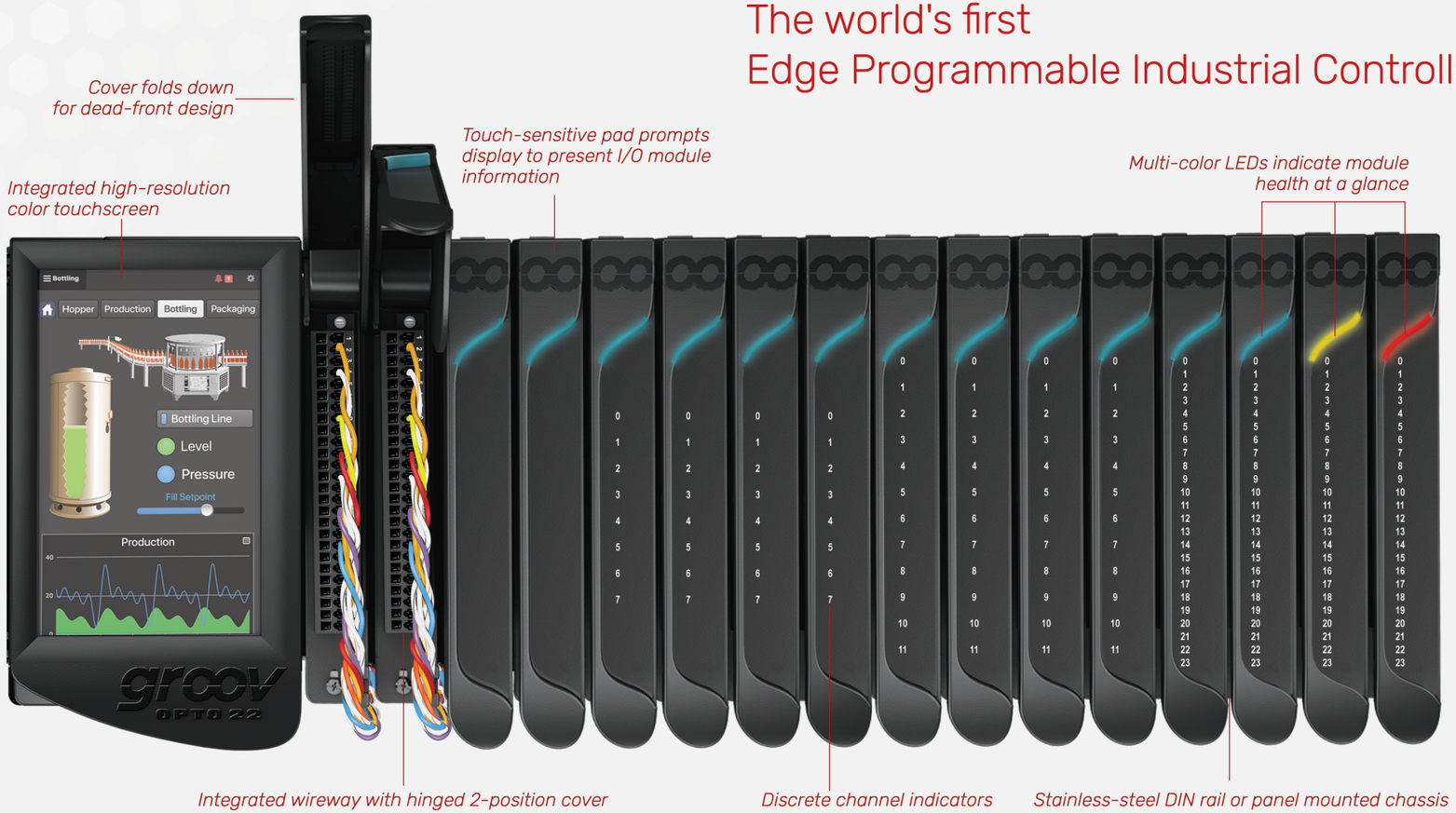
Edge Programmable Industrial Controller

OPTO 22

The Future of Automation.

This is EPIC.

