

README: SNAP PAC I/O Coprocessor Firmware, R3.0a

March 22, 2017

This readme lists new features, enhancements, and bug fixes for Opto 22 rack-mounted controllers and brains that contain an I/O coprocessor.

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What is the SNAP PAC I/O coprocessor?

The SNAP PAC I/O coprocessor is a programmable chip that can be updated in newer Opto 22 rack-mounted controllers and brains. It replaces an older, obsolete chip. The change has no effect on function or performance.

Applicable products

The new programmable chip is included in Opto 22 rack-mounted controllers and brains, starting with the date codes listed below.

NOTE: For devices manufactured during the month and year listed, use PAC Manager (page [2](#)) to find out if your device has an I/O coprocessor.

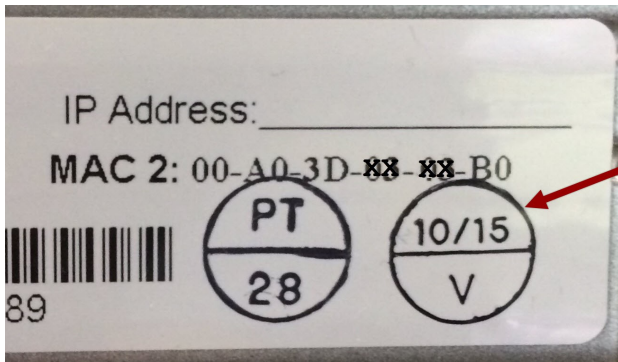
PRODUCT-----	MANUFACTURING DATE CODE (MM/YY)
SNAP-PAC-R1, -R1-FM, R1-W	06/16
SNAP-PAC-R1-B	01/16
SNAP-PAC-R2, -R2-FM, R2-W	02/16
SNAP-PAC-EB1, -EB1-FM, EB1-W	03/17
SNAP-PAC-EB2, -EB2-FM	08/16
SNAP-PAC-EB2-W	03/17
SNAP-PAC-SB1	Use PAC Manager (page 2)
SNAP-PAC-SB2	Use PAC Manager (page 2)

Does my product have an I/O coprocessor?

A device's manufacturing date code can *rule out* whether the device has an I/O coprocessor, but you can inspect the device in PAC Manager (page [2](#)) to find out for certain.

Using the Manufacturing Date Code

If your device is easily accessible, you can visually check its manufacturing date code to see when it was manufactured. If it was manufactured before the dates listed above, it doesn't have a chip that can be updated.



The manufacturing date code (month and year in MM/YY format) appears in the top half of a bisected circle, printed on a white label attached to the device.

Using PAC Manager R9.5a or higher

1. In PAC Manager, click Tools > Inspect to open the Inspect Opto 22 Device window.
2. In the Device Name field, select or enter your device.
3. Look at the Value for: **I/O Coprocessor Firmware Version**.

If the value is A0.0a or 0 (zero), your device does not have an I/O coprocessor.

System	0xFFFF F030 0026	I/O Unit Hardware Revision (Year)	2008
Scratch Pad	0xFFFF F030 024C	I/O Coprocessor Firmware Version	A0.0a
	0xFFFF F030 0028	Installed Ram	3355443

System	0xFFFF F030 0026	I/O Unit Hardware Revision (Year)	2008
Scratch Pad	0xFFFF F030 024C	I/O Coprocessor Firmware Version	0
	0xFFFF F030 0028	Installed Ram	3355443

These devices don't have an I/O coprocessor.

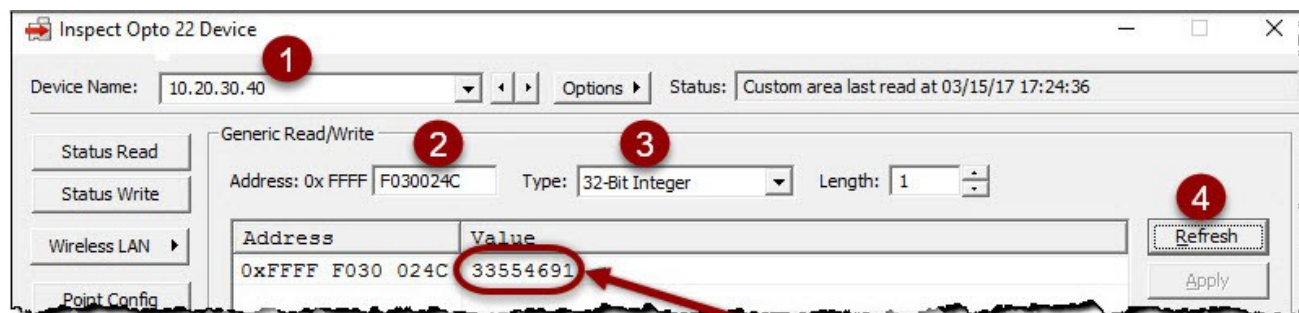
Inspect Opto 22 Device			
Device Name: 10.20.30.40		Status: Status Read area last read at 03/15/17	
Status Read	Status Read		
Status Write			
Wireless LAN			
Point Config			
Digital Bank			
Digital Point			
Analog Bank			
Analog Point			
High Density			
System			
Scratch Pad			
Data Log			
	ADDRESS	DESCRIPTION	VALUE
	0xFFFF F030 0004	Powerup Clear Flag PUC Needed	PUC Received (0
	0xFFFF F030 0008	Busy Flag	0
	0xFFFF F030 0018	Loader Version	R6.2b
	0xFFFF F030 0000	Memory Map Version	1
	0xFFFF F030 0230	Current Boot Device	Flash Memory
	0xFFFF F030 001C	Firmware Version	R9.5d
	0xFFFF F030 00A0	Firmware Version Date	11/07/2016
	0xFFFF F030 00B0	Firmware Version Time	17:06:29
	0xFFFF F030 0020	Unit Type	0x00000068
	0xFFFF F030 0080	Unit Description	SNAP-PAC-R1
	0xFFFF F030 0024	I/O Unit Hardware Revision (Month)	5
	0xFFFF F030 0025	I/O Unit Hardware Revision (Day)	29
	0xFFFF F030 0026	I/O Unit Hardware Revision (Year)	2009
	0xFFFF F030 024C	I/O Coprocessor Firmware Version	R2.0d
	0xFFFF F030 0028	Installed Ram	33554432

This device has an I/O coprocessor. You should update its firmware.

