groov ACCESSORIES

Features

> Additional or replacement parts designed specifically for *groov* products

> Replacement terminals for *groov* I/O and *groov* RIO modules; some specific for thermocouple or high voltage loads

> Tools to help you wire your field devices and manage cables

> Replacement batteries for *groov* EPIC processors

DESCRIPTION

groov accessories include replacement parts, like field wiring connectors, and helpful additional products, like pre-made cables that can save you time and expense.

groov REPLACEMENT PARTS

Terminal connectors are for wiring field devices to *groov* I/O or *groov* RIO modules, accept wire sizes from 28–14 AWG, and are sold in packages of five:

- **GRV-TERM26-5** connectors are black and are used with most modules.

- **GRV-TERMG26-5** connectors are gray and provide cold-junction compensation for thermocouple channels.

- **GRV-TERMPM13-5** connectors support connections to high voltage loads and are used with the GRV-IVAPM-3 and GRV-R7-I1VAPM-3 modules.

See the list of modules on to determine which part number you need.

groov accessories

GRV-TEX-SCTOOL is a long and sturdy spring clamp tool that makes it quick and easy to connect wires to *groov* I/O and *groov* RIO terminals.

GRV–TERM26–5

Part Numbers

Part	Description
GRV-EPIC-BATT-BR2032-3	Replacement battery for GRV-EPIC-PR1 and GRV-EPIC-PR2, 3-pack
GRV-TERM26-5	Terminal connectors for *groov* I/O or *groov* RIO modules, black, 5-pack
GRV-TERMG26-5	Terminal connectors for *groov* I/O or *groov* RIO modules, thermo support, gray, 5-pack
GRV-TERMPM13-5	Terminal connectors for *groov* I/O or *groov* RIO power monitoring modules, black, 5-pack
GRV-TEX-26F6	26-wire cable for *groov* I/O modules. Straight-through; no common terminals. Flying leads.
GRV-TEX-SCTOOL	*groov* spring clamp terminal tool
GRV-TEX-RCTM-5	*groov* RIO cable ties push mounts, 5-pack

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GRV-EPIC-BATT-BR2032-3 is a package of three replacement batteries for the *groov* EPIC processors. For instructions about how to replace the battery, see the *groov* EPIC User's Guide (form 2267).


GRV-EPIC-BATT-BR2032-3

GRV-TEX-RCTM-5 are packages of five cable tie push mounts for bundling field wires to *groov* RIO modules. Push a mount into the vent of a *groov* RIO, then thread a zip tie through the mount.

GRV-TEX-RCTM-5

groov TEX CABLES

groov TEX cables like the **GRV-TEX-26F6** save time and expense during installation, maintenance, and debugging by reducing the time and effort required to connect field devices to *groov* I/O modules.
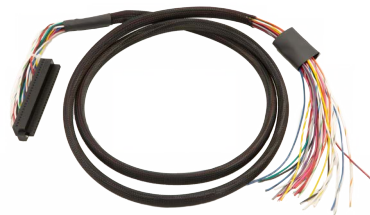
*NOTE: The GRV-TEX-26F6 can be used with some groov RIOs **unless** you have one or more channels configured as thermocouples. (See "groov TEX Cable Specifications" on page 3.)*

GRV-TEX-26F6

The wires are 20 AWG, offering significantly more flexibility, tighter radius bends, and an overall easier cable management experience. The wires are ferruled before being inserted into the *groov* I/O module terminal connector, ensuring a proper connection and enhancing durability.

Pre-assigned wire colors help provide visual consistency across multiple modules, making pin assignments easier to remember. You can use the convenient "Pin/Wire Color/Device Assignments Worksheet" on page 4 to note which wire is connected to which device. You can then make copies of the form to store in the field and in a central location for easy reference.
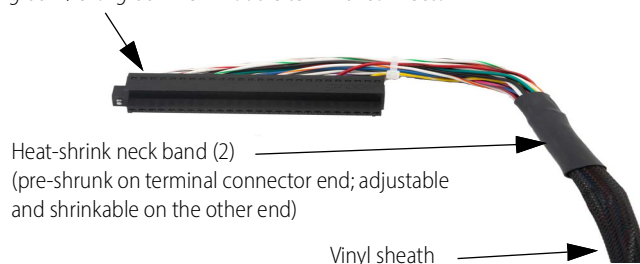
The six-foot wires and vinyl sheath that bundles the wires can be trimmed to any length. The heat-shrink neck band can be placed at the end of the vinyl sheath, preventing fraying of the vinyl sheath and keeping the wires securely bundled at the end of the sheath.

