Opto aPAC Quick Start Guide

Opto aPAC™: Your Opto 22 control system in your hand

Use the Opto aPAC app to monitor all your Opto 22 SNAP I/O points and PAC Control variables, tables, and charts with your Android phone or mobile device.

Authorized users have quick access to status and values, can change values or turn outputs on or off, and can start or stop charts or strategies, all wirelessly.

Opto aPAC is ideal for commissioning, debugging, responding to alarms, and mobile connectivity to remote installations.

Requirements

- Smart phone or mobile device running the Android operating system version 2.2 or higher. (Devices vary; contact Product Support if you're having trouble. See page 9.)

- Opto 22 SNAP PAC controllers, SNAP I/O units, and E1/E2 I/O units. Also serial I/O units and legacy *mistic* I/O attached to a SNAP PAC controller.

- A secured wireless LAN network with access to controller and I/O network. **Wireless SNAP PACs and I/O are not required.** FTP passwords should be added to individual devices using PAC Manager (see "Security" on page 5). Compatible with wireless routers and VPNs; supports port forwarding.

No Opto 22 equipment? No wireless access to your Opto equipment? Try the "Opto aPAC online demo" on page 6.

Contents

Quick Start

Requires wireless access to your Opto 22 system. *Does not require wireless SNAP PAC hardware.*

1. Go to Android Market and search for: `Opto aPAC` or go to: https://play.google.com/store/apps/details?id=com.opto22.opto_aPAC

2. Load the Opto aPAC app on your phone or mobile device.

3. Tap the Opto aPAC icon.

Discover

4. Touch the Discover button.

   The app finds all the Ethernet-based Opto 22 devices (controllers and I/O units) on your network and lists them in numeric order, based on their IP address.
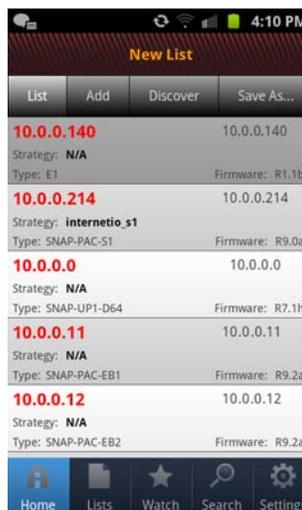
5. Tap a device you want to see.

Retrieve data

6. Tap Retrieve Data.

Buttons

For a controller, buttons across the top give you access to strategy tags:

NV	Numeric Variables
SV	String Variables
NT	Numeric Tables
ST	String Tables
CH	Charts
IO	Inputs and Outputs (I/O)
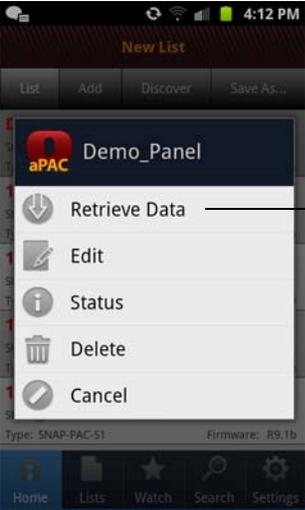
For an I/O unit, buttons across the top let you access the I/O:

AI	Analog Inputs
AO	Analog Outputs
DI	Digital Inputs
DO	Digital Outputs
All	All I/O

If some strategy tags or I/O don't exist, the buttons for them are grayed out.
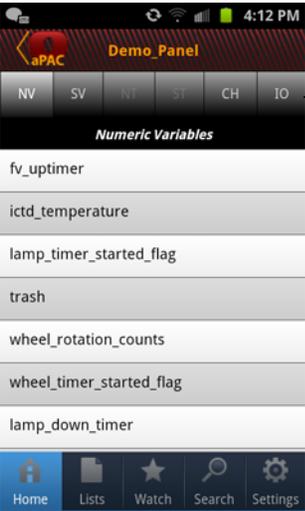
7. Tap an item to see more about it. Explore to see what you can find out and what you can change.

