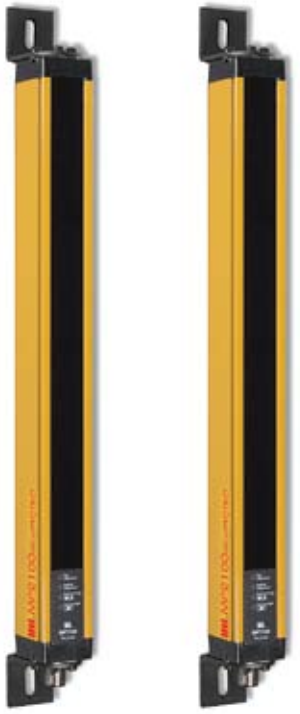


MiniProtect

Type II

MP2100

- Resolution: 30 mm (1.18 in.)
- Range: 15 m (49 ft.)
- Protective heights: 147 to 1470 mm (5.7 to 57.9 in.)
- Compact size — 31 x 32 mm (1.22 x 1.26 in.)
- Two-box design, no controller or connections between transmitter and receiver required
- LED indicators for status and diagnostics
- Two PNP safety outputs
- Choice of two operating modes: Automatic Start and Start/Re-Start Interlock (factory selectable only)
- Adjustable mounting brackets
- Quick-disconnect cables
- Type 2 ESPE per IEC 61496-1, -2

Options

- Relay outputs through an RM-1 or RM-X
- Muting through an RM-3 module

Description

The MiniProtect MP2100 protective light curtain provides reliable cost effective guarding. It is ideal for use on equipment where low risk has been assessed. The system consists of a transmitter, receiver and cables. The control circuitry is contained within the transmitter and receiver; a third control box is not required.

The MP2100's slim, compact design and adjustable mounting brackets allow for mounting in locations where space is at a premium.

Two solid-state safety outputs provide 500 mA at 24 VDC.

Two operating modes are available: Automatic Start for point of operation guarding and Start/Restart Interlock for perimeter guarding. (These modes are selected at time of order.)

The status indicators are a valuable tool for making installation a "snap". Two LEDs indicate top end and bottom end alignment while two other LEDs report the machine status.

High immunity to strobe or ambient light interference is assured through precise optics and its sophisticated electronics.

Type II
Type 2 vs. Type 4 Light Curtains
See the article "Type 2 vs. Type 4 Light Curtains" in the Engineering Section of this catalog.

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

OMRON SCIENTIFIC TECHNOLOGIES, INC.
USA Tel. 1/888/510-4357 **Canada** Tel. 1/866/986-6766

■ Specifications for Transmitter and Receiver

Performance
Protective Height: 147 to 1470 mm (5.7 to 57.9 in)
Operating Range: 0.3 to 15 m (1 to 49 ft.)
Minimum Object Resolution: 30 mm (1.18 in)
Response Time: See table at right
Effective Aperture Angle: ±5° per the requirements of IEC 61496-1, -2 for a Type 2 ESPE
Input Voltage (V_{in}): 24 VDC ± 20%
Input Power: 3.4 watts (without load on the outputs)
Safety Output Ratings: Two PNP outputs sourcing 500 mA max @ V_{in} (see note 1). Short circuit protected.
Power Supply: 24 VDC ± 20%. The rating depends on the current requirements of the loads attached to the outputs (see note 2). The power supply must meet the requirements of IEC 60204-1 and 61496-1. Omron STI part number 42992 or equivalent.
Start/Restart N.C. Input: 20 mA @ 24 VDC
Light Source: GaAlAs Light Emitting Diode, 880 nm
Mechanical
Cable Length Extension Cables: Available in lengths of 3, 10 and 30 m
Construction: Polyurethane powder-painted aluminum
Connections: M12 4-pole connector for transmitter; M12 5-pole connector for receiver
Environmental
Temperature 0 to 55°C (32 to 131°F)
Relative Humidity: 95% maximum, non-condensing
Enclosure Rating: IP65
Indicator Lights: Transmitter – Power applied, interlock; Receiver – Machine run, machine stop, top align, bottom align
Vibration: 10 to 55 Hz on all three axes
Shock: 10 g for 0.16 second; 1,000 shocks for each axis
Approvals
The MP2100 series has been EC type examined to the requirements of IEC 61496-1, -2 for a Type 2 ESPE. TUV, CSA and UL listed.

