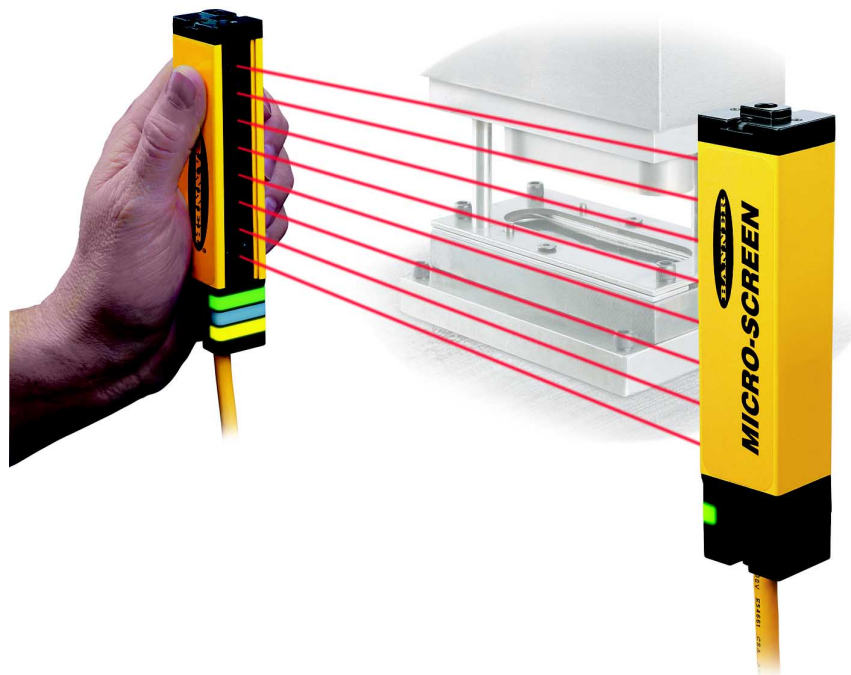


## MICRO-SCREEN® Machine safety light curtain 19 mm ODC

- Safety light curtain type 4 according to IEC 61496-1, -2 and DIN EN 61496-1, -2
- 10 cm to 122 cm array height, 25 mm x 32 mm emitter/receiver cross section
- 19 mm Object Detection Capability
- 9 m emitter/receiver range
- Highly immune to RFI, ambient light, and strobe light
- EMI according to EN 60947-5-2 annex ZA
- Self-checking every 20 ms
- FMEA tested to ensure control reliability
- Declaration of Conformity EC
- Emergency stop input



The Banner MICRO-SCREEN® is a micro-processor controlled opposed mode optoelectronic “curtain of light”. It is designed for use as a point-of-operation guarding device, and is especially suited to smaller production machinery.

Banner’s microprocessor-based circuit establishes a high level of control reliability in machine guard design. The MICRO-SCREEN System uses the design concept of “diverse redundancy”, in which two microprocessors of different design, running from two different instruction sets, constantly check all system components, including each other.

Banner MICRO-SCREEN Systems are extensively FMEA (Failure Mode and Effects Analysis) tested to establish an extremely high degree of confidence that no system component will ever, even if it does fail, cause a *failure to danger*.

In typical operation, if any part of an operator’s body enters the guarded area of the

machine, the output relays of the MICRO-SCREEN System will open. The contacts of the output relays are connected to the guarded machine’s primary control elements (MPCEs) which immediately stop the motion of the guarded machine. The output relays have forced-guided contacts for enhanced control reliability.

The Banner MICRO-SCREEN is a modular machine guard system. Each system is made up of a USE Series emitter, a USR Series receiver, and a control box. The control box can be either a DIN-rail-mountable box or a heavy-duty wall-mountable box in welded steel.

Emitters have a row of synchronized modulated infrared LEDs in a compact housing. Receivers have a corresponding row of synchronized phototransistors. Emitters and receivers are available in 12 lengths from 10 cm to 122 cm.

Control boxes and receivers have LED indicators for system operating status,

alignment and diagnostics. Each receiver has three sets of status LEDs (front and both sides) for high visibility. Emitters have Power ON indicators. Control boxes can be easily configured for floating blanking and automatic power-up.

