File No. LR90200-34

RM-2 and RM-2AC

Resource Module — Converts Solid-State Outputs to Force-Guided Relay Outputs

- Converts the solid-state safety and auxiliary outputs of one STI safety device to electro-mechanical force-guided safety relay outputs
- Available for DC or AC input power
- Provides connection points for all safety device functions including MPCE monitoring and 24 VDC power
- Compatible with STI's MS4600, OF4600-50, and PA4600 products
- CE approved
- 100 and 150 mm (AC) DIN enclosures
- Removable terminal blocks

Description

The RM-2 and RM-2AC are resource modules in a DIN configuration that provides power for safety devices with solid state outputs and converts the outputs of those devices to force-guided relay outputs. Two NO safety relay outputs and two NC auxiliary relay outputs are provided. These force-guided safety relays can be used as the machine primary control element (MPCE) depending on the load rating of the device being switched by the relay contacts. Please refer to the specifications section for output switching capabilities. Additionally, the RM-2 amd RM-2AC serves as a central point for terminating all signals to and from a solid-state safety device including MPCE monitoring. Removable terminal blocks facilitate installation and servicing.

A Go to the Engineering Guide
For in-depth information on safety standards and use.

USA Tel. 1/888/510-4357
Canada Tel. 1/800/221-7060
UK Tel. +44 (0) 1395-273-209
Europe Tel. +49 (0) 5258-938-776
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Specifications

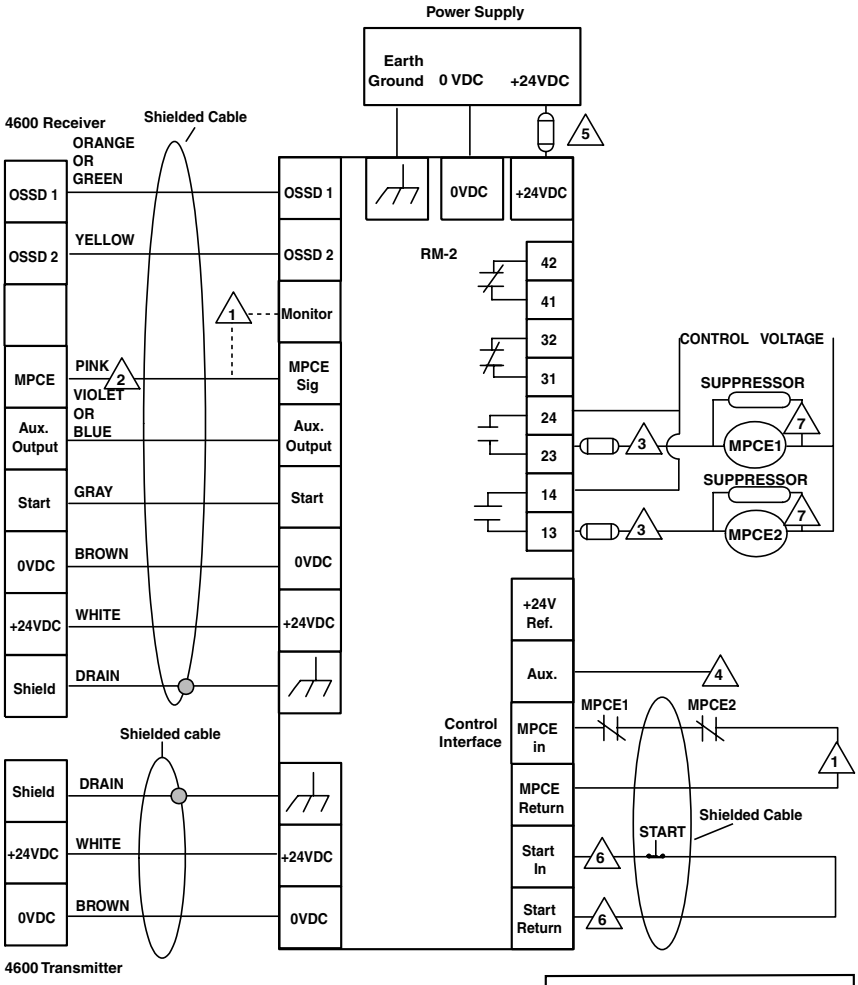
Performance
Response Time: 10 ms NO, 20 ms NC
Indicators: 3 green LEDs: power, safety output 1, safety output 2
Electrical
Input Power: RM-2 – 24 VDC, 19 VA; RM-2AC – 100 to 240 VAC, 50 VA
Safety Outputs: RM-2 – Two NO force-guided contacts rated 250 VAC, 6A; RM-2AC – One NO and one NO/NC force-guided contacts rated 250 VAC, 6 A
Auxiliary (Non-Safety) Outputs: RM-2 – Two NC rated 250 VAC 3 A; RM-2AC – One NO/NC rated 250 VAC 3 A
MPCE Monitor or EDM: The safety output of the RM unit may be monitored by the light curtain
Cable Connections/ Terminal Blocks: 2 rows of removable terminal blocks, 14 AWG max. wire
Environmental
Enclosure Rating: IP20
Operating Temperature: 0 to 55°C (32 to 131°F)
Relative Humidity: 95% maximum, non-condensing
Conformity/ Approvals
Conformity to Standards: CE approved and conforms to IEC 61496-1, IEC 61508, EN 954-1, EN 60204-1, EN 50178, and Type 4* safety category. UL listed.
Mechanical
Enclosure: Polycarbonate
Mounting: 35 mm (1.38 in.) DIN rail or screw
Dimensions: RM-2: 100 mm W x 75 mm H x 110 mm D (3.94 in. W x 2.95 in. H x 4.33 in. D) RM-2AC: 150 mm W x 75 mm H x 110 mm D (5.91 in. W x 2.95 in. H x 4.33 in. D)

