groov 115 VAC INPUT MODULES

Features

- 12 or 24 channels per module
- Module cover with LED indicates module status
- Touch-sensitive pad identifies module on *groov* EPIC® processor
- Operating temperature range: -20 to 70 °C
- UL Hazardous Locations approved and ATEX compliant
- Guaranteed for life



GRV-IAC-24 module

Each *groov* I/O module cover provides a large module LED to indicate module health at a glance.



GRV-IACI-12 module

All *groov* power supplies, voltage converters, adapters, modules, and processors are compliant with the ATEX, Low Voltage, and EMC CE directives. Each module is factory tested twice before shipment and is guaranteed for life.

DESCRIPTION

groov I/O modules are part of the *groov* EPIC® (Edge Programmable Industrial Controller) system. Wired directly to field devices (sensors and actuators), *groov* I/O translates the electrical signals from those devices into the digital language computers understand—so you can monitor and control devices and use their data wherever you need it, in your local computer network or in cloud services.

groov AC input modules are used to sense status from devices such as pumps, fans, and motors that use a 85–140 VAC signal.

Choose the module you need based on your requirements:

- The **GRV-IAC-24** modules can sense status from up to 24 devices.
- The **GRV-IACI-12** modules each have channel-to-channel isolation. They can sense status from up to 12 devices.
- The **GRV-IACS-24** and **GRV-IACIS-12** modules provide input state only, offering a lower cost option for projects with simple requirements.

Wiring is simplified with a top-mounted connector, which provides spring-clamp terminals for power, common, and field wiring. The connector is held in place by a single, captive retention screw but can be removed with the field wiring intact for easier field replacement or wiring in advance.

A pivoting, two-position cover protects wiring from inadvertent contact, as does the dead-front design. The two positions of the cover offer the option of more space to accommodate larger wire. The module cover provides a touch-sensitive pad; touch the pad and the *groov* EPIC processor displays information about the module, including specifications and a wiring diagram.

A unidirectional, rocking installation process and one captive retention screw firmly secure each module to the chassis, making the unit suitable for locations with environmental vibration.

groov I/O modules are hot swappable and can be installed or removed without turning off the unit or stopping the process.

Part Numbers

Part	Description
GRV-IAC-24	AC digital input, 24 channels, 85–140 VAC
GRV-IACI-12	AC digital input, 12 channels, 85–140 VAC, channel-to-channel isolation
GRV-IACS-24	AC digital input, 24 channels, 85–140 VAC, on/off state only
GRV-IACIS-12	AC digital input, 12 channels, 85–140 VAC, channel-to-channel isolation, on/off state only

