



RELAY DRIVER™

LOGIC MODULE ACCESSORY FOR SOLAR CONTROLLERS

- Cost Effective
- Flexibility
- Fully Programmable
- Highly Reliable

Morningstar's Relay Driver is a logic module which provides high level system control functions such as high/low voltage alarms, load control and generator start. The product controls four independent relay driver outputs by reading digital data inputs from Morningstar's TriStar controller or by reading battery voltage when used in systems with other controllers.

KEY FEATURES AND BENEFITS

Cost Effective

The four channels provide up to four high level system control functions at a lower cost compared to other alarm and generator start packages.

High Reliability

Each channel has complete electronic protections for high reliability.

Flexibility

The system designer may choose the exact relay needed for each application including a wide range of current ratings and solid state, mechanical or mercury displacement relays.

Fully Programmable

It is easy to program the Relay Driver with the included PC software via serial RS-232 port connection. Data is stored in non-volatile memory. The Relay Driver is pre-programmed with four commonly used settings.

Advanced Generator Control

Provides flexible parameters to control one, two or three-wire generator schemes and complete control of preheat, crank, ignition and cool-down.

Industrial Design

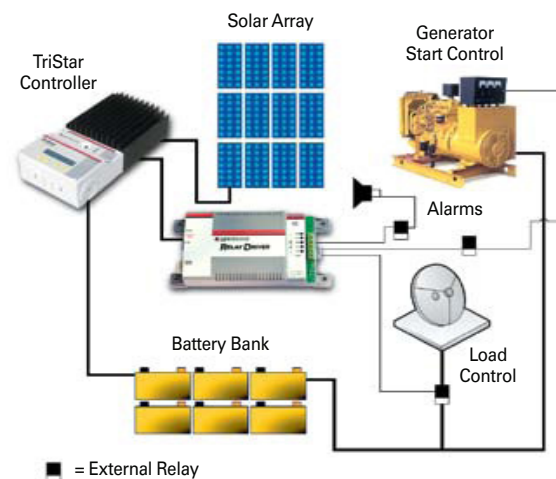
Each relay driver output may be controlled directly by MODBUS commands via the RS-232 for use with PLC's and other industrial hardware. Mounts to a DIN rail or a flat surface.

LED Indicators

Displays power and status of each channel as well as faults and data sampling intervals.

TYPICAL FUNCTIONS

- **High and Low Alarm Contacts for Industrial Applications**
- **Load Control Including High Power Applications (pumps and large motors)**
- **Temperature Controlled Settings for Battery Fans or Cooling Vents**
- **Generator Start Functions**
- **Auxiliary AC Backup Charge Control**



DATA CONTROL INPUT OPTIONS

Connected to a TriStar Controller:

Battery voltage, charge/load current, battery temperature, TriStar heatsink temperature, PWM duty cycle, PV/load voltage, and all TriStar alarms or faults.

Used in Systems with other Controllers:

Battery voltage, Relay Driver temperature, input voltages from other sources.

Technical Specifications

Version	RD-1
Electrical	
System Voltage	12 to 48 volts*
Max. Channel Current	750 mA
Accuracy	
Voltage	2% ± 50 mV
Temperature	± 2°C
Min. Operating Voltage	8 volts
Max. Operating Voltage	68 volts
Self Consumption	< 20 mA
Temperature Sensor Range	-40°C to +85°C
Transient Surge Protection	1500 W / channel
Comm. Ports (opto-isolated)	(2) RJ-11 meter bus connections (1) 9-pin serial RS-232
Environmental	
Operating Temperature	-40°C to +45°C
Storage Temperature	-55°C to +85°C
Humidity	100% (NC)
Tropicalization	Conformal coating on both sides of printed circuit board
Mechanical	
Dimensions	Length: 16.3 cm / 6.4 inch Width: 8.1 cm / 3.2 inch Depth: 3.3 cm / 1.3 inch
Weight	0.2 kg / 0.4 lb
Largest Wire	1.0 to 0.25 mm ² 16 to 24 AWG
Torque Terminals	0.4 Nm / 3.5 in-lb
Enclosure	Type 1, indoor rated
DIN Rail Attachment	35 mm standard

* Voltage of user selected relays must be same as battery voltage

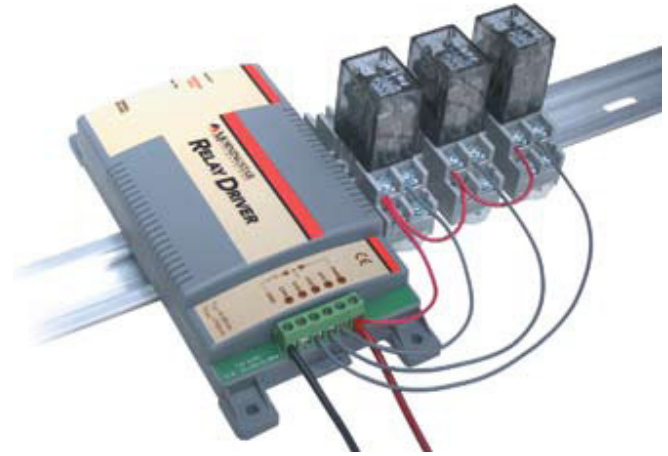
Electronic Protections

- Reverse Polarity Protection
- Short-Circuit Protection
- Overcurrent Protection
- Lightning and Transient Surge Protection

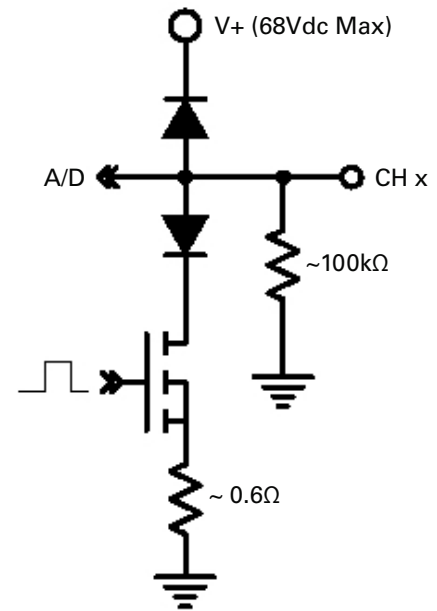
Warranty:

Five years warranty period. Contact Morningstar or your authorized distributor for complete terms.

DIN Rail Mounted Relay Driver with Relays



General Channel Schematic



Compatible with:

- TriStar MPPT 600V Controller
- TriStar MPPT Controller
- SunSaver MPPT Controller
- TriStar Controller
- SunSaver Duo Controller
- SureSine Inverter
- MeterHub