

MiniSafe®

MS4400

- 25.4 mm (1.0 in.) resolution
- 30.5 m (100 ft.) range
- Protected heights from 102 to 1626 mm (4 to 64 in.)
- Individual Beam Indicator lights covered by U.S. and international patents
- Compact size—57 x 47 mm (2.25 x 1.8 in.)
- Status indicator lights
- Quick-disconnect cables
- Adjustable mounting brackets
- Highly immune to electromagnetic interference, strobe or ambient light interference and welding flash
- Versions available for darkroom applications—consult factory

■ Operation

A MiniSafe® MS4400 system consists of an identical length transmitter and receiver, combined with an STI Universal or DuoSafe Controller and appropriate interconnecting cables.

For easier alignment, MS4400 receivers feature STI's patented Individual Beam Indicator lights which allow the MiniSafe to be used with mirrors on larger machines and for guarding moderate-length perimeters.

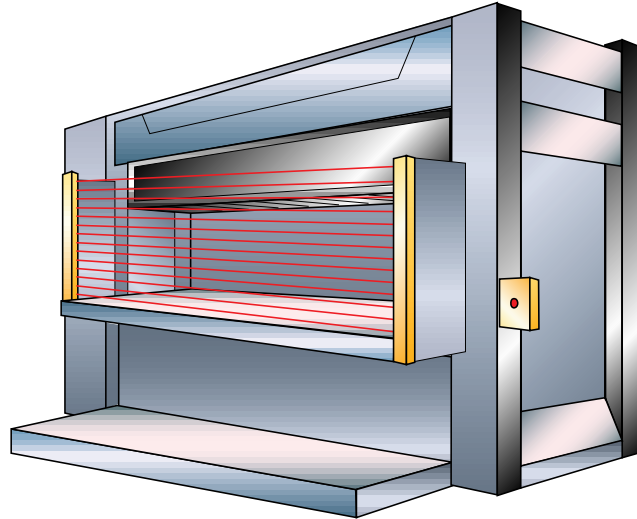
■ Applicable Controllers

MiniSafe MS4400 transmitters and receivers can be used with the Universal Controller or combined with other STI safety light curtain components and a DuoSafe controller as part of a system to guard more than one opening or machine.

■ Applications

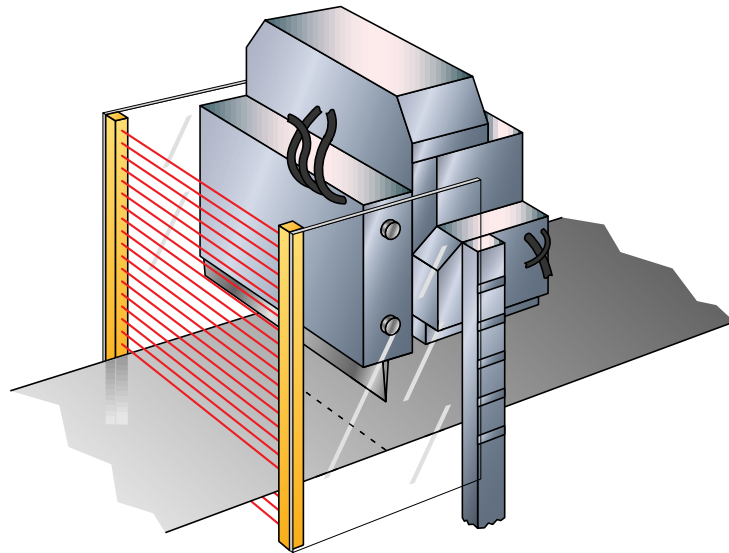
Press Brake

A light curtain must ignore material as piece parts move during the down stroke of a press brake. The MiniSafe MS4400, with the Universal Controller, can be programmed to disregard an object less than 51 mm (2.0 in.) thick anywhere in the sensing area during the non-hazardous motion of the press brake. For large press brakes, such as those used in the ship building industry, a light curtain may also be installed horizontally to accommodate the material.



Sheet Metal Shear

MS4400 allows access for material, setup and die changing as well as safety on shears in general i.e. paper, plastic... The use of floating blanking or channel select accommodates the web moving through the light curtain detection zone.



