

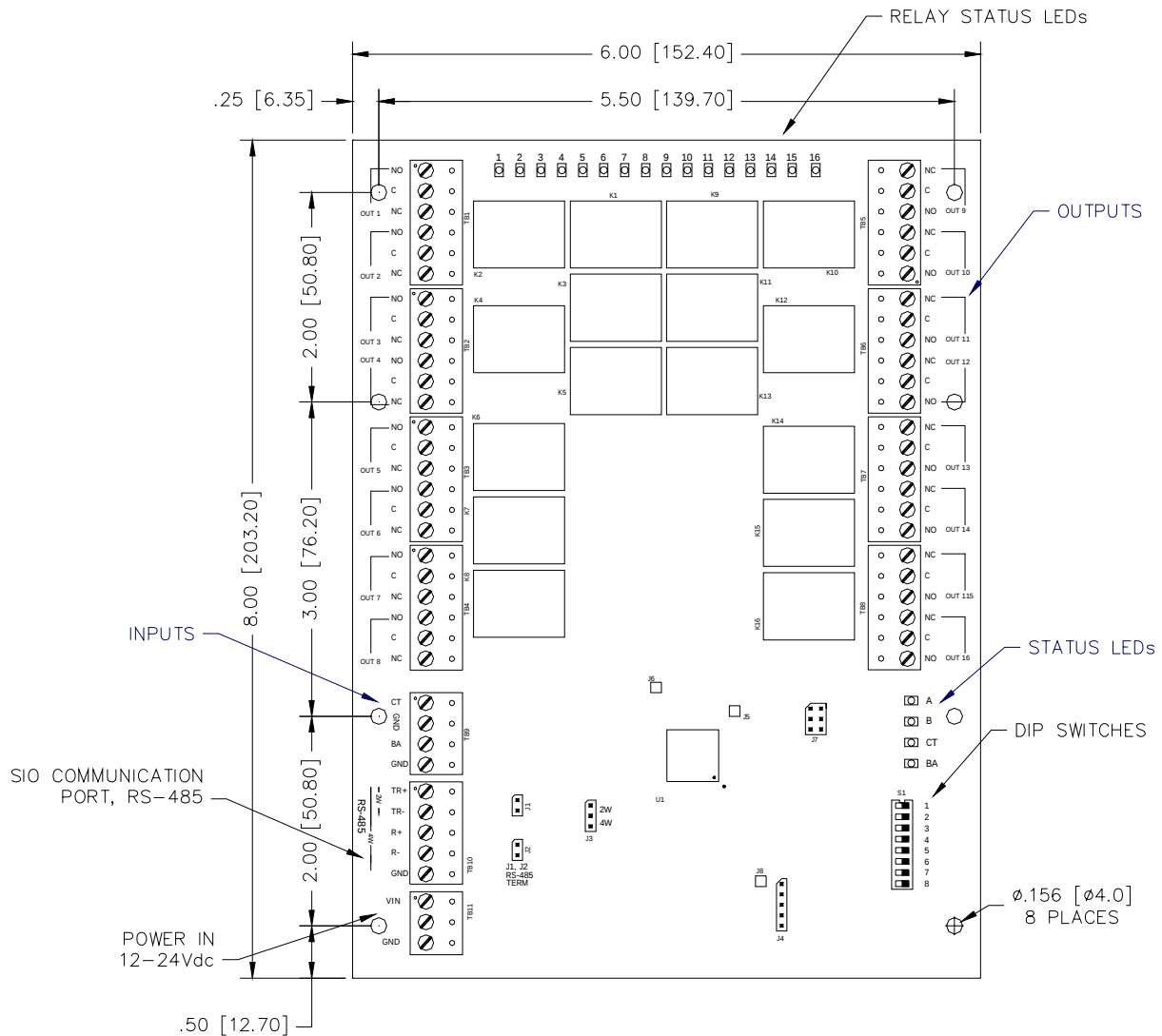
## MR16out Processor

## Installation and Specifications

## 1. General:

The MR16out processor provides a solution to the OEM system integrator for output control. The controller has 16 form-C contact relays for load switching. Additionally, 2 digital inputs are provided for tamper and power fault status monitoring. The processor requires 12 to 24Vdc for power.

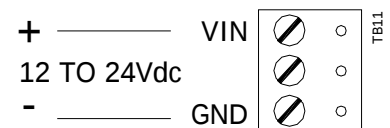
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



## 2. Supplying Power to the MR16out:

The MR16out accepts 12 to 24Vdc for power. Locate power source as closed to the unit as possible. Connect power with minimum of 18AWG wires.

