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Rev. 9.02



MicroSafe®

MC4200E

- Ultra-compact transmitter and receiver—25.4 x 32 mm (1 x 1.25 in.)
- 20 mm (0.8 in.) resolution
- 7 m (23.3 ft.) range
- Protected heights from 203 to 1219 mm (8 to 48 in.)
- Individual Beam Indicator Lights covered by U.S. and international patents
- In-line Connector Cables
- Adjustable Mounting Brackets
- Replaceable Protective Filters
- Highly immune to electromagnetic interference, strobe or ambient light interference and welding flash.
- Guard Mode
- MPCE Monitoring
- Machine Test Signal
- Diagnostic Indicators

Option

- Low ESD models available. Consult factory.

C US
File No. LR90200

Description

The MicroSafe consists of an identical length transmitter and receiver, combined with an STI E or E-DN Series controller and appropriate interconnecting cables. The ultra-compact transmitter and receiver dimensions allow the MicroSafe to be mounted on small automatic assembly machines and in other applications where space is at a premium. The in-line connector cables allow the mounting of transmitter and receiver in crowded locations where a standard connector would not fit. The controller end of the cable is not terminated, which allows the length to be easily shortened in the field. Protective filters can be replaced in the field using simple tools.

For easy alignment, the MicroSafe features STI's patented Individual Beam Indicator lights.

Applicable Controllers

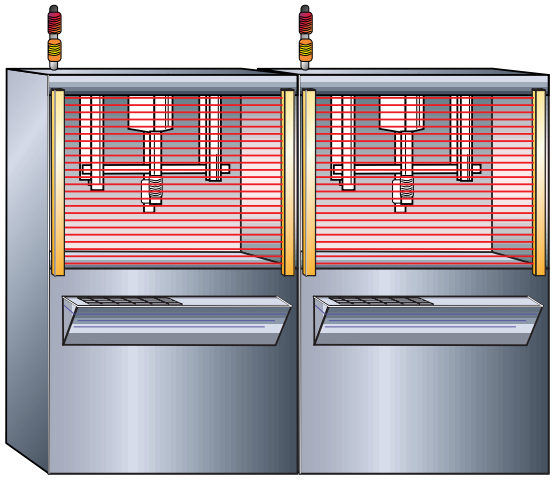
When combined with the E Series controller and associated cables, MicroSafe MC4200 series transmitters and receivers complete a safety light curtain system which has been EC type examined to the requirements of category 4, EN 954-1 (type 4, IEC 61496). BIA certificate number 961280.

The E-DN series controller was designed in accordance with the requirements of IEC 61496. Approvals are in process.

■ Applications

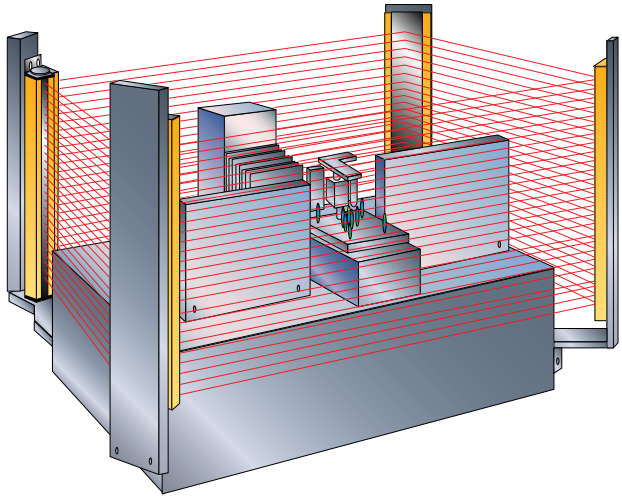
Load Station Guarding

Two STI MicroSafes protect separate operator load positions. The small, unobtrusive transmitter and receiver units do not interfere with movement of the operator or material.



Automated Production Machine

Due to its small dimensions, the MicroSafe can be elegantly integrated into table-top automated production equipment. Its in-line connector cables allow it to be mounted in tight, confined spaces. Since cable length can be shortened in the field, it is easy for OEM equipment builders to achieve a custom, built-in look.



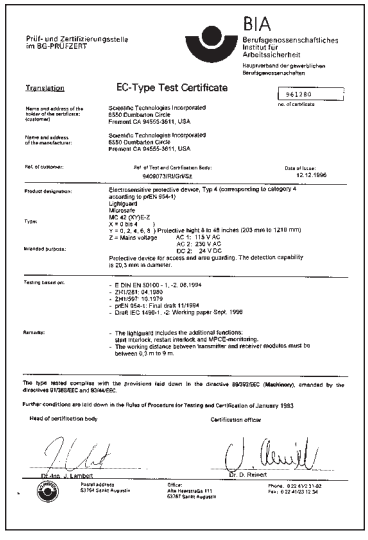
A Go to the Engineering Guide
For in-depth information on safety standards and use.