Specifications are subject to change without notice.

Note 1: Voltage available at the outputs is equal to V_{in} - 1.0 VDC.

Note 2: Total system current requirement is the sum of the transmitter 50 mA and receiver 1.09 A max. (Receiver 90 mA + OSSD1 load + OSSD2 load)

Model	Response Time
MP21Y-30-150	14 ms
MP21Y-30-300	15 ms
MP21Y-30-450	16 ms
MP21Y-30-600	17 ms
MP21Y-30-750	18 ms
MP21Y-30-900	19 ms
MP21Y-30-1050	20 ms
MP21Y-30-1200	22 ms
MP21Y-30-1350	23 ms
MP21Y-30-1500	24 ms

⚠ WARNING!

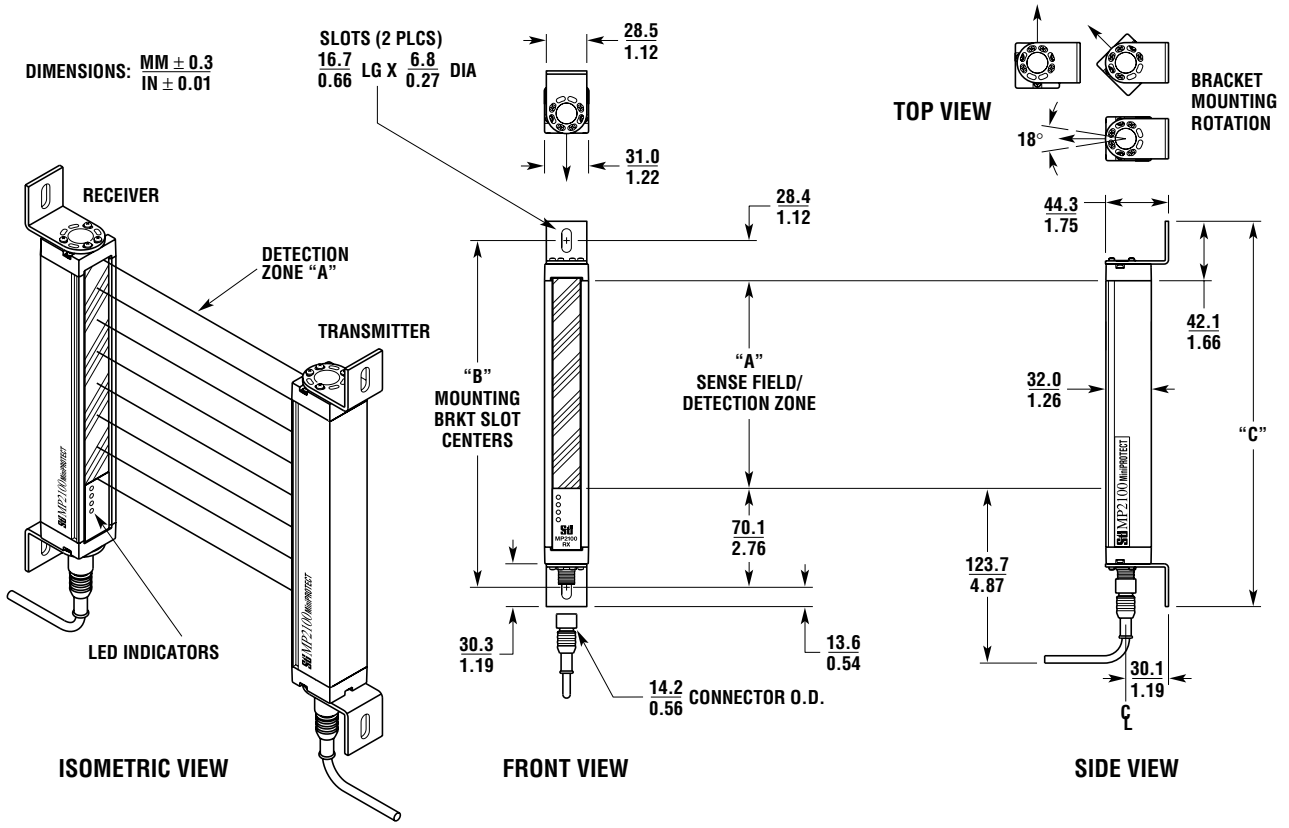
DO NOT use this Protective Light Curtain where a risk assessment has determined that *control reliability* is required, such as for hazardous machinery. Use only for equipment where the *worst-case* injury from an accident can be remedied by simple first aid, as determined by a thorough risk assessment.

