be vi, nano, whatever your favourite text editor is.

sudo crontab -e

You'll need to enter your password, and be an admin on the machine. Add the following lines:

0 9 * * 1-5 curl --user admin:THORRF11 "http://10.1.1.58/cpan.
cgi?param=p1&value=0"

0 17 * * 1-5 curl --user admin:THORRF11 "http://10.1.1.58/cpan.
cgi?param=p1&value=1"

Save and exit.

Now, at 0 minutes past 9am, every day of the month and every month, on days of week 1-5 (Monday to Friday), the output of circuit 1 will be switched on. Similarly, at 5pm on these days it will be powered down.

Windows Example

Start by finding a version of curl that works on your system. A good place to start is http://curl.haxx.se/download.html. Download and copy the curl.exe into your c:\windows\system32 directory. You may need to do this by running an explorer or cmd shell as administrator. Click Start, search for "cmd", right click on cmd.exe when it appears and run as administrator, then copy from there. You can do the same with explorer.exe instead of cmd.exe

Ensure that the curl command line call works, by clicking Start, searching for "cmd" and running cmd.exe. Enter the curl command and make sure the RF11iQP switches on or off correctly.

Now set up the schedule. Start->Control Panel, System and Security, Administrative Tools, Task Scheduler.

Create a basic task named "RF11iQP Startup", with a weekly trigger, starting at 9:00:00am and recurring every 1 week, with Monday through Friday checked. The task should start a program curl.exe, with the --user and url arguments to power up the circuit added.

Create a second task named "RF11iQP Shutdown" which is the same, except it should start at 5:00:00pm and arguments set to power down the circuit.

YOU'RE DONE!

Mac Example

OS-X still supports the crontab utility as used by the linux example, although it has been deprecated in favour of launchd.

The configuration of launchd to call the curl utility is outside this scope: please refer to the Apple knowledgebase on the subject (searching for "launchd.plist" may also yield some good results).

5. EXTERNAL EARTH CONNECTION

Add external earth

Terminate cable with a vinyl-insulated ring terminal similar to kst drvs5-1 or similar with a hole ø to fit m4 stud …

Hook-up wire 300v grn / yel or yel / grn min 16awg … Similar to alphawire ul 1007 3057
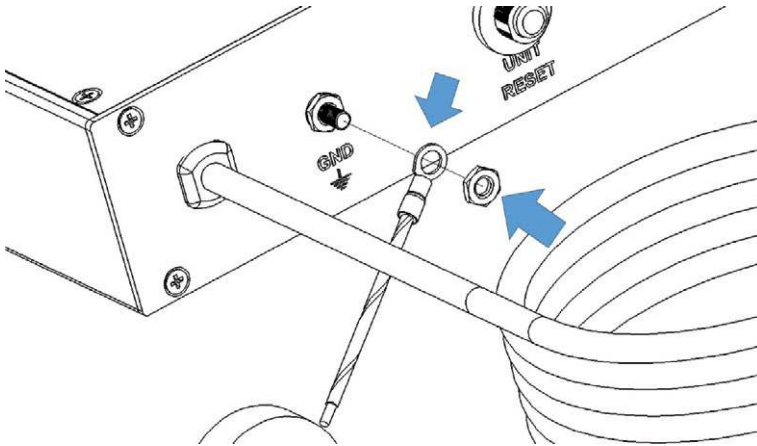

Figure 2

OPTIONAL

An external earth can be added to selected RF11 Series products to meet earthing requirements with rack installations… use Figure 2 as a guide

1. Remove the TOP M4 nut but do not discard, keep for step 3.. DO NOT LOOSEN OR REMOVE THE SECOND NUT
2. Connect a correctly selected and terminated cable. See notes in picture.
3. Refit the M4 nut securely so that the ring terminal is held tightly in place.

6. BRACKET ADJUSTMENT INSTRUCTIONS

ADJUSTABLE RACK MOUNTING BRACKET

The RF11 Series has a unique adjustable Rack Mounting Bracket to be set by the end user.

(A) The bracket can be adjusted to accommodate the depth of the plugs that are connected. The bracket has a stop point limit and can be adjusted from flat, level with the front panel to its maximum point of travel as shown by the arrows in Figure 1 A.

(B) Align the hole on the side of the unit with the hole of the Rack Mounting Bracket as shown in Figure 1B.

(C) Fit the M6 Screw provided in the packet to secure the bracket. The hole in the bracket is pretapped to suit the screw. One screw per bracket. As shown in Figure 1 C.

IMPORTANT NOTE:

Care should be taken that the screw is correctly positioned before attempting to screw it into position to avoid cross threading.

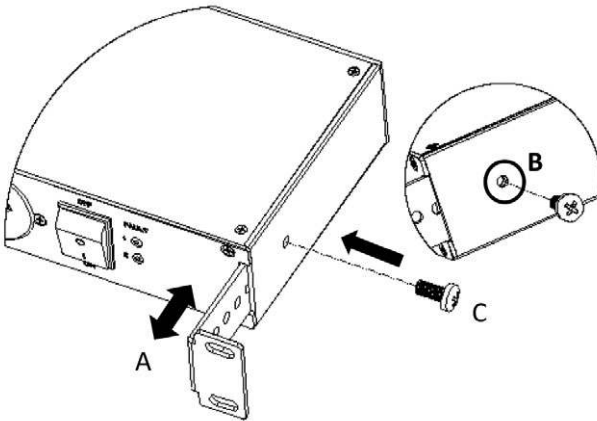The process is repeated on the other side of the unit.

Figure 1

Additional 'Screws and Nuts (X 4)' are provided to allow the end user to mount the RF11 product in a rack. In most cases you will find that the racks systems have their own nuts built in but if they do not then theses can be used.

7.   REFERENCE

Error messages and causes:

Appendix A - Glossary

Title	Title

Appendix B - Index

Title	Title

6 YEAR PRODUCT WARRANTY

Congratulations on purchasing Australia's finest power protection.

Unless otherwise stipulated in a separate and specifically superseding Product Guarantee, all THOR power protection products are guaranteed for a period of six (6) years from date of original purchase against damage or failure due to faulty components or workmanship. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Notice to New Zealand Consumers

Our goods come with guarantees that cannot be excluded under the Consumer Guarantees Act 1993. This warranty should not be construed as any attempt to contract out of or exclude any or the guarantees available to any consumers under this Act provided that you agree that the provisions of the Consumer Guarantees Act 1993 will not apply if you are acquiring the goods for the purpose of a business.

This warranty shall not cover normal and expected wear and tear, damage, malfunction or failure resulting from accident, misuse or misapplication, improper or unauthorised repair, neglect, modification or use of unauthorised replacement parts or accessories, operation of the unit beyond its technical and environmental specifications, infestation by insects or vermin or interfacing supplied by the customer or improper voltage. The warranty shall be void if the rating label or date code has been removed or altered.

This THOR product is sold by the Dealer or Agent as principal. The Dealer or Agent has no authority from THOR Technologies Pty Ltd to express any additional warranty or guarantee on the Company's behalf except as herein contained. This warranty only applies to the purchase and use of the product in Australia and New Zealand.

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