About OutBack Power

OutBack Power is a leader in advanced energy conversion technology. OutBack products include true sine wave inverter/chargers, maximum power point tracking charge controllers, and system communication components, as well as circuit breakers, batteries, accessories, and assembled systems.

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Date and Revision

February 2020, Revision A

IMPORTANT:
Not intended for use with life support equipment.

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Rapid Shutdown Relay Assembly

Audience

These instructions are for use by qualified personnel who meet all local and governmental code requirements for licensing and training for the installation of electrical power systems with AC and DC voltage up to 600 volts. Failure to install or use this equipment as instructed in the literature can result in damage to the equipment that may not be covered under the limited warranty.

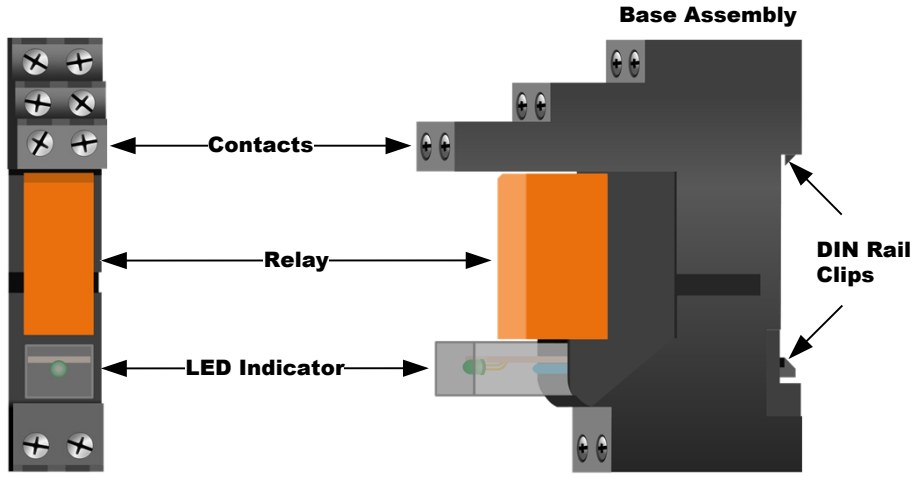
Product

This product will activate the rapid-shutdown circuit of the FM100 charge controller if wired to the IMO FireRaptor OBFRS-ESW1 module level power electronics (MLPE). It may optionally activate an inverter on/off circuit to de-energize the inverter.

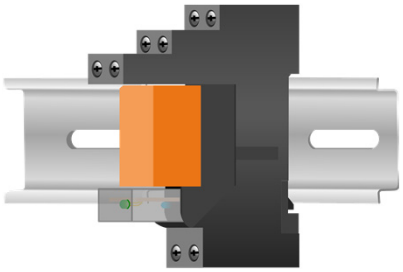
The assembly consists of a relay inserted (in one orientation) into a socketed base, which uses an LED module to show status. The base is DIN-rail mounted. If necessary, the socketed relay may be removed and replaced without disconnecting the wiring.

OBR-16-24-DIN Features:

- Rated current: 16 Aac or Adc (8 amperes per terminal)
- Rated voltage: 30 Vdc or 250 Vac
- Coil power consumption: 400 mW
- LED indicator shows when relay is energized
- Base connections for external wires
  - Coil contacts
  - Normally-open (NO) relay contacts
  - Normally-closed (NC) relay contacts
  - Common (COM) relay contacts
    - ✓ Tighten to a torque value of 0.5 Nm (4.4 inch-pounds)



