Opto 22 Mobile Apps for Automation

Introduction

Opto 22 offers two types of mobile apps for use in automation. Choose the one you need based on what you will use it for and the systems or equipment you have:

Diagnostics and commissioning for Opto 22 SNAP I/O and SNAP PAC systems. Opto iPAC (for iPhones) and Opto aPAC (for Android) are pre-made apps that connect to Opto 22 SNAP PAC and SNAP I/O automation systems only. These apps automatically provide direct access to all data and I/O on those systems. See below.

Monitoring and controlling almost any automation system or equipment. *groov* View for iOS and *groov* View for Android provide access to an interface you build using Opto 22's *groov*. This interface can include almost any automation system or equipment from any manufacturer, including Opto 22 SNAP PAC Systems. Since you build the interface and assign user rights, it provides only the elements you and other authorized users need. See .

This technical note compares these two types of apps.

Diagnostics and Commissioning for Opto 22 Systems

For testing and commissioning an Opto 22 SNAP PAC System or SNAP I/O, the **Opto iPAC** and **Opto aPAC** apps are easy to use. To see status and results you simply press a button or look at data on your phone. That makes it easy to test and maintain field connections, panels, and control logic.

Pre-built interface

Since the interface is already built for you, you can find what you need with no upfront time or effort:

1. Tap the Discover button to see all the SNAP controllers and brains on your network.
2. Retrieve data from the one you want. All variables, tables, charts, and I/O on the device appear in lists that are easy to scroll.

You can see input status, stop and start charts, or change the value of variables and outputs to test your system.

Values are shown numerically and typically updated every second. For example, the image at right shows an analog input value in Opto iPAC.
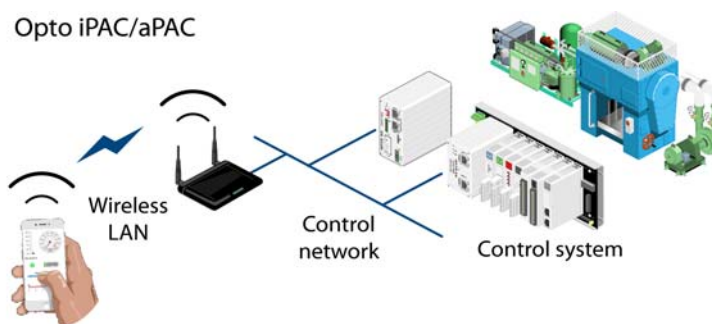
You can create your own watch lists for items you need to refer to frequently.

Opto iPAC

Networking and security

To use the Opto iPAC and Opto aPAC apps, your mobile device must have wireless access directly to your control network. As you can see in the diagram below, your smartphone is communicating directly with your controllers and I/O through a wireless access point on the control network.

CAUTION: Remember that the data you're receiving and sending is not encrypted. Opto iPAC and Opto aPAC should be used only within a secured local network.

The three factors that make Opto iPAC and Opto aPAC perfect for diagnostics and conditioning—discovering equipment automatically, seeing all elements connected with one system, and connecting to your control network—are the same factors that limit these apps as operator interfaces for monitoring and controlling equipment.

To get the app, visit the App Store or Google Play.

Monitoring and Controlling almost any Automation System

For securely monitoring and controlling automation systems and equipment from mobile devices, *groov* **View for iOS** and *groov* **View for Android** are the best tools. Because you build your own interface, *groov* requires more time up front than Opto iPAC/aPAC, but it results in an effective and simple operator interface that serves the specific needs of your authorized users.

An interface you build

With *groov* View for iOS or Android you create the interface for the app yourself using *groov* Build. You have complete control over what goes in the interface, the people authorized to use it, and what they are allowed to do. For example:

- If a manager needs to be able to monitor production but should not control equipment, you can give him access to a page with production figures only.

- If a technician needs to be able to control a series of remote pumps, you can build a page with control objects for those pumps.

When your users download the *groov* View app for their device, they will see only what you authorized when you created the mobile interface in *groov* Build.

In the interface, values are typically shown in context as an analog gauge or trend, as well as numerically (see image at right). Showing context makes it much easier for operators to understand the meaning of the value: whether it's in a normal range, for example, or trending toward an alarm state.

Live numeric values are updated every second.

Almost any system or equipment

Your *groov* interface can include any tag you need from Modbus/TCP devices, from the Opto 22 SNAP PAC System, and from an OPC UA tag server (for example, any tag available through the KEPServerEX communication platform). So you can include status, values, and controls for equipment from almost any automation manufacturer. (No OPC server is required for Modbus/TCP devices; *groov* communicates directly.)

groov **View app**

That means you can monitor and control all your systems and equipment—industrial automation, building automation, energy, and more—from one app. You can mix Allen-Bradley®, GE®, Wonderware®, Modbus, and Opto 22 SNAP PAC System tags in your *groov* interface as needed and take care of them all from your *groov* View app.

Of course *groov* can be used for diagnostics and commissioning as well as monitoring and controlling. For diagnostics on an Opto 22 SNAP I/O or SNAP PAC System, Opto iPAC/aPAC may be more convenient, because items are automatically discovered.

An inexpensive operator interface for equipment

Some OEMs and machine designers are beginning to use inexpensive off-the-shelf tablets as an interface for their equipment, especially if it is not typically used in a harsh environment.