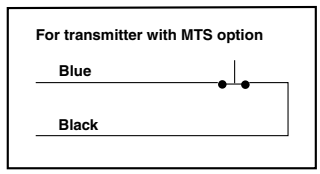
* When used with an STI Type 4 safety light curtain.
Specifications are subject to change without notice.

Wiring

Connecting a 4600 Series Safety Light Curtain Via an RM-2 Module

The STI RM-2 module provides force-guided relay outputs for machine control as well as a convenient location to terminate all outputs and inputs from the MS4600.





1. MPCE monitoring must be used when using the RM2. If the RM2 is the Final Switching Device connect the Pink wire to the MONITOR terminal of the RM2. If force-guided control relays are used as Final Switching Devices connect the Pink wire to the MPCE Sig. terminal. Then connect a set of N.C. contacts from MPCE1 and MPCE2 to the MPCE in and MPCE return terminals. (Do not connect both.)
2. For testing prior to installation, the user may select MPCE OFF (default factory setting). In this case the MPCE line (pink wire) must be connected to the system 0 VDC line.
3. User-supplied over current protection, 6 A max.
4. Auxilary output-connect to PLC (optional).
5. User-supplied fuse.
6. If remote start is not used, install a jumper across the Start connections at the Control Interface terminals.
7. Verify that the final switching devices are properly suppressed.

