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

March 22, 2017. Readme revised March 27, 2017 and November 14, 2017.

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

In this readme:

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 (See below)
SNAP-PAC-EB2, -EB2-FM	08/16
SNAP-PAC-EB2-W	03/17
SNAP-PAC-SB1	05/17 (See below)
SNAP-PAC-SB2	06/17 (See below)

Special Note about EB1s, SB1s, and SB2s

As of November 14, 2017, the following products manufactured with I/O coprocessors have firmware R3.0a. At this time, you do not need to update the firmware in these products.

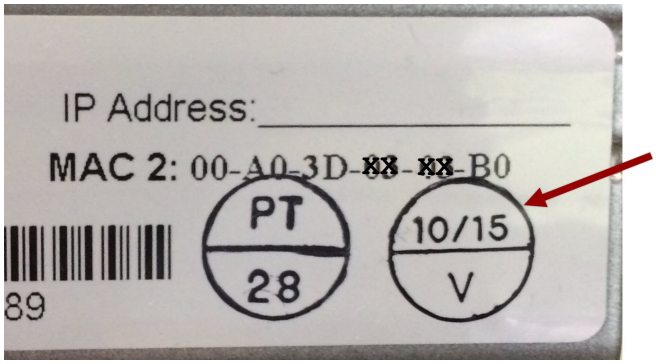
- SNAP-PAC-EB1
- SNAP-PAC-EB1-FM
- SNAP-PAC-EB1-W
- SNAP-PAC-SB1
- SNAP-PAC-SB2

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.

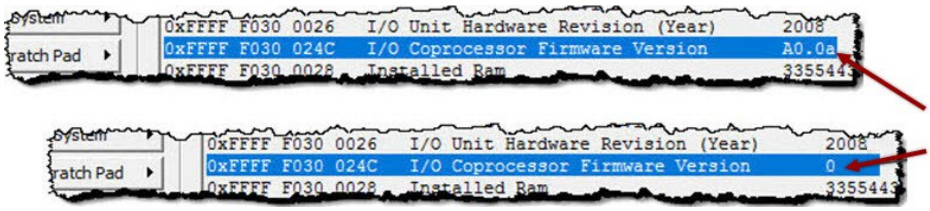


The manufacturing date code (month and year in MM/YY format) appears in the top half of a bisected circle, printed on a white label attached to the device.

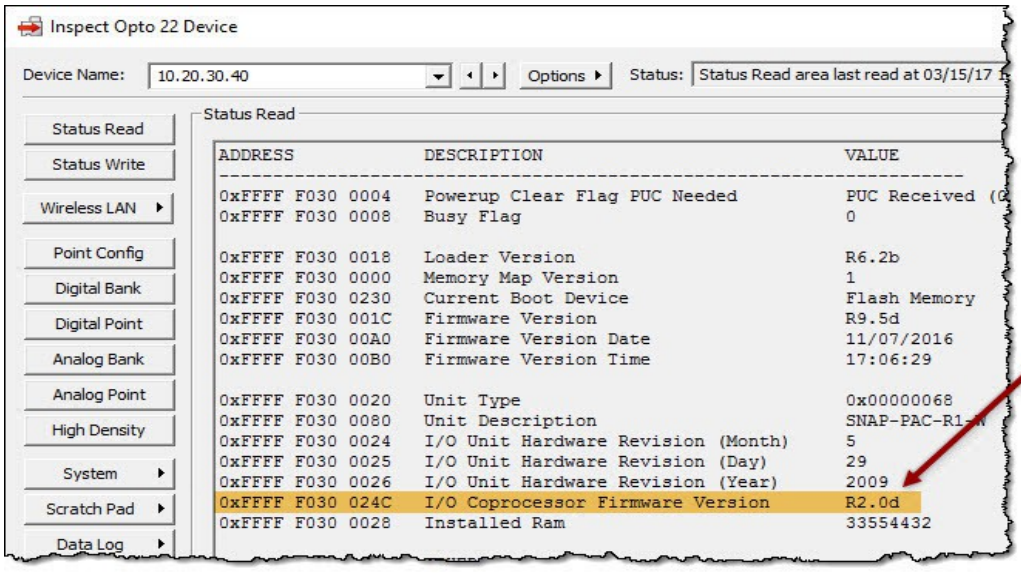
Using PAC Manager R9.5a or higher

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.