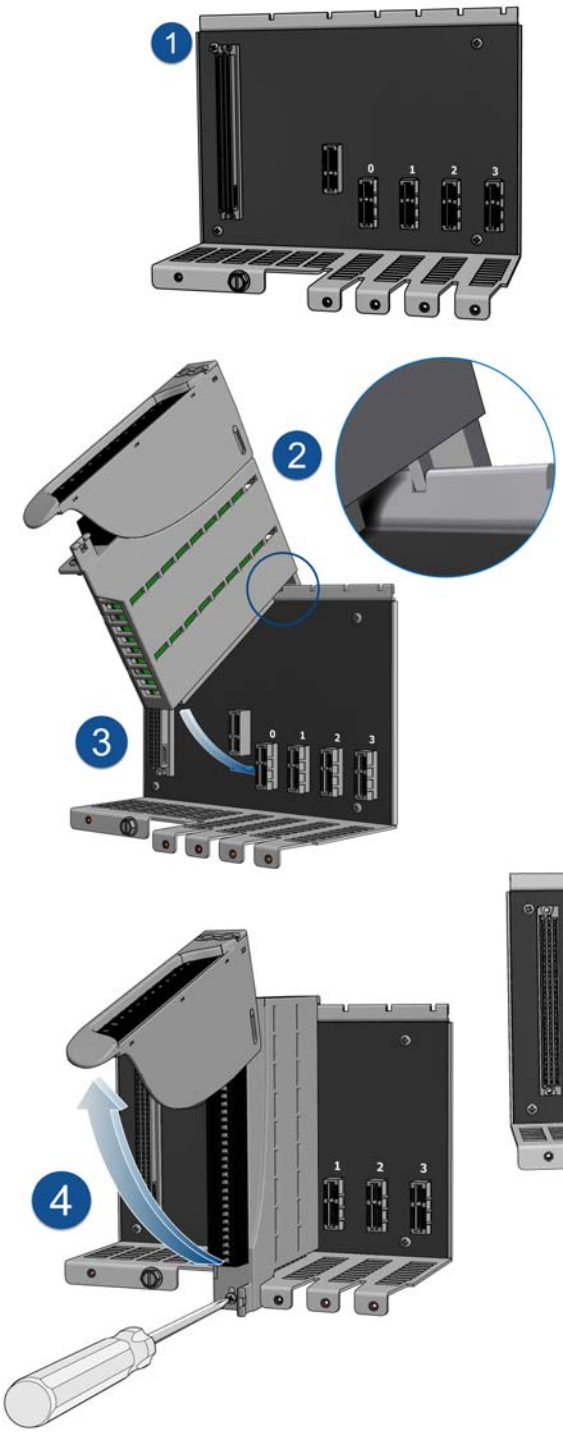
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MOUNTING

Mount *groov* I/O modules onto a *groov* EPIC chassis. See chassis data sheet (form 2247).

Installing the module



1. Place the *groov* EPIC chassis so that the module connector numbers are right-side up, with module location zero on the left, as shown in the diagram on the left.
2. Hold the module at a 45° angle, aligning the tab on the back tip of the module with the slot at the back of the chassis.
3. Swing the front of the module down to the module connector. Push to snap the module into the connector.
4. Swing the cover up so you can access the hold-down screw. Secure the module into position by tightening the hold-down screw.

