

MR16out-S3 PROCESSOR

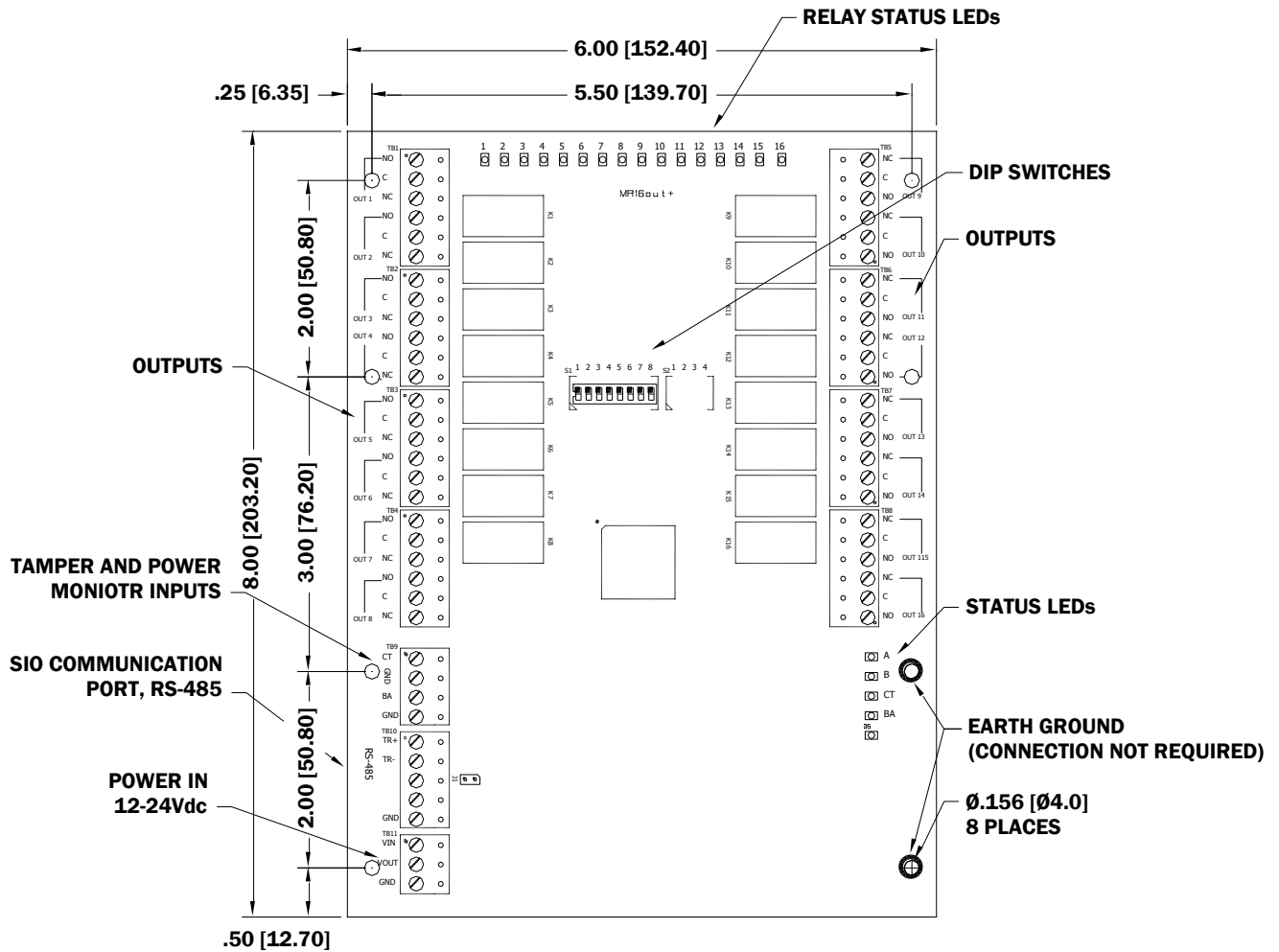
Series 3

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Installation and Specifications:

1. General:

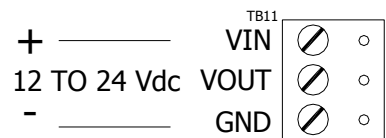
The MR16out-S3 processor provides a solution to the OEM system integrator for output control. The controller has 16 form-C contact relays for load switching. Additionally, two digital inputs are provided for tamper and power fault status monitoring. The processor requires 12 to 24 Vdc for power.



