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Product Description

Sealed Multiplexed Master Module using a LIN sub bus to communicate with up to seven expansion modules.

Eaton is pleased to introduce the newest line of multiplexed electronic Switch Modules (eSM), the E33 product line. The E33 eSM offers an increased level of flexibility over previous modules including:

- Fully sealed to IP68 from the front and rear
- Locking rocker options
- Palm guard option

The E33 eSM offers a complete range of switch circuits as well as indicator options to meet all your control requirements. Similar to the E32 eSM product line, the E33 eSM includes individual icon lighting as well as a multi-color center indicator option allowing for steady state, flashing and dimming controlled via messaging. Additional flexibility is available by using the Eaton IP68 sealed SVR switch line for high-current, hard-wired applications in conjunction with our multiplexed solution.

Compared with electromechanical switches, multiplexed switch modules offer several advantages.

- Reduced assembly labor due to ease of installation, allowing for mounting and connection of three switches at one time versus individually
- Reduced wire harness complexity, using one harness to accommodate up to 24 switches and a three-wire interconnect between expansion and master modules
- Reduced harness size offers an overall reduction in weight, improving operational efficiency of the equipment
- Increase in switch life-cycle over traditional electromechanical switches (500k cycles)
- Reduced connections resulting in less possible failure points

Application Description

Target Market Segments

This product is targeted at harsh environment applications where a ruggedized product is needed to meet demanding requirements. Additionally, applications where there is concern over inadvertent switch actuation driving the need for guarding or locking features are also well-suited. Typical applications include:

- Construction equipment
- Agricultural equipment
- Specialty vehicle
- Material handling
- Emergency vehicle
- School and transit bus

Features and Benefits

- Fully compliant with J1939 CAN 2.0b messaging
- IP68 degree of protection front and rear
- 9–32 Vdc rated
- Immune to SAE J1455 and J1113 power disturbances
- Top, bottom and full guard option available
- Locking rocker available
- Front panel removable for ease of maintenance
- Sleep mode available to reduce current draw on the battery
- Wake on switch change configurable
- LED lighting in top, center-indicator and bottom position
- Decorative style rocker with matching indicator option
- Late point definition of circuit and rockers to reduce inventory
- Diagnostics

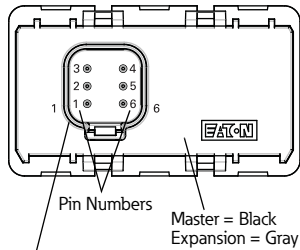
Contact your Eaton sales engineer for availability.

Product Selection

Note: All fully-assembled products are custom ordered. Contact your local Eaton Sales Representative.

Wiring

Master/Expansion Module Wire Harness



Pin	Master	Expansion
1	VBATT	VBATT
2	Common	Common
3	CAN High	LIN
4	CAN Low	LIN
5	Common	Common
6	LIN	VBATT

The interconnection between master module and controller uses a simple four-wire harness. Addressing of the master can be done by software or via address claim process. Interconnect wiring between master-expansion as well as expansion-expansion uses a three-wire harness.

Mating Connector Information

- Mating connector: Deutsch plug DT06-6S
- Wedge lock: W6S
- Socket contact: 0462-201-16141 (1.0–0.5 mm² [16–20 AWG])
- Hole plug: 0413-217-1605

Technical Data and Specifications

E33 eSM Specifications

Description	Specification
Operating temperature	–40° to 85°C
Storage temperature	–40° to 95°C
Operating voltage	9–32 Vdc
Environmental sealing	IP68
Mechanical shock	30g for 11 ms
Mechanical vibration	MIL-STD-202F/201A 2.0g random
Immunity to SAE J1455 and J1113 power disturbances	
Communication	
Master	SAE J1939 CAN 2.0b
Expansion	LIN 2.0

Contact your Eaton sales engineer for availability.

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Dimensions

Approximate Dimensions in Inches (mm)

Standard Cut-Out

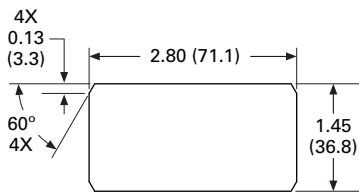
The modules are easily mounted with plastic retention clips. Modules are mounted in a single, space-saving cutout reducing assembly time and accommodating up to three switches in a compact design.

Serviceability

By modifying the standard cut-out to include the optional front panel removable slots shown below, the modules are easily serviceable from the front of the panel without further disassembly.

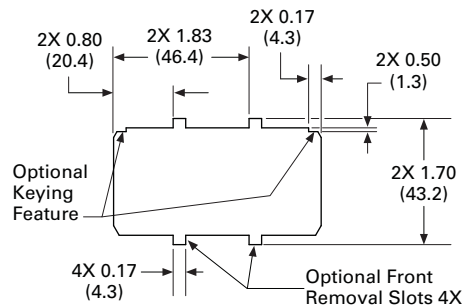
Due to the E33's design allowing for late-point definition on assembly, both the actuator and circuit profile are serviceable as individual components.

Standard Cut-Out

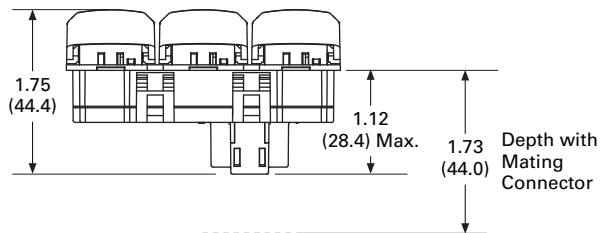
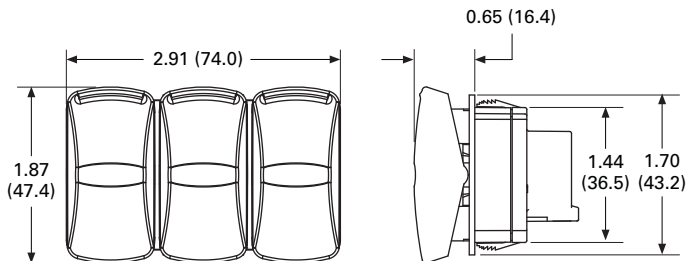


Recommended Panel Opening
Panel Thickness: 0.04–0.16 (1.0–4.0)

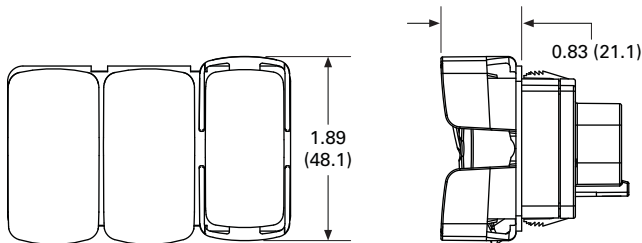
Optional Panel Opening Features



E33 eSM Sealed Multiplexed Rocker Switch Units



E33 eSM Sealed Multiplexed Rocker Switch Units (Palm Guard Version)



Contact your Eaton sales engineer for availability.