CAUTION: *Remember, it's all live data. If you turn an output on, it will really go on; if you stop a chart or strategy, it will actually stop.*

Device Lists

When you Discover, you get all the Opto 22 devices on your network. You may not want them all; you may want separate lists for individual buildings or areas, for example. You can make as many device lists as you need.

To save a list of devices for future viewing—Touch the Save As icon in the upper right and name the list.

To delete devices from the list—Touch the device you want to delete, and then tap Delete in the menu.

To add a device to the list—Touch the Add button. Touch a field to show the keyboard.
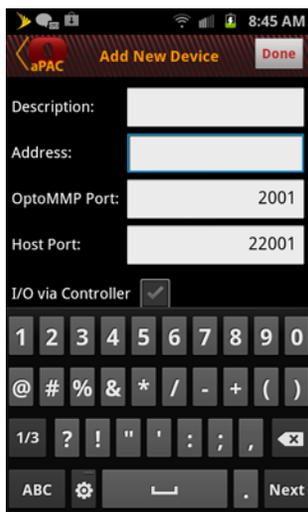
1. Enter Description (optional; will appear in the list instead of the red IP address).
2. Enter IP address.
3. Change the default ports only if they were changed for the controller or I/O unit in PAC Manager.
4. Check I/O via Controller only if you cannot access an I/O unit directly, but must do so through a controller (see "Indirect tags" on page 5).
5. Touch Done.

To change a device in the list—Tap the device in the list and tap Edit.

To see all your lists of devices—Touch the Lists icon in the bottom tab bar.
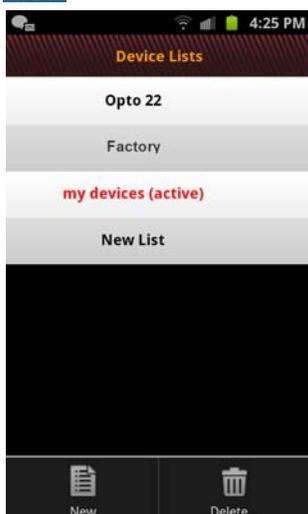
To add a new list—Tap the phone's (or mobile device's) Menu button. In the menu, click New. Or touch a list name and hold till a menu pops up, then touch New List.

To delete a list—(You cannot delete the active list.) Tap the phone's Menu button and click Delete. Click OK at the message. Touch the list you want to delete; a trashcan icon appears beside it indicating that it will be deleted. Then tap the Done button at the top of the list.

Or touch a list name and hold till a menu pops up, then touch Delete or Delete Multiple.

Watch Lists

For any one strategy, you can put up to 20 tags (variables, charts, I/O) in a watch list in order to find them easily. Only one watch list exists for each strategy.

To build a watch list—You can build the watch list starting with the Watch icon or add tags when you're looking at them, whichever is more convenient. The watch list contains tags from only one strategy.

From Watch icon: Touch the Watch icon in the bottom tab bar.

1. Tap the phone's (or mobile device's) Menu button and click New. Choose the device from the list that appears.
2. Find the tag you want to put in the watch list and tap it. A star appears next to it. Add other tags the same way.
3. Tap Done to save the watch list.

From tags: The watch list doesn't have to exist before you add tags to it. If you're looking at a tag and you want to put it in a watch list, just tap the star icon in the upper right. The tag is automatically added. (If you don't see it right away in the watch list, tap the back button to exit the watch list and then tap the watch list name to view it again.)

Added to watch list
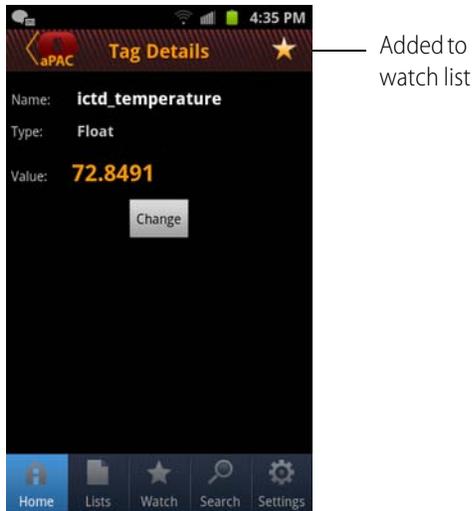
To see a watch list—Touch the Watch icon in the bottom tab bar. Tap the list you want and tap the View Watch List button.

