



**groov RIO** Intelligent Remote I/O

**OPTO 22**  
The Future of Automation.

# groov<sup>®</sup> RIO

Intelligent, multi-signal, multifunction, PoE-powered, remote Ethernet I/O for IIoT and Automation Applications

- Configure up to 8 channels of multi-signal, multifunction I/O (temperature, current, voltage, or discrete), plus 2 mechanical relays
- Power the unit and connected I/O with 802.3af PoE Class 0 switches or 10–32 V DC power
- Integrate I/O data directly with databases, HMIs, SCADA, cloud services, and IIoT platforms with embedded Node-RED connectivity suite
- Connect to existing control systems or building automation systems with Modbus TCP, OptoMMP, or REST APIs
- Publish process data directly into publish-subscribe architectures with MQTT transmitting Sparkplug or string payloads
- Log data to internal power fail-safe memory or attached USB mass storage device
- Protect with built-in security features, including configurable firewalls, encryption, user accounts, and VPN client
- Install anywhere with wide -20 °C to + 70 °C rating, UL Hazardous Locations approved; ATEX compliant

Learn more at [info.opto22.com/introducingRIO](http://info.opto22.com/introducingRIO)

10–32 V DC power

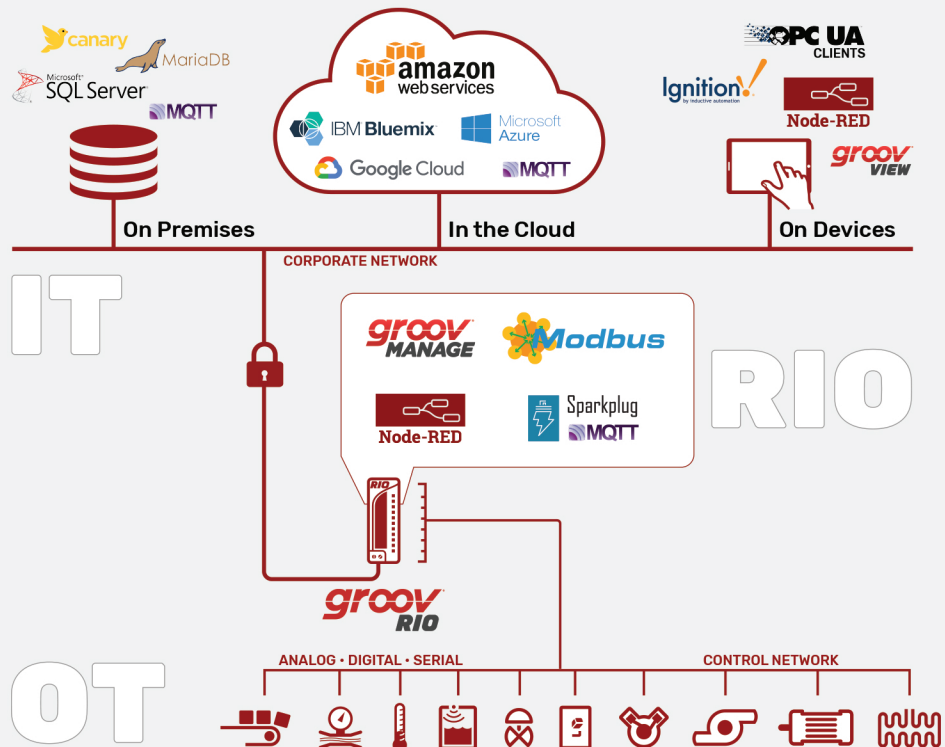
USB host port

Two, switched  
Gigabit Ethernet ports,  
one with 802.3af PoE

- **USB host port** can increase the capabilities of your RIO; connect a USB storage device or supported WiFi adapter.
- **26-pin** removable terminal connector with single hold-down screw and spring-clamp signal wire retention.
- **LED indicators** show power, device, Ethernet and I/O status.



## groov<sup>®</sup> RIO Software Architecture



groov Manage—a web app that gives you command center-like access to your groov RIO—helps you configure, troubleshoot, and commission the unit and the attached I/O, like sensors, switches, transmitters, and more.



Improve communications efficiency and reduce reliance on IT networking resources with MQTT, a secure, lightweight transport protocol with a publish/subscribe architecture that decouples devices from applications. The Sparkplug payload definition for industrial applications also manages field device states for easier implementation.



Build simple data flows to wire together databases, cloud applications, and APIs using Node-RED. This open-source, multi-platform IIoT development tool gives you a large library of 600+ prebuilt nodes, so you can leverage existing software code and use it directly in your applications.



groov RIO is a Modbus TCP slave out-of-the-box. Use your favorite Modbus TCP master device or software to poll RIO's I/O channels. A Modbus TCP calculator is built into RIO's groov Manage application, helping you quickly find the Modbus Unit ID and register for a memory map area.



Channel	INPUT						OUTPUT							
	Analog			Discrete			Analog	Discrete	Mechanical Relay					
	Voltage	Current	ICTD	Thermocouple/ Millivolt	Discrete	Switch Input, Powered	Current/ Voltage	DC Sinking	Form C-NO	Form C-NC				
	<b>Features:</b> <ul style="list-style-type: none"> <li>• Scaling</li> <li>• Offset and Gain</li> <li>• Minimum/Maximum Values</li> <li>• Average Filter Weight</li> <li>• Problem Indication</li> </ul>						<b>Features (ch 0-7):</b> <ul style="list-style-type: none"> <li>• On/Off State</li> </ul> <b>Features (ch 0 &amp; 1):</b> <ul style="list-style-type: none"> <li>• On/Off Latching</li> <li>• On/Off Totalization</li> <li>• Frequency Measurement</li> <li>• Period Measurement</li> <li>• Pulse Measurement</li> <li>• Counting</li> </ul>			<b>Features:</b> <ul style="list-style-type: none"> <li>• Scaling</li> <li>• Ramping</li> <li>• Clamping</li> <li>• Watchdog Timeout Value</li> <li>• Problem Indication</li> </ul>			<b>Features:</b> <ul style="list-style-type: none"> <li>• On/Off State</li> <li>• On/Off Totalization</li> <li>• Output Pulsing/TPO</li> <li>• Watchdog Timeout Value</li> </ul>	
Ch 0														
Ch 1														
Ch 2														
Ch 3														
Ch 4														
Ch 5														
Ch 6														
Ch 7														
Ch 8									-NC	-COM				
									-COM	-NO				
Ch 9									-NC	-COM				
									-COM	-NO				

### 61,260 Unique Field I/O Combinations.\*

\*Curious about how we arrived at 61,260 unique field I/O combinations? Learn more at: [info.opto22.com/61260](http://info.opto22.com/61260)

3-3-2020

POWER SUPPLY  
(10-32 V DC or 802.3af PoE)



## OPTO 22

43044 Business Park Drive, Temecula, California, 92590-3614 U.S.A.

Local: 951-695-3000 Toll-free: 800-321-6786 • [www.opto22.com](http://www.opto22.com)

All trademarks, trade names, logos, and service marks belong to their respective companies.