Safetinex
Safety light curtains and access control barriers

CONTRINEX

Finger protection Type 4
Hand protection Type 4
Access control Type 4
Hand protection Type 2 ***NEW***
Safety relays

A Swiss Company

INTRODUCTION

CONTRINEX

- ✓ Technology leading manufacturer of inductive and photoelectric sensors as well as Safety and RFID systems
- ✓ World market leader for miniature sensors, sensors with long operating distance and devices for particularly demanding operating conditions
- ✓ Represented in over 60 countries worldwide, headquarters in Switzerland
- ✓ Production sites in Switzerland, Hungary (since 1995), China (since 2003) and Brazil (since 2009)
- ✓ 14 own subsidiaries in all major markets
- ✓ More than 500 employees worldwide

Contrinex Headquarters, Switzerland

SAFETINEX SAFETY SYSTEMS

The Safetinex product line produced by Contrinex offers high-quality safeguarding solutions for both personnel and machinery. The range comprises highly sensitive Type-4 devices for finger, hand and access protection in various lengths.

The safety portfolio now also comprises a complete range of hand protection devices in various lengths for Type 2, category 2, PL c, SIL 1 applications.

Safetinex products have been developed in compliance with the applicable international safety standards and have obtained the required product certification for use in the European Union, the United States of America and all other countries where the applicable IEC standards have been adopted. A complete range of Safetinex light curtains and access control barriers is offered for the highest safety requirements: safety category 4, PL e according to EN/ISO 13849-1, Type 4 according to IEC 61496-1 and -2. In addition, hand protection devices are available with a Type 2 safety rating (IEC 61496-1 and -2) which meet category 2, PL c according to EN/ISO 13849-1 and SIL 1 according to IEC 61508. All Safetinex products have successfully obtained the highly rated TÜV certification.

ACTIVE OPTOELECTRONIC PROTECTIVE DEVICES (AOPD)

Whenever a safety system around a danger zone is necessary, the first consideration is whether or not optical protection is suitable at all. For this to be the case, it must be possible for the machine control to be electrically influenced by means of the device's semiconductor output. Moreover, it must also be possible to instantly terminate or exit the hazardous process in every operating phase. Further, there must be no danger of injury due to heat, radiation or from materials or components ejected by the machine. If such danger exists, then either the optical system is not suitable, or the danger must be otherwise excluded by applying additional safety measures.

The selection of a specific safeguarding measure involves an evaluation of the hazard, in order to determine the applicable safety level and resolution of the protective device.

SAFEGUARDING FUNCTION

The resolution of the safety light curtain or access control barrier must be chosen according to the application and the required safeguarding function. It is defined as the minimum size of an object that can be reliably and safely detected at any position when placed in the protective field. The choice of a specific resolution depends on the part of the body which needs protection (finger, hand or whole body). In all cases, the primary function of the protective device is to stop the machine before the hazardous point is reached and to prevent unintentional machine start-up. This function must comply with the category of the safety-related components of the machine.

OPERATING PRINCIPLE

The Safetinex YBB light curtains and YCA access control barriers operate with infrared beams. When the device detects a finger, a hand or a person entering the defined hazardous area, the protective equipment immediately stops the machine, or renders it harmless. When operating in manual restart mode, the reset button enabling the operator to restart the machine must be located outside the hazardous area. From there, the operator must have a full view of the hazardous area to make sure that nobody is in danger before restarting the machine.

Safetinex light curtains and access control barriers are designed to ensure protection of operators working in hazardous areas. A high reliability is achieved by implementing a fail-safe system: devices are thus permanently self-controlled. An internal failure deactivates the output signals, as would an intrusion into the protective field.

APPLICATION AREAS

The Safetinex YBB range is best suited where finger and hand protection is required close to the hazardous area (point of operation). Depending on the application, a resolution of either 14 mm (finger protection) or 30 mm (hand protection) will be advisable. Safetinex YCA access control barriers, on the other hand, are suitable for the protection of people potentially entering a larger dangerous area.

Thanks to their Type 4, category 4, PL e safety level, Safetinex devices can be used on equipment requiring high protection reliability, such as machine tools, robots, hydraulic presses, automated stock management, weaving looms, etc.

If the result of the risk assessment allows their use, Type 2 devices (category 2, PL c, SIL 1) offer cost effective and safe solutions.

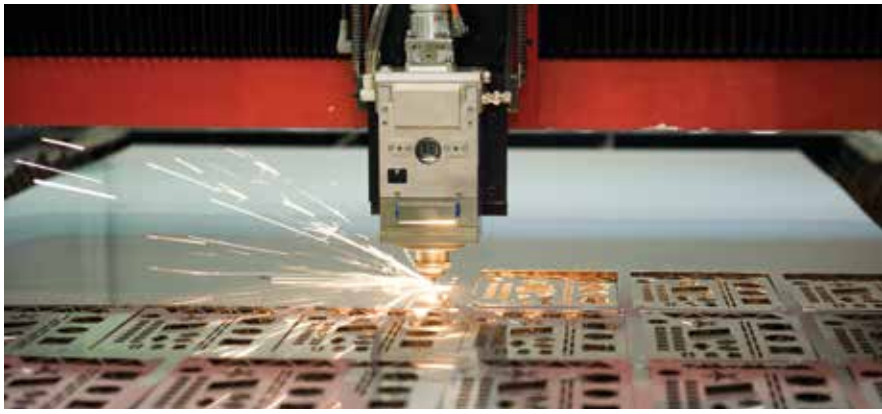

CONTRINEX
Test
Channel

APPLICATIONS

LASER CUTTING MACHINES WITH MOVING TABLES

Laser cutters with fast moving tables holding the working pieces represent a risk to machine operators. A safety light curtain can be considered to prevent people from reaching into or entering the ongoing process. In case of intrusion during a potentially dangerous phase, table movement can be stopped promptly.

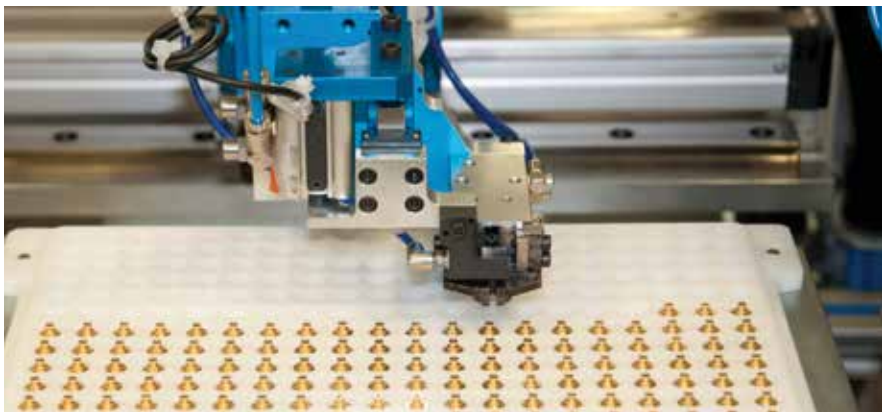
With a Type 4, category 4, PL e safety light curtain, the protection is very effective. In addition, a direct view onto the working process is possible with no physical barriers that complicate access to the machine or finished parts.



- ✓ Various protective heights up to 1827 mm
- ✓ Quick response time allows installation close to the working process
- ✓ Mirror columns available for multi-side protection

PICK-AND-PLACE ROBOTS

Many pick and place tasks are performed with the help of small robots, which represent a hazard to staff. With the use of a Type 4, category 4, PL e safety light curtain, the robot arm movements can simply be stopped if an operator reaches into the process during operation. This then protects very effectively both the operator and the machinery.



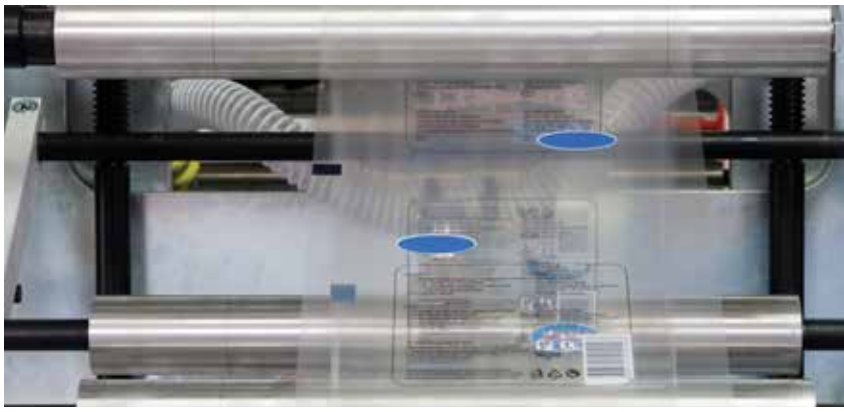
- ✓ Safe solution
- ✓ Robust mechanical design
- ✓ Operating distance up to 12 m

PACKAGING MACHINES

For the operators of fully automated packaging machines, the hazard involved is mostly slight.

If the result of the risk assessment allows the use of a Type 2, category 2, PL c, SIL 1 safety light curtain, a protected machine opening can be used to interrupt the conveyor or material feeding as well as the packaging process itself as soon as an operator reaches into the protective field of the light curtain. Furthermore, the same installation can be used to detect a material jam or products that have tipped over.

- ✓ Simple wiring with standard M12 connectors
- ✓ Protection degree IP 67
- ✓ Easy-to-use mounting brackets included



PROGRAM OVERVIEW

OPERATING RANGE	TYPE 4	TYPE 2
FINGER PROTECTION		
Operating range: 0.25 ... 3.5 m	p. 12-17	
HAND PROTECTION		
Operating range: 0.25 ... 12 m	p. 18-23	p. 30-35
ACCESS CONTROL		
Operating range: 1 ... 15 or 10 ... 50 m	p. 24-29	
RELAYS		
	p. 36-42	
ACCESSORIES		
	p. 43-47	p. 43-47

TECHNOLOGY

THE SAFETINEX PRODUCT RANGE INCLUDES:

SAFETINEX YBB TYPE 4 FOR FINGER PROTECTION

- Safety light curtain with 14 mm resolution
- Protective height from 142 mm to 1690 mm
- Operating range up to 3.5 m
- Cable version : 2, 5 and 10 m PUR-UL shielded cable
- M12 or M26 connector version
- Pigtail version (0.2 m PUR-UL shielded cable, M12 connector)

SAFETINEX YBB TYPE 4 FOR HAND PROTECTION

- Safety light curtain with 30 mm resolution
- Protective height from 279 mm to 1827 mm
- Operating range up to 12 m
- Cable version : 2, 5 and 10 m PUR-UL shielded cable
- M12 or M26 connector version
- Pigtail version (0.2 m PUR-UL shielded cable, M12 connector)

SAFETINEX YCA TYPE 4 FOR ACCESS CONTROL

- Safety access control barriers with beam gap of 300, 400 or 500 mm
- Protective height from 832 mm to 1532 mm
- Operating range : 1 ... 15 m / 10 ... 50 m (can be configured)
- Cable version : 2, 5 and 10 m PUR-UL shielded cable
- M12 or M26 connector version
- Pigtail version (0.2 m PUR-UL shielded cable, M12 connector)

SAFETINEX YBB TYPE 2 FOR HAND PROTECTION

- Safety light curtain with 30 mm resolution
- Protective height from 150 mm to 1827 mm
- Operating range up to 12 m
- M12 connector

Each component is housed in a rugged aluminum profile fitted with two lateral sliding grooves.
The Safetinex product range is complemented by a range of accessories.