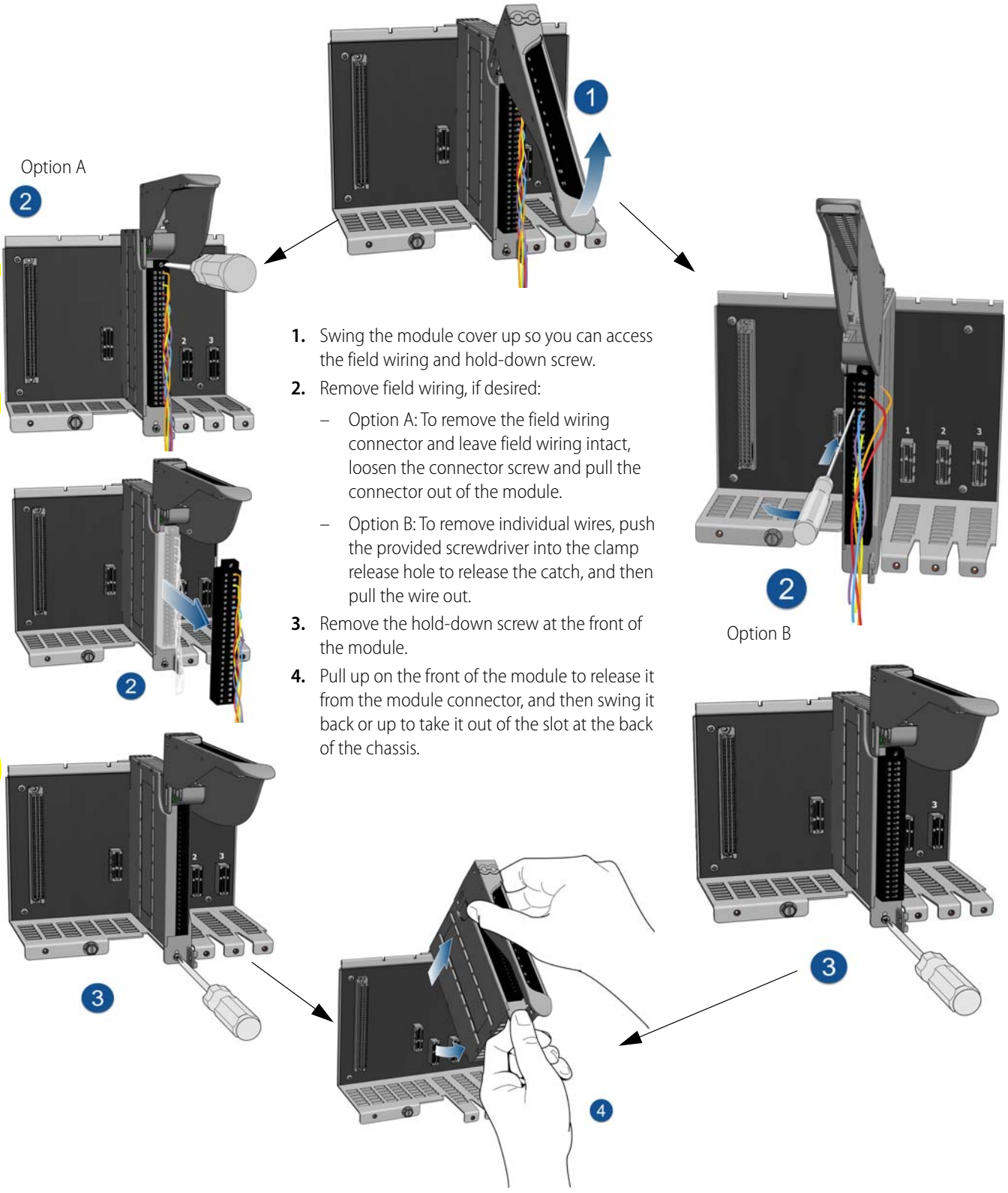
   CAUTION: Do not overtighten. See the torque specs in the Specifications table.

5. Check the connector screw to ensure that it is tight. Then, follow the wiring instructions in the Pinout and Wiring section to wire channels to field devices.
6. When wiring is complete, swing the module cover back down to cover the wires. If the wires are too thick to close the cover easily, lift the module cover, then raise the back of the cover up to the higher position. Swing the module cover back down to cover the wires.

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Removing the module



1. Swing the module cover up so you can access the field wiring and hold-down screw.
2. Remove field wiring, if desired:
   - Option A: To remove the field wiring connector and leave field wiring intact, loosen the connector screw and pull the connector out of the module.
   - Option B: To remove individual wires, push the provided screwdriver into the clamp release hole to release the catch, and then pull the wire out.
3. Remove the hold-down screw at the front of the module.
4. Pull up on the front of the module to release it from the module connector, and then swing it back or up to take it out of the slot at the back of the chassis.

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FEATURES AND SPECIFICATIONS

Features

Feature	GRV-IAC-24	GRV-IACI-12	GRV-IACS-24	GRV-IACIS-12
Number of channels	24	12	24	12
Channel-to-channel isolation		x		x
On/off state	x	x	x	x
On/off latching	x	x		
On/off totalization	x	x		
Frequency measurement	x	x		
Period measurement	x	x		
Pulse measurement	x	x		