The world's first Edge Programmable Industrial Controller



groov EPIC processor

Real-time, open-source Linux® OS

Industrial quad-core ARM® processor

Configuration, troubleshooting, and HMI on touchscreen or remotely through web browser

Dual, independent Gigabit Ethernet network interfaces

Dual USB ports for serial communications, touchscreen monitors, or Wi-Fi adapters

HDMI output for optional external monitor

Wide -20 to 70 °C operating temperature range

groov I/O

4 to 24 channels per module

4, 8, or 16 position stainless-steel chassis

Hot-swappable I/O

Multi-featured analog output with voltage, current, and loop sourcing in one module

Analog inputs offer 20 bit resolution at 0.1% accuracy over span

DC outputs: load switching at 0.4 amps per channel @ 70°C

AC outputs: load switching at 0.5 amps per channel @ 70°C; blown-fuse detection

AC/DC outputs: mechanical relay at 5 amps per channel @ 70 °C

Channel-to-channel isolation available

UL Hazardous Locations approved and ATEX compliant

Guaranteed-for-life I/O

groov I/O module

What is EPIC?

Edge – Collect, process, view, and exchange data where it's produced—at the edge of the network. Securely share data among databases, cloud services, Allen-Bradley® and Siemens® PLC systems, and other equipment using tools like Ignition Edge® by Inductive Automation®, Node-RED™, and MQTT. Visualize data on the integral touchscreen, an external HDMI monitor, or from any web browser or mobile device.

Programmable – Options for programming include flowchart-based PAC Control™ and future support for IEC-61131. Optional shell access lets you run your own custom-developed application on an open, Linux-based automation system.

Industrial – From plant floors to remote sites, the edge demands industrially hardened equipment—like solid-state drives, UL Hazardous Locations approval, and ATEX compliance.

Controller – Reliable real-time control and guaranteed-for-life I/O provide the solid base for all other functions.

Learn more about *groov* EPIC. Speak to an application engineer at 800-321-OPTO, email us at systemseng@opto22.com, or visit us on the web at opto22.com.

groov EPIC™

Brings key capabilities to the network edge

IgnitionEDGE® by Inductive Automation · Node-RED · MQTT · Sparkplug · groov VIEW · PAC Control · groov MANAGE

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groov EPIC Software

groov MANAGE

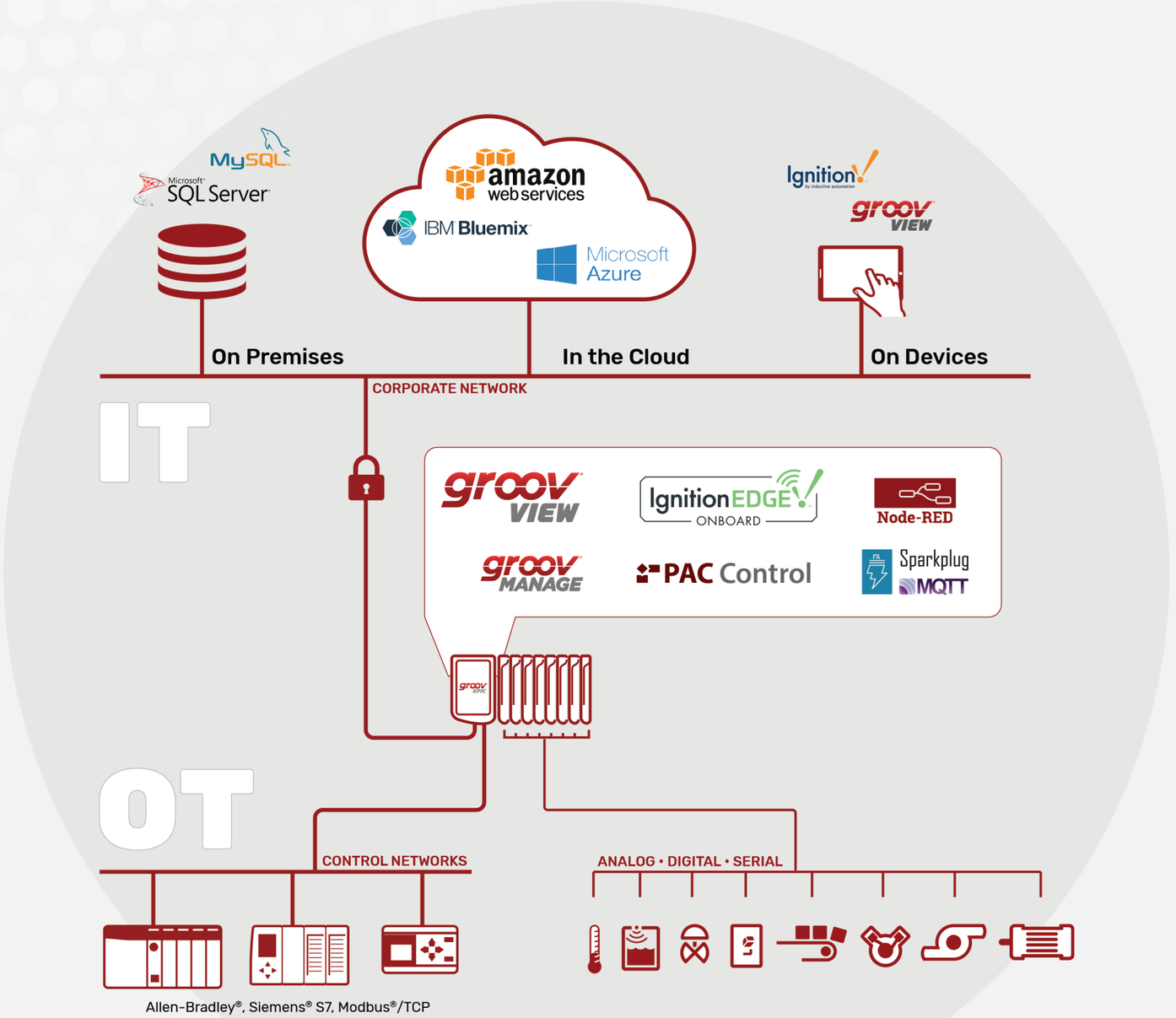
groov Manage is the browser-based *groov* EPIC system management application. Used locally on the EPIC processor's high-resolution touchscreen, or on your computer, smartphone, or tablet, *groov* Manage is your central command to your *groov* EPIC system, helping you configure, troubleshoot, and commission your controller, I/O modules, and network interfaces.

