



groov RIO® I/O for the IIoT™

OPTO 22
Your Edge in Automation.™



groov[®] 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 IoT 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

10–32 V DC power

USB host port

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

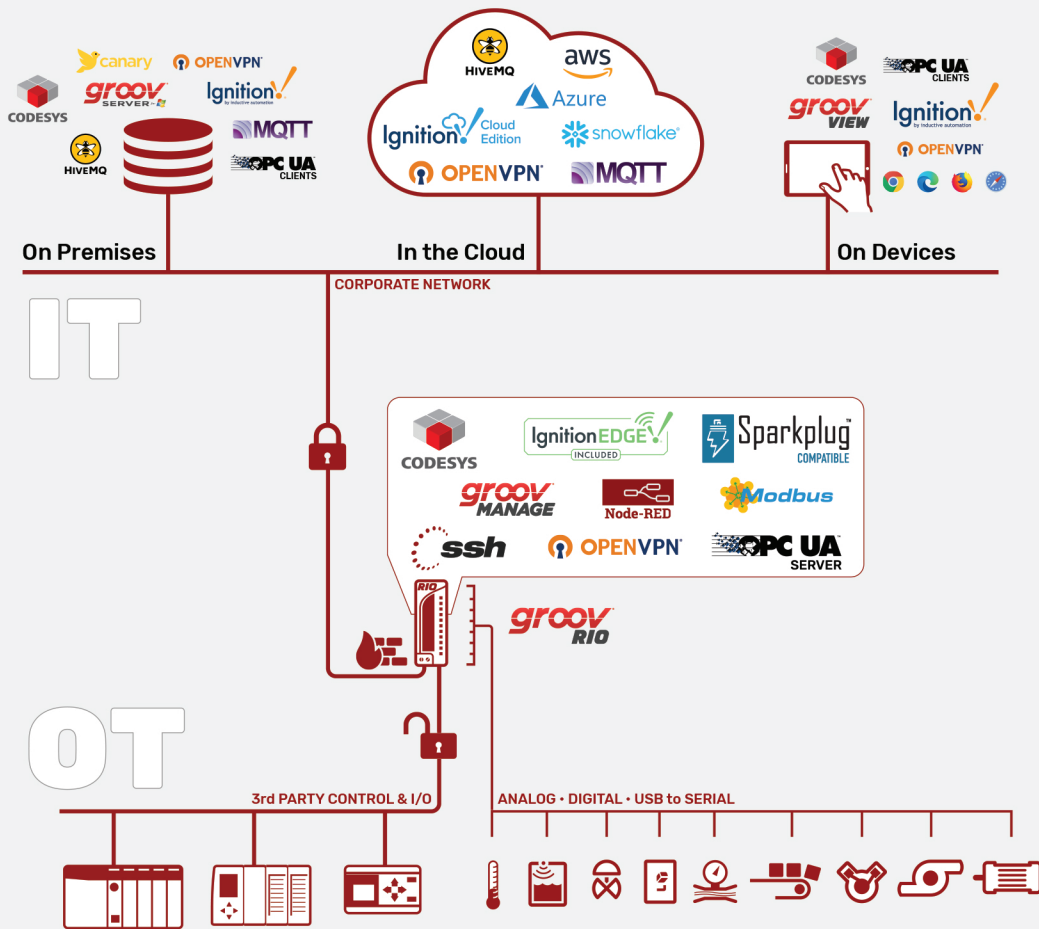
- **USB host port** can increase the capabilities of your RIO; connect a USB storage device or supported WiFi adapter.
- **26-pin** removable terminal connector with single hold-down screw and spring-clamp signal wire retention.
- **LED indicators** show power, device, Ethernet and I/O status.

groov[®] MANAGE

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.

Sparkplug[®] COMPATIBLE

Improve communications efficiency 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.



Ignition[®]EDGE[™] (INCLUDED)

Ignition Edge connects to Allen-Bradley®, Siemens®, and Modbus®/TCP devices via OPC UA and offers efficient IIoT communications using MQTT with Sparkplug B payload.

* Ignition Edge is only available on GRV-R7-MM2001-10

OPC UA SERVER

With the OPC UA server on board, groov RIO offers a familiar, platform-independent way to exchange data among devices and software within your OT network. Smoothly integrate your I/O tags into SCADA and HMI software using OPC UA—no special drivers required.

Node-RED

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

Modbus

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 I/O registers.

CODESYS

Use groov RIO as a PLC. The on-board CODESYS runtime engine fully supports IEC-61131-3 control programs written in the programming language of your choice: structured text, ladder logic diagram, functional block diagram, and continuous or sequential function chart.



Channel	INPUT						OUTPUT		
	Discrete		Analog				Discrete	Analog	Mechanical Relay
	Discrete	Switch Input, Powered	Voltage	Current	ICTD	Thermistor/Resistor/Millivolt	DC Sinking	Current / Voltage	Form C-NO Form C-NC
	Features (ch 0-7): • On/Off State Features (ch 0 & 1): • On/Off Latching • On/Off Totalization • Frequency Measurement • Period Measurement • Pulse Measurement • Counting		Features: • Scaling • Offset and Gain • Minimum/Maximum Values • Average Filter Weight • Problem Indication				Features: • On/Off State • On/Off Totalization • Output Pulsing/TPO • Watchdog Timeout Value	Features: • Scaling • Ramping • Clamping • Watchdog Timeout Value • Problem Indication	Features: • On/Off State • Watchdog Timeout Value
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

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Thousands of Unique Field I/O Combinations. Learn more at: info.opto22.com/thousands

— Thermocouple inputs and discrete sinking outputs cannot be mixed on channels 0-3.

groov RIO Modules

GRV-R7-MM1001-10 Remote I/O; 8 multi-signal, multifunction ch; 2 form C electromechanical relay output channels

GRV-R7-MM2001-10 Remote I/O; 8 multi-signal, multifunction ch; 2 form C electromechanical relay output channels, Ignition Edge

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



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