DO NOT use unless the device is installed, tested, and inspected according to Omron STI's Installation Manual

This protective device meets the Type 2 requirements of IEC 61496. It DOES NOT meet U.S. OSHA 1910.217, ANSI B11, or ANSI/RIA R15.06 requirements.

If you are unsure of which model of light curtain to choose, contact Omron STI (1-888-510-4357, or www.sti.com). Failure to comply with this warning could result in serious injury or death.

■ Dimensions—mm/in.



Mini Protect MP2100 Dimensions

	150 mm	300 mm	450 mm	600 mm	750 mm
A mm/in.	147/5.8	294/11.6	441/17.4	588/23.2	735/28.9
B mm/in.	245/9.7	392/15.5	540/21.2	687/27.0	833/32.8
C mm/in.	272/10.8	419/16.5	566/22.3	713/28.1	860/33.9
System Shipping Weight					
kg/lb.	2.7/6.0	2.9/6.5	3.2/7.0	3.4/7.5	3.6/8.0

	900 mm	1050 mm	1200 mm	1350 mm	1500 mm
A mm/in.	882/34.7	1029/40.5	1176/46.3	1323/52.1	1470/57.9
B mm/in.	981/38.6	1128/44.4	1274/50.2	1421/56.0	1569/61.8
C mm/in.	1007/39.7	1154/45.5	1301/51.3	1448/57.1	1595/62.8
System Shipping Weight					
kg/lb.	3.9/8.5	4.1/9.0	4.3/9.5	4.5/10.0	4.8/10.5

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

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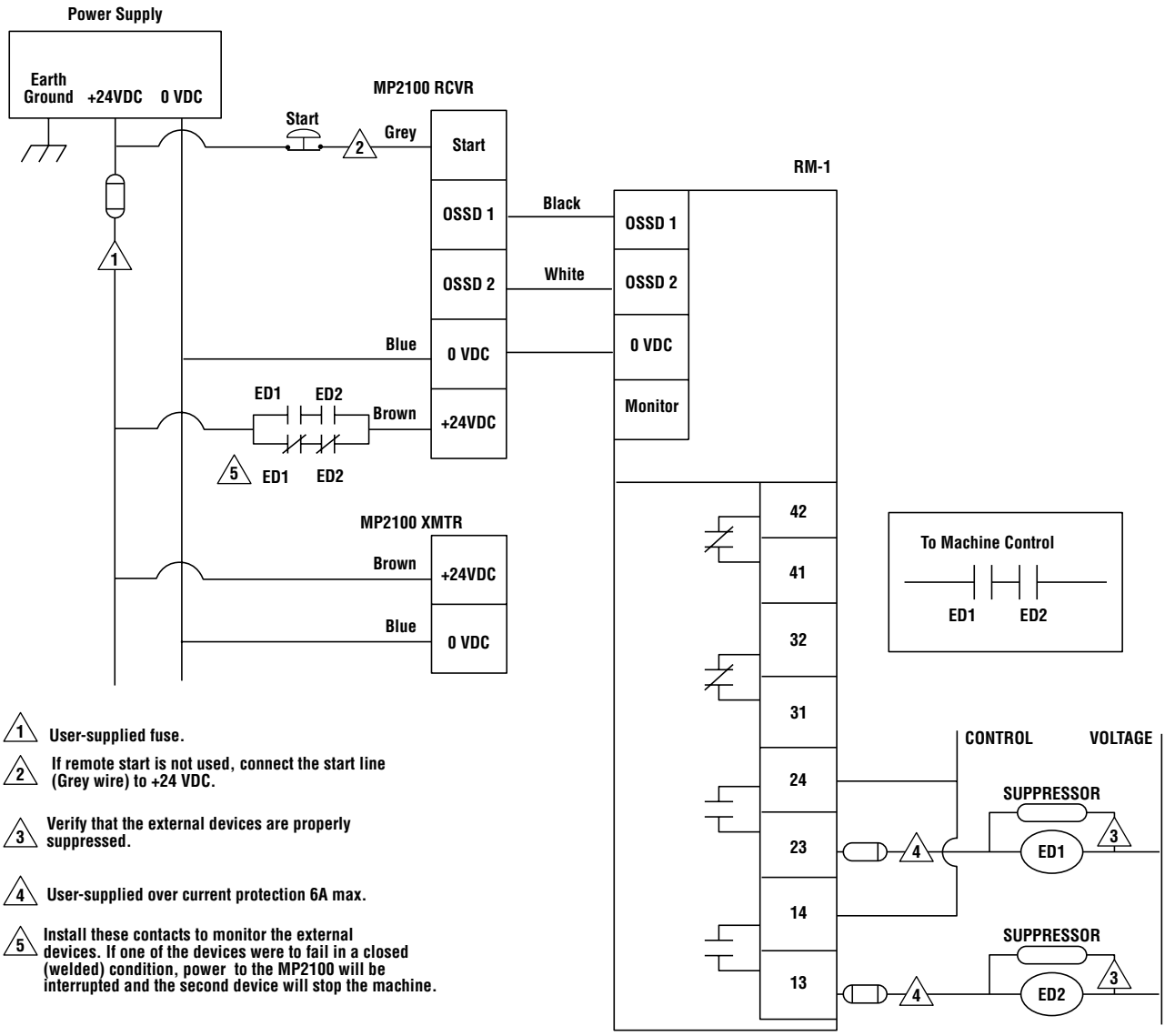
■ Wiring