groov VIEW

Use *groov* View to build and view operator interfaces to monitor and manage your system from any authorized device with a web browser, from a smartphone to an HDTV. User authentication and data encryption keep systems secure, while you enjoy drag-drop-tag construction with no tag or user limits. *groov* View includes trends, events, and user notifications.

PAC Control

PAC Control, part of the PAC Project Software Suite, is an intuitive tool for programming industrial automation, process control, remote monitoring, data acquisition, and industrial internet of things (IIoT) applications. Flowchart-based with optional scripting, PAC Control lets you create and debug control programs and then download and run them on a *groov* EPIC processor.



Ignition EDGE

A product of Inductive Automation®, Ignition Edge® extends the Ignition Platform to the edge of your network. Ignition Edge includes drivers to Allen-Bradley, Siemens, and Modbus/TCP devices, eliminating the cost and complexity of commissioning and maintaining a Microsoft® Windows®-based OPC UA server for translating PLC and device data for use with *groov* View and MQTT. Optional modules for Enterprise Asset Management and Edge Panel are available.

Sparkplug MQTT

MQTT is a secure, bi-directional, lightweight event- and message-oriented transport protocol with a publish/subscribe architecture. This architecture decouples devices from applications, improving communications efficiency and reducing reliance on traditional IT networking resources. Sparkplug is an MQTT-based payload definition for industrial applications that greatly simplifies implementation by defining topic namespaces and payload, and managing the state of devices in the field.