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SPECIFICATIONS

groov TEX Cable Specifications

Specification	GRV-TEX-26F6
Number of wires	26
Wire gauge	20 AWG
Temperature (operating)	-20 °C to +70 °C
Temperature (storage)	-40 °C to +85 °C
Humidity (non-condensing)	5–95% RH
Agency Approvals	CE: RoHS; DFARS; UKCA
Warranty	30 months

groov I/O or *groov* RIO* module terminal connector

Heat-shrink neck band (2)
(pre-shrunk on terminal connector end; adjustable
and shrinkable on the other end)

Vinyl sheath

** NOTE: The GRV-TEX-26F6 can be used with groov RIO part number
GRV-R7-MM1001-10 or GRV-R7-MM2001-10 **unless** you have one or
more channels configured as thermocouples.*

groov TEX Cable Pin-to-Wire Color Assignments

Pin #	Color	Pin #	Color
1	White	14	White with Orange stripe
2	White with Black stripe	15	Gray
3	Red	16	White with Gray stripe
4	White with Red stripe	17	Violet
5	Black	18	White with Violet stripe
6	Black with White stripe	19	Pink
7	Green	20	Pink with Black stripe
8	White with Green stripe	21	Red with Black stripe
9	Yellow	22	Blue with Black stripe
10	White with Yellow stripe	23	Red with White stripe
11	Blue	24	Blue with White stripe
12	White with Blue stripe	25	Yellow with White stripe
13	Orange	26	Red with Blue stripe

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Pin/Wire Color/Device Assignments Worksheet

The following worksheet is provided for your convenience.

Pin #	Wire Color(s)	Name/Description/Notes
1	White	
2	White with Black stripe	
3	Red	
4	White with Red stripe	
5	Black	
6	Black with White stripe	
7	Green	
8	White with Green stripe	
9	Yellow	
10	White with Yellow stripe	
11	Blue	
12	White with Blue stripe	
13	Orange	
14	White with Orange stripe	
15	Gray	
16	White with Gray stripe	
17	Violet	
18	White with Violet stripe	
19	Pink	
20	Pink with Black stripe	
21	Red with Black stripe	
22	Blue with Black stripe	
23	Red with White stripe	
24	Blue with White stripe	
25	Yellow with White stripe	
26	Red with Blue stripe	

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groov Terminal Connector Specification

Specification	GRV-TERM26-5, GRV-TERMG26-5, and GRV-TERMPM13-5
Wire size	28–14 AWG
Torque for connector screw	2.5 in-lb (0.28 N-m)

GRV-TERM26-5

GRV-TERMG26-5
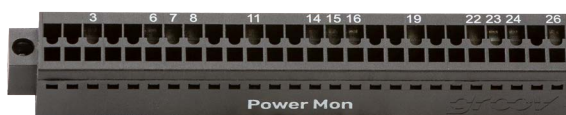
GRV-TERMPM13-5

Terminal connector part numbers for *groov* I/O and *groov* RIO modules

For this product	Use this terminal connector
GRV-CCANI-2	GRV-TERM26-5
GRV-CSERI-4	GRV-TERM26-5
GRV-IAC-24	GRV-TERM26-5
GRV-IACDCTTL-24	GRV-TERM26-5
GRV-IACDCTTLS-24	GRV-TERM26-5
GRV-IACHV-24	GRV-TERM26-5
GRV-IACHVS-24	GRV-TERM26-5
GRV-IACI-12	GRV-TERM26-5
GRV-IACIHV-12	GRV-TERM26-5
GRV-IACIHVS-12	GRV-TERM26-5
GRV-IACIS-12	GRV-TERM26-5
GRV-IACS-24	GRV-TERM26-5

For this product	Use this terminal connector
GRV-IDC-24	GRV-TERM26-5
GRV-IDCI-12	GRV-TERM26-5
GRV-IDCIFQ-12	GRV-TERM26-5
GRV-IDCIS-12	GRV-TERM26-5
GRV-IDCS-24	GRV-TERM26-5
GRV-IDCSW-12	GRV-TERM26-5
GRV-IICTD-12	GRV-TERM26-5
GRV-IMA-24	GRV-TERM26-5
GRV-IMAI-8	GRV-TERM26-5
GRV-ITM-12	GRV-TERMG26-5
GRV-ITMI-8	GRV-TERMG26-5
GRV-ITR-12	GRV-TERM26-5
GRV-IV-24	GRV-TERM26-5
GRV-IVAPM-3	GRV-TERMPM13-5
GRV-IVI-12	GRV-TERM26-5
GRV-IVIRMS-10	GRV-TERM26-5
GRV-OAC-12	GRV-TERM26-5
GRV-OACI-12	GRV-TERM26-5
GRV-OACIS-12	GRV-TERM26-5
GRV-OACS-12	GRV-TERM26-5
GRV-ODCI-12	GRV-TERM26-5
GRV-ODCIS-12	GRV-TERM26-5
GRV-ODCSRC-24	GRV-TERM26-5
GRV-OMRIS-8	GRV-TERM26-5
GRV-OVMAILP-8	GRV-TERM26-5
GRV-OVMALC-8	GRV-TERM26-5
GRV-R7-MM1001-10	GRV-TERMG26-5
GRV-R7-MM2001-10	GRV-TERMG26-5

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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.