AVANTAGES OF THE SAFETINEX RANGE

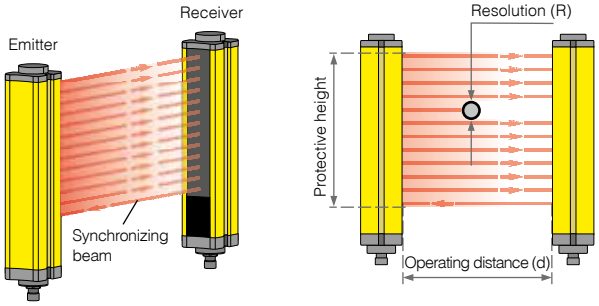
Safetinex safety devices offer the following advantages:

- Very short response time:
  - Finger protection Type 4: 5.2 to 43.6 ms
  - Hand protection Type 4: 5.2 to 24.4 ms
  - Access control Type 4: 4.2 to 6.7 ms
  - Hand protection Type 2: 14 to 66 ms
- Up to 50 m operating distance
- 2-channel selection minimizing safety relevant cross-talk between neighboring AOPDs (type 4 only)
- Fully compliant with industry standards and certified by internationally recognized organizations
- Devices with TÜV certification, either Type 4 with Performance Level e, or Type 2 with Performance Level c
- Beam synchronized, no need for wired connection between sender and receiver
- Short-circuit protected outputs and voltage-reversal protection
- Low power consumption
- Built-in alignment system and easy adjustment of the units thanks to the high flexibility of the Safetinex bracket
- Various connector versions to fit any application
- Robust aluminum housing coated with resistant finish
- Compact design: 42 x 48 mm housing profile
- Competitive price

Furthermore, Safetinex light curtains and access control barriers have been designed to provide users with a comfortable work environment. Their use involves no additional unproductive movements and no waste of time. Users can freely access and move around the machine in complete safety.

OPERATING PRINCIPLE

Safetinex light curtains and access control barriers are optoelectronic safety devices that include a sender and a receiver unit between which coded infrared beams are sequentially exchanged. The receiver unit is connected to a safety relay which transmits signals to the machine control system. Synchronization between the sender and receiver devices is performed optically, i.e. wired connection between the two units is not necessary.



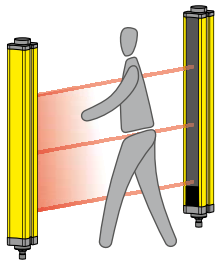
Reception of all beams activates the two independently generated semiconductor outputs (OSSDs) of the receiver unit. The interruption of one or more beams deactivates the outputs within the response time of the AOPD. Any internal fault is detected by the device's permanent self-control function and has the same result as an intrusion into the protective field.

SELF PROTECTED OUTPUTS

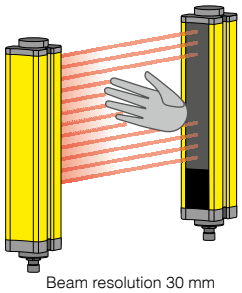
Both OSSD1 and OSSD2 are self-protected and actively monitored PNP outputs. Both outputs are controlled by independent current-monitored high-side switches. Thanks to continuous monitoring, any short-circuit between an output and the power supply or ground is detected within the response time, leading to the deactivation of the other output. Similarly, a cross-circuit between the two outputs is also detected and both OSSDs are deactivated within the specified response time. The OSSD outputs are switched off and remain in that state as long as the fault remains.

AOPD DETECTION CAPABILITY

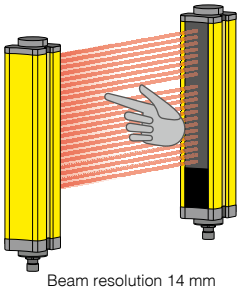
The light curtain or barrier detection capability (or resolution) depends on the distance between the centerlines of each beam emitted by the sender. The choice for a specific resolution depends on the part of the body which needs protection (finger, hand, whole body).



Beam separation > 30 mm



Beam resolution 30 mm



Beam resolution 14 mm


CONTRINEX
Test
Channel
1
CONTRINEX SAFETY
Power
Channel
CONTRINEX

LIGHT CURTAINS

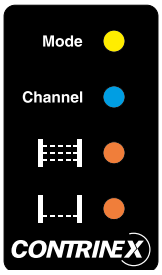
FINGER PROTECTION TYPE 4

MAIN FEATURES

- ✓ Resolution: 14 mm
- ✓ Operating range: 0.25 ... 3.5 m
- ✓ Protective height: 142 ... 1690 mm
- ✓ Category 4, PL e according to EN/ISO 13849-1
- ✓ Type 4 according to IEC 61496-1 and -2
- ✓ Certified TÜV, CE and UL
- ✓ IP 65, IP 67 with operating temperatures as low as -35°C (-31°F)
- ✓ 2-channel selection
- ✓ Optical synchronization
- ✓ Permanent autocontrol

LEDS

LED indicators on the YBB **sender** unit



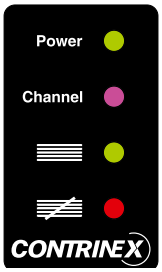
Mode:
Yellow when test mode is active

Channel:
Blue when channel 1 is selected
Purple when channel 2 is selected

Alignment (full):
Steady orange when the screen is not fully aligned
Blinking orange when the first third of the screen is aligned
Off when screen is fully aligned

Alignment (low beam):
Steady orange when the lowest beam is not aligned
Blinking orange when the lowest beam is aligned
Off when screen is fully aligned

LED indicators on the YBB **receiver** unit



Power:
Green when power is ON

Channel:
Blue when channel 1 is selected
Purple when channel 2 is selected

Status ON:
Green when OSSD outputs are ON

Status OFF:
Red when OSSD outputs are OFF

TECHNICAL DATA

Dimensions	42 x 48 x Ht mm
Resolution	14 mm
Protective height	142 ... 1690 mm
Supply voltage range	24 VDC ± 20 %
Current consumption sender	50 mA max. / 1.5 W max.
Current consumption receiver (excl. load)	160 mA max. / 4.7 W max.
Output current	0.2 A max. per output
Safety level (EN/ISO 13849-1)	Category 4, PL e
Safety type (IEC 61496-1 and -2)	Type 4
Protection class (IEC 61140)	III
Ambient temperature range	-35 … +60°C (-31 ... +140°F)
Storage temperature range	-40 … +70°C (-40 ... +158°F)
Degree of protection (EN 60529)	IP 65 + IP 67
Housing material	Aluminum
Material of optical parts	PMMA
Operating range	0.25 ... 3.5 m
Sender wavelength	IR 950 nm

HOUSING

Aluminum profile 42 x 48 mm with dual fixing groove.

ELECTRONIC PROTECTION

Safetinex light curtains are self-protected against overloads and short-circuits. They can also withstand short high-voltage overloads.

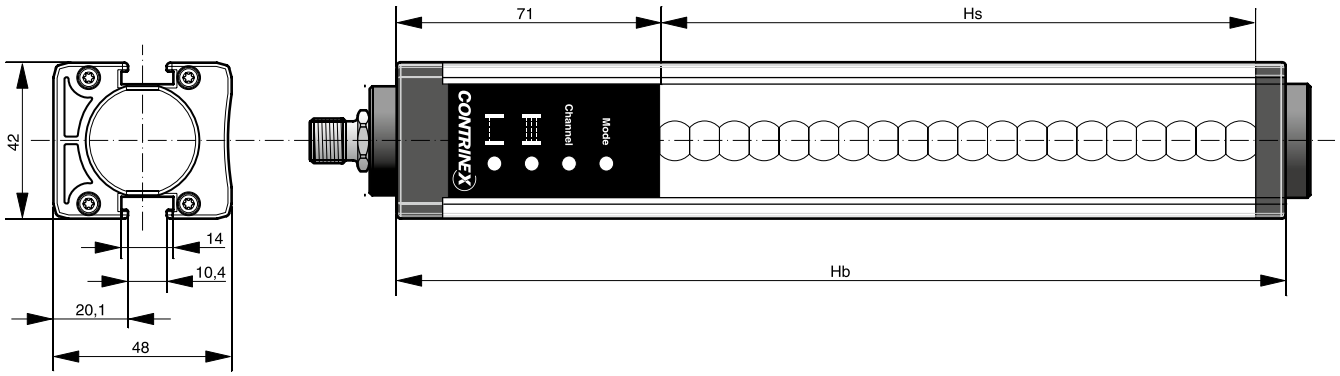
CONNECTION

Safetinex light curtains with M12 5-pole connector are standard, M26 connector versions are also available. Versions with PUR cable, 2 m, 5 m or 10 m long, are available on request.

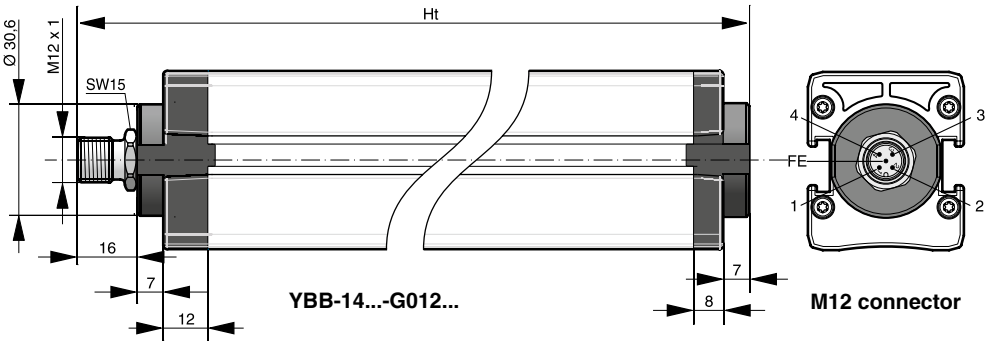
DOCUMENTATION

Detailed data sheets for these products can be found on the Contrinex website www.contrinex.com or ordered free of charge from our distributors.

DIMENSIONS

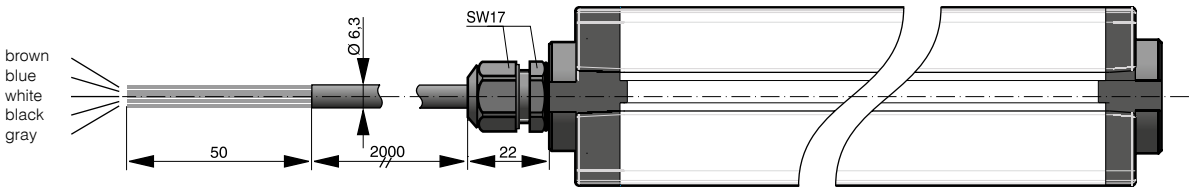


PIN ASSIGNMENT



YBB-14...-G012...