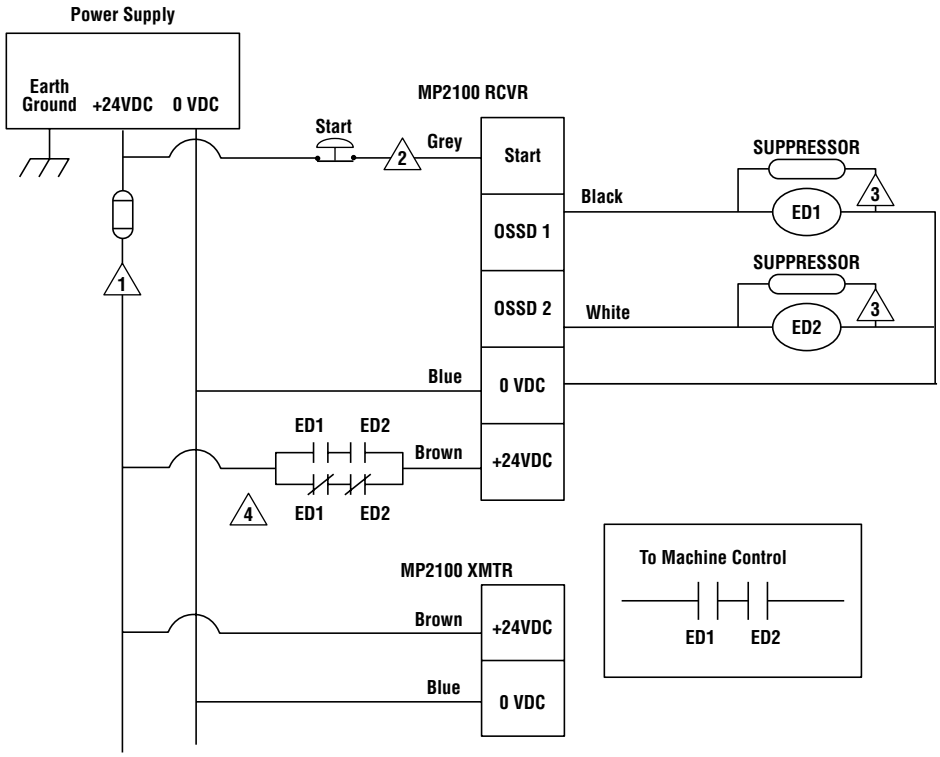
Connecting to Machine Control System Via RM-1 Module



1. User-supplied fuse.
2. If remote start is not used, connect the start line (Grey wire) to +24 VDC.
3. Verify that the external devices are properly suppressed.
4. User-supplied over current protection 6A max.
5. Install these contacts to monitor the external devices. If one of the devices were to fail in a closed (welded) condition, power to the MP2100 will be interrupted and the second device will stop the machine.