■ *Specifications for Transmitter and Receiver*

Performance
Protected Height: 203 to 1219 mm (8 to 48 in.) in 102 mm (4 in.) increments
Operating Range: 0.30 to 7 m (1 to 23.3 ft.)
Resolution: 20.3 mm (0.80 in.)
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 – 10 m (32.8 ft.) standard; longer cable lengths available
Receiver – 10 m (32.8 ft.) standard; longer cable lengths available
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: 5–60 Hz maximum on all 3 axes
Shock: 10 g for 0.016 seconds; 1,000 shocks for each axes on two axes
Conformity/Approvals (when combined with an STI E Series controller)
Conforming to Standards: ANSI/RIA R15.06-1999, ANSI B11.19-2003, OSHA 1910.217(c), OSHA 1910.212
Other Approvals: All controllers have CSA-CUS acceptance. When used with an E Series controller, the system has been EC type examined to the requirements of category 4, EN 954-1 (type 4, IEC1496). BIA certificate number 961280.

Specifications are subject to change without notice.

For specifications on the E and E-DN Series Controller, see www.sti.com



Prüf- und Zertifizierungsstelle im BG-PRÜFZERT

BIA
Berufsgenossenschaftliches Institut für Arbeitssicherheit

Translation

EC-Type Test Certificate

961280
No. of certificate

Name and address of the holder of the certificate: (customer)
Scientific Technologies Incorporated
6550 Dumbarton Circle
Fremont CA 94555-3611, USA

Name and address of the manufacturer:
Scientific Technologies Incorporated
6550 Dumbarton Circle
Fremont CA 94555-3611, USA

Ref. of customer:

Ref. of Test and Certification Body:
9408073/R1G/W0z

Date of issue:
12.12.1996

Product designation:
Electrosensitive protective device, Typ 4 (corresponding to category 4 according to prEN 954-1)
Lightguard
Microsafe

Type:
MC 42 (XY1E-Z
X = 0 bis 4
Y = 0, 2, 4, 6, 8) Protective height 8 to 48 inches (203 mm to 1219 mm)
Z = Mains voltage
AC 1: 115 V AC
AC 2: 230 V AC
DC 2: 24 V DC

Intended purpose:
Protective device for access and area guarding. The detection capability is 20,3 mm in diameter.

Testing based on:
- E DIN EN 50100 - 1, -2, 06.1994
- ZH1/281.04.1989
- ZH1/597.10.1979
- prEN 954-1: Final draft 11/1994
- Draft IEC 1496-1, -2: Working paper Sept. 1996

Remarks:
- The lightguard includes the additional functions: start interlock, restart interlock and MPCE-monitoring.
- The working distance between transmitter and receiver modules must be between 0,3 m to 9 m.

The type tested examples with the provisions laid down in the directive 89/392/EEC (Machinery), amended by the directives 91/368/EEC and 93/44/EEC

Further conditions are laid down in the Rules of Procedure for Testing and Certification of January 1983