M12 connector



YBB-14...-D020...

Cable

ASSIGNMENT	FUNCTION	PINS/WIRES ON SENDER		PINS/WIRES ON RECEIVER	
		M12 CONNECTOR	CABLE	M12 CONNECTOR	CABLE
Supply voltage	24 VDC for channel 1 / 0 V for channel 2	**1**	brown	**1**	brown
Supply voltage	0 V for channel 1 / 24 VDC for channel 2	**3**	blue	**3**	blue
Test mode	0 V: test active / 24 V: test inactive	**4**	black	**-**	-
Output	OSSD1	**-**	-	**2**	white
Output	OSSD2	**-**	-	**4**	black
Functional earth	Shield	**FE**	gray	**FE**	gray

TYPE-SPECIFIC DATA

Type	0150	0250	0400
Total height (Ht) [mm] *	251	380	509
Housing height (Hb) [mm]	221	350	479
Protective height (Hs) [mm]	142	271	400
Number of beams	17	33	49
Current consumption [mA]	135	140	145
Response time [ms]	5.2	8.4	11.6

PART REFERENCE (BOLD: PREFERRED TYPES)

PNP / Connector M12	Sender	**YBB-14S4-0150-G012**	**YBB-14S4-0250-G012**	**YBB-14S4-0400-G012**
	Receiver	**YBB-14R4-0150-G012**	**YBB-14R4-0250-G012**	**YBB-14R4-0400-G012**
PNP / PUR-cable 2 m	Sender	YBB-14S4-0150-D020	YBB-14S4-0250-D020	YBB-14S4-0400-D020
	Receiver	YBB-14R4-0150-D020	YBB-14R4-0250-D020	YBB-14R4-0400-D020
PNP / PUR-cable 5 m	Sender	YBB-14S4-0150-D050	YBB-14S4-0250-D050	YBB-14S4-0400-D050
	Receiver	YBB-14R4-0150-D050	YBB-14R4-0250-D050	YBB-14R4-0400-D050
PNP / PUR-cable 10 m	Sender	YBB-14S4-0150-D100	YBB-14S4-0250-D100	YBB-14S4-0400-D100
	Receiver	YBB-14R4-0150-D100	YBB-14R4-0250-D100	YBB-14R4-0400-D100

TYPE-SPECIFIC DATA

Type	1000	1200	1300
Total height (Ht) [mm] *	1154	1283	1412
Housing height (Hb) [mm]	1124	1253	1382
Protective height (Hs) [mm]	1045	1174	1303
Number of beams	129	145	161
Current consumption [mA]	175	185	190
Response time [ms]	27.6	30.8	34

PART REFERENCE (BOLD: PREFERRED TYPES)

PNP / Connector M12	Sender	**YBB-14S4-1000-G012**	**YBB-14S4-1200-G012**	**YBB-14S4-1300-G012**
	Receiver	**YBB-14R4-1000-G012**	**YBB-14R4-1200-G012**	**YBB-14R4-1300-G012**
PNP / PUR-cable 2 m	Sender	YBB-14S4-1000-D020	YBB-14S4-1200-D020	YBB-14S4-1300-D020
	Receiver	YBB-14R4-1000-D020	YBB-14R4-1200-D020	YBB-14R4-1300-D020
PNP / PUR-cable 5 m	Sender	YBB-14S4-1000-D050	YBB-14S4-1200-D050	YBB-14S4-1300-D050
	Receiver	YBB-14R4-1000-D050	YBB-14R4-1200-D050	YBB-14R4-1300-D050
PNP / PUR-cable 10 m	Sender	YBB-14S4-1000-D100	YBB-14S4-1200-D100	YBB-14S4-1300-D100
	Receiver	YBB-14R4-1000-D100	YBB-14R4-1200-D100	YBB-14R4-1300-D100

* Total height given with M12 connector. For cable version, add 6 mm.

0500	0700	0800	0900
638	767	896	1025
608	737	866	995
529	658	787	916
65	81	97	113
150	160	165	170
14.8	18	21.2	24.4

YBB-14S4-0500-G012	**YBB-14S4-0700-G012**	**YBB-14S4-0800-G012**	**YBB-14S4-0900-G012**
YBB-14R4-0500-G012	**YBB-14R4-0700-G012**	**YBB-14R4-0800-G012**	**YBB-14R4-0900-G012**
YBB-14S4-0500-D020	YBB-14S4-0700-D020	YBB-14S4-0800-D020	YBB-14S4-0900-D020
YBB-14R4-0500-D020	YBB-14R4-0700-D020	YBB-14R4-0800-D020	YBB-14R4-0900-D020
YBB-14S4-0500-D050	YBB-14S4-0700-D050	YBB-14S4-0800-D050	YBB-14S4-0900-D050
YBB-14R4-0500-D050	YBB-14R4-0700-D050	YBB-14R4-0800-D050	YBB-14R4-0900-D050
YBB-14S4-0500-D100	YBB-14S4-0700-D100	YBB-14S4-0800-D100	YBB-14S4-0900-D100
YBB-14R4-0500-D100	YBB-14R4-0700-D100	YBB-14R4-0800-D100	YBB-14R4-0900-D100

1400	1600	1700	
1541	1670	1799	
1511	1640	1769	
1432	1561	1690	
177	193	209	
195	200	210	
37.2	40.4	43.6	

YBB-14S4-1400-G012	**YBB-14S4-1600-G012**	**YBB-14S4-1700-G012**	
YBB-14R4-1400-G012	**YBB-14R4-1600-G012**	**YBB-14R4-1700-G012**	
YBB-14S4-1400-D020	YBB-14S4-1600-D020	YBB-14S4-1700-D020	
YBB-14R4-1400-D020	YBB-14R4-1600-D020	YBB-14R4-1700-D020	
YBB-14S4-1400-D050	YBB-14S4-1600-D050	YBB-14S4-1700-D050	
YBB-14R4-1400-D050	YBB-14R4-1600-D050	YBB-14R4-1700-D050	
YBB-14S4-1400-D100	YBB-14S4-1600-D100	YBB-14S4-1700-D100	
YBB-14R4-1400-D100	YBB-14R4-1600-D100	YBB-14R4-1700-D100	


CONTRINEX
SAFETINEX
Channel
Power
CONTRINEX

LIGHT CURTAINS

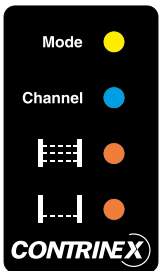
HAND PROTECTION TYPE 4

MAIN FEATURES

- ✓ Resolution: 30 mm
- ✓ Operating range: 0.25 ... 12 m
- ✓ Protective height: 279 ... 1827 mm
- ✓ Category 4, PL e according to EN/ISO 13849-1
- ✓ Type 4 according to IEC 61496-1 and -2
- ✓ Certified TÜV, CE and UL
- ✓ IP 65, IP 67 with operating temperatures as low as -35°C (-31°F)
- ✓ 2-channel selection
- ✓ Optical synchronization
- ✓ Permanent autocontrol

LEDS

LED indicators on the YBB **sender** unit



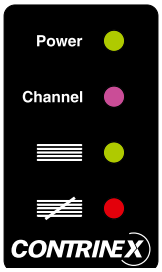
Mode:
Yellow when test mode is active

Channel:
Blue when channel 1 is selected
Purple when channel 2 is selected

Alignment (full):
Steady orange when the screen is not fully aligned
Blinking orange when the first third of the screen is aligned
Off when screen is fully aligned

Alignment (low beam):
Steady orange when the lowest beam is not aligned
Blinking orange when the lowest beam is aligned
Off when screen is fully aligned

LED indicators on the YBB **receiver** unit



Power:
Green when power is ON

Channel:
Blue when channel 1 is selected
Purple when channel 2 is selected

Status ON:
Green when OSSD outputs are ON

Status OFF:
Red when OSSD outputs are OFF

TECHNICAL DATA

Dimensions	42 x 48 x Ht mm
Resolution	30 mm
Protective height	279 ... 1827 mm
Supply voltage range	24 VDC ± 20 %
Current consumption sender	45 mA max. / 1.5 W max.
Current consumption receiver (excl. load)	130 mA max. / 4.7 W max.
Output current	0.2 A max. per output
Safety level (EN/ISO 13849-1)	Category 4, PL e
Safety type (IEC 61496-1 and -2)	Type 4
Protection class (IEC 61140)	III
Ambient temperature range	-35 … +60°C (-31 ... +140°F)
Storage temperature range	-40 … +70°C (-40 ... +158°F)
Degree of protection (EN 60529)	IP 65 + IP 67
Housing material	Aluminum
Material of optical parts	PMMA
Operating range	0.25 ... 12 m
Sender wavelength	IR 880 nm

HOUSING

Aluminum profile 42 x 48 mm with dual fixing groove.

ELECTRONIC PROTECTION

Safetinex light curtains are self-protected against overloads and short-circuits. They can also withstand short high-voltage overloads.

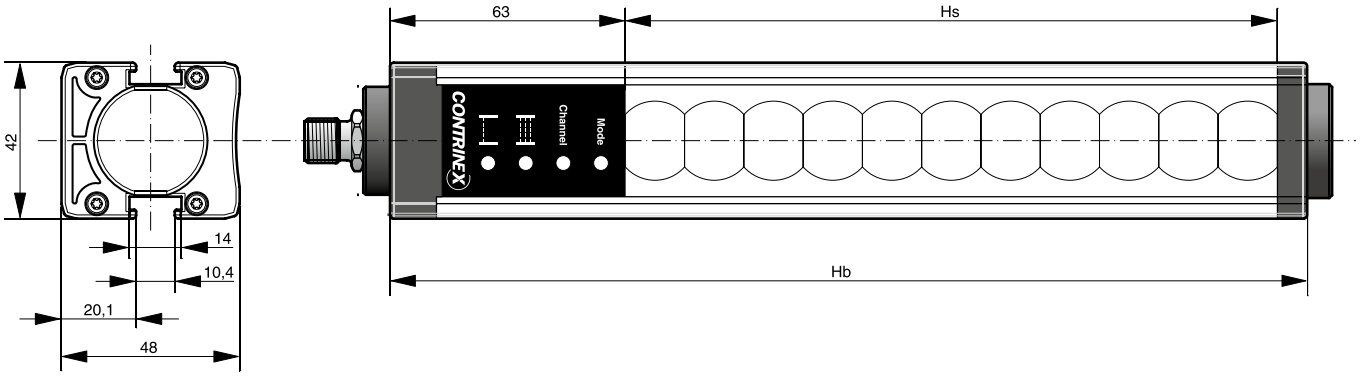
CONNECTION

Safetinex light curtains with M12 5-pole connector are standard, M26 connector versions are also available. Versions with PUR cable, 2 m, 5 m or 10 m long, are available on request.