■ *Wiring (continued)*

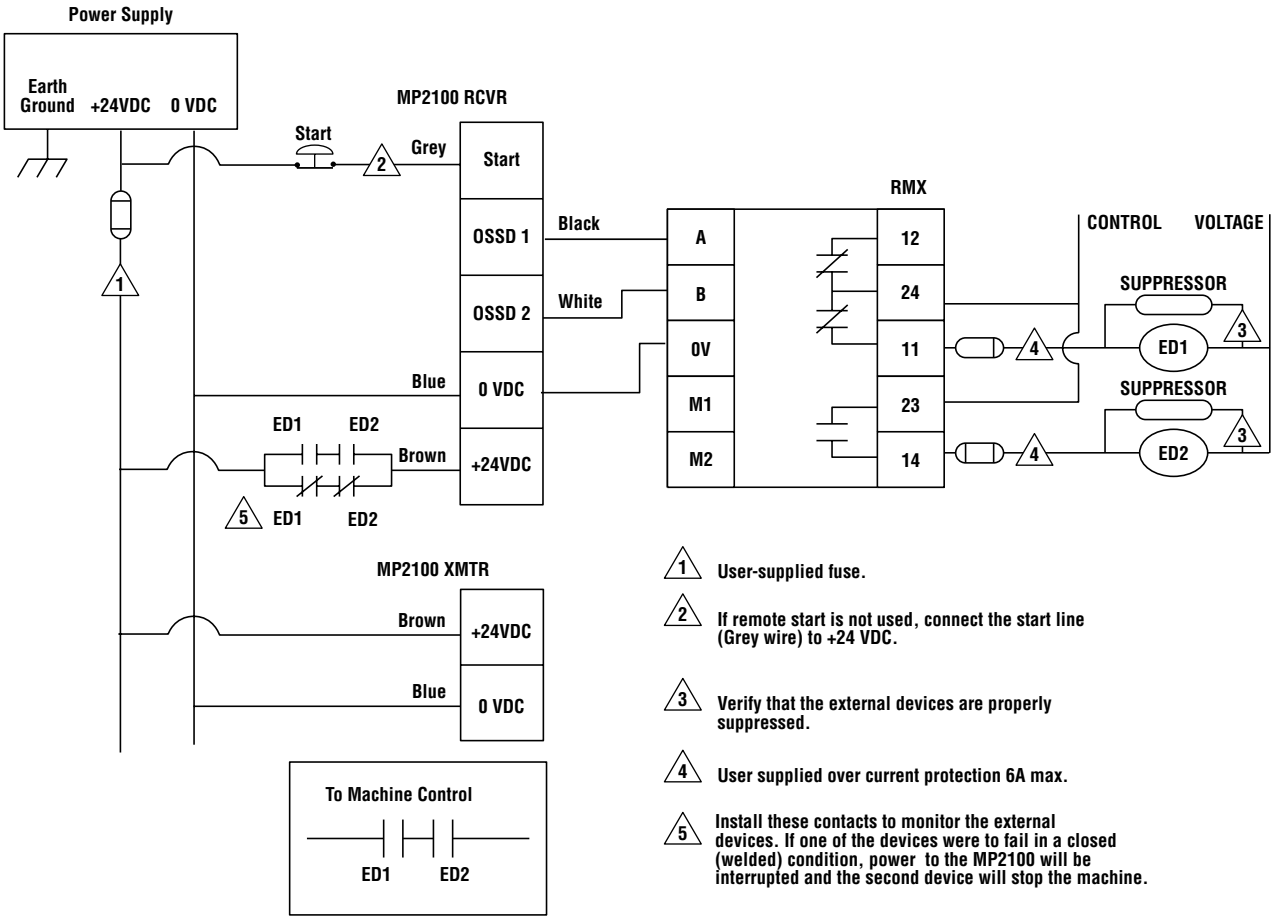
Connecting to Machine Control System Via Two Force-Guided Relays



1. User-supplied fuse.
2. If remote start is not used, connect the start line (Grey wire) to +24 VDC.
3. The external devices must be suppressed with the components provided in the Documentation Kit.
4. Install these contacts to monitor the external devices. If one of the devices were to fail in a closed (welded) condition, power to the MP2100 will be interrupted and the second device will stop the machine.