To change or delete a watch list—Touch the Watch icon in the bottom tab bar. Touch the watch list you want to change or delete and hold briefly, then let go. A menu appears with options to view, edit tags, or delete the watch list.

Search

Search finds the following information only:

* IP addresses
* Strategy names
* Device types (part number, such as SNAP-PAC-R1)
* Firmware versions
* Device descriptions
* Tags in watch lists (Search will not find a tag unless it exists in a watch list.)

1. Touch the Search icon in the bottom tab bar.
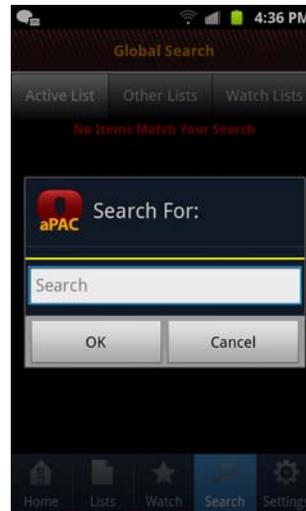
2. Touch the search box and use the keyboard to enter the search term. Tap OK.

   Devices matching the search are shown. Example:

Search results in active list

Tap for results in watch lists (searches tags)

Tap for results in other lists
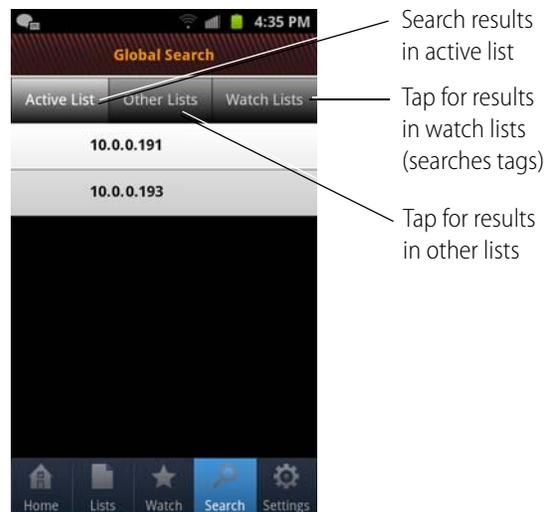
3. To see results from other lists, tap Other Lists. To see results within your watch lists, tap Watch Lists.

NOTE: Normally you'll use the blue Search icon, which searches all lists. However, if you've touched the Home icon, you can use the device's search button to search just within the active list.

Notes about the App

I/O point data vs. control strategy data—The app directly contacts SNAP-PAC-EB brains in order to read and write their I/O point data. You do not need to have a SNAP PAC controller to get data from these I/O units.

If you have a SNAP PAC controller, the app shows control strategy data as well as point data. The strategy data comes from the controller, but the point data still comes directly from the I/O unit, unless the app cannot reach the unit.

"Indirect" tags—If a list of I/O shows the word *Indirect* in the list name, the point data is coming through the controller, not directly from the I/O unit. In these cases, some data is not available because the controller doesn't keep that information. For example, you won't see a range on analog inputs.

Getting data directly from an I/O unit is much faster than going through the controller, but in some cases the only way to get data is via the controller. For example:

- Legacy *mistic* I/O units

- Units using serial brains, such as SNAP-PAC-SB or B3000-B brains

- Units on a different network, for example a segmented I/O network through the controller's secondary interface

- Units you access using port forwarding

These I/O units won't be discovered; you need to add them individually and check the I/O via Controller box.