Head of certification body
Certification officer

Dr. D. Reinert

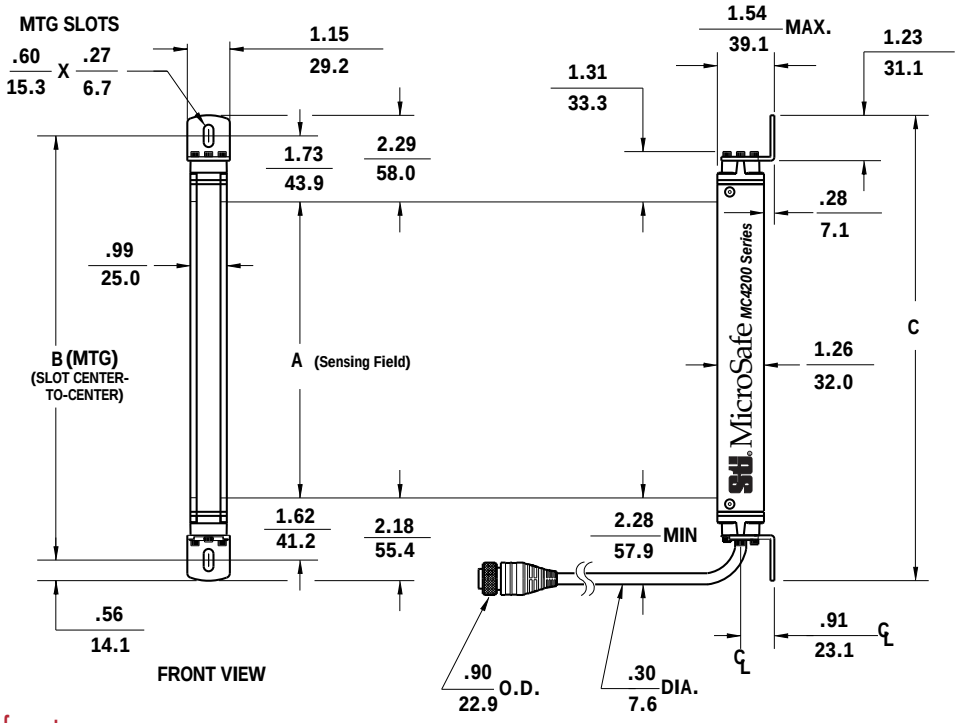
Postal address
53754 Sankt Augustin

Office
Alte Heerstraße 111
53757 Sankt Augustin

Phone 0 22 41/ 31-02
Fax 0 22 41/ 03 12 34

To receive a copy of this certificate and the STI Declaration of Conformity, call our information faxback system at 1/916/431-6544 and request document 910.

■ Dimensions—in./mm



This drawing is available in CAD format at www.sti.com/curtains/MC4200E/

For dimensions on the E and E-DN Series Controller, see www.sti.com

MicroSafe MC4200E Dimensions

DIM	MC4208	MC4212	MC4216	MC4220	MC4224
A in./mm	8/203	12/305	16/406	20/508	24/607
B in./mm	11.35/288	15.35/390	19.35/492	23.35/593	27.35/695
C in./mm	12.47/317	16.47/418	20.47/520	24.47/622	28.47/723
System Shipping Weight					
lb./kg	17/7.7	18/8.2	18/8.2	18/8.2	19/8.6

DIM	MC4228	MC4232	MC4236	MC4240	MC4244	MC4248
A in./mm	28/711	32/813	36/914	40/1016	44/1118	48/1219
B in./mm	31.35/797	35.35/898	39.35/1000	43.35/1101	47.35/1203	51.35/1304
C in./mm	32.47/825	36.47/926	40.47/1028	44.47/1130	48.47/1231	52.47/1333
System Shipping Weight						
lb./kg	19/8.6	20/9.1	20/9.1	20/9.1	21/9.5	22/10

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

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Europe Tel. +49 (0) 5258-938-776
Japan Tel. +81-466-22-1132
China Tel. +86-21-5836-7708
Singapore Tel. +65-648-44-001
For the Latest Information
On the Internet: **www.sti.com**
E-mail: **sales@sti.com**

Ordering

To order a MicroSafe system with an E or E-DN series 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.

NOTE: The feature set for this controller includes MPCE monitoring, Machine Test Signal, Diagnostic Indicators, Selectable Guard Mode, Monitoring Relay, Remote Start, Key Switch Control, and Lockable Enclosure. Exact Channel Select, Floating Blanking and Mute are not available with this controller.

For specifications and dimensions on the E and E-DN Series Controllers, see www.sti.com

MC42 ____ ____ - ____ - ____ X- ___ R
❶ ❷ ❸ ❹ ❹

Example: MC4224E-1-AC1-U-25X-10R

This system has a 610 mm (24 in.) coverage height, E series controller, 115 VAC input power, English language documentation, 25 m (82 ft.) transmitter cable and a 10 m (32.8 ft.) receiver cable.

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

Designator	Coverage Height
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 inches (in.)
48	1219 mm (48 in.)

❷ Represents Controller style and Input Power. Designators are given below. The E series controller is used to construct a system with a CE mark. Approvals are in process for the E-DN controller.

Designator	Description
E-1-AC1	Metal controller enclosure, 115 VAC operation
E-1-AC2	Metal controller enclosure, 230 VAC operation
E-1-DC2	Metal controller enclosure, 24 VDC, isolated, positive or negative ground
E-DN-1-DC1	DIN mount controller enclosure, 24 VDC, negative ground

❸ Represents documentation language. Designators are described below.

Designator	Description
U	Documentation in English
D	Documentation in German
E	Documentation in Spanish
F	Documentation in French
I	Documentation in Italian

❹ Represents transmitter (X) and receiver (R) cable length. The standard cable length supplied with a MicroSafe system is 10 m (32.8 ft.). Cables of 25 m (82 ft.) are optional.

Designator	Description
10	10 m (32.8 ft.) cable
25	25 m (82 ft.) cable

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

Safety Standards and Precautions

All models of the MicroSafe meet ANSI/RIA R15.06-1999, ANSI B11.19-2003. When used with mechanical power presses, OSHA industrial safety standards apply, as stated in 1910.217(c). For other applications, the machine guarding requirements found in section 1910.212 apply. The MicroSafe meets ANSI control reliability requirements for point-of-operation presence sensing devices. All controllers have CSA-CUS acceptance and are designed to meet UL508.

MicroSafe systems employing E series controllers have been EC type examined to the requirements of category 4, EN 954-1 (type 4, IEC 61496). BIA certificate number 961280.

The MicroSafe should only be used on machinery that can consistently and immediately stop anywhere in its cycle or stroke. Never use a MicroSafe 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.

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