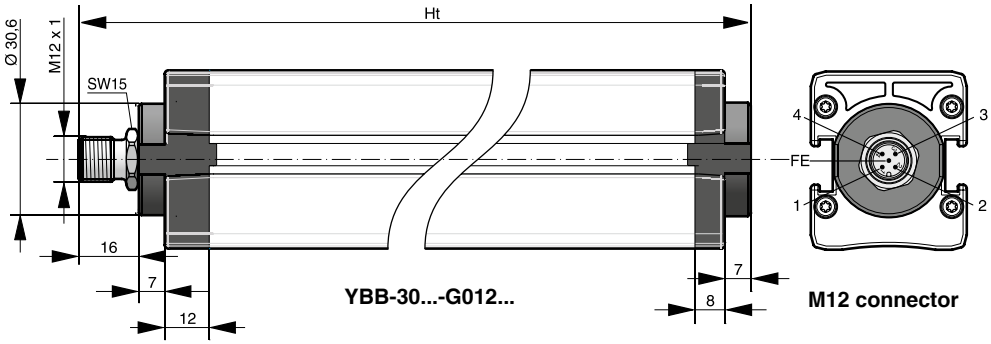
DOCUMENTATION

Detailed data sheets for these products can be found on the Contrinex website www.contrinex.com or ordered free of charge from our distributors.

DIMENSIONS

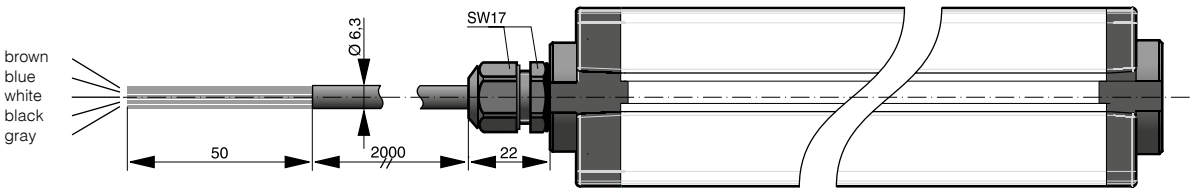


PIN ASSIGNMENT



YBB-30...-G012...

M12 connector



YBB-30...-D020...

Cable

ASSIGNMENT	FUNCTION	PINS/WIRES ON SENDER		PINS/WIRES ON RECEIVER	
		M12 CONNECTOR	CABLE	M12 CONNECTOR	CABLE
Supply voltage	24 VDC for channel 1 / 0 V for channel 2	**1**	brown	**1**	brown
Supply voltage	0 V for channel 1 / 24 VDC for channel 2	**3**	blue	**3**	blue
Test mode	0 V: test active / 24 V: test inactive	**4**	black	**-**	-
Output	OSSD1	**-**	-	**2**	white
Output	OSSD2	**-**	-	**4**	black
Functional earth	Shield	**FE**	gray	**FE**	gray

TYPE-SPECIFIC DATA

Type	0250	0400	0500
Total height (Ht) [mm] *	380	509	638
Housing height (Hb) [mm]	350	479	608
Protective height (Hs) [mm]	279	408	537
Number of beams	17	25	33
Current consumption [mA]	125	130	130
Response time [ms]	5.2	6.8	8.4

PART REFERENCE (BOLD: PREFERRED TYPES)

PNP / Connector M12	Sender	**YBB-30S4-0250-G012**	**YBB-30S4-0400-G012**	**YBB-30S4-0500-G012**
	Receiver	**YBB-30R4-0250-G012**	**YBB-30R4-0400-G012**	**YBB-30R4-0500-G012**
PNP / PUR-cable 2 m	Sender	YBB-30S4-0250-D020	YBB-30S4-0400-D020	YBB-30S4-0500-D020
	Receiver	YBB-30R4-0250-D020	YBB-30R4-0400-D020	YBB-30R4-0500-D020
PNP / PUR-cable 5 m	Sender	YBB-30S4-0250-D050	YBB-30S4-0400-D050	YBB-30S4-0500-D050
	Receiver	YBB-30R4-0250-D050	YBB-30R4-0400-D050	YBB-30R4-0500-D050
PNP / PUR-cable 10 m	Sender	YBB-30S4-0250-D100	YBB-30S4-0400-D100	YBB-30S4-0500-D100
	Receiver	YBB-30R4-0250-D100	YBB-30R4-0400-D100	YBB-30R4-0500-D100

TYPE-SPECIFIC DATA

Type	1200	1300	1400
Total height (Ht) [mm] *	1283	1412	1541
Housing height (Hb) [mm]	1253	1382	1511
Protective height (Hs) [mm]	1182	1311	1440
Number of beams	73	81	89
Current consumption [mA]	150	155	160
Response time [ms]	16.4	18	19.6

PART REFERENCE (BOLD: PREFERRED TYPES)

PNP / Connector M12	Sender	**YBB-30S4-1200-G012**	**YBB-30S4-1300-G012**	**YBB-30S4-1400-G012**
	Receiver	**YBB-30R4-1200-G012**	**YBB-30R4-1300-G012**	**YBB-30R4-1400-G012**
PNP / PUR-cable 2 m	Sender	YBB-30S4-1200-D020	YBB-30S4-1300-D020	YBB-30S4-1400-D020
	Receiver	YBB-30R4-1200-D020	YBB-30R4-1300-D020	YBB-30R4-1400-D020
PNP / PUR-cable 5 m	Sender	YBB-30S4-1200-D050	YBB-30S4-1300-D050	YBB-30S4-1400-D050
	Receiver	YBB-30R4-1200-D050	YBB-30R4-1300-D050	YBB-30R4-1400-D050
PNP / PUR-cable 10 m	Sender	YBB-30S4-1200-D100	YBB-30S4-1300-D100	YBB-30S4-1400-D100
	Receiver	YBB-30R4-1200-D100	YBB-30R4-1300-D100	YBB-30R4-1400-D100

* Total height given with M12 connector. For cable version, add 6 mm.

0700	0800	0900	1000
767	896	1025	1154
737	866	995	1124
666	795	924	1053
41	49	57	65
135	140	140	145
10	11.6	13.2	14.8

YBB-30S4-0700-G012 YBB-30R4-0700-G012	YBB-30S4-0800-G012 YBB-30R4-0800-G012	YBB-30S4-0900-G012 YBB-30R4-0900-G012	YBB-30S4-1000-G012 YBB-30R4-1000-G012
YBB-30S4-0700-D020	YBB-30S4-0800-D020	YBB-30S4-0900-D020	YBB-30S4-1000-D020
YBB-30R4-0700-D020	YBB-30R4-0800-D020	YBB-30R4-0900-D020	YBB-30R4-1000-D020
YBB-30S4-0700-D050	YBB-30S4-0800-D050	YBB-30S4-0900-D050	YBB-30S4-1000-D050
YBB-30R4-0700-D050	YBB-30R4-0800-D050	YBB-30R4-0900-D050	YBB-30R4-1000-D050
YBB-30S4-0700-D100	YBB-30S4-0800-D100	YBB-30S4-0900-D100	YBB-30S4-1000-D100
YBB-30R4-0700-D100	YBB-30R4-0800-D100	YBB-30R4-0900-D100	YBB-30R4-1000-D100

1600	1700	1800
1670	1799	1928
1640	1769	1898
1569	1698	1827
97	105	113
160	165	170
21.2	22.8	24.4

YBB-30S4-1600-G012 YBB-30R4-1600-G012	YBB-30S4-1700-G012 YBB-30R4-1700-G012	YBB-30S4-1800-G012 YBB-30R4-1800-G012
YBB-30S4-1600-D020	YBB-30S4-1700-D020	YBB-30S4-1800-D020
YBB-30R4-1600-D020	YBB-30R4-1700-D020	YBB-30R4-1800-D020
YBB-30S4-1600-D050	YBB-30S4-1700-D050	YBB-30S4-1800-D050
YBB-30R4-1600-D050	YBB-30R4-1700-D050	YBB-30R4-1800-D050
YBB-30S4-1600-D100	YBB-30S4-1700-D100	YBB-30S4-1800-D100
YBB-30R4-1600-D100	YBB-30R4-1700-D100	YBB-30R4-1800-D100


Power
Channel
CONTRINEX

BARRIERS

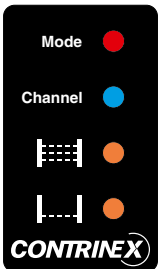
ACCESS CONTROL TYPE 4

MAIN FEATURES

- ✓ Beam gap: 300, 400 or 500 mm (3 to 6 beams)
- ✓ Operating range: 1 ... 15 m or 10 ... 50 m (can be configured)
- ✓ Protective height: 832 ... 1532 mm
- ✓ Category 4, PL e according to EN/ISO 13849-1
- ✓ Type 4 according to IEC 61496-1 and -2
- ✓ Certified TÜV, CE and UL
- ✓ IP 65, IP 67 with operating temperatures as low as -35°C (-31°F)
- ✓ 2-channel selection
- ✓ Optical synchronization
- ✓ Permanent autocontrol

LEDS

LED indicators on the YCA **sender** unit



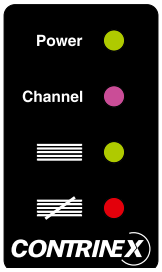
Mode:
Off when max. operating range 15 m
Blue when max. operating range 50 m
Red or purple in case of wiring error

Channel:
Blue when channel 1 selected
Purple when channel 2 selected

Alignment (full):
Steady orange when screen not fully aligned
Blinking orange when first third of screen aligned
Off when screen is fully aligned

Alignment (low beam):
Steady orange when lowest beam not aligned
Blinking orange when lowest beam aligned
Off when screen fully aligned

LED indicators on the YCA **receiver** unit



Power:
Green when power ON

Channel:
Blue when channel 1 selected
Purple when channel 2 selected

Status ON:
Green when OSSD outputs ON

Status OFF:
Red when OSSD outputs OFF

TECHNICAL DATA

Dimensions	42 x 48 x Ht mm
Beam gap	300, 400 or 500 mm (3 to 6 beams)
Protective height	832 ... 1532 mm
Supply voltage range	24 VDC ± 15 %
Current consumption sender	35 mA max. / 1.0 W max.
Current consumption receiver (excl. load)	75 mA max. / 2.2 W max.
Output current	0.2 A max. per output
Safety level (EN/ISO 13849-1)	Category 4, PL e
Safety type (IEC 61496-1 and -2)	Type 4
Protection class (IEC 61140)	III
Ambient temperature range	-35 … +60°C (-31 ... +140°F)
Storage temperature range	-40 … +70°C (-40 ... +158°F)
Degree of protection (EN 60529)	IP 65 + IP 67
Housing material	Aluminum
Material of optical parts	PMMA
Operating range	1 ... 15 m / 10 ... 50 m (can be configured)
Sender wavelength	IR 880 nm

HOUSING

Aluminum profile 42 x 48 mm with dual fixing groove.

CONFIGURATION OF OPERATING RANGE

Depending on wiring, the maximum operating range can be fixed to either 50 m or 15 m.

ELECTRONIC PROTECTION

Safetinex access control barriers are self-protected against overloads and short-circuits. They can also withstand short high-voltage overloads.