Control boxes with optional exact blanking, latch functions and/or multiple output relays are available.

The components of a MICRO-SCREEN System may be purchased separately, or they may be purchased bundled together in kit form. A kit contains one control box, one emitter, one receiver, and 2 shielded cables.

The emitter and the receiver are delivered with swivel mounting brackets for easy alignment.

Optional accessories include corner mirrors and stands of several lengths. Lens shields and protective stands are other available accessories.

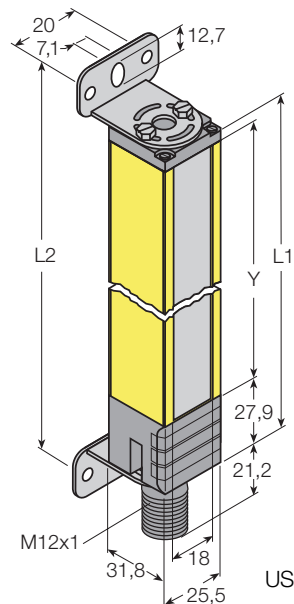
# MICRO-SCREEN®

## Machine safety light curtain

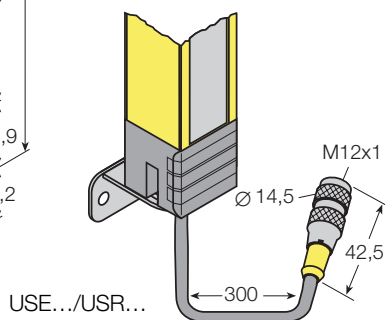
### 19 mm ODC

#### Dimensions [mm]

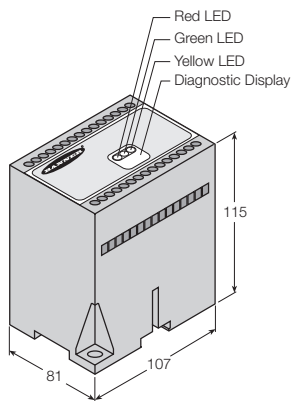
##### ● Connector



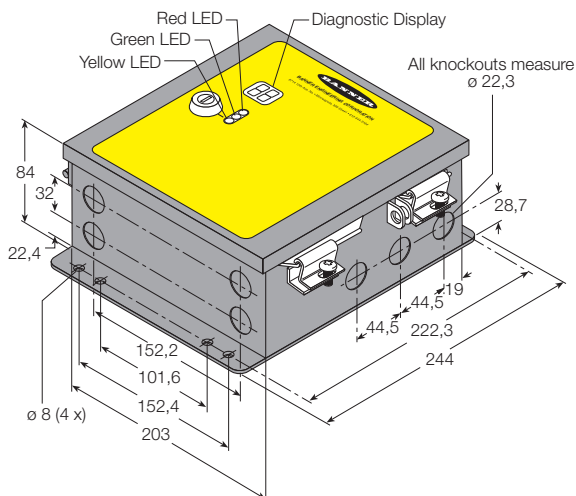
##### ● Pigtail



#### Controller USDINT-...



#### Controller USCD-...



#### Wave length

IR 880 nm

#### Safety class

4

#### Supply (controller)

Type USDINT-...	24 VDC ±15 %
Ripple	≤ 10 %
No load current	≤ 1,5 A
Type USCD-...	115/230 VAC ±15 % (50/60 Hz)
No load current	55 VA

#### Resolution

Minimum object detection size	19 mm (no blanking)
	32 mm (1 beam, floating blanking)
	44 mm (2 beams, floating blanking)

#### Range

Distance emitter/receiver 0,15...9 m

#### Response time

Emitter/receiver	< 38 ms
Emergency stop relay	< 15 ms
Self-checking interval	20 ms

#### Outputs

##### FSD1, FSD2, SSD

Type	force-guided contact relays
Rating	250 VAC, 4 A (resistive load)

#### Auxiliary monitor contact

Type	Reed relay
Rating	125 VAC, 500 mA (10 VA max.)

