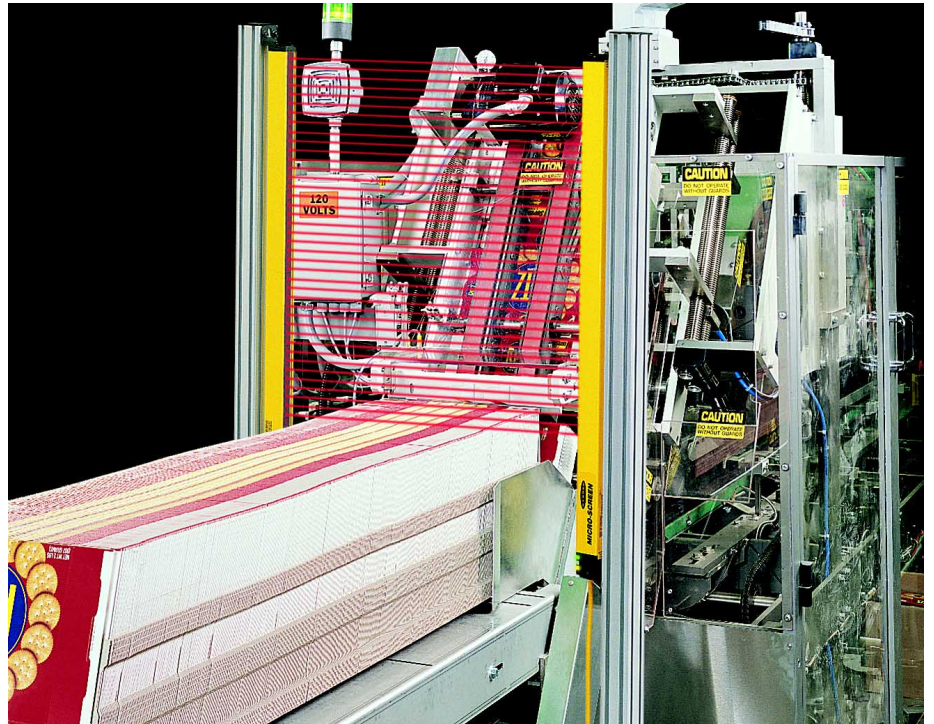




## MICRO-SCREEN Machine safety light curtain V-Series – 32 mm ODC

- Safety light screen type 4 according to IEC 61496-1, -2 and DIN EN 61496-1, -2
- 61 cm to 183 cm array height, 25 mm x 32 mm emitter/receiver cross section
- 32 mm Object Detection Capability
- 6 m or 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 photo-transistors. Emitters and receivers are available in 7 lengths from 61 cm to 183 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 unit 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.

