groov ENCLOSURES

Features

- Cable grips hold specific cables and wires
- Protect different combinations of *groov* EPIC and *groov* RIO
- Plugs seal unused cable grips
- Enclosures meet IP65 (GRV-ENC-POLY-SM) and IP66/IP69 (GRV-ENC-POLY-MD) ratings

GRV-ENC-POLY-SM

GRV-ENC-POLY-MD

DESCRIPTION

These wall-mounted enclosures provide protection and convenient access to your *groov* EPIC systems or *groov* RIO modules. Made of a sturdy polycarbonate, each has a transparent cover. They are a handy size for small areas and can be mounted on any wall or panel.

GRV-ENC-POLY-SM—Two DIN rails. The top DIN rail can hold up to 2 *groov* RIO modules or a *groov* EPIC processor on a GRV-EPIC-CHS0 chassis with one RIO. The second DIN rail can hold DIN rail accessories, like power supplies, terminal blocks, or relays.

GRV-ENC-POLY-MD—One DIN rail that can hold a *groov* EPIC on a GRV-EPIC-CHS0, GRV-EPIC-CHS4, or GRV-EPIC-CHS8 chassis with I/O modules. Depending on the chassis you select, you can also include one or two *groov* RIO modules. Or, if you are using only RIOs, the DIN rail can hold up to three.

NOTE: If you attach a USB WiFi adapter to your *groov* EPIC or *groov* RIO, check the dimensions of the enclosure to make sure there is room for the antenna.

DIN Rail for Secure Mounting of *groov* Products

Because RIOs and EPIC chassis have built-in DIN rail adapters, you don't need to buy any extra equipment to attach them to the rail.

Keep the Elements Out

The enclosures are constructed with features to help protect their contents from the environment:

- Cable grips designed for specific cables and wires, ensuring a snug fit
- Plugs in the cable grips to seal any unused cable grips
- Clasp locks to create a tight seal between the lid and the enclosure, yet still provide an easy way to open the lid.

Part Numbers

Part	Description
GRV-ENC-POLY-SM	*groov* EPIC/RIO enclosure, 1–2 devices/chassis, polycarbonate, wall or panel mount, IP65
GRV-ENC-POLY-MD	*groov* EPIC/RIO enclosure, 1–4 devices/chassis, polycarbonate, wall or panel mount, IP66/IP69

SPECIFICATIONS

Specification	GRV-ENC-POLY-SM	GRV-ENC-POLY-MD
Dimensions	Depth: 7.14 in/181.3 mm (lid open: 13.34 in/338.7 mm) Height: 12.60 in/319.7 mm Width: 8.69 in/220.6 mm (lid open: 10.38 in/263.6 mm)	Depth: 7.14 in/181.3 mm (lid open: 13.34 in/338.7 mm) Height: 12.1 in/307.3 mm (lid open: 12.69 in/322.4 mm) Width: 12.82 in/ 325.7 mm
Items Included	• Enclosure • Cable grip plugs (inserted into cable grips)	• Enclosure • Cable grip plugs (inserted into cable grips)
IP Ratings	IP65	IP66/IP69
Capacity:		
• *groov* EPICs	• 1 on GRV-EPIC-CHS0	• 1 or 2 on GRV-EPIC-CHS0, or • 1 on GRV-EPIC-CHS4, or • 1 on GRV-EPIC-CHS8
• *groov* RIOs	• up to 2	• up to 3
• Combinations	• 1 *groov* EPIC on GRV-EPIC-CSH0 with 1 *groov* RIO	• 1 *groov* EPIC on GRV-EPIC-CSH0 with 1 *groov* RIO, or • 1 *groov* EPIC on GRV-EPIC-CSH4 with 1 *groov* RIO
Torque, tab mounting screws (not included)	50 in-lb (5.65 N-m)	50 in-lb (5.65 N-m)
Empty Enclosure Operating Temperature	-20 °C to +70 °C[a]	-20 °C to +70 °C[a]
Storage Temperature	-40 °C to +85 °C	-40 °C to +85 °C
Humidity	5–95%	5–95%
Warranty	30 months	30 months

a. Ambient air operating temperature is dependent on the wattage of the system installed inside the enclosure. Refer to a sealed enclosure temperature rise graph for an estimate of maximum ambient operating temperature or, for the most accurate results, create a temperature profile of your system.