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

■ Specifications for Transmitter and Receiver

Performance	
Protected Height:	102 to 1626 mm (4 to 64 in.) in 102 mm (4 in.) increments
Operating Range:	0.30 to 30.5 m (1 to 100 ft.)
Resolution:	25.4 mm (1.0 in.) Use of Exact Channel Select and/or Floating Blanking may increase this value.
Effective Aperture Angle:	±2.5° transmitter and receiver
Light Source:	880 nm LED
Light Source Life:	100,000 hours
Indicators:	Beam blocked, beam clear, interlock, individual beam
Mechanical	
Enclosure:	Polyurethane powder-painted aluminum
Cable Length:	Transmitter – 4.6 m (15 ft.) standard, 30.5 m (100 ft.) maximum; 15.2 m (50 ft.) standard width with DIN-style controller Receiver – 1.5 m (5 ft.) standard, 15.2 m (50 ft.) maximum; 15.2 m (50 ft.) standard width with DIN-style controller
Cable Connections:	Circular, weather-tight disconnects
Environmental	
Protection Rating:	IP65; NEMA 4, 12
Operating Temperature:	0 to 55°C (32 to 131°F)
Relative Humidity:	95% maximum, non-condensing
Vibration:	Tested in accordance with UL991 vibration specification, Section 20, at 5 G peak vibration level, frequency range 5–60 Hz in 3 axes
Shock:	Tested to withstand shock resulting from a 3 foot-pound impact detailed in UL991, Section 21
Conformity/Approvals (when combined with an STI Universal or DuoSafe controller)	
Conforming to Standards:	ANSI/RIA R15.06-1999, ANSI B11.19-2003, OSHA 1910.217(c), OSHA 1910.212
Other Approvals:	CSA-CUS Certified (file no. LR90200)

Specifications are subject to change without notice.



For specifications on the
Universal Controller, see www.sti.com



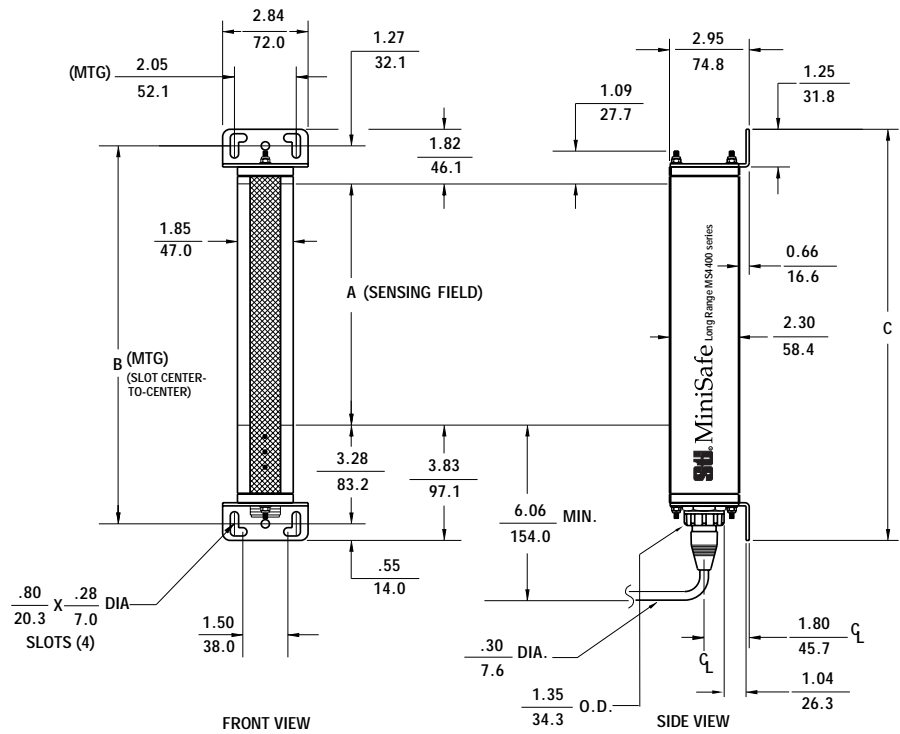
For specifications on the
DuoSafe Controller, see www.sti.com

D

safety light curtains

■ Dimensions—in./mm

D
safety light curtains



 This drawing is available in CAD format at www.sti.com/curtains/MS4400/

 For dimensions on the Universal Controller, see www.sti.com

 For dimensions on the DuoSafe Controller, see www.sti.com

MiniSafe MS4400 Dimensions

DIM	MS4404	MS4408	MS4412	MS4416	MS4420	MS4424	MS4428	MS4432
A in./mm	4.0/102	8/203	12/305	16/406	20/508	24/607	28/711	32/813
B in./mm	8.54/217	12.54/319	16.54/420	20.54/522	24.54/623	28.54/725	32.54/827	36.54/928
C in./mm	9.64/245	13.64/346	17.64/448	21.64/550	25.64/651	29.64/753	33.64/854	37.64/956
System Shipping Weight								
lb./kg	21/9.5	22/10	22/10	23/10.4	25/11.3	26/11.8	27/12.2	28/12.7

DIM	MS4436	MS4440	MS4444	MS4448	MS4452	MS4456	MS4460	MS4464
A in./mm	36/914	40/1016	44/1118	48/1219	52/1321	56/1422	60/1524	64/1626
B in./mm	40.54/1030	44.54/1131	48.54/1233	52.54/1335	56.54/1436	60.54/1538	64.54/1639	68.54/1741
C in./mm	41.64/1058	45.64/1159	49.64/1261	53.64/1362	57.64/1464	61.64/1566	65.64/1667	69.64/1769
System Shipping Weight								
lb./kg	29/13.2	31/14	31/14	33/15	35/15.9	35/15.9	37/16.8	39/17.7

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■ Ordering

To order a MiniSafe MS4400C system with a Universal Controller, simply fill in the fields in the model number sequence given below. Each field is numbered and information on completing a specific field can be found in the sections which follow. Information is required in all fields.