#### Material

Emitter/receiver	
Housing	aluminum, yellow painted finish
Lens	acrylic
Protection class	IP65
(IEC 60529/EN 60529)	
Temperature range	0...50 °C

#### Controller

Type USDINT-...	
Housing	grey polycarbonate
Protection class	IP20
(IEC 60529/EN 60529)	
Type USCD-...	
Housing	steel, black polyester finish
Protection class	IP64
(IEC 60529/EN 60529)	

#### Accessories

(included with emitter and receiver):

Brackets	US...424-2424...	2 pieces
	US...2824-3624...	3 pieces
	US...4024-4824...	4 pieces



## Overview

### MICRO-SCREEN® Kits

	<i>Defined area Y [mm]</i>	<i>Types with two 7,5 m integral cables</i>	<i>Identnumber</i>	<i>Types with quick-disconnect connector and two 7,5 m cables</i>	<i>Identnumber</i>	<i>Types with Pigtail connector and two 7,5 m cables</i>	<i>Identnumber</i>	
<b>MICRO-SCREEN kits with DIN control module USDINT-...</b>	102	<b>USDKT424YI</b>	30 425 24	<b>USDKT424C5Y</b>	30 570 00	<b>USDKT424C5YP2</b>	30 496 37	
	203	<b>USDKT824YI</b>	30 425 25	<b>USDKT824C5Y</b>	30 570 01	<b>USDKT824C5YP2</b>	30 496 38	
	305	<b>USDKT1224YI</b>	30 425 26	<b>USDKT1224C5Y</b>	30 570 02	<b>USDKT1224C5YP2</b>	30 496 39	
	406	<b>USDKT1624YI</b>	30 425 27	<b>USDKT1624C5Y</b>	30 570 03	<b>USDKT1624C5YP2</b>	30 496 40	
	<b>24 VDC</b>	508	<b>USDKT2024YI</b>	30 425 28	<b>USDKT2024C5Y</b>	30 570 04	<b>USDKT2024C5YP2</b>	30 496 41
	610	<b>USDKT2424YI</b>	30 425 29	<b>USDKT2424C5Y</b>	30 570 05	<b>USDKT2424C5YP2</b>	30 496 42	
	711	<b>USDKT2824YI</b>	30 425 30	<b>USDKT2824C5Y</b>	30 570 06	<b>USDKT2824C5YP2</b>	30 496 43	
	813	<b>USDKT3224YI</b>	30 425 31	<b>USDKT3224C5Y</b>	30 570 07	<b>USDKT3224C5YP2</b>	30 496 44	
	914	<b>USDKT3624YI</b>	30 425 32	<b>USDKT3624C5Y</b>	30 570 08	<b>USDKT3624C5YP2</b>	30 496 45	
	1016	<b>USDKT4024YI</b>	30 425 33	<b>USDKT4024C5Y</b>	30 570 09	<b>USDKT4024C5YP2</b>	30 496 46	
	1118	<b>USDKT4424YI</b>	30 425 34	<b>USDKT4424C5Y</b>	30 570 10	<b>USDKT4424C5YP2</b>	30 496 47	
	1219	<b>USDKT4824YI</b>	30 425 35	<b>USDKT4824C5Y</b>	30 570 11	<b>USDKT4824C5YP2</b>	30 496 48	