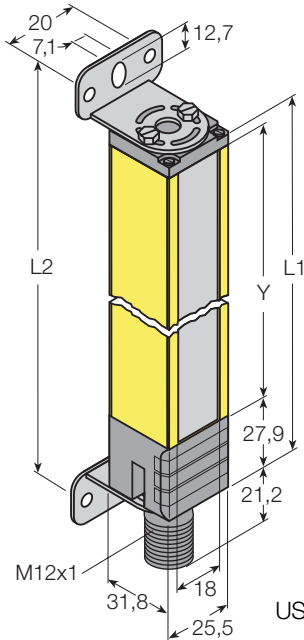
# MICRO-SCREEN®

## Machine safety light curtain

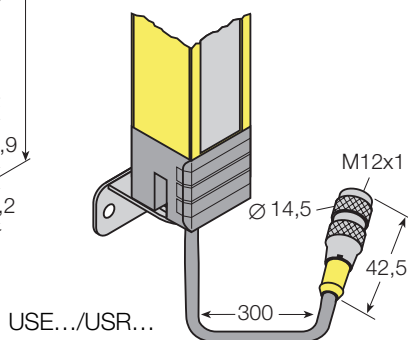
### V-Series – 32 mm ODC

#### Dimensions [mm]

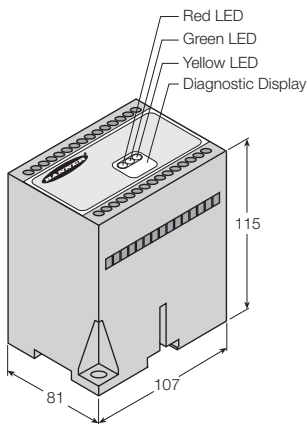
##### ● Connector



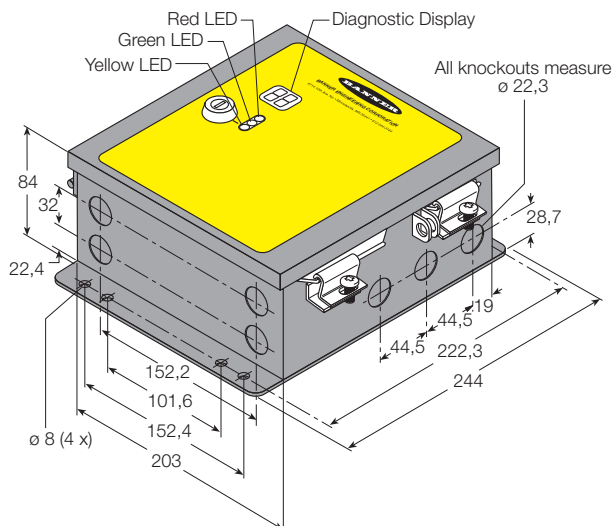
##### ● Pigtail



##### 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	32 mm (no blanking)
	58 mm (1 beam, floating blanking)
	83 mm (2 beams, floating blanking)

#### Range

Distance emitter/receiver	0,15...9 m (height ≤ 1,2 m)
	0,15...6 m (height ≤ 1,8 m)
	(or height > 1,2 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...2412...	2 pieces
	US...3212...	3 pieces
	US...4012-7212...	4 pieces



## Overview

### MICRO-SCREEN® V-Series 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 box USDINT-... 24 VDC</b>	610	<b>USDKT2412YI</b>	30 544 68	<b>USDKT2412C5Y</b>	30 570 12	<b>USDKT2412C5YP2</b>	30 544 96
	813	<b>USDKT3212YI</b>	30 544 69	<b>USDKT3212C5Y</b>	30 570 13	<b>USDKT3212C5YP2</b>	30 544 97
	1016	<b>USDKT4012YI</b>	30 544 70	<b>USDKT4012C5Y</b>	30 570 14	<b>USDKT4012C5YP2</b>	30 544 98
	1219	<b>USDKT4812YI</b>	30 544 71	<b>USDKT4812C5Y</b>	30 570 15	<b>USDKT4812C5YP2</b>	30 544 99
	1422	<b>USDKT5612YI</b>	30 517 18	<b>USDKT5612C5Y</b>	30 570 16	<b>USDKT5612C5YP2</b>	30 517 03
	1626	<b>USDKT6412YI</b>	30 517 19	<b>USDKT6412C5Y</b>	30 570 17	<b>USDKT6412C5YP2</b>	30 517 04
	1829	<b>USDKT7212YI</b>	30 517 20	<b>USDKT7212C5Y</b>	30 570 18	<b>USDKT7212C5YP2</b>	30 517 05
<b>MICRO-SCREEN kits with heavy-duty metal control box USCD-... 115/230 VAC</b>	610	<b>USKD2412YI</b>	30 544 84	<b>USKD2412C5Y</b>	30 570 88	<b>USKD2412C5YP2</b>	30 545 44
	813	<b>USKD3212YI</b>	30 544 85	<b>USKD3212C5Y</b>	30 570 89	<b>USKD3212C5YP2</b>	30 545 45
	1016	<b>USKD4012YI</b>	30 544 86	<b>USKD4012C5Y</b>	30 570 90	<b>USKD4012C5YP2</b>	30 545 46
	1219	<b>USKD4812YI</b>	30 544 87	<b>USKD4812C5Y</b>	30 570 91	<b>USKD4812C5YP2</b>	30 545 47
	1422	<b>USKD5612YI</b>	30 518 65	<b>USKD5612C5Y</b>	30 570 92	<b>USKD5612C5YP2</b>	30 515 28
	1626	<b>USKD6412YI</b>	30 518 66	<b>USKD6412C5Y</b>	30 570 93	<b>USKD6412C5YP2</b>	30 515 29
	1829	<b>USKD7212YI</b>	30 518 67	<b>USKD7212C5Y</b>	30 570 94	<b>USKD7212C5YP2</b>	30 515 30
<b>MICRO-SCREEN Accessories</b>	Height [mm]	Mirror			Height [mm]	Mounting stands	
	660	<b>MSM24A</b>	30 431 67		1676	<b>MSA-S66-1</b>	30 431 76
	762	<b>MSM28A</b>	30 431 68		2134	<b>MSA-S84-1</b>	30 523 97
	864	<b>MSM32A</b>	30 431 69		Length [m]	Cable	
	965	<b>MSM36A</b>	30 431 70		4,6	<b>QDU-515C</b>	30 463 91
	1067	<b>MSM40A</b>	30 431 71		7,6	<b>QDU-525C</b>	30 463 92
	1168	<b>MSM44A</b>	30 431 72		15,2	<b>QDU-550C</b>	30 463 93
	1270	<b>MSM48A</b>	30 431 73		Ø [mm]	Test pieces (included in delivery)	
					31,8	<b>STP-4</b>	30 438 36
					57,5	<b>STP-5</b>	30 438 37
				82,6	<b>STP-9</b>	30 506 94	