MOUNTING THE ENCLOSURE

For safety and ease of installation, mount the enclosure on a wall or panel ***before*** mounting any *groov* EPIC chassis or *groov* RIO modules inside. Before starting, check the orientation and clearances.

Checking Orientation & Clearances

To ensure that your chosen location provides enough clearance around the enclosure and that you can open the lid, review the dimensional diagrams on page 5 and page 6. Pay attention to the orientation as well: the LEDs, ports, and adapters are along the bottom of *groov* EPICs and RIOs. Make sure you can still view them and access them when they are in the enclosure.

Mounting a GRV-POLY-ENC-MD

There are two long tabs on the side of the enclosure that you will attach to the wall or panel with M5 screws.

1. Mark holes on the wall or panel using either the enclosure as a template or the dimensional diagrams on page 6.
2. Beginning at one corner, attach the enclosure to the wall or panel with an M5 screw to the torque specified in "Specifications" on page 2.
3. Hold the box in place while you attach additional screws.

Mounting a GRV-POLY-ENC-SM

The tabs on the four corners of the enclosure can adjust to three different angles. Use M5 screws to attach the enclosure to the wall or panel.

1. Refer to the dimensional drawings on page 5 to select the angle for each tab.
2. On the enclosure, adjust the tabs on each corner to match the selections you made in step 1.

3. Mark holes on the wall or panel using either the enclosure as a template, with the tabs set to the angles you selected, or the dimensional diagrams on page 5.
4. Beginning at one corner, attach the enclosure to the wall or panel with an M5 screw to the torque specified in "Specifications" on page 2.
5. Hold the box in place after you insert the first screw to prevent it from swinging out of place, or have another person hold it while you attach additional screws.

MOUNTING *groov* PRODUCTS INTO ENCLOSURES

After checking that the enclosure is secured to the wall or panel, you can mount your devices (*groov* EPIC, *groov* RIO, and, if applicable, other DIN rail accessories). On a GRV-ENC-POLY-SM, install EPICs or RIOs on the **top** DIN rail so that there is enough room underneath to access their bottom sides, as well as room to install additional accessories on the bottom DIN rail. For instructions on how to mount EPICs and RIOs onto DIN rail, see their respective data sheets:

- *groov* EPIC Processor Data Sheet (form 2245)
- *groov* RIO Data Sheet (form 2317)

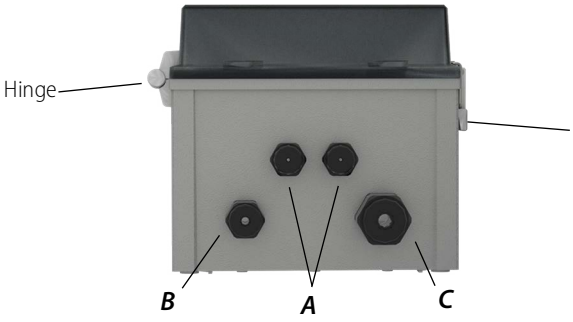
Threading Cables and Wires Through the Cable Grips

Each cable grip allows specific cables and wires to pass through the enclosure. The following diagram identifies which cable grips are best suited for specific cables or wires.