<b>MICRO-SCREEN kits with heavy-duty metal controller box USCD-...</b>	102	<b>USKD424YI</b>	30 518 53	<b>USKD424C5Y</b>	30 570 76	<b>USKD424C5YP2</b>	30 515 16	
	203	<b>USKD824YI</b>	30 518 54	<b>USKD824C5Y</b>	30 570 77	<b>USKD824C5YP2</b>	30 515 17	
	305	<b>USKD1224YI</b>	30 518 55	<b>USKD1224C5Y</b>	30 570 78	<b>USKD1224C5YP2</b>	30 515 18	
	406	<b>USKD1624YI</b>	30 518 56	<b>USKD1624C5Y</b>	30 570 79	<b>USKD1624C5YP2</b>	30 515 19	
	<b>115/230 VAC</b>	508	<b>USKD2024YI</b>	30 518 57	<b>USKD2024C5Y</b>	30 570 80	<b>USKD2024C5YP2</b>	30 515 20
	610	<b>USKD2424YI</b>	30 518 58	<b>USKD2424C5Y</b>	30 570 81	<b>USKD2424C5YP2</b>	30 515 21	
	711	<b>USKD2824YI</b>	30 518 59	<b>USKD2824C5Y</b>	30 570 82	<b>USKD2824C5YP2</b>	30 515 22	
	813	<b>USKD3224YI</b>	30 518 60	<b>USKD3224C5Y</b>	30 570 83	<b>USKD3224C5YP2</b>	30 515 23	
	914	<b>USKD3624YI</b>	30 518 61	<b>USKD3624C5Y</b>	30 570 84	<b>USKD3624C5YP2</b>	30 515 24	
	1016	<b>USKD4024YI</b>	30 518 62	<b>USKD4024C5Y</b>	30 570 85	<b>USKD4024C5YP2</b>	30 515 25	
	1118	<b>USKD4424YI</b>	30 518 63	<b>USKD4424C5Y</b>	30 570 86	<b>USKD4424C5YP2</b>	30 515 26	
	1219	<b>USKD4824YI</b>	30 518 64	<b>USKD4824C5Y</b>	30 570 87	<b>USKD4824C5YP2</b>	30 515 27	
<b>MICRO-SCREEN Accessories</b>	Height [mm]	Mirror			Height [mm]	Mounting stands		
	165	<b>MSM4A</b>	30 431 62		610	<b>MSA-S24-1</b>	30 431 74	
	267	<b>MSM8A</b>	30 431 63		1067	<b>MSA-S42-1</b>	30 431 75	
	356	<b>MSM12A</b>	30 431 64		1676	<b>MSA-S66-1</b>	30 431 76	
	457	<b>MSM16A</b>	30 431 65		2134	<b>MSA-S84-1</b>	30 523 97	
	559	<b>MSM20A</b>	30 431 66		Length [m]	Cable		
	660	<b>MSM24A</b>	30 431 67		4,6	<b>QDU-515C</b>	30 463 91	
	762	<b>MSM28A</b>	30 431 68		7,6	<b>QDU-525C</b>	30 463 92	
	864	<b>MSM32A</b>	30 431 69		15,2	<b>QDU-550C</b>	30 463 93	
	965	<b>MSM36A</b>	30 431 70		Ø [mm]	Test pieces (included in delivery)		
	1067	<b>MSM40A</b>	30 431 71		19,1	<b>STP-2</b>	30 439 57	
	1168	<b>MSM44A</b>	30 431 72		31,8	<b>STP-4</b>	30 438 36	
	1270	<b>MSM48A</b>	30 431 73		44	<b>STP-3</b>	30 439 58	