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

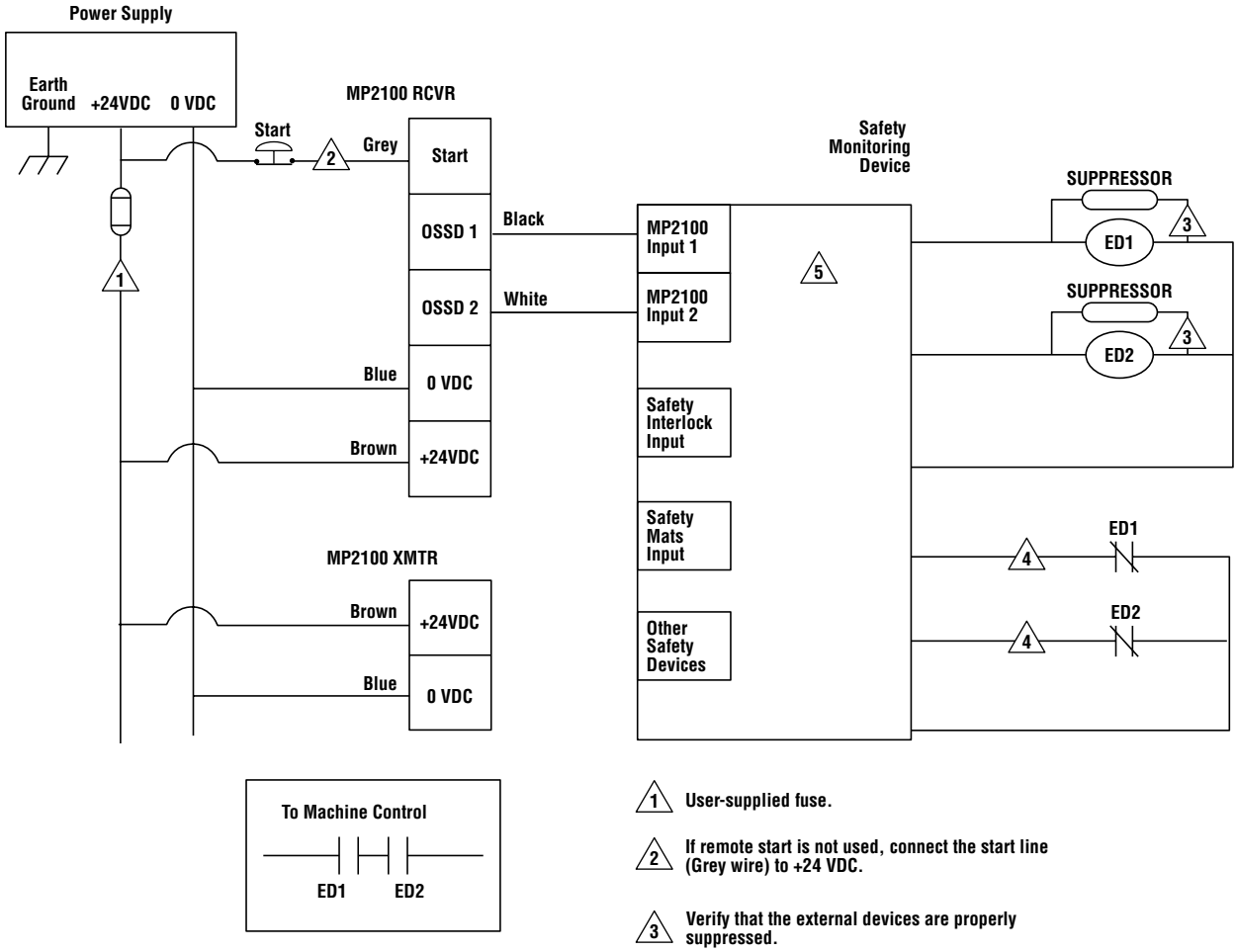
Connecting to Machine Control System Via RM-X Module



1. User-supplied fuse.
2. If remote start is not used, connect the start line (Grey wire) to +24 VDC.
3. Verify that the external devices are properly suppressed.
4. User supplied over current protection 6A max.
5. Install these contacts to monitor the external devices. If one of the devices were to fail in a closed (welded) condition, power to the MP2100 will be interrupted and the second device will stop the machine.