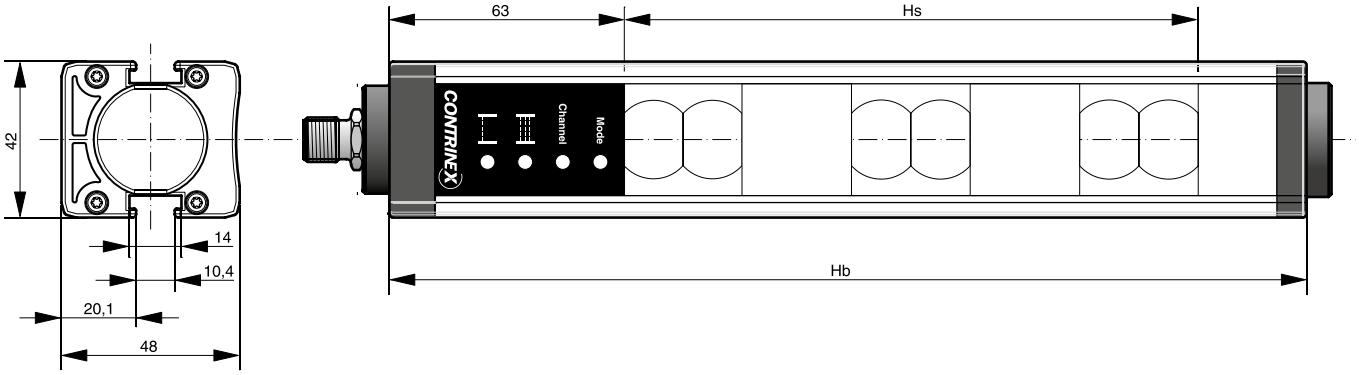
CONNECTION

Safetinex light curtains with M12 5-pole connector are standard, M26 connector versions are also available. Versions with PUR cable, 2 m, 5 m or 10 m long, are available on request.

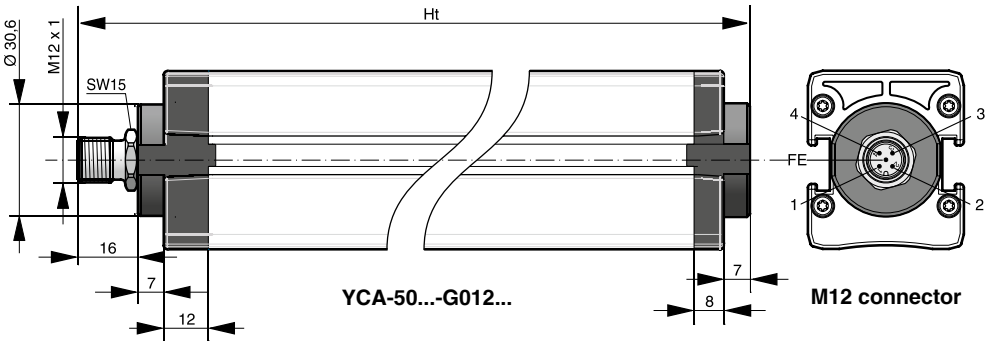
DOCUMENTATION

Detailed data sheets for these products can be found on the Contrinex website www.contrinex.com or ordered free of charge from our distributors.

DIMENSIONS

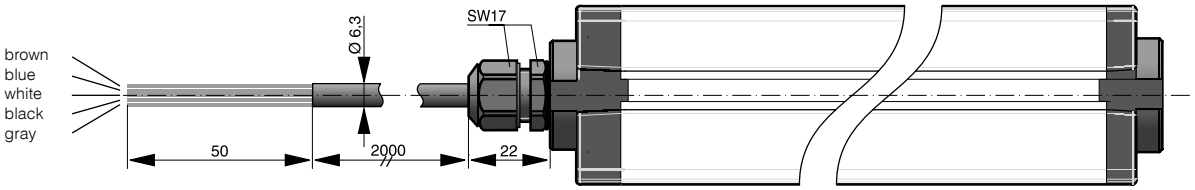


PIN ASSIGNMENT



YCA-50...-G012...

M12 connector



YCA-50...-D020...

Cable

ASSIGNMENT	FUNCTION	PINS/WIRES ON SENDER		PINS/WIRES ON RECEIVER	
		M12 CONNECTOR	CABLE	M12 CONNECTOR	CABLE
Supply voltage	24 VDC for channel 1 / 0 V for channel 2	**1**	brown	**1**	brown
Supply voltage	0 V for channel 1 / 24 VDC for channel 2	**3**	blue	**3**	blue
Operating range selection	24 V: operating range 10 ... 50 m 0 V: operating range 1 ... 15 m	**4**	black	**-**	-
Operating range selection	0 V: operating range 10 ... 50 m 24 V: operating range 1 ... 15 m	**2**	white	**-**	-
Output	OSSD1	**-**	-	**2**	white
Output	OSSD2	**-**	-	**4**	black
Functional earth	Shield	**FE**	gray	**FE**	gray

TYPE-SPECIFIC DATA

Number of beams		**4**	**5**	**6**
Beam gap (Bg) [mm]		**300**	**300**	**300**
Total height (Ht) [mm] *		1154	1412	1670
Housing height (Hb) [mm]		1124	1382	1640
Protective height (Hs) [mm]		932	1232	1532
Height extension (He) [mm]		121	79	37
Current consumption [mA]		110	110	110
Response time [ms]		5.0	5.9	6.7

PART REFERENCE (BOLD: PREFERRED TYPES)

PNP / Connector M12	Sender	**YCA-50S4-4300-G012**	**YCA-50S4-5300-G012**	**YCA-50S4-6300-G012**
	Receiver	**YCA-50R4-4300-G012**	**YCA-50R4-5300-G012**	**YCA-50R4-6300-G012**
PNP / PUR-cable 2 m	Sender	YCA-50S4-4300-D020	YCA-50S4-5300-D020	YCA-50S4-6300-D020
	Receiver	YCA-50R4-4300-D020	YCA-50R4-5300-D020	YCA-50R4-6300-D020
PNP / PUR-cable 5 m	Sender	YCA-50S4-4300-D050	YCA-50S4-5300-D050	YCA-50S4-6300-D050
	Receiver	YCA-50R4-4300-D050	YCA-50R4-5300-D050	YCA-50R4-6300-D050
PNP / PUR-cable 10 m	Sender	YCA-50S4-4300-D100	YCA-50S4-5300-D100	YCA-50S4-6300-D100
	Receiver	YCA-50R4-4300-D100	YCA-50R4-5300-D100	YCA-50R4-6300-D100

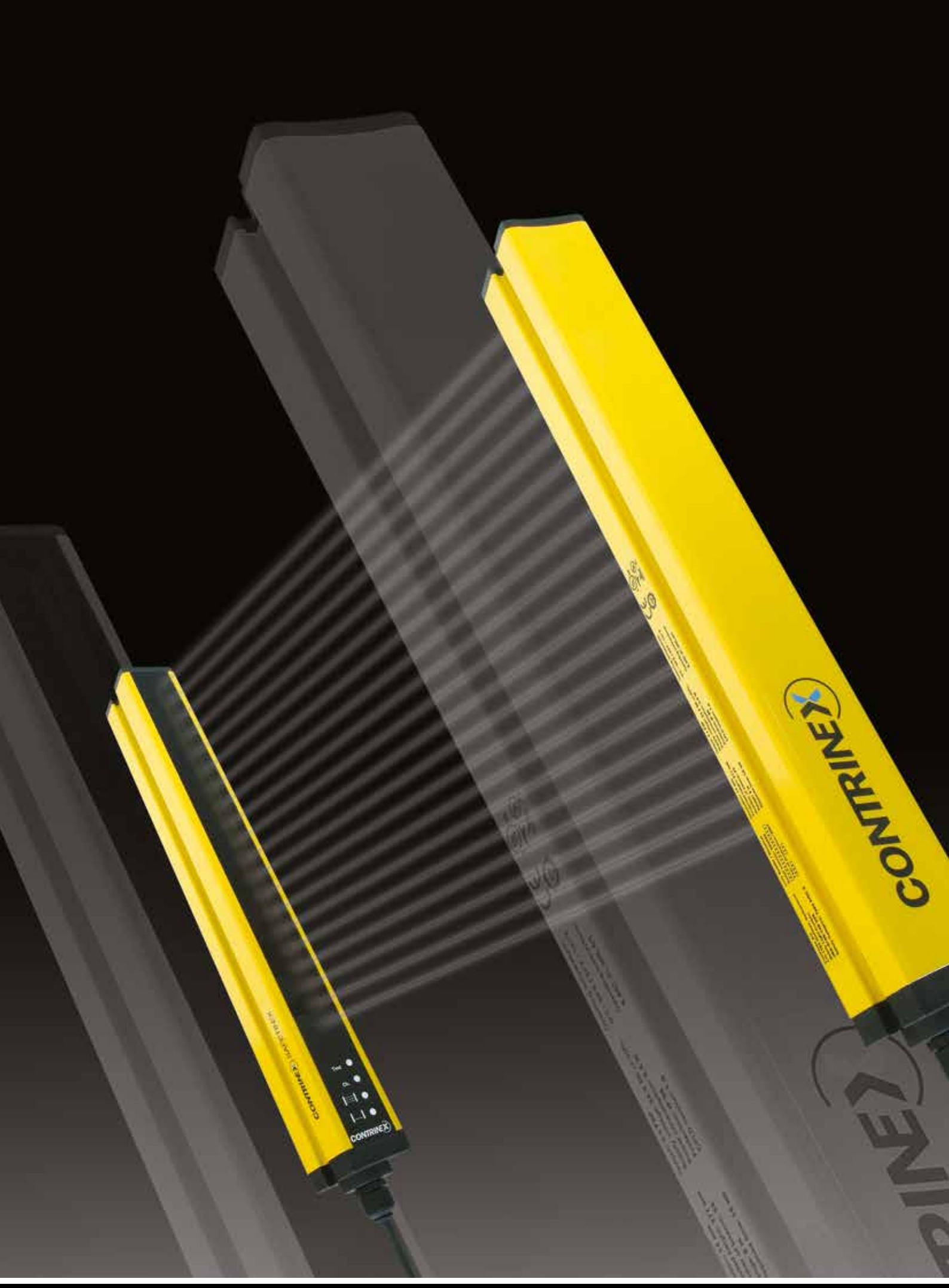
TYPE-SPECIFIC DATA

Number of beams		**3**	**4**	**3**
Beam gap (Bg) [mm]		**400**	**400**	**500**
Total height (Ht) [mm] *		1025	1412	1154
Housing height (Hb) [mm]		995	1382	1124
Protective height (Hs) [mm]		832	1232	1032
Height extension (He) [mm]		92	79	21
Current consumption [mA]		110	110	110
Response time [ms]		4.2	5.0	4.2

PART REFERENCE (BOLD: PREFERRED TYPES)

PNP / Connector M12	Sender	**YCA-50S4-3400-G012**	**YCA-50S4-4400-G012**	**YCA-50S4-3500-G012**
	Receiver	**YCA-50R4-3400-G012**	**YCA-50R4-4400-G012**	**YCA-50R4-3500-G012**
PNP / PUR-cable 2 m	Sender	YCA-50S4-3400-D020	YCA-50S4-4400-D020	YCA-50S4-3500-D020
	Receiver	YCA-50R4-3400-D020	YCA-50R4-4400-D020	YCA-50R4-3500-D020
PNP / PUR-cable 5 m	Sender	YCA-50S4-3400-D050	YCA-50S4-4400-D050	YCA-50S4-3500-D050
	Receiver	YCA-50R4-3400-D050	YCA-50R4-4400-D050	YCA-50R4-3500-D050
PNP / PUR-cable 10 m	Sender	YCA-50S4-3400-D100	YCA-50S4-4400-D100	YCA-50S4-3500-D100
	Receiver	YCA-50R4-3400-D100	YCA-50R4-4400-D100	YCA-50R4-3500-D100

* Total height given with M12 connector. For cable version, add 6 mm.