On an iPad or iPhone you can easily lock down the device so that it can only run one app and cannot be used for any other purpose. To use the device as an interface to a machine, you would install *groov* View for iOS and put the device in Apple's "guided access" mode, limiting users to the app with the operator interface you've built.
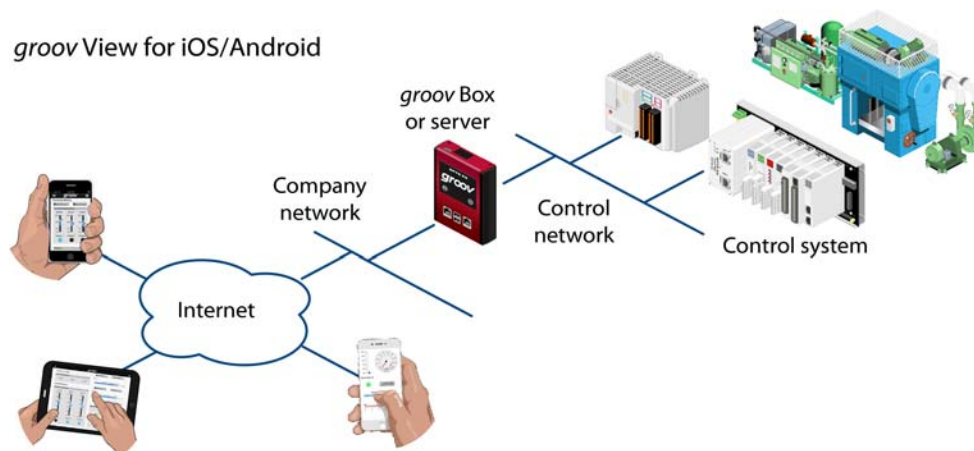
Networking and security

Your *groov* operator interface resides on a *groov* Box or a PC running *groov* Server for Windows®. For security we recommend that your control network be kept separate from your company network.

As shown in the diagram below, the *groov* Box or PC running *groov* Server acts as a router between the two networks.

- On a *groov* Box, you plug the control network into one Ethernet interface and the company network with Internet access into the other.

- A PC running *groov* Server must have two network interface cards (NICs), one for the control network and the other for the company network/Internet.

In both cases the two network interfaces keep the control network separate, so that *groov* View users never communicate directly with control devices. (For more information on setting up networks, see *Guide to Networking groov*.)

All communication between your users and *groov* is encrypted, including usernames, passwords, and all data. You can also set up *groov* View for iOS and *groov* View for Android with additional security passcodes.

To find out more about *groov,* visit groov.com.

To get the *groov* View app, visit the App Store or Google Play.

Summary

The following chart summarizes the differences between Opto iPAC/aPAC and *groov* View for iOS and Android.

If you have any questions about purchasing or using these products, please contact us:

Opto 22 Pre-sales Engineering

- Phone: 800-321-6786 (toll-free in U.S. and Canada) or 951-695-3000

- Email: systemseng@opto22.com

Opto 22 Product Support

- Phone: 800-835-6786 (toll-free in U.S. and Canada) or 951-695-3080

- Email: support@opto22.com

Comparison Chart: Opto iPAC/aPAC vs. *groov* View

Feature	Opto iPAC/aPAC	*groov* View for iOS or Android
Primary purpose	Diagnostics and commissioning	Operator interface or HMI for monitoring and controlling
System compatibility	Opto 22 SNAP PAC System and SNAP I/O only	Modbus/TCP devices, Opto 22 systems, and any OPC UA-compatible automation equipment and systems
System requirements	Opto 22 SNAP controller or brain with firmware R7.2 or higher Wireless access to control network.	Modbus/TCP devices, Opto 22 SNAP PAC System, OPC UA-compatible automation equipment or system *groov* Box, or *groov* Server for Windows running on a PC, on the same network as your control system/equipment.
Mobile devices	iPhone, iPad = Opto iPAC Android = Opto aPAC	iPhone, iPad = *groov* View for iOS Android = *groov* View for Android
Networking	Requires wireless access to your control network.	Requires wired or wireless access to the *groov* Box or the PC running *groov* Server for Windows. Access to your control network is not required and not desirable.
Interface development	Interface is already built and cannot be changed. Automatically discover Opto 22 devices or add devices manually.	You build the interface in *groov* Build: drag, drop, and tag.
Interface includes	All elements on the devices added or discovered: inputs/outputs, controllers, variables, tables, charts in your control strategy.	Only elements you add: inputs, outputs, variables, data, images, video. You can include elements from multiple systems on the same screen or series of screens.
Screen elements	Elements presented as numerical values and in lists. Users can create watch lists.	Pre-built gadgets typically show data in analog form (for example, gauges), so data is seen in context.
Video and images	No live video or images.	Live video feeds and images can be included.
Security: access	Any person with access to the app, your control network, and password (if required) can see and control everything in your system.	You control who has access to each screen by setting up users and groups. People can monitor and control only what you authorize.
Security: passwords	Passwords are not required and are not set by default. Optional: configure usernames and passwords in PAC Manager.	You set up users and passwords. In *groov* View apps you can require additional passcodes or lock down an iOS device so it runs only the app and only your interface.
Security: encryption	Network traffic (usernames/passwords/data) is not encrypted.	Usernames, passwords, and data are encrypted with TLS/SSL, the same method your bank uses. If you use the interface over the Internet, we strongly recommend a VPN.
Cost	$5 per app, per account	Free
Product support	Free. Provided by experienced engineers in our Temecula, California headquarters	Free. Provided by experienced engineers in our Temecula, California headquarters
Where to get it	iPhone or iPad: App Store Android: Google Play	iPhone or iPad: App Store Android: Google Play