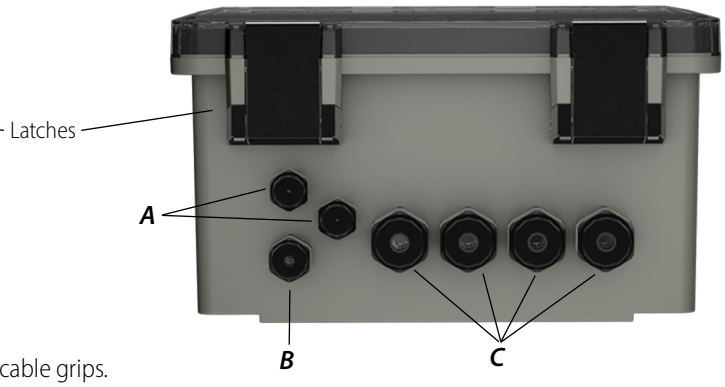
Before threading any cable or wire through any cable grip, remove the plug that comes pre-inserted in the cable grip (see "Removing Plugs" on page 4).

After threading cables and wires and as a final check (after mounting and installing all devices), make sure to tighten the cable grips and check that all unused cable grips still have their plugs inserted.

GRV-POLY-ENC-SM
(bottom view)



GRV-POLY-ENC-MD
(bottom view)



A—Ethernet cables fit through the small cable grips.

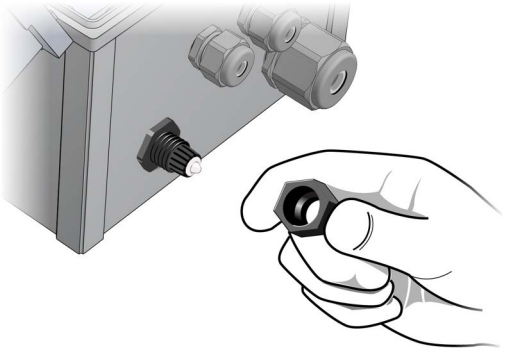
B—Power supply cable fits through any of the medium cable grips.

C—Field wiring, a GRV-TERM26-5, or a GRV-TERMG26-5 fits through the large cable grips.

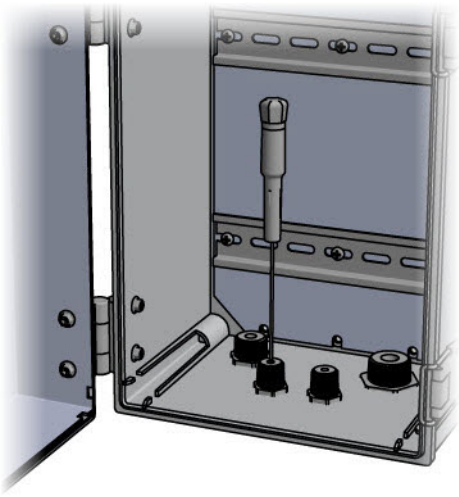
Removing Plugs

The plugs in the cable grips ensure that unused cable grips remain sealed. Remove the plugs only if you are threading cables or wires through them; otherwise, leave them in the cable grips.

1. From the outside of the enclosure, unscrew the cable grip nut. Set aside the nut.



2. Open the lid of the enclosure.
3. Take a screwdriver or blunt point awl and, from inside the box, insert the tip of the screwdriver or awl into the hole of the cable grip.



4. Push the screwdriver or awl down until you pop out the plug.
5. Screw the grip back onto the base.

You may want to save the plug in case you need it in the future.