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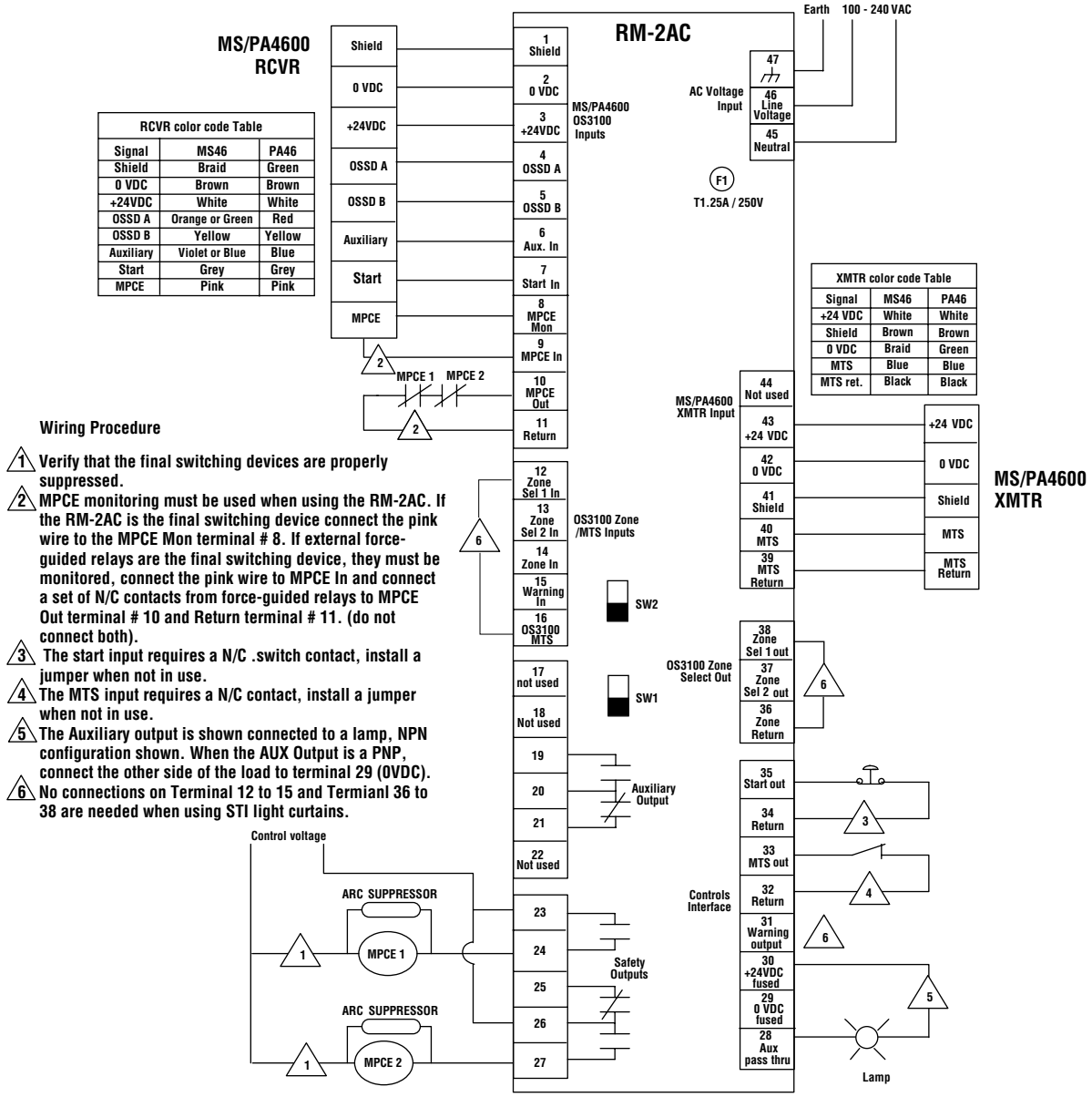
Connecting a MS/PA4600 Via an RM-2AC Module



RCVR color code Table		
Signal	MS46	PA46
Shield	Braid	Green
0 VDC	Brown	Brown
+24VDC	White	White
OSSD A	Orange or Green	Red
OSSD B	Yellow	Yellow
Auxiliary	Violet or Blue	Blue
Start	Grey	Grey
MPCE	Pink	Pink

