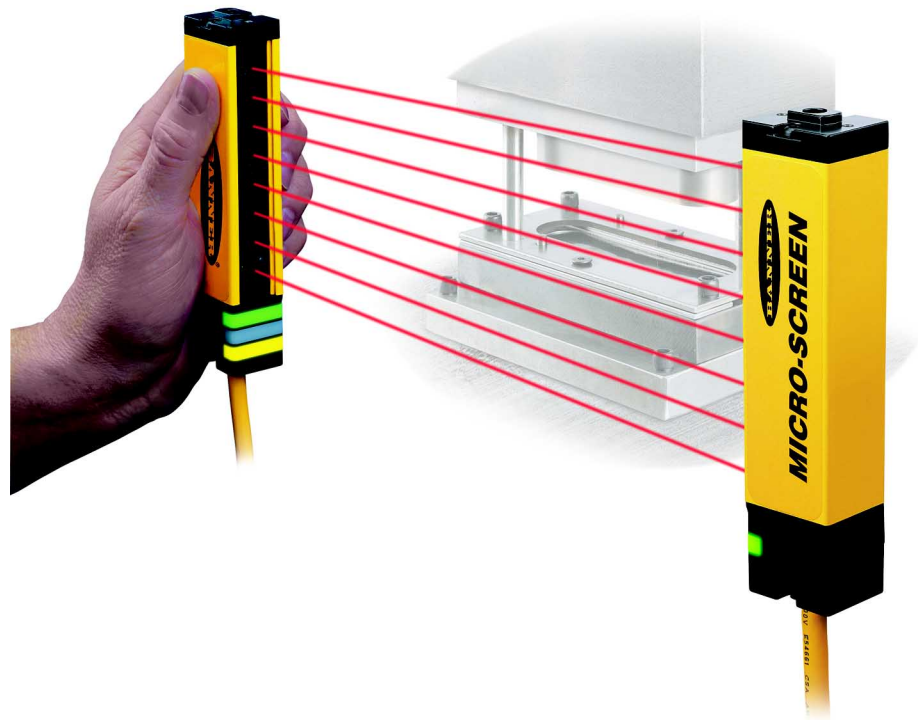


MICRO-SCREEN® Machine safety light curtain 19 mm ODC

- 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.

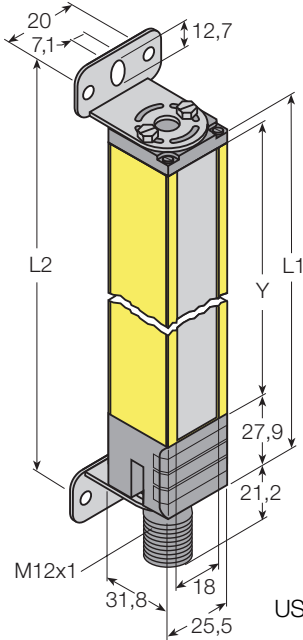
MICRO-SCREEN®

Machine safety light curtain

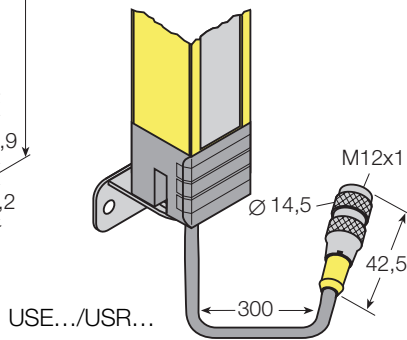
19 mm ODC

Dimensions [mm]

