Specifications

Interface
Pro: 8STA6-04-06SN (Autosport Connector)
Club: Flylead (No Connector) (6 x 24AWG Wires)

Connections

Battery Terminal	Copper Plated M6 Stud (τ 3.0Nm)
Output Terminal	Copper Plated M6 Stud (τ 3.0Nm)

Electrical

Supply Voltage (V_S)	8V-30V	
Operating Current (I_S)	0.03A	Normal
	0.02A	Isolated
	0.01A	Standby

PDM/ECU Output

Drive Type	Configurable
Output Voltage	Supply Voltage
Max Output Current	200mA

Switched Current

Maintained Current	200A @ 25˚C
Peak Current	1000A

Physical

Rating	IP63
Operating Temp	-20 to 100˚C
Dimensions	***Pro:*** 99 x 70 x 28mm
	Club: 99 x 70 x 45mm

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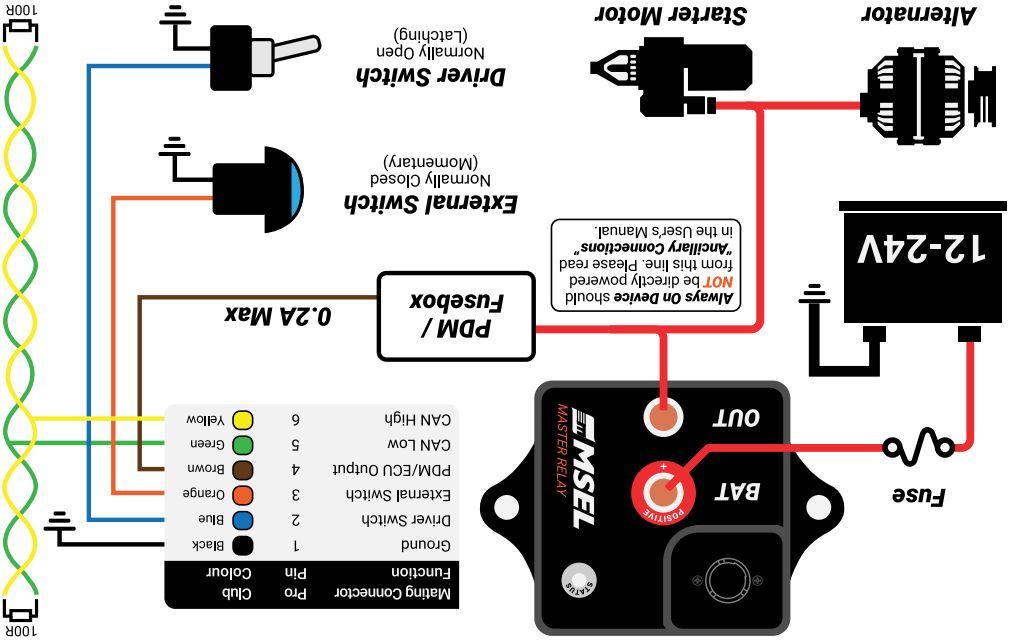
For User's Manual

MSEL Competition & Development Electronics

Master Relay
Quick Start Guide



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Installation

The Master Relay is connected between the positive terminal of the battery and the rest of the vehicles positive power supply. Refer to the diagram (other side) for a typical installation. For more detailed installation instructions, please refer to the User's Manual.

IMPORTANT: Read Before Install

The ground connection must be made before connecting the battery and output terminals.
Do not connect 12V cables until Pin 1 (*Pro*) or Black Wire (*Club*) is connected to ground.
Do not disconnect the ground wire without first removing the battery cable.

Maximum torque for studs is 3.0Nm or 26.6lb-in.

Switch Connection

The Master Relay has two separate switched inputs, the driver switch and the external switch. The driver switch is the master switch and must be latching, such that when engaged the switch contacts are closed.

The external switch must have normally closed contacts and in the event of a button press the contacts should become open. Multiple external switches can be connected in series. Please refer to the User's Manual for additional setup configuration. If the external switch is not required, join Pin 3 (*Pro*) or Orange Wire (*Club*) to ground.

LED Indicator States

Status	LED Colour		Status Enumeration	Warnings Bit Mask
Normal	✱	Green	1	-
Normal (CAN Error)	✱/✱	Green Flashing		
Over Temperature Warning	✱/✱	Blue Flashing	2	0x01
Over Current Warning	✱	Yellow	3	0x02
Low Voltage Warning	✱/✱	Green/Blue Flashing	4	0x04
High Voltage Warning	✱/✱	Green/Red Flashing	5	0x08
Over Temperature Kill	✱/✱	Blue/Red Flashing	6	0x10
Driver Switch Kill	✱	Red	7	0x20
External Switch Kill	✱/✱	Red Flashing	8	0x40
CAN Trigger Kill	✱	Blue	9	0x80
Power On Reset	✱	Purple	10	-

PDM/ECU Connection

Pin 4 (*Pro*) or Brown Wire (*Club*) of the Master Relay connector provides a logical output for a PDM/ECU allowing engine kill functionality with alternator load dump protection. Default, the drive of the output is an active high, half bridge. However, it can be reconfigured for alternate applications. Please refer to the User's Manual for further information.

CAN Bus

The Master Relay is supplied with the following CAN Configuration. Please refer to the User's Manual should you need to alter the CAN baud rate or address.

Baud Rate: 1Mbps **Update Rate:** 10Hz **Byte Order:** MSB First

Base Address (Default: 0x6E4)

Byte	Channel	Units	Length	Base	Signed	Value	Transmitted
0 1	Voltage Out	V	2	0.01	Unsigned	12.56	1256
2 3	Current Load	A	2	0.1	Signed	54.5	545
4 5	Internal Temperature	°C	2	0.1	Signed	25.2	252
6	Warnings	-	1	1	-	See (2)	
7	Status	-	1	1	-	See (1)	

Base Address +1 (Default: 0x6E4)

Byte	Channel	Units	Length	Base	Signed	Value	Transmitted
0 1	Voltage In	V	2	0.01	Unsigned	12.56	1256
2 3	Serial No.	-	2	1	Unsigned	-	-
4 5	Configuration	-	2	1	Unsigned	-	-
6	Time Since Shutdown	s	1	0.1	-	15.5	155
7	Shutdown Cause	-	1	1	-	See (1)	

(1) List of Status enumerations are available in the table on the opposite page.
(2) Warning bit masks are available in the table on the opposite page.

NOTE: A 3rd CAN message exists on the Base Address +3 (Default: 0x6E4) as described in the Master Relay User Manual available at ***www.msel.com***.