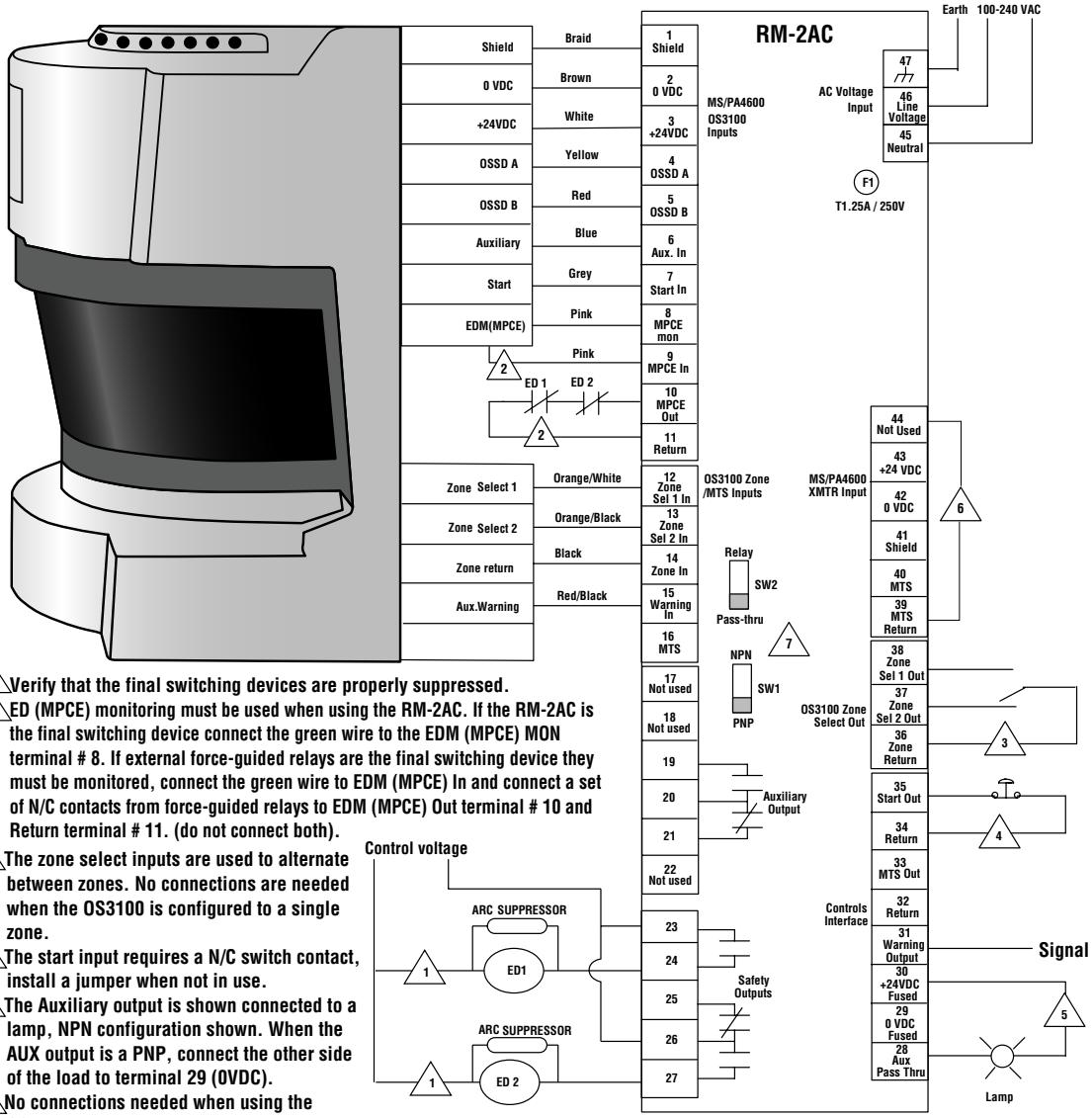
XMTR color code Table		
Signal	MS46	PA46
+24 VDC	White	White
Shield	Brown	Brown
0 VDC	Braid	Green
MTS	Blue	Blue
MTS ret.	Black	Black

Wiring Procedure

1. Verify that the final switching devices are properly suppressed.
2. MPCE monitoring must be used when using the RM-2AC. If the RM-2AC is the final switching device connect the pink wire to the MPCE Mon terminal # 8. If external force-guided relays are the final switching device, they must be monitored, connect the pink wire to MPCE In and connect a set of N/C contacts from force-guided relays to MPCE Out terminal # 10 and Return terminal # 11. (do not connect both).
3. The start input requires a N/C .switch contact, install a jumper when not in use.
4. The MTS input requires a N/C contact, install a jumper when not in use.
5. The Auxiliary output is shown connected to a lamp, NPN configuration shown. When the AUX Output is a PNP, connect the other side of the load to terminal 29 (0VDC).
6. No connections on Terminal 12 to 15 and Termianl 36 to 38 are needed when using STI light curtains.