Scaled inputs—Scaling *unit* information (like gallons per minute) for analog inputs is not stored on the controller or the I/O unit. If the scaling units are important to know, you'll need to incorporate the units in the point's name in PAC Control. For example: `Pump_rate_in_gpm`

Long tagnames—Similar long tagnames can be difficult to distinguish in the app because of space limitations. When building tagnames in PAC Control, put the unique part of the name near the beginning of the tagname instead of the end.

If you change tagnames—Before changing names in your PAC Control strategy, consider what other software is using the same shared tag database, for example PAC Display or OptoDataLink. If you change tagnames, make sure to update the other software as well.

Device name/Description—The Opto aPAC app finds devices based on their IP address and shows that as the device Description (in red) in the list. If you've assigned the device an SNMP sysName in PAC Manager, the sysName appears instead.

You can change the device Description in the app, for example to match the I/O unit's name in PAC Control. When you change the device description in the app, it is changed only there, not in the strategy or SNMP configuration.

Checking your discovery network—If you're not seeing the devices you expect, you can find out what network you're discovering devices on:

1. Touch the Home icon in the bottom tab bar.

2. Touch the Discover button and hold it.

   A box shows you your local IP addresses and the broadcast IP address. If you're on a VPN, you may see two local addresses: one is the WiFi address and the other is the VPN network address.

Known issues—Quadrature modules, when seen indirectly (through the controller rather than from the I/O unit), currently appear as analog inputs rather than quadrature inputs. Watch for a new controller firmware version that will fix this issue.

Security

Security is a concern for any control network. Security for the Opto aPAC app depends upon two things: your overall IT network security (firewalls, routers, etc.) and the security you have set up for individual devices using PAC Manager.

Overall network security—You can use a VPN (virtual private network) if your network is set up for you to do so. On your Android device, go to Settings and find VPN, then enter the information required.

You can also use port forwarding in your gateway to limit outside communication with your SNAP PAC System.

Be sure you understand and set up overall network security so that unauthorized users cannot gain access to your control system using the app.

Security set up in PAC Manager—In addition, set up individual device security in PAC Manager by configuring the FTP username and password in Network Security.

The app will require the user to log in before allowing access to the device:
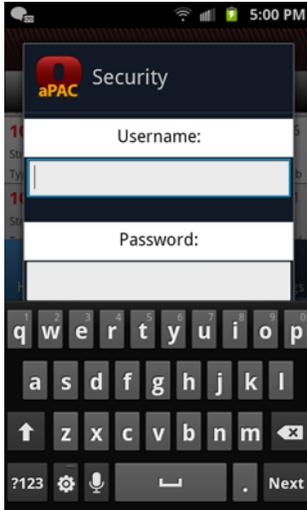
Configure security for individual devices using PAC Manager.

Once you have logged into the device using the correct username and password, you can continue to access it until the app is closed. If you try to add the device to another list, though, it will require you to log in again.

For more information on setting up FTP passwords, see the *PAC Manager User's Guide*, form 1704.

Opto aPAC online demo

If you don't have Opto 22 devices or don't have wireless access to them, try our online demo.

Requirements: Android phone or mobile device and a computer with Internet access. NOTE: This demo does not run on Internet Explorer; use Firefox, Safari, or Chrome.

1. Go to the Android Market and search for: `Opto aPAC` or go to: https://play.google.com/store/apps/details?id=com.opto22.opto_aPAC

2. Load the Opto aPAC app on your Android device.

3. Tap the Opto aPAC icon.

Add

4. Tap the Add button.

5. Leave the description field blank (it will be filled in automatically).
   In the Address field, enter: `internetio.com`