Node-RED

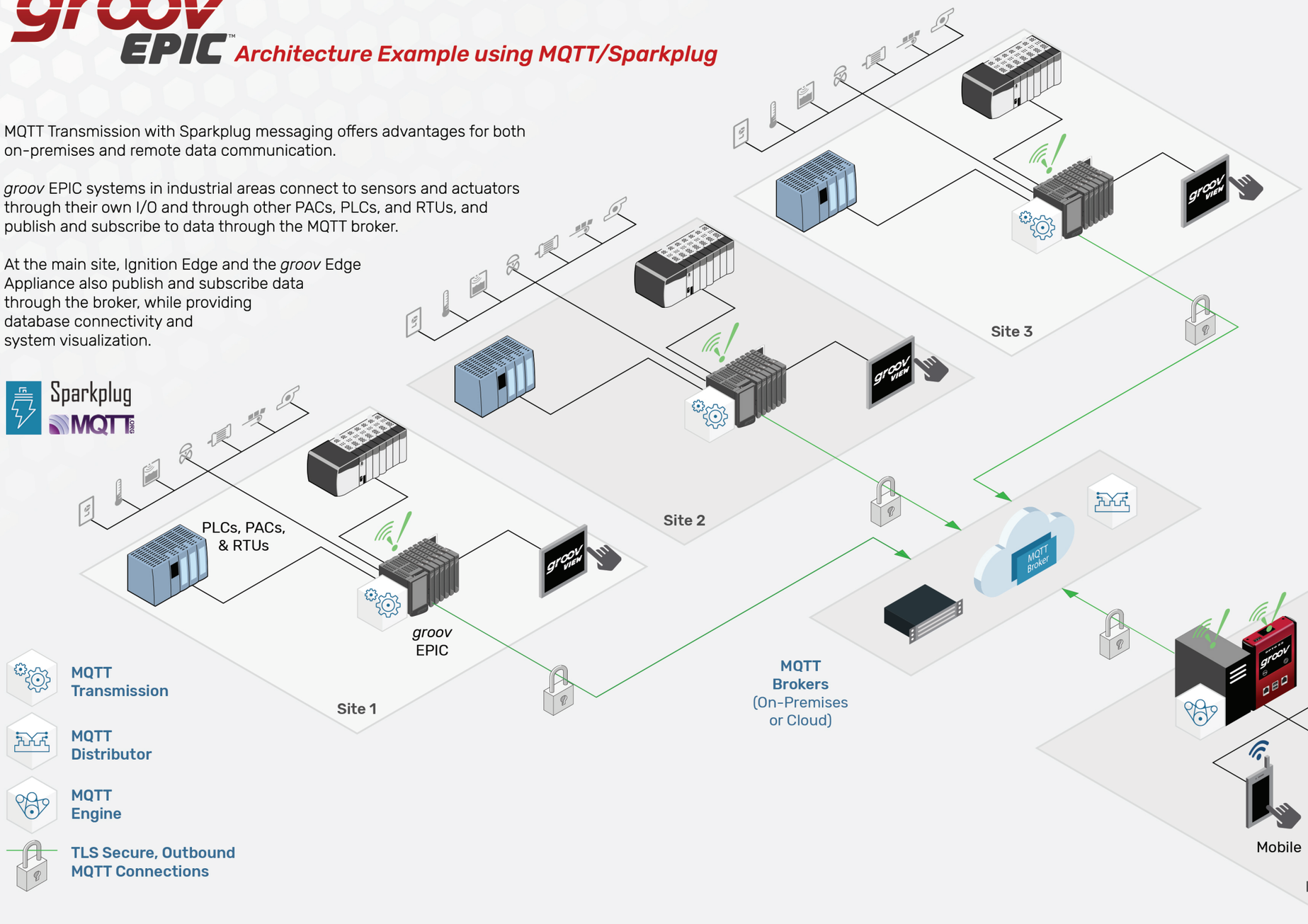
Node-RED is an open-source, multi-platform IIoT development tool for building simple data flows to wire together databases, cloud applications, and APIs. Built on the popular Node.js JavaScript runtime, Node-RED benefits from a large Node-RED library containing over 600 prebuilt nodes, allowing IIoT application developers to leverage existing software code and deploy it directly into their applications.

groov EPIC™ Architecture Example using MQTT/Sparkplug

MQTT Transmission with Sparkplug messaging offers advantages for both on-premises and remote data communication.

groov EPIC systems in industrial areas connect to sensors and actuators through their own I/O and through other PACs, PLCs, and RTUs, and publish and subscribe to data through the MQTT broker.

At the main site, Ignition Edge and the *groov* Edge Appliance also publish and subscribe data through the broker, while providing database connectivity and system visualization.