CONTRINEX

 Detailed data sheets for these products can be found on the Contrinex website:

LIGHT CURTAINS

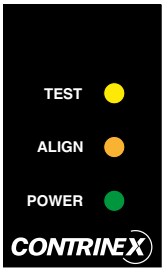
HAND PROTECTION TYPE 2

MAIN FEATURES

- ✓ Resolution: 30 mm
- ✓ Operating range: 0.25 ... 12 m
- ✓ Protective height: 150 ... 1827 mm
- ✓ Category 2, PL c according to EN/ISO 13849-1
- ✓ Type 2 according to IEC 61496-1 and -2
- ✓ Certified TÜV, CE and UL
- ✓ Optical synchronization
- ✓ Permanent autocontrol

LEDS

LED indicators on the YBB **sender** unit

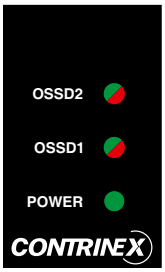


Test:
Yellow when intrusion simulation is active
Off when there is no intrusion simulation

Alignment:
Steady orange when the lowest beam is not aligned
Quick blinking orange when the lowest beam is aligned
Blinking orange when at least 6 beams are aligned
Off when screen is fully aligned

Power:
Green when power is ON

LED indicators on the YBB **receiver** unit



OSSD2:
Green when OSSD2 is ON
Red when OSSD2 is OFF

OSSD1:
Green when OSSD1 is ON
Red when OSSD1 is OFF

Power:
Green when power is ON

TECHNICAL DATA

Dimensions	42 x 48 x Ht mm
Resolution	30 mm
Protective height	150 ... 1827 mm
Supply voltage range	24 VDC ± 20 %
Current consumption sender	27 mA max. / 0.8 W max.
Current consumption receiver (excl. load)	58 mA max. / 1.7 W max.
Output current	0.2 A max. per output
Safety level (EN/ISO 13849-1)	Category 2, PL c
Safety type (IEC 61496-1 and -2)	Type 2
Protection class (IEC 61140)	III
Ambient temperature range	0 … +50°C (+32 ... +122°F)
Storage temperature range	-25 … +70°C (-13 ... +158°F)
Degree of protection (EN 60529)	IP 65 + IP 67
Housing material	Aluminum
Material of optical parts	PMMA
Operating range	0.25 ... 12 m
Sender wavelength	IR 880 nm

HOUSING

Aluminum profile 42 x 48 mm with dual fixing groove.

ELECTRONIC PROTECTION

Safetinex light curtains are self-protected against overloads and short-circuits. They can also withstand short high-voltage overloads.

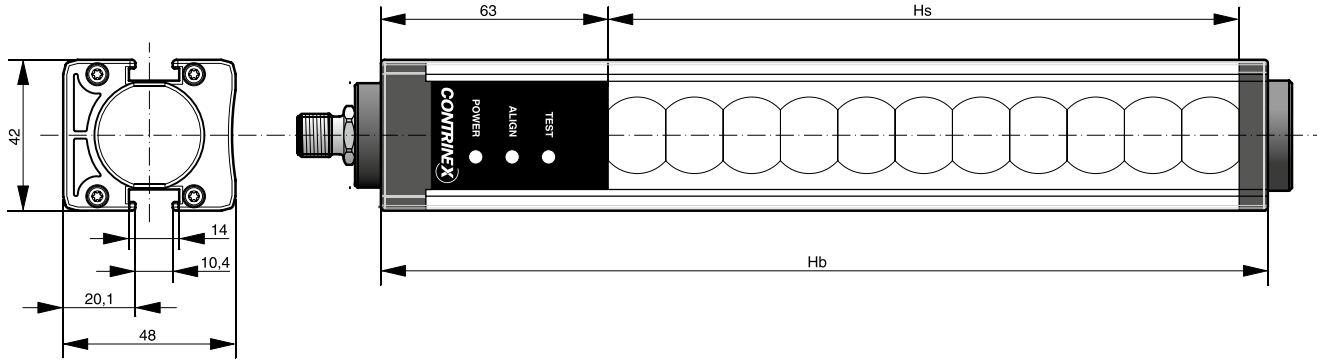
CONNECTION

Safetinex light curtains are connected via a standard M12 5-pole connector.

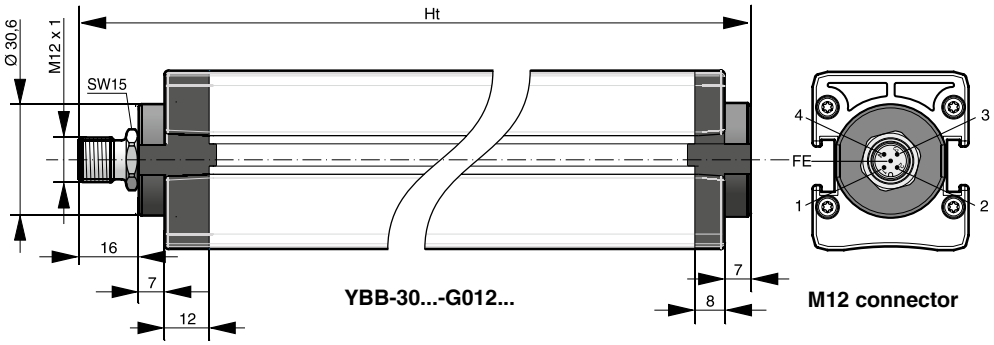
DOCUMENTATION

Detailed data sheets for these products can be found on the Contrinex website www.contrinex.com or ordered free of charge from our distributors.

DIMENSIONS



PIN ASSIGNMENT



ASSIGNMENT	FUNCTION	PINS ON SENDER M12 CONNECTOR	PINS ON RECEIVER M12 CONNECTOR
Supply voltage	24 VDC	**1**	**1**
Supply voltage	0 V	**3**	**3**
Test mode	0 V: test active / 24 V: test inactive	**4**	**-**
Output	OSSD1	**-**	**2**
Output	OSSD2	**-**	**4**
Functional earth	Shield	**FE**	**FE**

TYPE-SPECIFIC DATA

Type	0150	0250	0400	0500
Total height (Ht) [mm]*	251	380	509	638
Housing height (Hb) [mm]	221	350	479	608
Protective height (Hs) [mm]	150	279	408	537
Number of beams	9	17	25	33
Current consumption [mA]	70	74	77	79
Response time [ms]	14	18	22	26

PART REFERENCE

PNP / Connector M12	Sender	YBB-30S2-0150-G012	YBB-30S2-0250-G012	YBB-30S2-0400-G012	YBB-30S2-0500-G012
	Receiver	YBB-30R2-0150-G012	YBB-30R2-0250-G012	YBB-30R2-0400-G012	YBB-30R2-0500-G012

TYPE-SPECIFIC DATA

Type	0700	0800	0900	1000
Total height (Ht) [mm]*	767	896	1025	1154
Housing height (Hb) [mm]	737	866	995	1124
Protective height (Hs) [mm]	666	795	924	1053
Number of beams	41	49	57	65
Current consumption [mA]	80	81	81	82
Response time [ms]	30	34	38	42

PART REFERENCE

PNP / Connector M12	Sender	YBB-30S2-0700-G012	YBB-30S2-0800-G012	YBB-30S2-0900-G012	YBB-30S2-1000-G012
	Receiver	YBB-30R2-0700-G012	YBB-30R2-0800-G012	YBB-30R2-0900-G012	YBB-30R2-1000-G012

TYPE-SPECIFIC DATA

Type	1200	1300	1400	1600
Total height (Ht) [mm]*	1283	1412	1541	1670
Housing height (Hb) [mm]	1253	1382	1511	1640
Protective height (Hs) [mm]	1182	1311	1440	1569
Number of beams	73	81	89	97
Current consumption [mA]	83	83	84	84
Response time [ms]	46	50	54	58

PART REFERENCE

PNP / Connector M12	Sender	YBB-30S2-1200-G012	YBB-30S2-1300-G012	YBB-30S2-1400-G012	YBB-30S2-1600-G012
	Receiver	YBB-30R2-1200-G012	YBB-30R2-1300-G012	YBB-30R2-1400-G012	YBB-30R2-1600-G012

TYPE-SPECIFIC DATA

Type	1700	1800		
Total height (Ht) [mm]*	1799	1928		
Housing height (Hb) [mm]	1769	1898		
Protective height (Hs) [mm]	1698	1827		
Number of beams	105	113		
Current consumption [mA]	85	85		
Response time [ms]	62	66		

PART REFERENCE

PNP / Connector M12	Sender	YBB-30S2-1700-G012	YBB-30S2-1800-G012		
	Receiver	YBB-30R2-1700-G012	YBB-30R2-1800-G012		

* Total height given with M12 connector


OSSD2
OSSD1
POWER
CONTRINEX
TEST
ALIGN
POWER
CONTRINEX


M1 X44
S22 S24 S23
A1+ 48 S12 S14
S21 13 23 33
CONTRINEX
run1 run2
K1 K2
13 14
23 24
33 34
A1+ 48 A1+ 58
CH1 CH2 0062368
A2 S8 S32 S34
S41 14 24 34
M2 S31 S33
S42 S44 S43

SAFETY
RELAYS

MAIN FEATURES

- ✓ For safety light curtains and access control barriers with symmetric (such as Safetinex YBB and YCA models) or asymmetric outputs
- ✓ Safety Integrity Level (SIL) 3 according to IEC/EN 61508
- ✓ Claimed Level (SIL CL) 3 according to IEC/EN 62061
- ✓ Performance Level (PL) e and category 4 according to EN/ISO 13849-1
- ✓ Safety category 4 according to EN 954-1
- ✓ Certified TÜV, CE and UL

SAFETY RELAY

- ✓ Outputs: - 3 N.O. safety contacts
  - 1 N.C. monitoring contact
- ✓ Manual or automatic restart
- ✓ LED indicator for channel 1, 2 and power supply
- ✓ 22.5 mm wide, DIN-rail-mountable housing

MULTI-FUNCTIONAL RELAY

- ✓ Outputs: - 3 x N.O. safety contacts
  - 2 semiconductor outputs, short-circuit and overload protected
- ✓ Wire-break detection on AOPD input
- ✓ Under- and overvoltage detection and indication
- ✓ Reaction time: max. 30 ms
- ✓ LED indicators for RUN operation, channel 1/2
- ✓ 45 mm wide, DIN-rail-mountable housing