Specifications

Specification	GRV-IAC-24	GRV-IACI-12	GRV-IACS-24	GRV-IACIS-12
Nominal Input Voltage Range (RMS)	85–140 VAC	85–140 VAC	85–140 VAC	85–140 VAC
Turn-on Voltage	85 VAC	85 VAC	85 VAC	85 VAC
Turn-off Voltage	35 VAC	35 VAC	35 VAC	35 VAC
Input Impedance (± 5%)	133 kOhms	68 kOhms	133 kOhms	68 kOhms
Operating Frequency	40 Hz to 400 Hz	40 Hz to 400 Hz	40 Hz to 400 Hz	40 Hz to 400 Hz
Isolation (field-to-logic)	300 V working, 1500 V transient (1 minute)	300 V working, 1500 V transient (1 minute)	300 V working, 1500 V transient (1 minute)	300 V working, 1500 V transient (1 minute)
Isolation (channel-to-channel)	NONE	300 V working, 1500 V transient (1 minute)	NONE	300 V working, 1500 V transient (1 minute)
Number of Channels	24	12	24	12
Chassis Power Consumption	1.0 W	1.0 W	1.0 W	1.0 W
Wire Size	28–14 AWG	28–14 AWG	28–14 AWG	28–14 AWG
Torque, connector screw	2.5 in-lb (0.28 N-m)	2.5 in-lb (0.28 N-m)	2.5 in-lb (0.28 N-m)	2.5 in-lb (0.28 N-m)
Torque, hold-down screw	3.5 in-lb (0.4 N-m)	3.5 in-lb (0.4 N-m)	3.5 in-lb (0.4 N-m)	3.5 in-lb (0.4 N-m)
Temperature (operating)	-20 °C to +70 °C	-20 °C to +70 °C	-20 °C to +70 °C	-40 °C to +85 °C
Temperature (storage)	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
Relative Humidity (non-condensing)	5–95%	5–95%	5–95%	5–95%
Agency Approvals	UL/cUL (Class 1 Div. 2); CE, ATEX (Category 3, Zone 2); RoHS; DFARS; CB Scheme	UL/cUL (Class 1 Div. 2); CE, ATEX (Category 3, Zone 2); RoHS; DFARS; CB Scheme	UL/cUL (Class 1 Div. 2); CE, ATEX (Category 3, Zone 2); RoHS; DFARS; CB Scheme	UL/cUL (Class 1 Div. 2); CE, ATEX (Category 3, Zone 2); RoHS; DFARS; CB Scheme
Warranty	Lifetime	Lifetime	Lifetime	Lifetime

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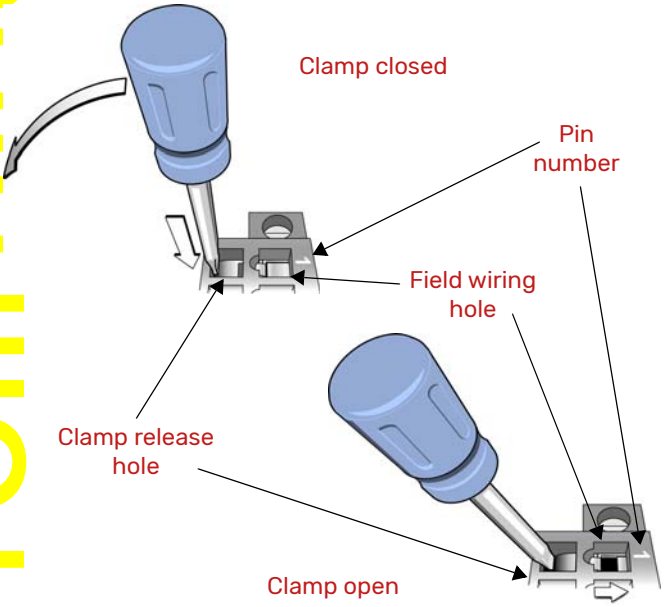
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PINOUTS AND WIRING

Before you begin wiring, do the following tasks:

- Select the appropriate wire: 28–14 AWG wire rated. If you're using stranded wire, tin the strands for an easier, better connection.
- Ensure that you have the screwdriver supplied with your module or chassis.
- It may be easier to insert wires if you remove the connector from the module. To remove the connector, loosen the captive hold-down screw at one end of the connector, then pull the connector up to remove it from the module.
- If you have never used a spring-clamp wiring system, take a moment to familiarize yourself with the diagram below. The clamp release hole is where you will insert the screwdriver. The field wiring hole is where you will insert your field wires.
- If you look into the field wiring hole, you will see a highly reflective surface. If you can see that surface, that means that the clamp is closed.



