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E32 eSM—Multiplexed Rocker Switch Units

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Product Description

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

Offering a high level of flexibility, the above-panel electronic multiplex switch module (E32 eSM) covers your wide range of switch and indicator applications using standard or custom graphics, as well as a full range of circuits and illumination options. The above-panel E32 eSM has top, center and bottom LED lighting with software that offers advanced circuit and lighting flexibility, including dimming and flashing options via J1939 CANbus communication. The indicator bar can be lighted with up to four separate colors to indicate operational status, vehicle mode and faults. All standard combinations of maintained and momentary switch actions, matching indicator caps and dummy plugs, along with the complementary styled SVR electromechanical rocker switch are available to complete the offering.

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 a controller 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)

Application Description

Target Market Segments

This product is targeted at the bus/coach, truck and specialty vehicle markets. The product is especially suitable where a customer has “gangs” of switches mounted in a panel or dashboard, and expansion modules can be connected easily to a master module.

- On-road specialty vehicle
- EMS vehicles
- Street sweepers
- Recreational vehicles
- Motor coach/bus
- Refuse vehicles

Features and Benefits

- Fully compliant with J1939 CAN 2.0b messaging
- LED lighting in top, center and bottom positions
- Late point definition of circuit and rockers to reduce inventory and accommodate multiple application requirements
- 9–16 Vdc operating voltage
- 16–32 Vdc operating voltage
- IP53 degree of protection from the front
- Easy address assignment
- Immune to SAE J1455 and J1113 power disturbances
- Front panel removable for ease of maintenance
- Sleep mode available to reduce current draw on the battery
- Wake on switch change configurable
- Decorative-style rocker with matching indicator option available
- Colored rocker options
- CAN controlled digital logic output—500 mA

Product Selection

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



Modules

Voltage	Module	Icon Lighting	Status Bar Lighting	Catalog Number
9–16V	Master	Amber	Amber	E321AAAAAAAAA01
		Green	Green	E321GGGGGGGGG01
		White	Red, Amber, Green, Blue	E321W4WW4WW4W01
	Expansion	Amber	Amber	E322AAAAAAAAA01
		Green	Green	E322GGGGGGGGG01
		White	Red, Amber, Green, Blue	E322W4WW4WW4W01
	Indicator expansion	Amber	Amber	E322AAAAAAAAA17
		Green	Green	E322GGGGGGGGG17
		White	Red, Amber, Green, Blue	E322W4WW4WW4W17
16–32V	Master	Amber	Amber	E323AAAAAAAAA01
		Green	Green	E323GGGGGGGGG01
		White	Red, Amber, Green, Blue	E323W4WW4WW4W01
	Expansion	Amber	Amber	E324AAAAAAAAA01
		Green	Green	E324GGGGGGGGG01
		White	Red, Amber, Green, Blue	E324W4WW4WW4W01
	Indicator expansion	Amber	Amber	E324AAAAAAAAA17
		Green	Green	E324GGGGGGGGG17
		White	Red, Amber, Green, Blue	E324W4WW4WW4W17

Accessories

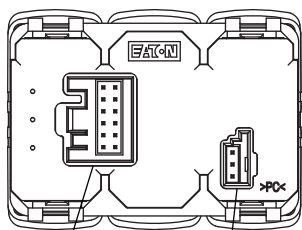
Rockers

Color	Description	Catalog Number
Black	Full-throw actuator	53-7350
	Half-throw up actuator	53-7350-2
	Half-throw down actuator	53-7350-3
Red	Full-throw actuator	53-7350-4
	Half-throw up actuator	53-7350-5
	Half-throw down actuator	53-7350-6
Black	Indicator	53-7354
	Dummy plug	53-7354-2
	Panel plug	17-24241

Circuit Sub-Actuators

Color	Circuit (Up-Middle-Down)			Catalog Number
Black	On	On	None	61-4043
Red	Momentary	On	None	61-4043-2
Light blue	On	On	On	61-4043-3
White	Momentary	On	Momentary	61-4043-4
Yellow	Momentary	On	On	61-4043-5
Gray	On	None	On	61-4043-6
Pink	Momentary	None	On	61-4043-7
Maroon	None	On	On	61-4043-8
Light purple	None	On	Momentary	61-4043-9
Orange	On	On	Momentary	61-4043-10
Green	On	None	Momentary	61-4043-11

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Wiring**Master Module Wire Harness**

Pin	Function
1	VBAT (clamp 30)
2	Ground
3	CAN high
4	CAN low
5	500 mA output
6	Address 1
7	Address 2
8	Address 3
9	Address 4
10	No connect
11	No connect
12	No connect

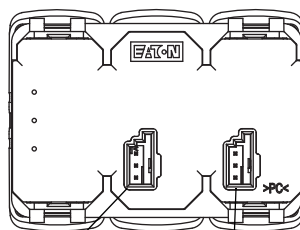
Pin	Function
1	VBAT (clamp 30)
2	Ground
3	LIN sub bus

The interconnection between master module and controller uses a simple four-wire harness with addressing specified by jumping between pins 6 to 9. An additional pin-out is provided for a 500 mA output if required.

Mating Connector Information

Housing:

- ETN 28-6982
- Amp/Tyco #1394048-1
- ETN 49-7867
- Amp/Tyco #2-1355524-3

Expansion Module Wire Harness

Pin	Function
1	VBAT (clamp 30)
2	Ground
3	LIN sub bus

Pin	Function
1	VBAT (clamp 30)
2	Ground
3	LIN sub bus

The interconnection between modules uses a cost-effective three-wire harness. This simplified wire harness reduces cost, weight and assembly labor for the end-user.

Mating Connector Information

Terminal:

- ETN 28-6983
- Amp/Tyco #1-1718346-1 Coding A
- ETN 80-20608
- Amp/Tyco #963715-1

Master Address Assignment

The master switch module address is set using jumpers in the wire harness to connect the following pins:

Master Address Assignment

Terminal Pins Connected	Address
6-7	A1
6-8	A2
6-9	A3
7-8	A4
7-9	A5
8-9	A6
6-7, 8-9	A7
6-8, 7-9	A8

Manufacturing Flexibility

E32 eSM offers a tremendous amount of flexibility including options for complete assemblies to be provided as well as late-point definable rocker and circuit. Individual components can be purchased independently and assembled to create any combination of circuits and icons which is especially suited for low volume/high mix applications minimizing inventory requirements. Rockers and indicators can also be laser-etched with custom icons by Eaton or other to accommodate application specific requirements. Contact your Eaton representative to discuss the Eaton solution further.

Dimensions

Approximate Dimensions in mm

Mounting Instructions

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.

The unit will accommodate 1.5 to 3 mm panel thickness.

Mounting Dimensions