■ *Wiring (continued)*

Connecting the OptoShield OS3100 Via an RM-2AC Module



1. Verify that the final switching devices are properly suppressed.
2. ED (MPCE) monitoring must be used when using the RM-2AC. If the RM-2AC is the final switching device connect the green wire to the EDM (MPCE) MON terminal # 8. If external force-guided relays are the final switching device they must be monitored, connect the green wire to EDM (MPCE) In and connect a set of N/C contacts from force-guided relays to EDM (MPCE) Out terminal # 10 and Return terminal # 11. (do not connect both).
3. The zone select inputs are used to alternate between zones. No connections are needed when the OS3100 is configured to a single zone.
4. The start input requires a N/C switch contact, install a jumper when not in use.
5. The Auxiliary output is shown connected to a lamp, NPN configuration shown. When the AUX output is a PNP, connect the other side of the load to terminal 29 (0VDC).
6. No connections needed when using the OS3100.
7. Auxiliary output configuration switches.

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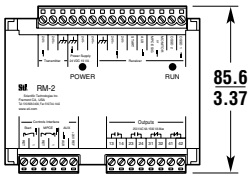
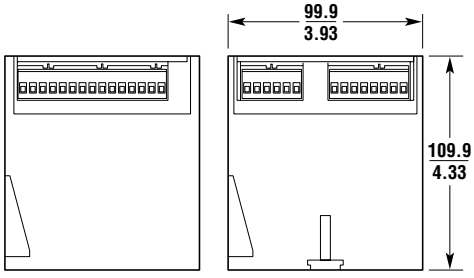
■ Dimensions—mm/in.

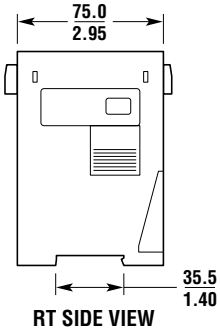
RM-2



TOP VIEW

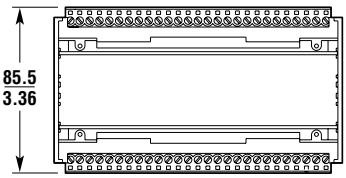


BACK VIEW FRONT VIEW

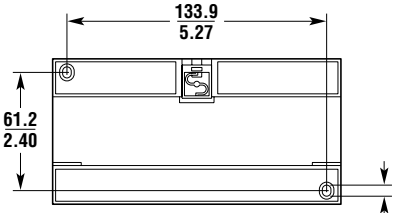


RT SIDE VIEW

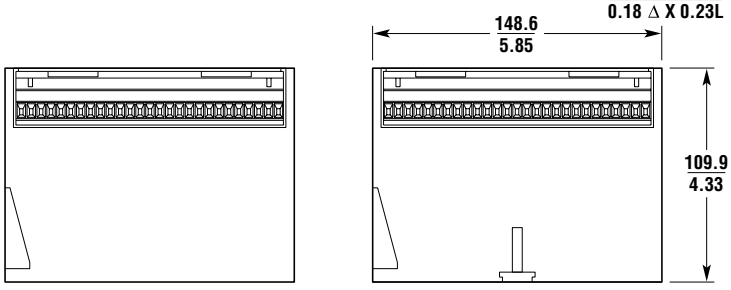
RM-2AC



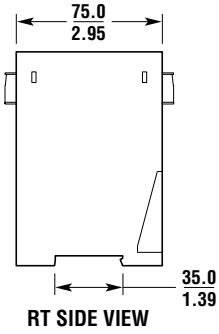
TOP VIEW



BOTTOM VIEW



BACK VIEW FRONT VIEW



RT SIDE VIEW

■ Ordering

The RM-2 is a resource module option for the MS4600, OF4600-50 and PA4600 with a 24 VDC input.

The RM-2AC may be used with the MS4600, OF4600-50 and PA4600. It operates on 100 to 240 VAC input voltage and provides 24 VDC operating voltage to the light curtain. In addition, the RM-2AC provides a centralized location for wire termination.

Model No.	Description
RM-2	Resource module, 24 VDC, DIN rail-mount, MS4600, OF4600-50, PA4600
RM-2AC	Resource module, 100 to 240 VAC, DIN rail-mount, MS4600, OF4600-50, PA4600 and OS3100.

For information on the MiniSafe MS4600, see page D30

For information on the OptoFence OF4600-50, see page D48

For information on the Perimeter Access Guarding Device PA4600, see page C34

For information on the OptoShield OS3100, see page B1

For information on STI safety light curtain accessories, see page D148