MQTT/Sparkplug Advantages

- Designed for industrial systems
- Device-originating communications
- Centralized security management at broker
- Data reported by exception, on change only
- Lightweight data communications
- Fewer communication links
- Much less traffic on network
- Ideal for intermittent connections
- Broker can be located onsite or offsite
- No need for VPNs or open firewall ports
- Less reliance on IT departments

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Product Overview

groov EPIC® Processors

GRV-EPIC-PR1	Programmable automation controller

groov EPIC Chassis

GRV-EPIC-CHS4	4-module analog/digital/serial mounting chassis
GRV-EPIC-CHS8	8-module analog/digital/serial mounting chassis
GRV-EPIC-CHS16	16-module analog/digital/serial mounting chassis

groov EPIC Power Supplies

GRV-EPIC-PSAC	Power supply, 110-240 VAC
GRV-EPIC-PSDC	Power converter, 24-48 VDC
GRV-EPIC-PSPT	Pass-through power adapter, 11.4–12.6 VDC, up to 9 A

Software

PAC Project Basic	Automation software suite: PAC Control Basic, PAC Display Basic
groov Manage	Touchscreen or web-based tool to configure and troubleshoot I/O and network
groov View	Browser-based tool to build and view operator interfaces on any device; includes trends, events, and notifications
Node-RED	Open-source, multi-platform software tool for building simple logic flows to wire together databases, cloud applications, and APIs
Ignition Edge	A product of Inductive Automation; OPC-UA drivers for Allen-Bradley, Siemens, and Modbus/TCP; MQTT transport with Sparkplug payload

groov Discrete Input Modules

GRV-IAC-24	AC input, 24 ch, 85-140 VAC
GRV-IACS-24	AC input, 24 ch, 85-140 VAC, on/off state only
GRV-IACI-12	AC input, 12 ch, 85-140 VAC, ch-to-ch isolation
GRV-IACIS-12	AC input, 12 ch, 85-140 VAC, ch-to-ch isolation, on/off state only
GRV-IACHV-24*	AC input, 24 ch, 180-280 VAC
GRV-IACHVS-24*	AC input, 24 ch, 180-280 VAC, on/off state only
GRV-IACIHV-12*	AC input, 12 ch, 180-280 VAC, ch-to-ch isolation
GRV-IACIHVS-12*	AC input, 12 ch, 180-280 VAC, ch-to-ch isolation, on/off state only
GRV-IDC-24	DC input, 24 ch, 15-30 V
GRV-IDCS-24	DC input, 24 ch, 15-30 V, on/off state only
GRV-IDCI-12	DC input, 12 ch, 10-30 V, ch-to-ch isolation
GRV-IDCIS-12	DC input, 12 ch, 10-30 V, ch-to-ch isolation, on/off state only
GRV-IACDCTTL-24	AC/DC input, polarity insensitive, 24 channels, 2–16 V AC/DC
GRV-IACDCTTLS-24	AC/DC input, polarity insensitive, 24 channels, 2–16 V AC/DC, on/off state only

*UL Approval Pending

groov Discrete Output Modules

GRV-OAC-12	AC output, 12 ch, 12-250 VAC
GRV-OACS-12	AC output, 12 ch, 12-250 VAC, on/off state only
GRV-OACI-12	AC output, 12 ch, 12-250 VAC, ch-to-ch isolation
GRV-OACIS-12	AC output, 12 ch, 12-250 VAC, ch-to-ch isolation, on/off only
GRV-ODCI-12	DC output, 12 ch, 5-60 VDC, ch-to-ch isolation
GRV-ODCIS-12	DC output, 12 ch, 5-60 VDC, ch-to-ch isolation, on/off only
GRV-ODCSRC-24	DC output, 24 ch, 5-60 VDC, sourcing
GRV-OMRIS-8	AC/DC output, 8 ch, mechanical relay, 0-250 VAC/ 5-30 VDC, 5 A

groov Analog Input Modules

GRV-IMA-24	Analog input, 24 ch, configurable input ranges of 4-20 mA, 0-20 mA, -20 mA to +20 mA
GRV-ITMI-8	Analog input, 8 ch, thermocouple or mV, ch-to-ch isolation
GRV-IV-24	Analog input, 24 ch, 8 configurable input ranges from ±1.25 V to ±160 V

groov Analog Output Modules

GRV-OVMALC-8	Analog output, 8 ch, voltage or current, chassis-powered loop

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