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 load control, generator start and alarm signaling. The product controls four independent relay driver outputs with battery voltage and other threshold settings in stand-alone mode or by reading digital data inputs from other Morningstar meterbus enabled devices in the system. The four channels can also be utilized as analog inputs to enable voltage threshold actions.

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

- **Fault and Alarm Contacts for Industrial Applications**
- **Load Control for Prioritized Loads and High Power Applications (pumps and large motors)**
- **Temperature Control with fans, A/C or heaters**
- **Generator Start Functions**
- **Auxiliary AC Backup Charge Control**
- **Digital Remote Control over MODBUS**
- **Analog Inputs for Signaling and Control**
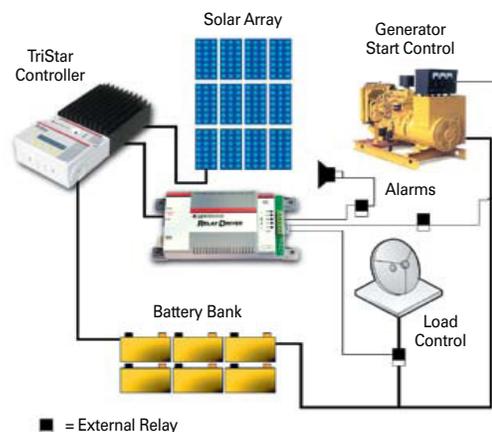
DATA CONTROL INPUT OPTIONS

Connected to a TriStar Controller:

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

Stand-Alone or with other Relay Drivers:

Battery voltage, Relay Driver (ambient) temperature, channel analog input voltages.

Technical Specifications

DIN Rail Mounted Relay Driver with Relays

Version	RD-1
Electrical	
System Voltage	12 to 48 volts*
Max. Channel Current	750 mA
Max. Channel Input Voltage	< Battery Voltage
Voltage Accuracy	2% ± 50 mV
Temperature Accuracy	± 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 mm² 16 to 24 AWG
Torque Terminals	0.4 Nm / 3.5 in-lb
Enclosure	Type 1, indoor rated
DIN Rail Attachment	35 mm standard

General Channel Schematic

V+ (68Vdc Max)
A/D
CH x
~100kΩ
~ 0.6Ω

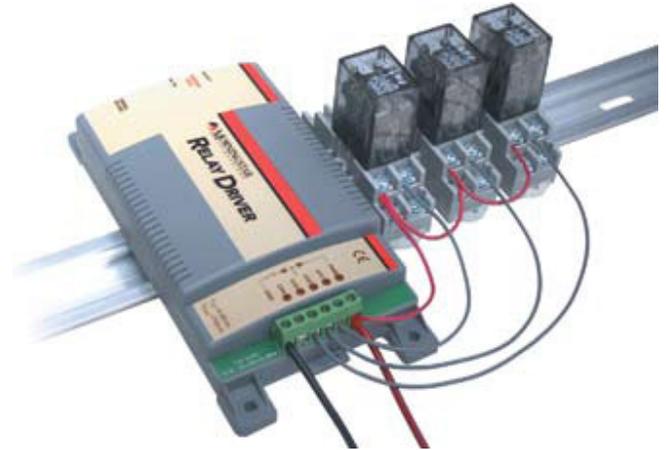* Voltage of user selected relays must be same as battery voltage

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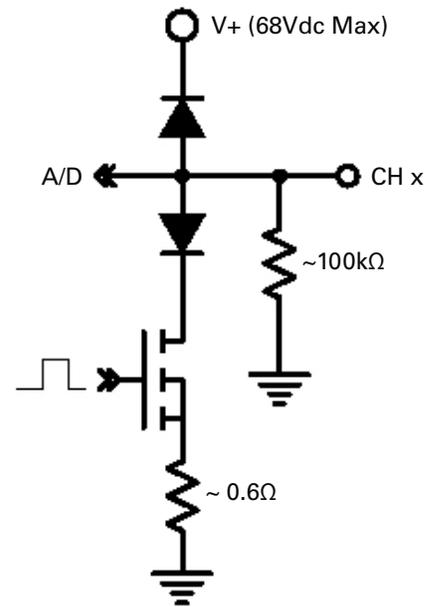- Overcurrent Protection
- Lightning and Transient Surge Protection

Compatible with:
- TriStar MPPT 600V Controller
- TriStar MPPT Controller
- SunSaver MPPT Controller
- Additional System Relay Drivers
- TriStar (PWM) Controller
- SunSaver Duo Controller
- SureSine (Classic) Inverter
- MeterHub

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

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Due to Morningstar's policy of continuous improvement, product availability, features and specifications are subject to change without notice.

www.morningstarcorp.com
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