RELAY

YRB-0131-241

APPLICATION AREA

This safety relay is a SIL 3, PL e and category 4 device, designed for the protection of people and machines. It can be used in applications together with:

– Electro-sensitive protective equipment type 4 or type 2 (light curtains and access control barriers)

TECHNICAL DATA

INPUT

Nominal voltage U_N		24 VDC
Voltage range		0.9 ... 1.1 U_N
Nominal consumption		DC approx. 1.7 W
Min. off-time		250 ms
Control voltage on S11 at U_N		22.5 VDC
Control current typ. over S12, S22		35 mA at U_N
Min. voltage on S12, S22 when relay is activated		21 VDC
Short-circuit protection		Internal PTC
Overvoltage protection		Internal VDR

OUTPUT

Contacts		3 N.O. safety contacts
		1 N.C. contact **WARNING! N.C. contact**
		can only be used for monitoring
Operating delay (typ.) at U_N:	manual restart	20 ms
	automatic restart	350 ms
Release delay (typ.) at U_N:	disconnecting supply	20 ms
	disconnecting S12, S22	15 ms
Contact type		positively driven
Nominal output voltage		250 VAC (DC: see Diagram 1)
Switching of low loads		≥ 100 mV
(contact 5 μ Au)		≥ 1 mA
Thermal current I_{th}		max. 8 A per contact (see Diagram 2)
Switching capacity (according to IEC/EN 60947-5-1)		
to AC 15:	N.O. contacts	3 A / 230 VAC
	N.C. contacts	2 A / 230 VAC
to DC 13:	N.O. contacts	4 A / 24 VDC 0.5 A / 110 V
	N.C. contacts	4 A / 24 VDC
to DC 13:	N.O. contacts	8 A / 24 VDC > 25 x 10^3
		ON: 0.4 s OFF: 9.6 s

GENERAL DATA

Electrical contact life at 5 A, 230 VAC cos φ = 1		> 1.5 x 10^5 switching cycles
Permissible operating frequency		max. 1200 operating cycles / h
Short-circuit strength:	max. fuse rating	10 A gL IEC/EN 60947-5-1
	line circuit breaker	B 6 A
Ambient temperature range		-15 ... +55 °C (+5 ... +130 °F)
EMC		according to IEC/EN 61000-4-2 to 5
Degree of protection:	Housing	IP 40 IEC/EN 60529
	Terminals	IP 20 IEC/EN 60529
Wire connection		according to DIN 46228-1/-2/-3/-4
Housing material		thermoplastic, meets UL 94V-0
Mounting		on DIN rail IEC/EN 60715
Weight		220 g
Housing dimensions (W x H x D)		22.5 x 90 x 118 mm

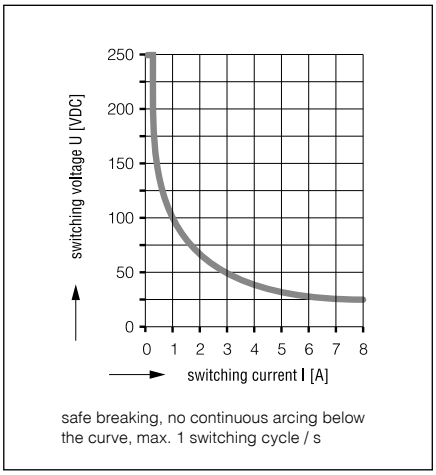


Diagram 1: limit curve for arc-free operation under resistive load

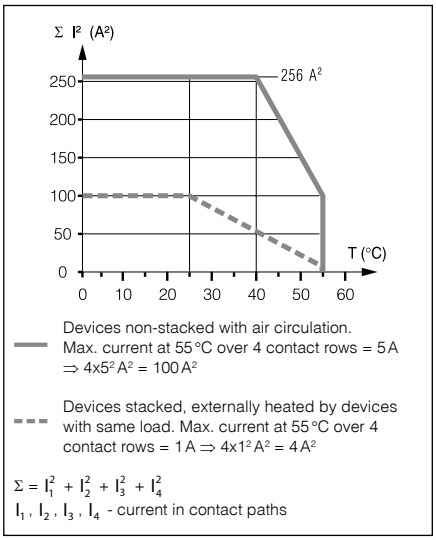
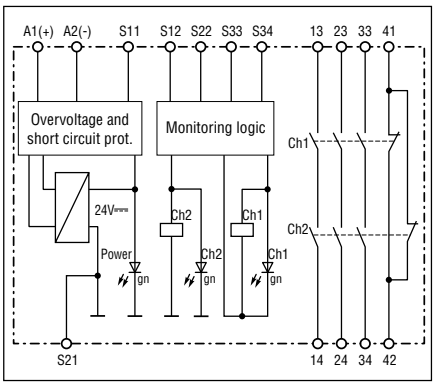


Diagram 2: total current limit curve

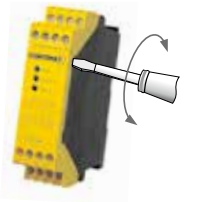


Relay block diagram

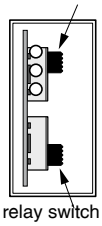
PART REFERENCE

Safety relay	YRB-0131-241

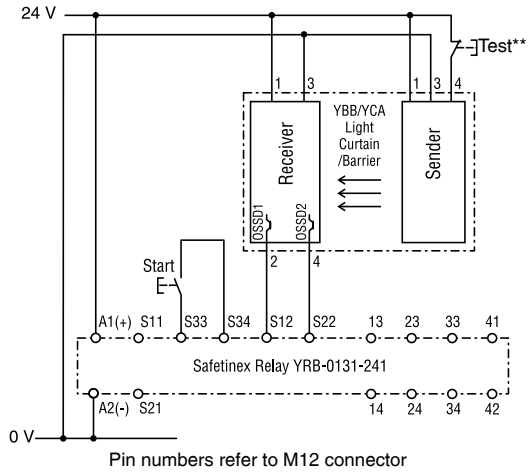
MANUAL RESTART MODE (Channel 1)



Set relay switch **S1** to **without***



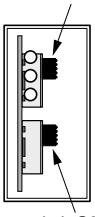
Set relay switch **S2** to **manual**



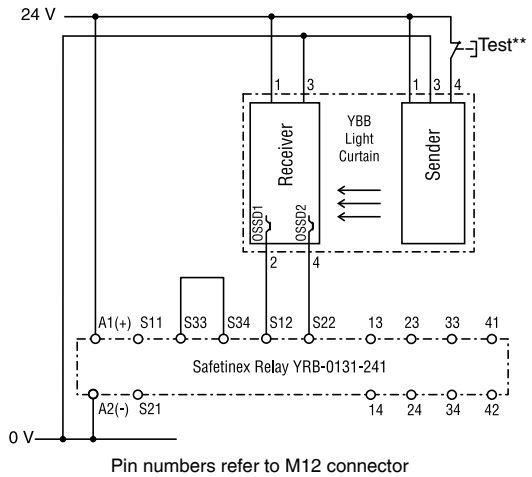
Pin numbers refer to M12 connector

AUTOMATIC RESTART MODE (Channel 1)

Set relay switch **S1** to **without***



Set relay switch **S2** to **automatic*****



Pin numbers refer to M12 connector

* Position of switch S1:

– With symmetric outputs on light curtains or access control barriers (such as Safetinex YBB and YCA models), set switch S1 to "without".

– With asymmetric outputs on light curtains or access control barriers, set switch S1 to "with".

** Test button is only applicable for YBB models.

*** Automatic restart is **not allowed** for YCA access control devices.

MULTI-FUNCTIONAL RELAY

YRB-0330-242

APPLICATION AREA

- The following operation types can be selected by means of a rotary switch:
  - **Protective operation**, e.g. light curtains
  - **Protective operation with muting**, e.g. conveyor belts
    - Setting of various signal cycles of muting sensors
    - Setting of max. permissible muting time
    - Override function by means of start button
  - **Stepping operation**, e.g. presses
    - 1, 2 or 3 cycles
    - Number of cycles can be set by means of key switch
- Suitable for connection of type 4 AOPDs or type 2 AOPDs according to IEC/EN 61496-1, cross-circuit monitoring in AOPDs
- Connection of max.
  - 3 2-channel AOPDs, or
  - 2 2-channel AOPDs and 2 1-channel muting sensors, or
  - 1 2-channel AOPD and 4 1-channel muting sensors, or
  - 2 2-channel AOPDs and key switch for cycle switching
  - additionally: start button and machine contact with line-fault detection

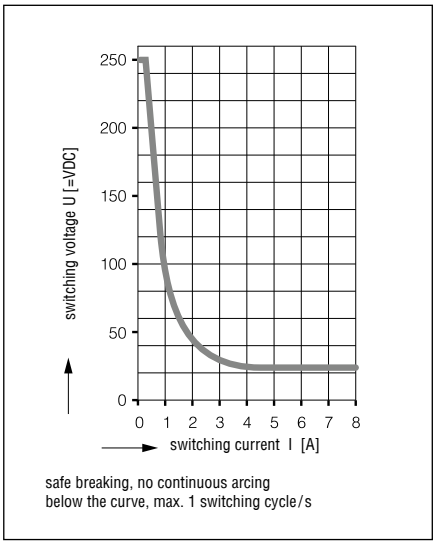
TECHNICAL DATA

INPUT

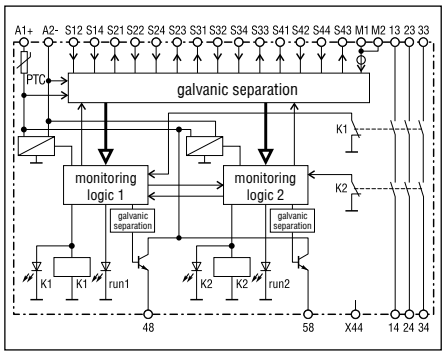
Nominal voltage U_N	24 VDC	
Voltage range at max. 5 % ripple content	0.85 ... 1.15 U_N	
Nominal consumption	max. 170 mA (no load on semiconductor outputs)	
Control voltage on		
S21, S23, S31, S33, S41, S43, 48, 58	23 VDC at U_N	
Control current on		
S12, S14, S22, S24, S32, S34, S42, S44	4.5 mA each at U_N	
Min. voltage on		
S12, S14, S22, S24, S32, S34, S42, S44	16 VDC	
Device protection	Internal by means of PTC	
Min. current on M1, M2	25 mA (lamp active)	

OUTPUT

Contacts	3 x N.O.	
Contact type	Relay, positively driven	
Operating delay (typ. at U_N):		
Manual start	max. 50 ms	
Automatic start	max. 1.5 s	
Automatic restart	max. 55 ms	
Release delay (reaction time)	max. 30 ms	
	(max. 50 ms when error on AOPD and only 1	
	input channel of AOPD off)	
Nominal output voltage	250 VAC	
	DC: see limit curve for arc-free operation	
Switching of low loads	≥ 100 mV	
Thermal current I_{th}	5 A	
Switching capacity		
to AC 15	3 A / 230 VAC	IEC/EN 60947-5-1
to DC 13 at 0.1 Hz	8 A / 24 VDC	IEC/EN 60947-5-1