6. Leave everything else as is and tap Done.

7. Touch the Save As button and rename the list: `Internetio.com`
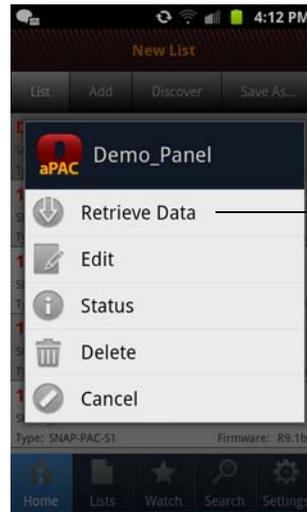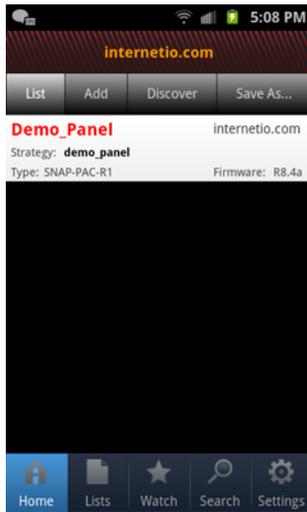
Retrieve data

8. On the computer, open a web browser and go to:
`www.internetio.com/pc/demo`

NOTE: If you see a security dialog box, click Continue to go to the webpage.
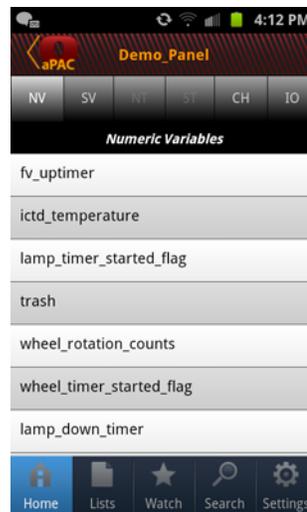
You're looking at a live image of an Opto 22 SNAP PAC System in the upper left. This small system is controlling a light bulb and a spinner, and it's monitoring a temperature input (ICTD).

If the date/time stamp within the video stream isn't being updated, refresh the screen.

9. Back on your Android device, tap Demo_Panel in the Internetio.com list.

10. Tap Retrieve Data.

All the variables from the control program and all the inputs and outputs are now available for you to see and change. Buttons across the top let you see:

NV	Numeric Variables
SV	String Variables
NT	Numeric Tables
ST	String Tables
CH	Charts
IO	Inputs and Outputs (I/O)

11. Touch the IO button and then tap demo_panel_io.

Now you can see all the I/O.
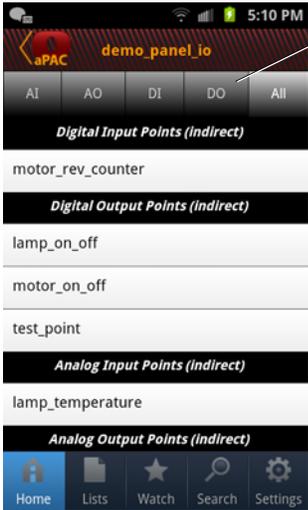
DO button
(digital outputs)

Video stream of demo panel:

NOTE: If the date/time stamp embedded in the video stream is not being updated, refresh the page.

12. Touch the DO button (upper right, next to All).

13. In the Digital Output Points (indirect) list, tap lamp_on_off.

You can see that the lamp (the light bulb) is off.

14. Tap the Turn ON button and then look at the demo on the computer.

You've turned the lamp on. Because the lamp is on, creating heat, the temperature sensor above it starts registering higher temperatures.

15. On the Android device, touch the back arrow to go back, then tap the AI button (upper left) to see the analog inputs. Tap lamp_temperature and watch the value increase.

You can also turn on the motor (another digital output), and then watch the spinner move in the demo.

Notes on the Demo

To save energy, the light bulb automatically turns off and the motor stops after a while.

Also note that the internetio.com demo panel is available online, so someone else may be using it at the same time you are. If you see something change and you didn't do it, that's probably why.

Because the demo is on the Internet and therefore subject to the vagaries of such a large system, you may experience timeouts or delays that would not occur in a local network.

For Help

See "Notes about the App" on page 5.

If you're having problems and can't find the answer in this document, please contact Opto 22 Product Support.

This is a new app, and we want to know about your experience with it and fix any issues that come up.

Opto 22 Product Support is free.

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