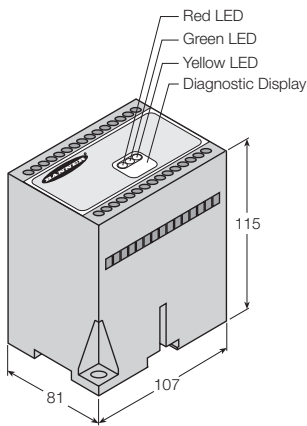
● Connector



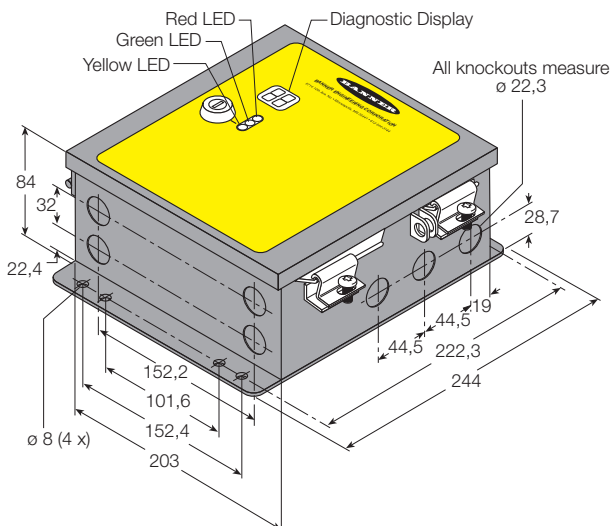
● Pigtail



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

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

Y	102	203	305	406	508	610	711	813	914	1016	1118	1219
L1	137	239	340	442	544	645	747	848	950	1052	1153	1255
L2	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>Identrnumber</i>		<i>Receiver type</i>	<i>Identrnumber</i>	
MICRO-SCREEN Emitter & receiver	102	USE424YI	30 425 00		USR424YI	30 425 01	
	203	USE824YI	30 425 02		USR824YI	30 425 03	
	305	USE1224YI	30 425 04		USR1224YI	30 425 05	
	Cable, length 7,5 m	406	USE1624YI		30 425 06	USR1624YI	30 425 07
		508	USE2024YI		30 425 08	USR2024YI	30 425 09
		610	USE2424YI		30 425 10	USR2424YI	30 425 11
		711	USE2824YI		30 425 12	USR2824YI	30 425 13
		813	USE3224YI		30 425 14	USR3224YI	30 425 15
		914	USE3624YI		30 425 16	USR3624YI	30 425 17
		1016	USE4024YI		30 425 18	USR4024YI	30 425 19
		1118	USE4424YI		30 425 20	USR4424YI	30 425 21
		1219	USE4824YI		30 425 22	USR4824YI	30 425 23
MICRO-SCREEN Emitter & receiver	102	USE424Y	30 551 34		USR424Y	30 551 35	
	203	USE824Y	30 551 36		USR824Y	30 551 37	
	305	USE1224Y	30 551 38		USR1224Y	30 551 39	
	Quick-disconnect Connector	406	USE1624Y		30 551 40	USR1624Y	30 551 41
		508	USE2024Y		30 551 43	USR2024Y	30 551 44
		610	USE2424Y		30 551 45	USR2424Y	30 551 46
		711	USE2824Y		30 551 47	USR2824Y	30 551 48
		813	USE3224Y		30 551 49	USR3224Y	30 551 50
		914	USE3624Y		30 551 51	USR3624Y	30 551 52
		1016	USE4024Y		30 551 53	USR4024Y	30 551 54
		1118	USE4424Y		30 551 55	USR4424Y	30 551 56
		1219	USE4824Y		30 551 57	USR4824Y	30 551 58
MICRO-SCREEN Emitter & receiver	102	USE424YP2	30 496 01		USR424YP2	30 496 02	
	203	USE824YP2	30 496 03		USR824YP2	30 496 04	
	305	USE1224YP2	30 496 05		USR1224YP2	30 496 06	
	Pigtail (connector and 300 mm cable)	406	USE1624YP2		30 496 07	USR1624YP2	30 496 08
		508	USE2024YP2		30 496 09	USR2024YP2	30 496 10
		610	USE2424YP2		30 496 11	USR2424YP2	30 496 12
		711	USE2824YP2		30 496 13	USR2824YP2	30 496 14
		813	USE3224YP2		30 496 15	USR3224YP2	30 496 16
		914	USE3624YP2		30 496 17	USR3624YP2	30 496 18
		1016	USE4024YP2		30 496 19	USR4024YP2	30 496 20
		1118	USE4424YP2		30 496 21	USR4424YP2	30 496 22
		1219	USE4824YP2		30 496 23	USR4824YP2	30 496 24
Controller	Supply	Housing	Other specifications		Controller		
	VDC	DIN rail module	trip		USDINT-1T2	30 485 36	
	VDC	DIN rail module	trip, exact blanking		USDINT-2T2	30 497 85	
	VAC	Heavy-duty box	trip		USCD-1T2	30 512 25	
	VAC	Heavy-duty box	trip, exact blanking		USCD-2T2	30 512 24	
	VDC	DIN rail module	trip, 4FSDs		USDINT-1T4	30 555 89	
	VDC	DIN rail module	trip, 4FSDs, exact blanking		USDINT-2T4	30 555 91	
	VDC	DIN rail module	latch		USDINT-1L2	30 541 76	
	VDC	DIN rail module	latch, exact blanking		USDINT-2L2	30 541 78	
	VDC	DIN rail module	latch, 4FSDs		USDINT-1L4	30 555 97	
	VDC	DIN rail module	latch, 4FSDs, exact blanking		USDINT-2L4	30 555 99	