Follow these instructions to connect your field wires to the module:

1. Orient the module or connector to match the wiring diagrams on the following page. If possible, secure the module or the connector with a clamp or on the chassis so that your hands are free to handle the screwdriver and field wires.
2. Hold the screwdriver so that you can place the flat side of the blade against the left side of the clamp release hole.
3. Slide the screwdriver into the clamp release hole, along the left side, until you feel the blade begin to meet some resistance. Gently push the screwdriver in a little more, until you feel the screwdriver stop.

   Note: If you push in too hard, the screwdriver might pop out of the clamp release hole and you'll have to return to step 2.

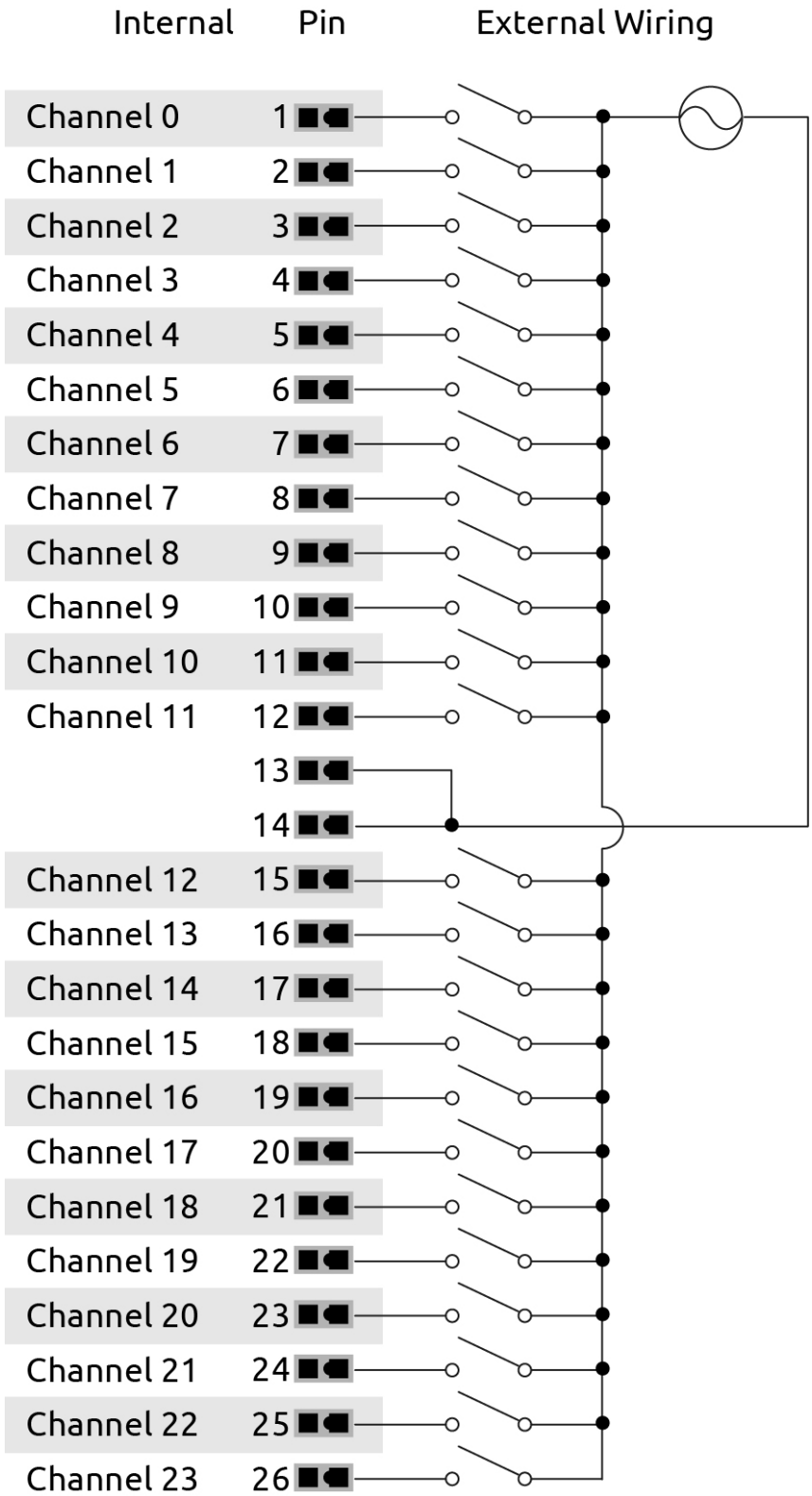
   – Look into the field wiring hole. If it is dark, the clamp is open. You can go to the next step.