Threading Ethernet Cable Through Cord Grips

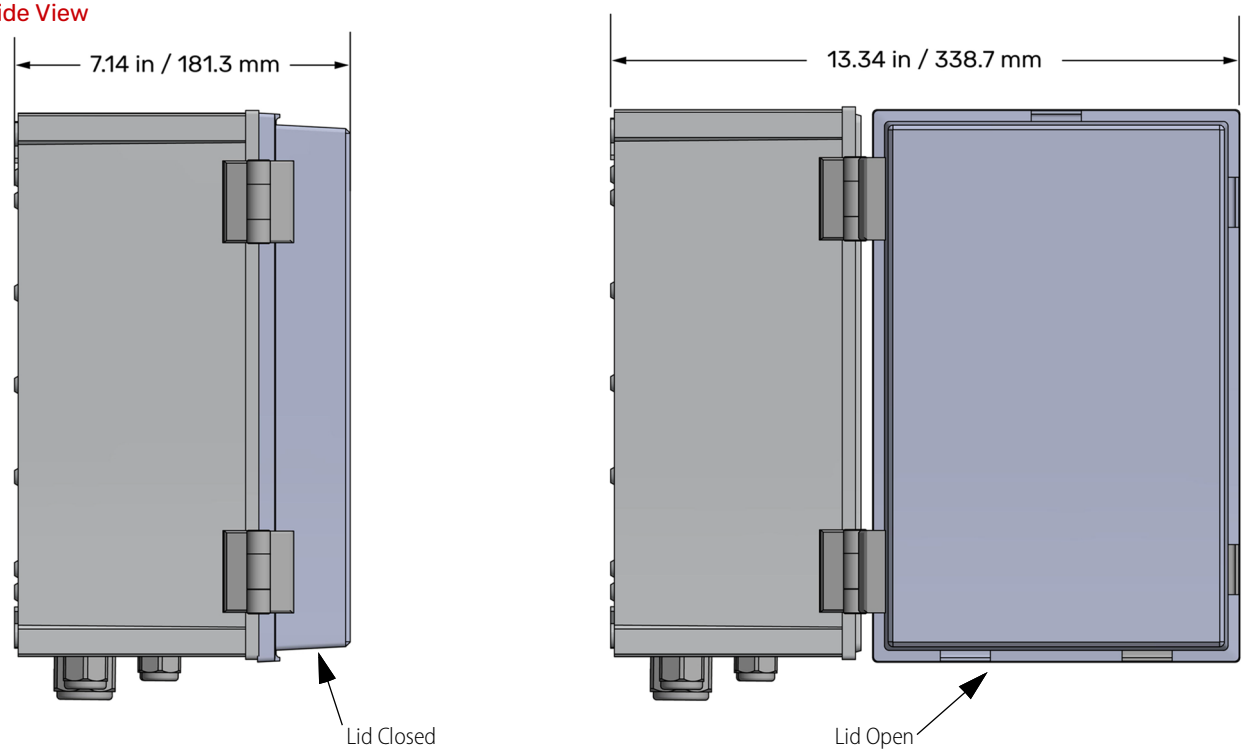
To thread the Ethernet cables through a medium size cable grip, you can either:

- Start with an Ethernet cable that does not have an RJ-45 connector at the end, then attach the connector after threading it through the cable grip.
- Remove the RJ-45 connector at the end of the cable, then reattach it after you thread the cable through the cable grip.

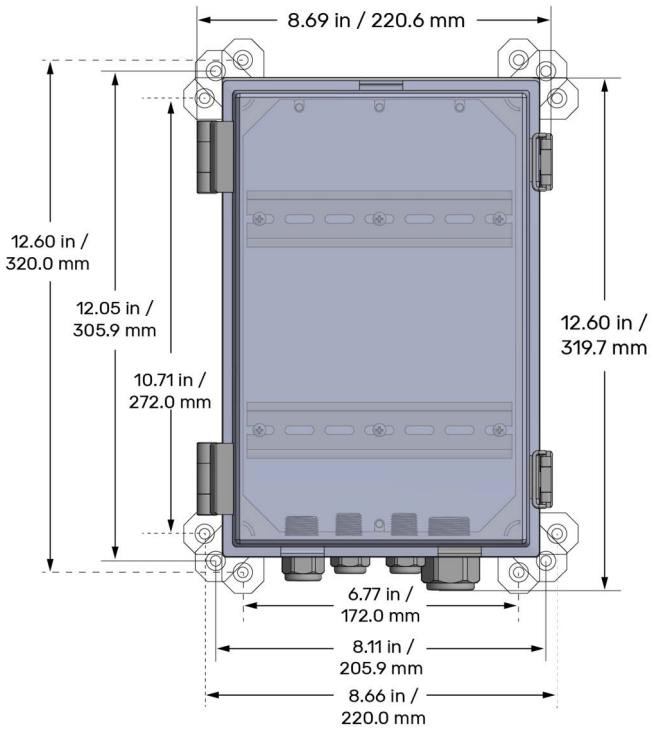
Consult with your IT department or networking administrator on the proper removal and re-attachment of an RJ-45 connector.