MR16out-S3 Layout

2. Supplying Power to the MR16out-S3:

The MR16out-S3 requires 12 to 24 Vdc for power on TB11. Locate power source as close to the unit as possible. Connect power with minimum of 18 AWG wires.



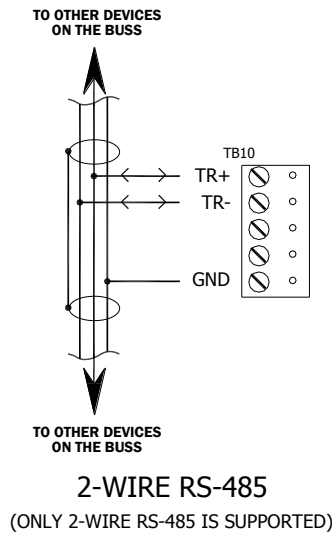
Observe POLARITY on VIN!

The VOUT terminal on TB11 is the same as VIN.

3. Communication Wiring:

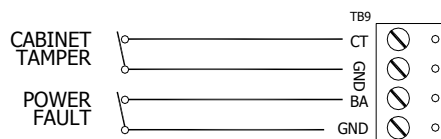
The MR16out-S3 communicates to a controller via a 2-wire RS-485 interface. The interface allows multi-drop communication on a single bus of up to 4,000 feet (1,200 m). Use twisted pair (minimum 24 AWG) with shield for the communication line. See specifications section.

Only install the RS-485 termination jumper on the interface boards at each end of the communication bus . See section 6 for information on the RS-485 termination jumper.



4. Inputs for Cabinet Tamper/Power Fault:

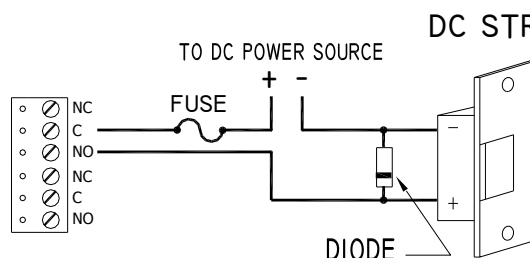
Input CT and input BA are used for monitoring cabinet tamper and power failure with normally closed contacts. These two inputs are for contact closure monitoring only, and do not use EOL resistor(s). If these inputs are not used, install a short piece of wire at the input to indicate a safe condition.



5. Output Relay Wiring:

The MR16out-S3 provides sixteen Form-C contact relays for controlling door strikes or other devices. Load switching can cause abnormal contact wear and premature contact failure. Switching of inductive loads (strike) also causes EMI (electromagnetic interference) which may interfere with normal operation of other equipment. To minimize premature contact failure and to increase system reliability, use the following contact protection circuit. Locate the protection circuit as close to the load as possible (within 12 inches [30 cm]), as the effectiveness of the circuit will decrease if it is located further away.

Use sufficiently large gauge of wires for the load current as to avoid voltage loss.



DC STRIKE DIODE SELECTION:

Diode current rating > 1x strike current
 Diode break down voltage: 4x strike voltage
 For 12 Vdc or 24 Vdc strike, diode 1N4002 (100V /1A) typical

6. DIP Switch and Jumper Usage:

Switches 1 through 5 select the device address. Switches 6 and 7 select the communication baud rate. Switch 8 enables encrypted communication. All other configuration settings are set via host software.

S8	S7	S6	S5	S4	S3	S2	S1	SELECTION
			OFF	OFF	OFF	OFF	OFF	Address 0
			OFF	OFF	OFF	OFF	ON	Address 1
			OFF	OFF	OFF	ON	OFF	Address 2
			OFF	OFF	OFF	ON	ON	Address 3
			OFF	OFF	ON	OFF	OFF	Address 4
			OFF	OFF	ON	OFF	ON	Address 5
			OFF	OFF	ON	ON	OFF	Address 6
			OFF	OFF	ON	ON	ON	Address 7
			OFF	ON	OFF	OFF	OFF	Address 8
			OFF	ON	OFF	OFF	ON	Address 9
			OFF	ON	OFF	ON	OFF	Address 10
			OFF	ON	OFF	ON	ON	Address 11
			OFF	ON	ON	OFF	OFF	Address 12
			OFF	ON	ON	OFF	ON	Address 13
			OFF	ON	ON	ON	OFF	Address 14
			OFF	ON	ON	ON	ON	Address 15
			ON	OFF	OFF	OFF	OFF	Address 16
			ON	OFF	OFF	OFF	ON	Address 17
			ON	OFF	OFF	ON	OFF	Address 18
			ON	OFF	OFF	ON	ON	Address 19
			ON	OFF	ON	OFF	OFF	Address 20
			ON	OFF	ON	OFF	ON	Address 21
			ON	OFF	ON	ON	OFF	Address 22
			ON	OFF	ON	ON	ON	Address 23
			ON	ON	OFF	OFF	OFF	Address 24
			ON	ON	OFF	OFF	ON	Address 25
			ON	ON	OFF	ON	OFF	Address 26
			ON	ON	ON	OFF	OFF	Address 27
			ON	ON	ON	OFF	ON	Address 28
			ON	ON	ON	ON	OFF	Address 29
			ON	ON	ON	ON	ON	Address 30
			ON	ON	ON	ON	ON	Address 31
	OFF	OFF						115,200 BPS
	OFF	ON						9,600 BPS
	ON	OFF						19,200 BPS
	ON	ON						38,400 BPS
OFF								Encrypted communication not required See note 2 below.
ON								Encrypted communication required See note 2 below.