**Dimensions [mm]**  
**USE.../USR...**  
 see figure on page 2

<b>Y</b>	102	203	305	406	508	610	711	813	914	1016	1118	1219
<b>L1</b>	137	239	340	442	544	645	747	848	950	1052	1153	1255
<b>L2</b>	171	273	374	476	578	679	781	882	984	1086	1187	1289

# MICRO-SCREEN®

## Machine safety light curtain

### 19 mm ODC

#### Overview

#### MICRO-SCREEN® Individual components

	<i>Defined area Y [mm]</i>	<i>Emitter type</i>	<i>Identnumber</i>		<i>Receiver type</i>	<i>Identnumber</i>
<b>MICRO-SCREEN Emitter &amp; receiver</b>	102	<b>USE424YI</b>	30 425 00		<b>USR424YI</b>	30 425 01
	203	<b>USE824YI</b>	30 425 02		<b>USR824YI</b>	30 425 03
	305	<b>USE1224YI</b>	30 425 04		<b>USR1224YI</b>	30 425 05
<b>Cable, length 7,5 m</b>	406	<b>USE1624YI</b>	30 425 06		<b>USR1624YI</b>	30 425 07
	508	<b>USE2024YI</b>	30 425 08		<b>USR2024YI</b>	30 425 09
	610	<b>USE2424YI</b>	30 425 10		<b>USR2424YI</b>	30 425 11
	711	<b>USE2824YI</b>	30 425 12		<b>USR2824YI</b>	30 425 13
	813	<b>USE3224YI</b>	30 425 14		<b>USR3224YI</b>	30 425 15
	914	<b>USE3624YI</b>	30 425 16		<b>USR3624YI</b>	30 425 17
	1016	<b>USE4024YI</b>	30 425 18		<b>USR4024YI</b>	30 425 19
	1118	<b>USE4424YI</b>	30 425 20		<b>USR4424YI</b>	30 425 21
	1219	<b>USE4824YI</b>	30 425 22		<b>USR4824YI</b>	30 425 23
<b>MICRO-SCREEN Emitter &amp; receiver</b>	102	<b>USE424Y</b>	30 551 34		<b>USR424Y</b>	30 551 35
	203	<b>USE824Y</b>	30 551 36		<b>USR824Y</b>	30 551 37
	305	<b>USE1224Y</b>	30 551 38		<b>USR1224Y</b>	30 551 39
<b>Quick-disconnect Connector</b>	406	<b>USE1624Y</b>	30 551 40		<b>USR1624Y</b>	30 551 41
	508	<b>USE2024Y</b>	30 551 43		<b>USR2024Y</b>	30 551 44
	610	<b>USE2424Y</b>	30 551 45		<b>USR2424Y</b>	30 551 46
	711	<b>USE2824Y</b>	30 551 47		<b>USR2824Y</b>	30 551 48
	813	<b>USE3224Y</b>	30 551 49		<b>USR3224Y</b>	30 551 50
	914	<b>USE3624Y</b>	30 551 51		<b>USR3624Y</b>	30 551 52
	1016	<b>USE4024Y</b>	30 551 53		<b>USR4024Y</b>	30 551 54
	1118	<b>USE4424Y</b>	30 551 55		<b>USR4424Y</b>	30 551 56
	1219	<b>USE4824Y</b>	30 551 57		<b>USR4824Y</b>	30 551 58
<b>MICRO-SCREEN Emitter &amp; receiver</b>	102	<b>USE424YP2</b>	30 496 01		<b>USR424YP2</b>	30 496 02
	203	<b>USE824YP2</b>	30 496 03		<b>USR824YP2</b>	30 496 04
	305	<b>USE1224YP2</b>	30 496 05		<b>USR1224YP2</b>	30 496 06
<b>Pigtail (connector and 300 mm cable)</b>	406	<b>USE1624YP2</b>	30 496 07		<b>USR1624YP2</b>	30 496 08
	508	<b>USE2024YP2</b>	30 496 09		<b>USR2024YP2</b>	30 496 10
	610	<b>USE2424YP2</b>	30 496 11		<b>USR2424YP2</b>	30 496 12
	711	<b>USE2824YP2</b>	30 496 13		<b>USR2824YP2</b>	30 496 14
	813	<b>USE3224YP2</b>	30 496 15		<b>USR3224YP2</b>	30 496 16
	914	<b>USE3624YP2</b>	30 496 17		<b>USR3624YP2</b>	30 496 18
	1016	<b>USE4024YP2</b>	30 496 19		<b>USR4024YP2</b>	30 496 20
	1118	<b>USE4424YP2</b>	30 496 21		<b>USR4424YP2</b>	30 496 22
	1219	<b>USE4824YP2</b>	30 496 23		<b>USR4824YP2</b>	30 496 24
<b>Controller</b>	Supply	Housing	Other specifications		Controller	
	VDC	DIN rail module	trip		<b>USDINT-1T2</b>	30 485 36
	VDC	DIN rail module	trip, exact blanking		<b>USDINT-2T2</b>	30 497 85
	VAC	Heavy-duty box	trip		<b>USCD-1T2</b>	30 512 25
	VAC	Heavy-duty box	trip, exact blanking		<b>USCD-2T2</b>	30 512 24
	VDC	DIN rail module	trip, 4FSDs		<b>USDINT-1T4</b>	30 555 89
	VDC	DIN rail module	trip, 4FSDs, exact blanking		<b>USDINT-2T4</b>	30 555 91
	VDC	DIN rail module	latch		<b>USDINT-1L2</b>	30 541 76
	VDC	DIN rail module	latch, exact blanking		<b>USDINT-2L2</b>	30 541 78
	VDC	DIN rail module	latch, 4FSDs		<b>USDINT-1L4</b>	30 555 97
	VDC	DIN rail module	latch, 4FSDs, exact blanking		<b>USDINT-2L4</b>	30 555 99

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