   – If you can still see the highly reflective surface, gently pull the screwdriver handle to the left until you feel the blade stop. Hold the screwdriver in that position. Look into the field wiring hole. If it is dark, the clamp is open. You can go to the next step.
4. Insert the wire into the field wiring hole until it meets complete resistance. Then pull out the screwdriver.
5. Test that the wire is secure by gently pulling on it. If the wire pulls out, repeat steps 2 through 4.

To remove a wire, push the screwdriver into the clamp release hole as described in steps 2 and 3 above, and then pull the wire out.

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WIRING: GRV-IAC-24, GRV-IACS-24

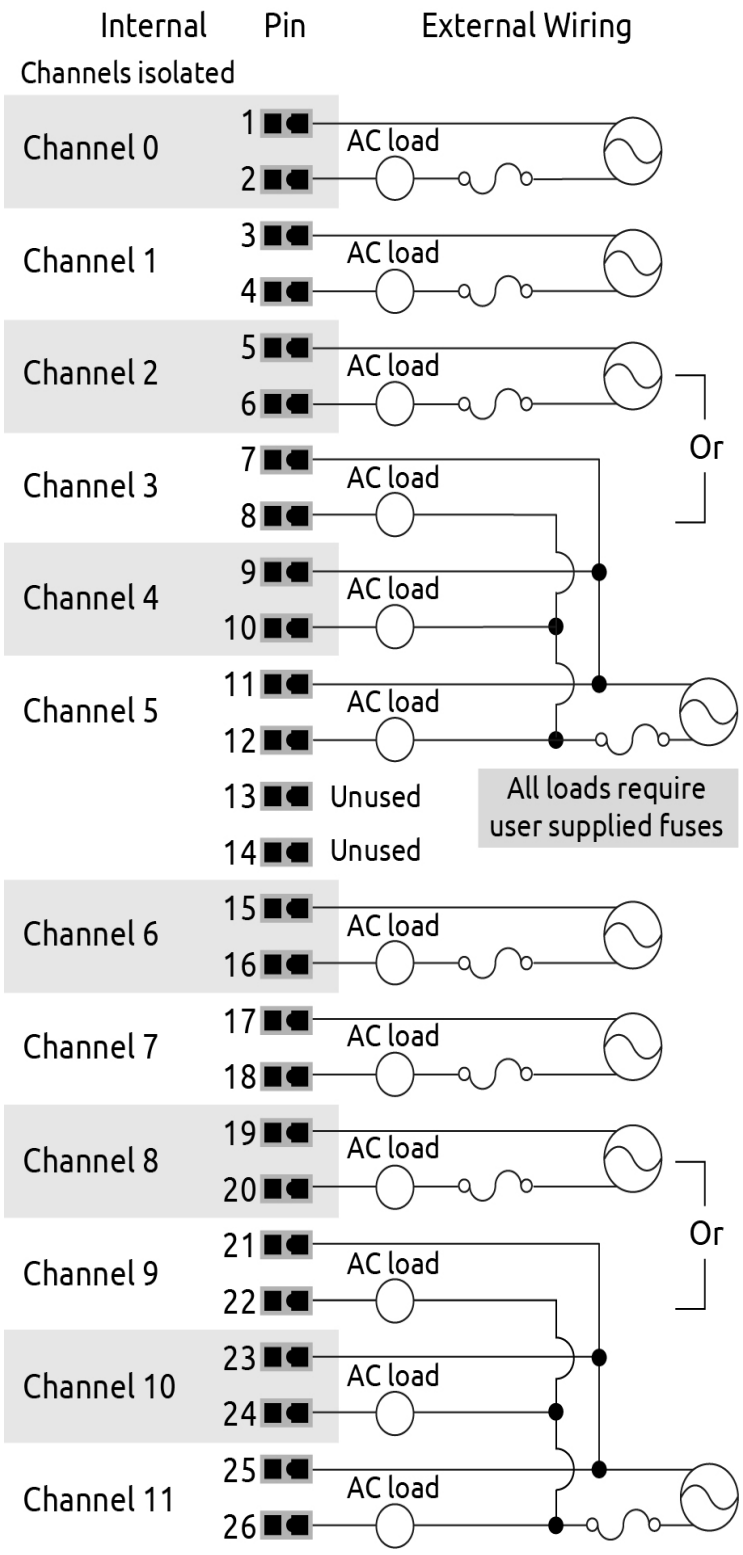


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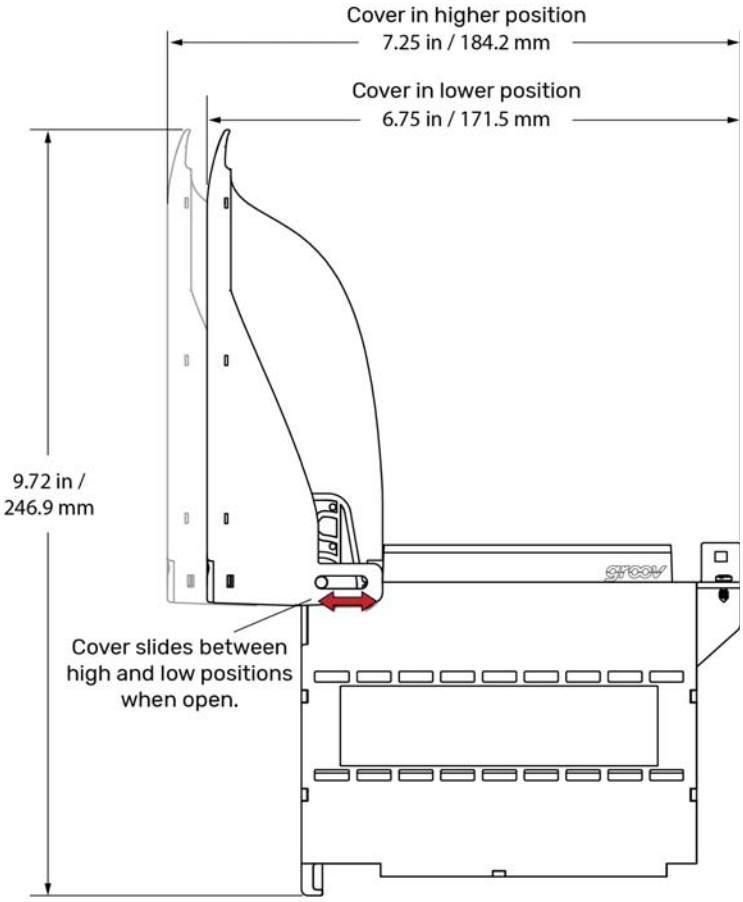
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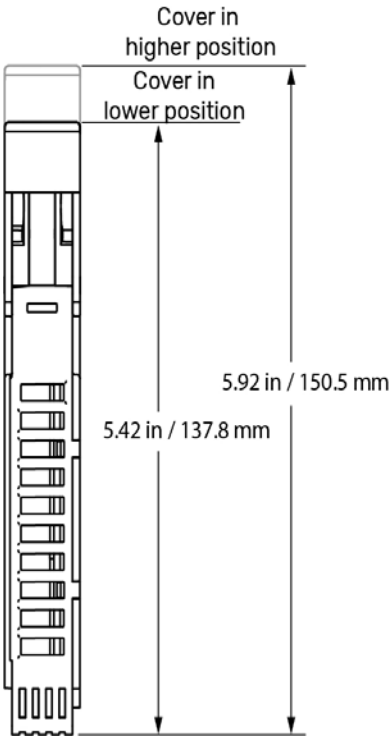
WIRING: GRV-IACI-12, GRV-IACIS-12