■ *Wiring (continued)*

Connecting to Machine Control System Via Safety Monitoring Device



1. User-supplied fuse.
2. If remote start is not used, connect the start line (Grey wire) to +24 VDC.
3. Verify that the external devices are properly suppressed.
4. The Safety Monitoring Device can be configured to monitor the external devices Normally Closed Contacts.
5. The use of a Safety Monitoring Device does NOT increase the safety level of the MP2100. The MP2100 is a Type 2 ESPE per IEC 61496-1, -2.

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

Ordering

To order a MiniProtect MP2100 system, simply fill in the fields in the model number sequence given below.

____ - 30 - ____ - ____
❶ ❷ ❸

Example: MP21Y-30-300-AS

This MP2100 standard system has a 30 mm (1.18 in.) minimum object resolution, a 294 mm (11.6 in.) coverage height, and an automatic start operating mode. The transmitter and receiver cables are sold separately (see below).

❶ Information required. Represents the system type.

Designator	Description
MP21Y	Standard system

❷ Information required. Represents the coverage height of the detection zone.

Designator	Coverage Height
150	147 mm (5.8 in.)
300	294 mm (11.6 in.)
450	441 mm (17.4 in.)
600	588 mm (23.2 in.)
750	735 mm (28.9 in.)
900	882 mm (34.7 in.)
1050	1029 mm (40.5 in.)
1200	1176 mm (46.3 in.)
1350	1323 mm (52.1 in.)
1500	1470 mm (57.9 in.)

❸ Information required. Represents the operating mode

Designator	Description
AS	Automatic Start
RS	Start/Restart Interlock

Note: This feature is only factory configured.

Accessories (Order Separately)

Transmitter Cables	Part Number
3 m (9.8 ft.)	60660-0030
10 m (32.8 ft.)	60660-0100
30 m (98.5 ft.)	60660-0300
Receiver Cables	
3 m (9.8 ft.)	60661-0030
10 m (32.8 ft.)	60661-0100
30 m (98.5 ft.)	60661-0300
Resource Modules and Force-Guided Relays	
The MP2100 is compatible with the following products: the RM-1, RM-3, and RM-X resource modules, and the FGR Series relays	

For information on safety light curtain accessories, see page D184

For information on Resource Modules, see page D138

For information on Force-Guided Relays, see pages D5

Safety Standards and Precautions

DO NOT use this Protective Light Curtain where a risk assessment has determined that control reliability is required, such as for hazardous machinery. Use only for equipment where the worst-case injury from an accident can be remedied by simple first aid, as determined by a thorough risk assessment.

DO NOT use unless the device is installed, tested, and inspected according to Omron STI's Installation Manual

This protective device meets the Type 2 requirements of IEC 61496. It DOES NOT meet U.S. OSHA 1910.217, ANSI B11, or ANSI/RIA R15.06 requirements.

If you are unsure of which model of light curtain to choose, contact Omron STI (1-888-510-4357, or www.sti.com). Failure to comply with this warning could result in serious injury or death.

The MiniProtect MP2100 should only be used on machinery that can consistently and immediately stop anywhere in its cycle or stroke. Never use a MiniProtect MP2100 on a full revolution clutched power press or machine. If the light curtain does not protect all access to the point of operation, the unprotected access must be guarded by other appropriate devices such as mechanical guards.

The purchaser, installer and employer have the responsibility to meet all local, state and federal government laws, rules, codes or regulations relating to the proper use, installation, operation and maintenance of this control and the guarded machine. See the Installation and Operation Manual for additional information.

All application examples described are for illustration purposes only. Actual installations will differ from those indicated.