 For specifications and dimensions on the Universal Controller, see www.sti.com

 To order a MiniSafe MS4400 as part of a DuoSafe system, see www.sti.com

MS44_____ - _____ X-_____ R
① ② ③ ④

Example: MS4424C-AC1-50X-15R

This system has a 610 mm (24 in.) coverage height, Floating Blank-ing/Guard Mode controller, 115 VAC input power, 16.2 m (50 ft.) transmitter cable and a 4.6 m (15 ft.) receiver cable.

① Represents the coverage height of the light curtain in inches. Designators are described below:

Designator	Coverage Height
04	102 mm (4 in.)
08	203 mm (8 in.)
12	305 mm (12 in.)
16	406 mm (16 in.)
20	508 mm (20 in.)
24	610 mm (24 in.)
28	711 mm (28 in.)
32	813 mm (32 in.)
36	914 mm (36 in.)
40	1016 mm (40 in.)
44	1118 mm (44 in.)
48	1219 mm (48 in.)
52	1321 mm (52 in.)
56	1422 mm (56 in.)
60	1524 mm (60 in.)
64	1626 mm (64 in.)

② Represents Controller Style and Power Input.

Designator	Description
C-AC1	NEMA 4, 12 enclosure, 115 VAC
C-AC2	NEMA 4, 12 enclosure, 230 VAC
C-DC1	NEMA 4, 12 enclosure, 24 VDC negative ground
C-DC2	NEMA 4, 12 enclosure, 24 VDC positive or negative ground
C-DN-DC1	DIN mount enclosure, 24 VDC negative ground

To specify a controller with lid-mounted Run/Start key switch, begin designator with CK- rather than C-. Available only on NEMA enclosure.

③ Represents transmitter (X) and receiver (R) cable length.

The standard cable lengths supplied with a NEMA 4, 12 enclosure controller are a 4.6 m (15 ft.) transmitter and a 1.5 m (5 ft.) receiver. Cables are available in 5-foot increments from 5 to 100 feet (1.5 to 30 meters) for

the transmitter and 5 to 50 feet (1.5 to 15 meters) for the receiver.

The standard cable lengths supplied with a DIN mount enclosure controller are 9.1 m (30 ft.) on both the transmitter and receiver. Cables are available as listed below. The maximum transmitter cable length is 30.5 m (100 ft.). The maximum receiver cable length is 15.2 m (50 ft.).

For NEMA 4, 12; IP65 Enclosure

Designator	Description
05	1.5 m (5 ft.) cable
10	3.0 m (10 ft.) cable
15	4.6 m (15 ft.) cable
20	6.1 m (20 ft.) cable
25	7.6 m (25 ft.) cable
30	9.1 m (30 ft.) cable
35	10.7 m (35 ft.) cable
40	12.2 m (40 ft.) cable
45	13.7 m (45 ft.) cable
50	15.2 m (50 ft.) cable
55	16.8 m (55 ft.) cable
60	18.3 m (60 ft.) cable
65	19.8 m (65 ft.) cable
70	21.3 m (70 ft.) cable
75	22.9 m (75 ft.) cable
80	24.4 m (80 ft.) cable
85	25.9 m (85 ft.) cable
90	27.4 m (90 ft.) cable
95	29.0 m (95 ft.) cable
100	30.5 m (100 ft.) cable

For DIN-Mount Enclosure

Designator	Description
30	9.1 m (30 ft.) cable
75	22.9 m (75 ft.) cable
100	30.5 m (100 ft.) cable

 For information on STI safety light curtain accessories, see www.sti.com

Safety Standards and Precautions

The MiniSafe meets ANSI/RIA R15.06-1999, ANSI B11.19-2003, Ford Motor Company EL-4 and the following applicable OSHA standards. When used with mechanical power presses, OSHA standard 1910.217(c) applies. For other applications, the machine requirements of section 1910.212 apply. When combined with an STI Universal or DuoSafe Controller, the MiniSafe meets B11.19-1990 standards, including control reliability requirements for point-of-operation presence sensing devices, and complies with CSA and UL508 standards.

Only use the MiniSafe on machinery that stops consistently and immediately anywhere in its cycle or stroke. Never use a MiniSafe on a full-revolution clutched press or machine. Access to the point of operation or hazardous machine area not protected by the MiniSafe must be guarded by fencing, barriers or other appropriate methods.

The purchaser, installer and employer are responsible for meeting 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 Installation and Operation Manual for additional information.

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

Perimeter Guarding Special Requirements

For perimeter guarding installations, the guarded machine or robot controller must be wired so that any stop signal generated by the light curtain will cause an immediate stop of the hazardous motion. The machine or robot must only be restarted by actuation of a manual reset switch. This reset switch must be located outside the area of hazardous motion and positioned so that the hazardous area can be observed by the switch operator. This is intended to prevent a machine from automatically restarting once an obstruction is no longer detected by the sensing field of the light curtain.



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For in-depth information on safety standards and use.