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

<b>Y</b>	610	813	1016	1219	1422	1626	1829
<b>L1</b>	645	848	1052	1255	1458	1661	1864
<b>L2</b>	679	882	1086	1289	1491	1694	1897

# MICRO-SCREEN®

## Machine safety light screen

### V-Series – 32 mm ODC

#### Overview

#### MICRO-SCREEN® V-Series 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>	610	<b>USE2412YI</b>	30 544 60		<b>USR2412YI</b>	30 544 61
	813	<b>USE3212YI</b>	30 544 62		<b>USR3212YI</b>	30 544 63
	1016	<b>USE4012YI</b>	30 544 64		<b>USR4012YI</b>	30 544 65
<b>Cable, length 7,5 m</b>	1219	<b>USE4812YI</b>	30 544 66		<b>USR4812YI</b>	30 544 67
	1422	<b>USE5612YI</b>	30 513 14		<b>USR5612YI</b>	30 513 15
	1626	<b>USE6412YI</b>	30 513 16		<b>USR6412YI</b>	30 513 17
	1829	<b>USE7212YI</b>	30 513 18		<b>USR7212YI</b>	30 513 19
<b>MICRO-SCREEN Emitter &amp; receiver</b>	610	<b>USE2412Y</b>	30 551 59		<b>USR2412Y</b>	30 551 60
	813	<b>USE3212Y</b>	30 551 61		<b>USR3212Y</b>	30 551 62
	1016	<b>USE4012Y</b>	30 551 63		<b>USR4012Y</b>	30 551 64
<b>Quick-disconnect connector</b>	1219	<b>USE4812Y</b>	30 551 65		<b>USR4812Y</b>	30 551 66
	1422	<b>USE5612Y</b>	30 551 67		<b>USR5612Y</b>	30 551 68
	1626	<b>USE6412Y</b>	30 551 69		<b>USR6412Y</b>	30 551 70
	1829	<b>USE7212Y</b>	30 551 71		<b>USR7212Y</b>	30 551 72
<b>MICRO-SCREEN Emitter &amp; receiver</b>	610	<b>USE2412YP2</b>	30 544 52		<b>USR2412YP2</b>	30 544 53
	813	<b>USE3212YP2</b>	30 544 54		<b>USR3212YP2</b>	30 544 55
	1016	<b>USE4012YP2</b>	30 544 56		<b>USR4012YP2</b>	30 544 57
<b>Pigtail (connector and 300 mm cable)</b>	1219	<b>USE4812YP2</b>	30 544 58		<b>USR4812YP2</b>	30 544 59
	1422	<b>USE5612YP2</b>	30 513 08		<b>USR5612YP2</b>	30 513 09
	1626	<b>USE6412YP2</b>	30 513 10		<b>USR6412YP2</b>	30 513 11
	1829	<b>USE7212YP2</b>	30 513 12		<b>USR7212YP2</b>	30 513 13
<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