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



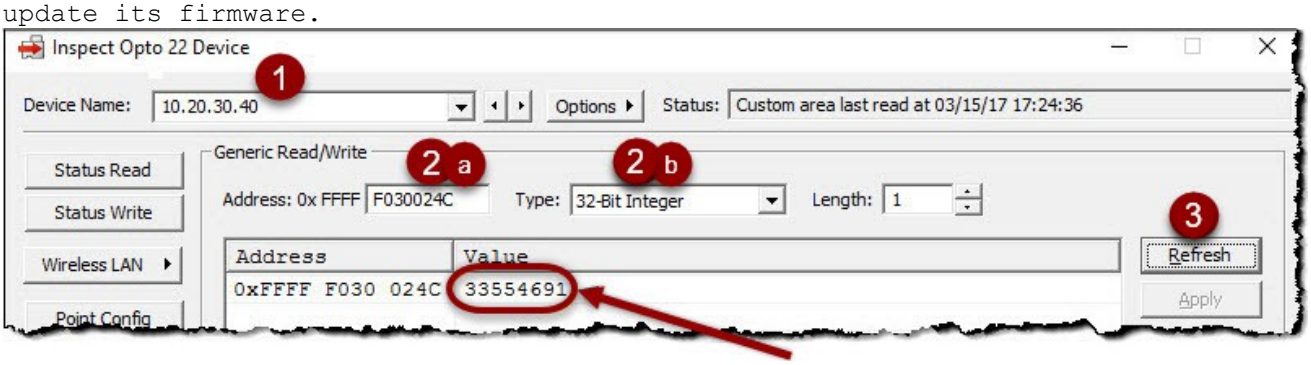
This device has an I/O coprocessor. You should update its firmware.

NOTE: As of November 14, 2017, the I/O coprocessor firmware is current in SNAP-PAC-EB1s, -EB1-FMs, EB1-Ws, -SB1s, and -SB2s, and does not need to be updated.

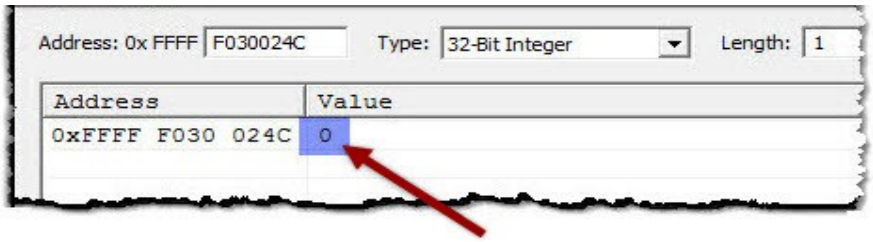
Using PAC Manager R9.4c or lower

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.

NOTE: As of November 14, 2017, the I/O coprocessor firmware is current in SNAP-PAC-EB1s, -EB1-FMs, EB1-Ws, -SB1s, and -SB2s, and does not need to be updated.

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 PAC Firmware R9.5a or higher in the device that you're updating
>
> *If your device has PAC firmware 9.4c or lower and you aren't ready to upgrade to a newer version of PAC firmware, you can:*
>
> *1. Temporarily load PAC firmware R9.5a (or higher).*
> *2. Load the I/O coprocessor firmware.*
> *3. Load your previous version of PAC firmware.*
>
> *Previous versions of software and firmware are available from our FTP site:*
> *ftp://ftp.opto22.com/Public_Folders_(Unsecured)/Archives_(Software_and_Firmware)/*

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.

   NOTE: If your device is wireless, select the file for the comparable controller or brain. For example, if you have a SNAP-PAC-R1-W, select the file for the R1 controller, SNAP-PAC-R1-IO-Coprocessor-R3.0a.bin.
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: Do not multi-select daisy-chained or multi-dropped -EB series Ethernet brains. You must update their firmware **one device 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.

NOTE: As of November 14, 2017, the I/O coprocessor firmware is current in SNAP-PAC-EB1s, -EB1-FMs, EB1-Ws, -SB1s, and -SB2s, and does not need to be updated.

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
PAC-R	SNAP-PAC-R1
	SNAP-PAC-R1-B
	SNAP-PAC-R1-FM
	SNAP-PAC-R1-W
	SNAP-PAC-R2
	SNAP-PAC-R2-FM
	SNAP-PAC-R2-W

CODE	PRODUCT
PAC-EB	SNAP-PAC-EB1
	SNAP-PAC-EB1-FM
	SNAP-PAC-EB1-W
	SNAP-PAC-EB2
	SNAP-PAC-EB2-FM
	SNAP-PAC-EB2-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.

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