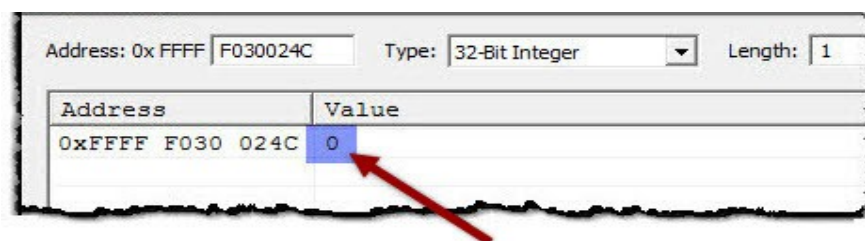
Using PAC Manager R9.4c or lower

1. To verify you can connect to your controller or brain, click Tools > Inspect. Then, in the Device Name field, select or enter your device, and press Enter (or click Refresh).
2. If you're connected, click Other > Generic Read/Write.
 - a) In the Address: 0x FFFF field, enter: **F030024C**
 - b) In the Type field, select: **32-Bit Integer**
3. Click **Refresh**.

If the value is not 0 (zero), your device has an I/O coprocessor, and you should update its firmware.



A number in the Value field means the device has an I/O coprocessor. Your device's number may be different.



This device doesn't have an I/O coprocessor.

Getting and loading the I/O coprocessor firmware

I/O coprocessor firmware updates are packaged in a zip file and posted on the Opto 22 website. The zip file contains a firmware file for each type of rack-mounted controller and brain.

After you download and unzip the file, you use PAC Manager to load the firmware file for your type of device.

To download the I/O coprocessor firmware update zip file

1. Go to http://www.opto22.com/site/downloads/dl_drilldown.aspx?aid=4614, and click the Download button.
2. On your computer, locate the zip file (the name follows this format: SNAP_PAC_IO_COPR_R<release number>_Firmware.zip), and unzip the file.

To load the I/O coprocessor firmware

CAUTION: Updating the I/O coprocessor firmware **will reboot your controller or brain.**

It will not overwrite your configuration data, but the reboot will cause accumulated data (such as counts from analog and digital totalizers) to be reset.

NOTE: To load the I/O coprocessor firmware, you need:

- o PAC Manager R9.5a or higher
- o SNAP PAC Firmware R9.5a or higher in the device that you're updating

1. In PAC Manager, open the I/O Unit Maintenance window (Tools > Maintenance).
2. In the Command list, select **Install I/O Coprocessor Firmware**.
3. Click the Browse button, and then navigate to the folder containing the firmware files.
4. Select the firmware file for your controller or brain, and then click Open.
5. In the IP Addresses list, click the device you want to update.
Use the Add button to add devices to the list.
To select multiple devices, hold down the Ctrl key as you click the devices.
NOTE: You cannot multi-select daisy-chained or multi-dropped -EB series Ethernet brains. They must be updated one at a time.
6. Click Execute to load the firmware.

After the file is loaded and the devices are restarted, a "Success" message is displayed in the Results area.

If the load fails (for example, if the file you selected isn't compatible with your device), the device's I/O coprocessor firmware is not changed or overwritten. However, **the device will restart**, and a "Fail" message appears in the Results area.

If you select a device that does not have an I/O coprocessor, or if the device has SNAP PAC firmware R9.4c or lower, the Results area displays "Command not supported in the build," and the device does not automatically restart.

For more information about loading firmware, see Opto 22 form 1704, the [PAC Manager User's Guide](#).

About OptoKnowledgeBase (KB) articles

A bug fix with the prefix "KB" (for example, [KB86623](#)) is a hyperlink to an OptoKnowledgeBase (KB) article posted on the [Opto 22 website](#). Click the link to see additional information about the issue. Or go to our website, <http://www.opto22.com>, and in the Search box, type **KB** and the KB article number.

Releases

Key to product groups

Codes in the readme indicate the products that new features, enhancements, and bug fixes belong to.

CODE	PRODUCT	CODE	PRODUCT
-----	-----	-----	-----
PAC-R	SNAP-PAC-R1	PAC-EB	SNAP-PAC-EB1
	SNAP-PAC-R1-B		SNAP-PAC-EB1-FM
	SNAP-PAC-R1-FM		SNAP-PAC-EB1-W
	SNAP-PAC-R1-W		SNAP-PAC-EB2
	SNAP-PAC-R2		SNAP-PAC-EB2-FM
	SNAP-PAC-R2-FM		SNAP-PAC-EB2-W
	SNAP-PAC-R2-W	-----	-----
		PAC-SB	SNAP-PAC-SB1
			SNAP-PAC-SB2

Version R3.0a

March 22, 2017

Initial public release.

Fixed Bugs

PAC-R, PAC-EB

[KB86623](#), Can't read or write to analog points when there is an open comm handle to a missing serial communication module.

[KB86631](#), Analog output points reset to 0, and counts increase for Module Times Discovered and Arcnet Reconfigs.

PAC-R

[KB86624](#), SNAP mechanical power relay and reed relay output modules may turn On when they should be Off.