Rapid Shutdown Application



Installation

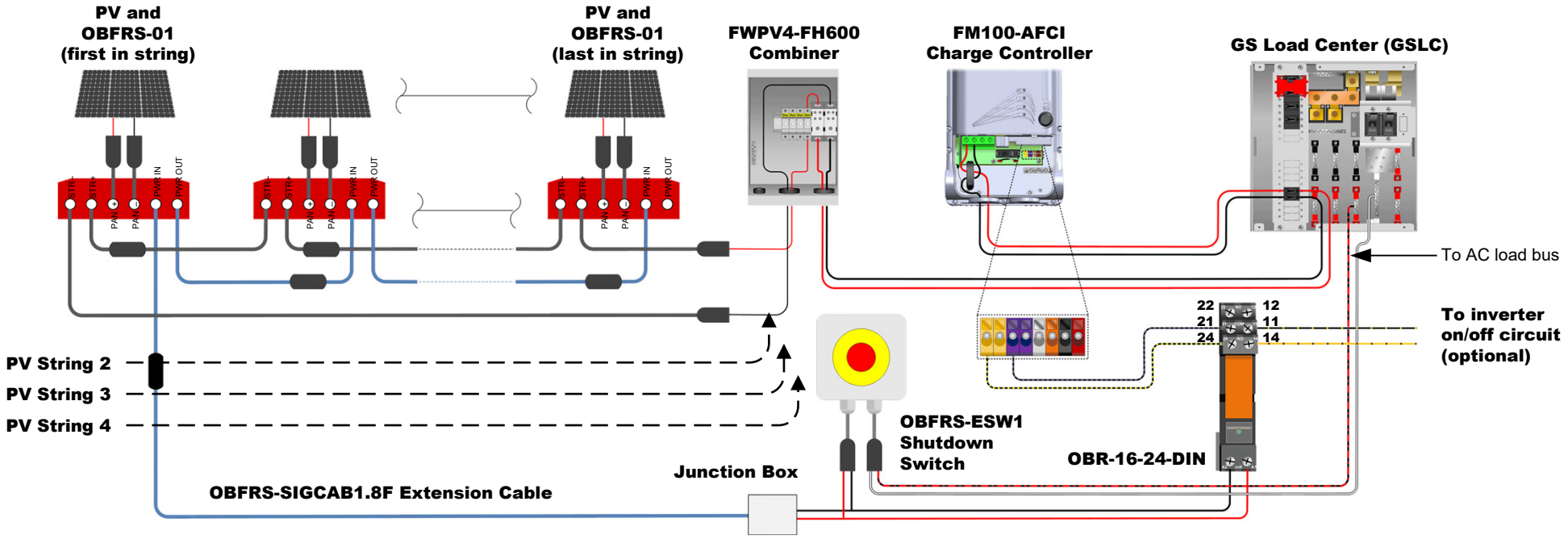
- Mount a section of DIN rail in a convenient spot (in or near the GSLC or another enclosure).
- Mount the OBR-16-24-DIN relay on the DIN rail.

Wiring

- Install the PV modules in series strings using the FireRaptor MLPE devices (OBFRS-01). Connect these strings to the combiner.
  - The **STR** (string) terminals are used for series string connections. Up to 10 modules may be used in a string. The **PAN** (panel) terminals are used for PV module connections. The **PWR IN** and **OUT** terminals receive and distribute power from the power supply in the FireRaptor shutdown switch (OBFRS-ESW1). Each switch can power up to 40 OBFRS-01 devices.
  - One string is depicted. The FWPV4-FH600 combiner can receive up to 4 strings.
- Connect the combiner output to the charge controller. For arc fault protection, this must utilize approved PV circuit breakers such as those on the GSLC.
- Connect the OBR-16-24-DIN relay **NO** and **COM** terminals to the charge controller's rapid shutdown terminals. The second set of **NO** and **COM** terminals may be connected to the inverter's on/off circuit.
- Connect to the FireRaptor shutdown switch to power the MLPE devices and OBR-16-24-DIN relay coil. The OBFRS-SIGCAB1.8-F extension cable and a junction box are needed for a complete MLPE connection.
  - When the FireRaptor switch opens, power is removed from all devices. The opening of the relay contacts will put the FM100 (and inverter, if connected) into rapid shutdown.

Relay Terminals:

- The relay is marked with an internal schematic and the terminal numbers noted below.
- The terminals are not polarity-sensitive. When the coil (terminals **A1** and **A2**) receives voltage regardless of polarity, the LED indicator will illuminate.
- The **COM** contacts (terminals **11** and **21**) are electrically common and are the return path for all terminals.
- The **NO** contacts (terminals **14** and **24**) are used for rapid shutdown of both the FM100 and the inverter. Either terminal may be used for either function.
- The **NC** contacts (terminals **12** and **22**) are not used in this application.



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