Jumper:

JUMPER	DESCRIPTION
J1	RS-485 termination, install only on first and last unit on the communication bus

All other jumpers are for factory use only

7. Status LEDs:

Power-up: All LED's OFF

Initialization: Once power is applied, initialization of the module begins

When initialization is completed, LEDs A, B, CT, and BA are briefly sequenced **ON** then **OFF**.

Run time: After the above sequence, the LEDs have the following meanings:

A LED: Heartbeat and On-Line Status:

Off-line: 1 sec rate, 20% **ON**

On-line:

Non-encrypted communication: 1 sec rate, 80% **ON**

Encrypted communication:

.1 sec **ON**, .1 sec **OFF**, .1 sec **ON**, .1 sec **OFF**, .1 sec **ON**, .1 sec **OFF**, .1 sec **ON**, .3 sec **OFF**

A LED Error Indication:

Waiting for application firmware to be downloaded: .1 sec **ON**, .1 sec **OFF**.

B LED: SIO Communication Port Status:

Indicates communication activity on the SIO communication port

CT: Cabinet Tamper

BA: Power Fault

LED 1 through 16: Illuminates when output relay OUT 1 (K1), OUT 2 (K2) is energized and so on.

8. Specifications:

Revision D assembly:

The MR16out-S3 is for use in low voltage, class 2 circuits only.

Primary Power: 12 to 24 Vdc \pm 10%, 1100 mA maximum

Output Relays: Sixteen Form-C relays with dry contacts:
Normally open contact (NO) contact: 5 A @ 30 Vdc resistive
Normally closed contact (NC) contact: 3 A @ 30 Vdc resistive

Inputs: 2 unsupervised, dedicated for cabinet tamper and UPS fault monitoring

Communication: RS-485, 2-wire. 9600, 19200, 38400, or 115200 bps

Cable requirements:

Power: 1 twisted pair, 18 AWG

RS-485: 1 twisted pair, shielded, 24 AWG, 120 ohm impedance, 4,000 feet (1,200 m) maximum

Inputs: 1 twisted pair, 30 ohms maximum

Outputs: As required for the load

Mechanical:

Dimension: 6" (152 mm) W x 8" (203 mm) L x 1" (25 mm) H

Weight: 14 oz. (400 g) nominal

Environmental:

Temperature: -55°C to +85°C, storage
0°C to +70°C, operating

Humidity: 5% to 95% RHNC

UL294, 6th edition Performance Levels:

<u>Feature</u>	<u>Level</u>
Standby Power	I
Endurance	IV
Line Security	I
Destructive Attack	I

Warranty

Mercury Security warrants the product is free from defects in material and workmanship under normal use and service with proper maintenance for one year from the date of factory shipment. Mercury Security assumes no responsibility for products damaged by improper handling or installation. This warranty is limited to the repair or replacement of the defective unit.

There are no expressed warranties other than set forth herein. Mercury Security does not make, nor intends, nor does it authorize any agent or representative to make any other warranties, or implied warranties, and expressly excludes and disclaims all implied warranties of merchantability or fitness for a particular purpose.

Returns must be accompanied by a Return Material Authorization (RMA) number obtained from customer service, and prepaid postage and insurance.

Liability

The Interface should only be used to control exits from areas where an alternative method for exit is available. This product is not intended for, nor is rated for operation in life-critical control applications. Mercury Security is not liable under any circumstances for loss or damage caused by or partially caused by the misapplication or malfunction of the product. Mercury Security's liability does not extend beyond the purchase price of the product.