DIMENSIONS—GRV-ENC-POLY-SM

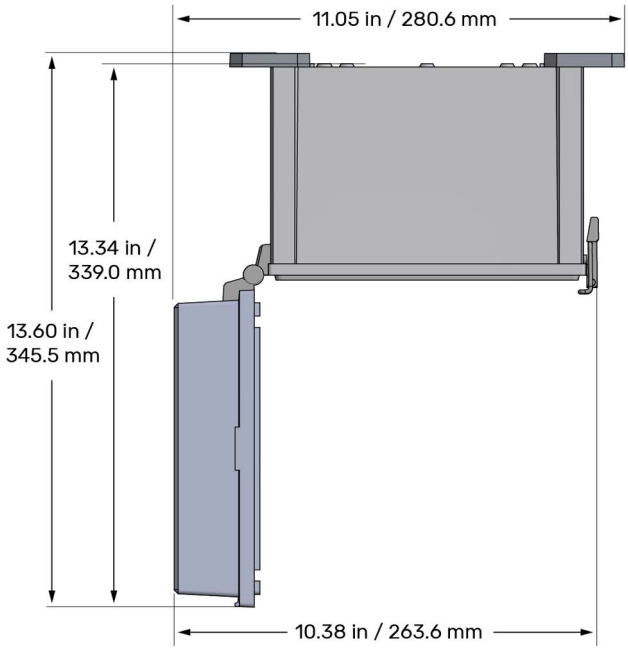
Side View



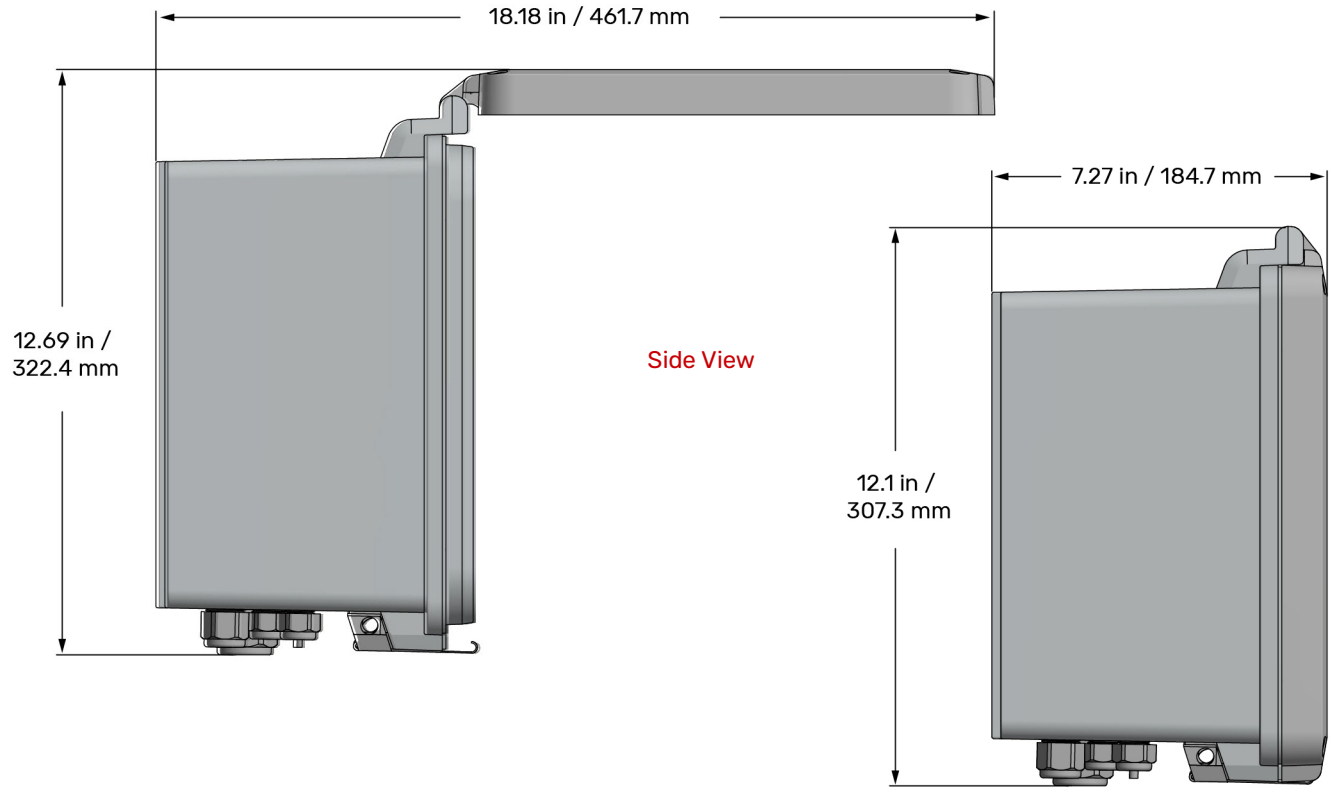
Front View



Top View

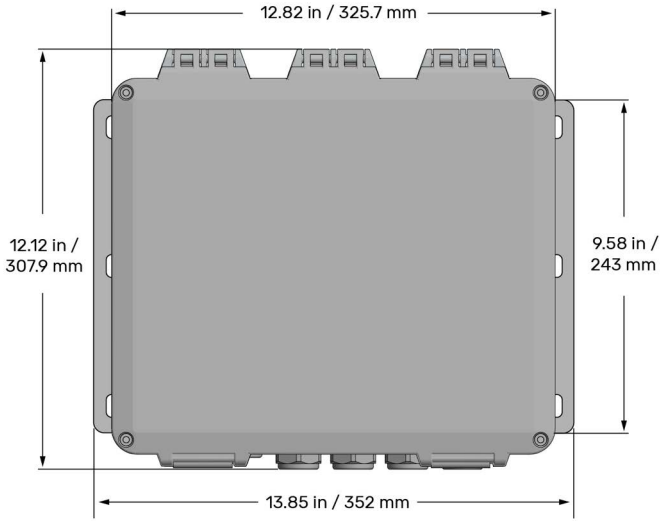


DIMENSIONS—GRV-ENC-POLY-MD

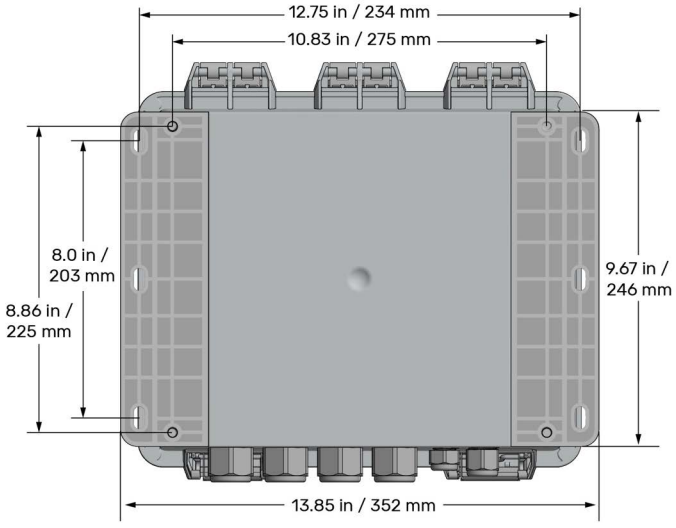


Side View

Front View



Back View



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OPTO 22

PRODUCTS

Opto 22 develops and manufactures reliable, easy-to-use, open standards-based hardware and software products. Industrial automation, process control, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications worldwide all rely on Opto 22.

groov RIO®

groov RIO edge I/O offers a single, compact, PoE-powered industrial package with web-based configuration and IIoT software built in, support for multiple OT and IT protocols, and security features like a device firewall, data encryption, and user account control.