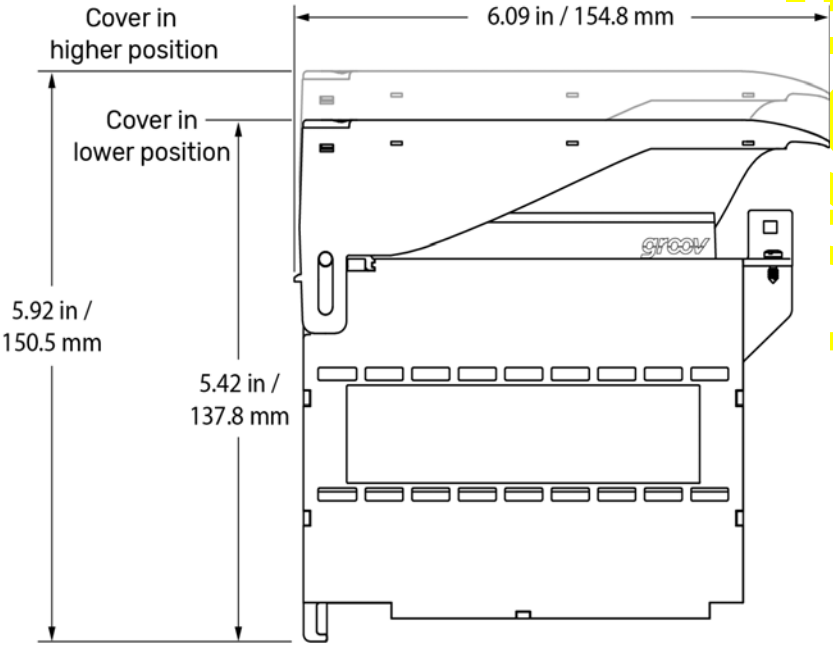


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DIMENSIONS: GRV-IAC-24, GRV-IACI-12, GRV-IACS-24, GRV-IACIS-12







The module cover pivots and can be adjusted to two different heights (positions). The higher position provides more space to accommodate thicker wires.

To switch between higher and lower position, open the cover to at least a 45° angle. Grasp the hinged end of the module cover and do one of the following:

- Pull up on the back hinge to slide it to the higher position.
- Push down on the back hinge to slide it to the lower position.

You cannot switch between the higher and lower positions while the cover is closed.

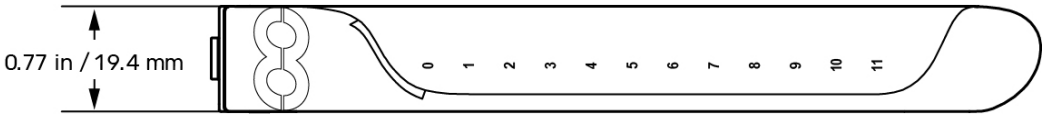
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GRV-IAC-24 module



GRV-IACI-12 module



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