**Observe POLARITY on VIN!**



Information subject to change without notice.

Install the following jumpers for the RS-485 interface according to the selected configuration:



| Signal         | CT | GND | BA | GND | TP3 |
|----------------|----|-----|----|-----|-----|
| CABINET TAMPER |    |     |    |     |     |
| POWER FAULT    |    |     |    |     |     |

The following diagram shows a typical use of the relay. A DC power source is recommended whenever possible. Transient clamping must be provided to protect the contacts and to reduce EMI emission. Use sufficiently large wires for the load current to avoid voltage loss.



DIODE CURRENT RATING  $> 1 \times$  STRIKE CURRENT  
DIODE BREAK DOWN VOLTAGE:  $4 \times$  STRIKE VOLTAGE  
FOR 12Vdc or 24Vdc STRIKE, DIODE 1N4002 (100V /1A)  
TYPICAL

**MOV SELECTION:**

CLAMP VOLTAGE > 1.5 X Vac RMS  
FOR 24Vac STRIKE, PANASONIC ERZ-C07DK470  
TYPICAL

## 6. DIP Switch and Jumper Usage:

Switches 1 to 5 select the devices communication address. Switches 6 to 7 select the communication baud rate. Communication on the RS-485 serial port is asynchronous, half-duplex with 1 start bit, 8 data bits and 1 stop bit.

| 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  | OFF | ON  | ON  | Address 27 |
|     |     |     | ON  | ON  | ON  | OFF | OFF | Address 28 |
|     |     |     | ON  | ON  | ON  | OFF | ON  | Address 29 |
|     |     |     | ON  | ON  | ON  | ON  | OFF | Address 30 |
|     |     |     | ON  | ON  | ON  | ON  | ON  | Address 31 |
|     | OFF | OFF |     |     |     |     |     | 2,400 BPS  |
|     | OFF | ON  |     |     |     |     |     | 9,600 BPS  |
|     | ON  | OFF |     |     |     |     |     | 19,200 BPS |
|     | ON  | ON  |     |     |     |     |     | 38,400 BPS |
| OFF |     |     |     |     |     |     |     | Not Used   |

| JUMPER | DESCRIPTION                                              |
|--------|----------------------------------------------------------|
| J1     | RS-485 TERMINATION, INSTALL IN FIRST AND LAST UNITS ONLY |
| J2     | FACTORY USE ONLY                                         |
| J3     | 2-WIRE/4-WIRE SELECT, INSTALL IN 2W POSITION ONLY        |
| J4     | FACTORY USE ONLY                                         |
| J5     | FACTORY USE ONLY                                         |
| J6     | FACTORY USE ONLY                                         |
| J7     | FACTORY USE ONLY                                         |
| J8     | FACTORY USE ONLY                                         |

## 7. Status LEDs:

**Power-up:** All LED's **OFF**.

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

The A LED is turned on at the beginning of initialization. If the application program cannot be run, the A LED will flash at a rapid rate. The MR16out is waiting for firmware to be down loaded.

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 second rate, 20% ON

On-line: 1 second rate, 80% ON

**B LED:** SIO Communication Port Status:

Indicates communication activity on the SIO communication port

**CT:** Cabinet Tamper

**BA:** Power Fault

Input in the inactive state: **OFF (briefly flashes ON every 3 seconds)**

Input in the active state: **ON (briefly flashes OFF every 3 seconds)**

**LED 1 through 16:** Illuminates when output relay OUT 1 (K1) through OUT 16 (K16) is energized.

## 8. Specifications:

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

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

12Vdc @ 850mA nominal

24Vdc @ 450mA nominal

Relay contacts: 16 Form-C, 5A @ 28Vdc, resistive

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

Communication: RS-485, 2-wire. 2400, 9600, 19200 or 38400bps

Cable requirements:

Power: 1 twisted pair, 18 AWG

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

Inputs: 1 twisted pair, 30 ohms maximum

Outputs: As required for the load

Mechanical:

Dimension: 6" (152mm)W x 8" (203mm)L x 1" (25.4mm)H

Weight: 14 oz. ( 400 gm) nominal

Environmental:

Temperature: -55°C to +85°C, storage

0°C, to +70°C, operating

Humidity: 0% to 95% RHNC

## Warranty

Mercury Security Corporation 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 Corporation 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 Corporation 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.

Returned units are repaired or replaced from a stock of reconditioned units. Returns must be accompanied by a return authorization number (RMA) 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 Corporation 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 Corporation's liability does not extend beyond the purchase price of the product.