Standing alone, *groov* RIO connects to sensors, equipment, and legacy systems, collecting and securely publishing data from field to cloud. Choose a universal I/O model with thousands of possible field I/O configurations, with or without Ignition from Inductive Automation®, or a RIO EMU energy monitoring unit that reports 64 energy data values from 3-phase loads up to 600 VAC, Delta or Wye.

You can even write an IEC 61131-3 compliant control program to run on *groov* RIO, using CODESYS. You can also use *groov* RIO with a Modbus/TCP master or as remote I/O for a *groov* EPIC system.

groov EPIC® System

Opto 22's *groov* Edge Programmable Industrial Controller (EPIC) system gives you industrially hardened control with a flexible Linux®-based processor with gateway functions, guaranteed-for-life I/O, and software for your automation and IIoT applications.

groov EPIC Processor

The heart of the system is the *groov* EPIC processor. It handles a wide range of digital, analog, and serial functions for data collection, remote monitoring, process control, and discrete and hybrid manufacturing.

In addition, the EPIC provides secure data communications among physical assets, control systems, software applications, and online services, both on premises and in the cloud. No industrial PC needed.

Configuring and troubleshooting I/O and networking is easier with the EPIC's integrated high-resolution color touchscreen. Authorized users can manage the system locally on the touchscreen, on a monitor connected via the HDMI or USB ports, or on a PC or mobile device with a web browser.

groov EPIC I/O

groov I/O connects locally to sensors and equipment. Modules have a spring-clamp terminal strip, integrated wireway, swing-away cover, and LEDs indicating module health and discrete channel status. *groov* I/O is hot swappable, UL Hazardous Locations approved, and ATEX compliant.

groov EPIC Software

The *groov* EPIC processor comes ready to run the software you need:

- Programming: Choose flowchart-based PAC Control, CODESYS Development System for IEC61131-3 compliant programs, or secure shell access (SSH) to the Linux OS for custom applications
- Node-RED for creating simple IIoT logic flows from pre-built nodes
- Efficient MQTT data communications with string or Sparkplug data formats
- Multiple OPC UA server options
- HMI: *groov* View to build your own HMI viewable on touchscreen, PCs, and mobile devices; PAC Display for a Windows HMI; Node-RED dashboard UI
- Ignition or Ignition Edge® from Inductive Automation (requires license purchase) with OPC-UA drivers to Allen-Bradley®, Siemens®, and other control systems, and MQTT communications

Older products

From solid state relays, to world-famous G4 and SNAP I/O, to SNAP PAC controllers, older Opto 22 products are still supported and working hard at thousands of installations worldwide. You can count on us for the reliability and service you expect, now and in the future.

QUALITY

Founded in 1974, Opto 22 has established a worldwide reputation for high-quality products. All are made in the U.S.A. at our manufacturing facility in Temecula, California.

Because we test each product twice before it leaves our factory rather than testing a sample of each batch, we can afford to guarantee most solid-state relays and optically isolated I/O modules for life.

FREE PRODUCT SUPPORT

Opto 22's California-based Product Support Group offers free technical support for Opto 22 products from engineers with decades of training and experience. Support is available in English and Spanish by phone or email, Monday–Friday, 7 a.m. to 5 p.m. PST.

Support is always available on our website, including free online training at OptoU, how-to videos, user's guides, the Opto 22 KnowledgeBase, and OptoForums.

PURCHASING OPTO 22 PRODUCTS

Opto 22 products are sold directly and through a worldwide network of distributors, partners, and system integrators. For more information, contact Opto 22 headquarters at **800-321-6786** (toll-free in the U.S. and Canada) or **+1-951-695-3000**, or visit our website at www.opto22.com.

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