Limit curve for arc-free operation



Block diagram

SEMICONDUCTOR OUTPUTS

Output (terminals 48 and 58)	Transistor outputs, plus switching
Nominal output voltage	24 VDC, max. 100 mA continuous current,
	max. 400 mA for 0.5 s internal short-circuit, over-
	temperature and overload protection

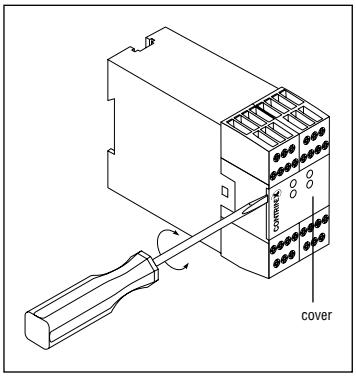
GENERAL DATA

Electrical life	10^5 switching cycles	IEC/EN 60947-5-1
to AC 15 at 2 A, AC 230 V		
Permissible operating frequency	max. 1200 switching cycles/h	
Short-circuit strength:		
max. fuse rating	6 A gL	IEC/EN 60947-5-1
line circuit breaker	C 8 A	
Mechanical life	10 x 10^6 switching cycles	
Temperature range	0 ... +50 °C (+32 ... +122 °F)	
Clearance and creepage distance:		
Nominal impulse voltage /	4 kV / 2	IEC/EN 60664-1
Pollution degree		
EMC:		
Electrostatic discharge (ESD)	8 kV (contact discharge)	IEC/EN 61000-4-2
	(according to test degree 3)	
HF irradiation	10 V / m	IEC/EN 61000-4-3
Fast transients:		
- on power supply wires A1 - A2	2 kV	IEC/EN 61000-4-4
- on signal and control wires	2 kV	IEC/EN 61000-4-4
Surge voltage:		
- between power supply wires	1 kV	IEC/EN 61000-4-5
- between wire and ground	2 kV	IEC/EN 61000-4-5
- HF-wire guided	10 V	IEC/EN 61000-4-6
Interference suppression	Limit value class B	EN 55011
Degree of protection:	according to IEC/EN 61496-1 (1997), the device	
	must be installed in a control housing with degree	
	of protection 54.	
Housing	IP 40	IEC/EN 60529
Terminals	IP 20	IEC/EN 60529
Housing	Thermoplastic polymer with V0 behavior acc. to UL	
	Subject 94	
Vibration resistance according to IEC/EN 61496-1	Amplitude 0.35 mm	
	Frequency 10 ... 55 Hz	IEC/EN 60068-2-6
Shock resistance:		
Acceleration	10 g	
Impulse length	16 ms	
Number of shocks	1000 per axis on three axes	
Climatic resistance	0 / 050 / 04	IEC/EN 60068-1
Terminals	EN 50005	
Wire connection	according to DIN 46228-1/-2/-3/-4	
Wire fixing	M3.5 captive plus-minus terminal screws	
	Box terminal with wire protection	
Mounting	DIN rail	IEC/EN 60715
Weight	320 g	
Dimensions (W x H x D)	45 x 84 x 118 mm	

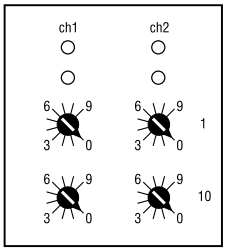
PART REFERENCE

Multi-functional safety relay	YRB-0330-242

APPLICATION EXAMPLES



Device setting



Inside view

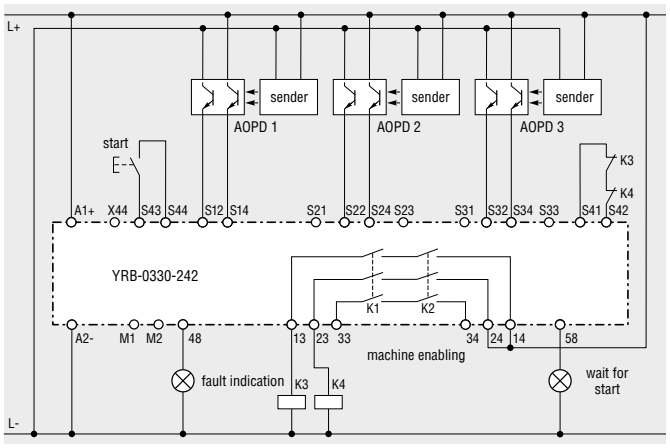


Diagram 1: Protective operation with 3 AOPDs, manual or automatic start, setting with feedback input

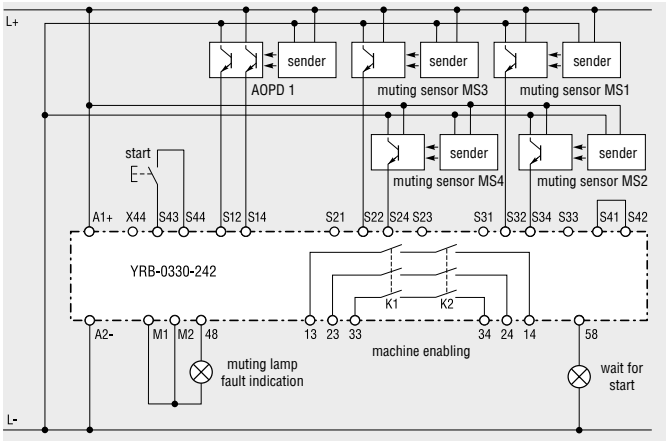


Diagram 2: Protective operation with muting, 4 muting sensors, 1 AOPD

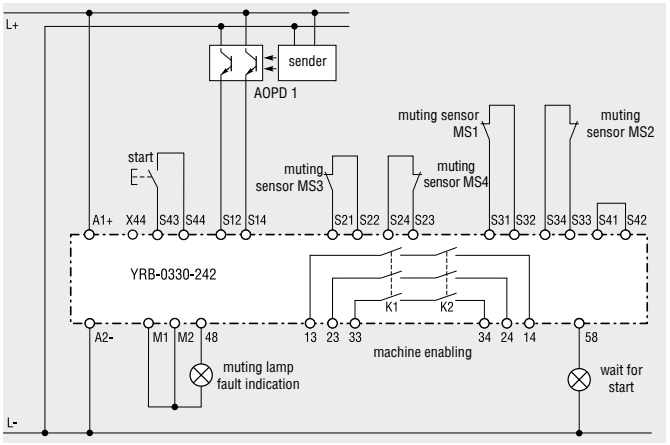


Diagram 3: Protective operation with muting via 4 muting-sensor contacts

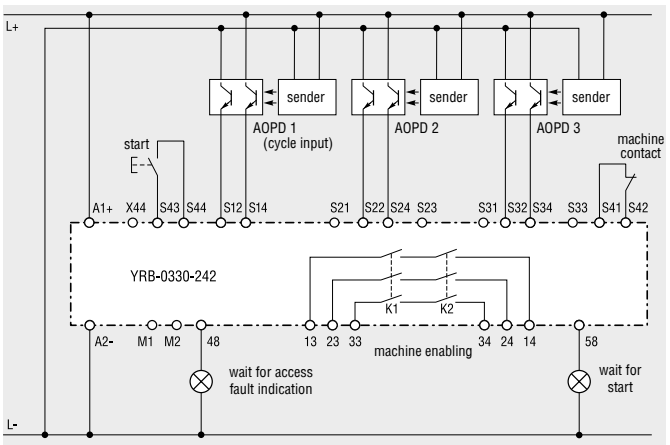
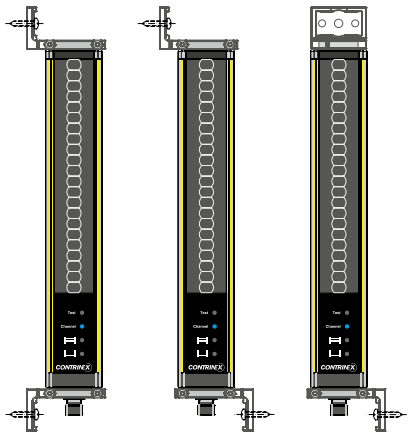


Diagram 4: Stepping operation with 3 AOPDs

ACCESSORIES



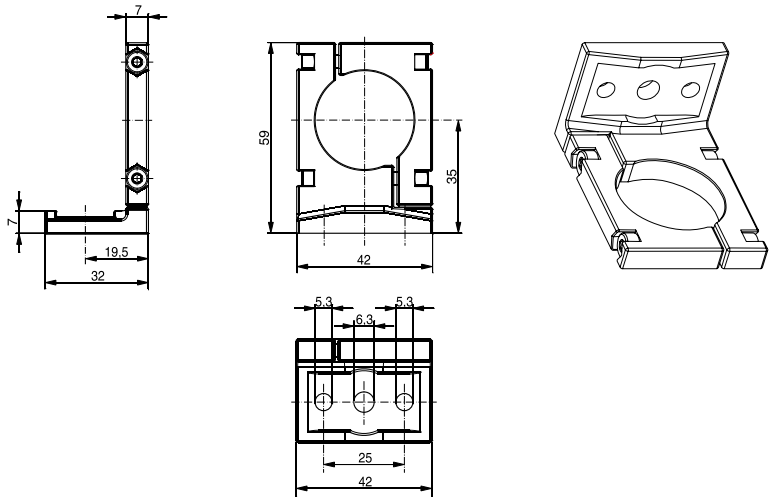
TOP/BOTTOM MOUNTING BRACKET

– Synthetic swivel mounting bracket
– Easy-to-use

A pair of mounting brackets is supplied with each light curtain or access control barrier unit.

DIMENSIONS

TOP/BOTTOM MOUNTING BRACKETS

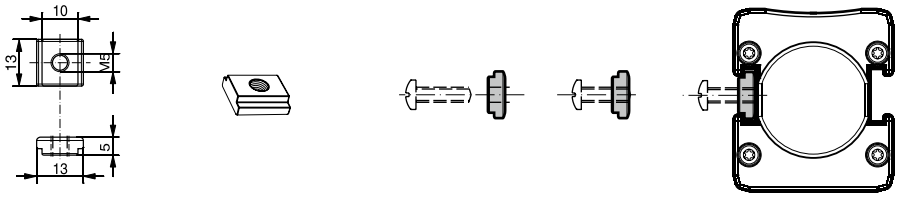


PART REFERENCE

Top/bottom mounting brackets, synthetic (pair)	YXW-0001-000

DIMENSIONS

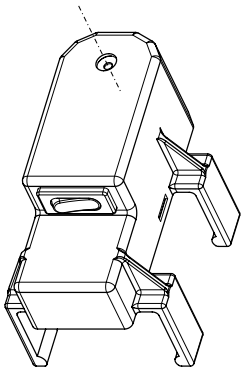
SLIDING T-NUTS FOR SIDE MOUNTING



PART REFERENCE

T-nuts for side mounting, metal (pair)	YXW-0003-000

LASER ALIGNMENT TOOL



MAIN FEATURES

- Easily clippable onto Safetinex YBB and YCA devices
- Range: up to 50 m
- Output power < 1 mW (class 2)
- Standard AA batteries

TECHNICAL DATA

Laser module optical output power	< 1 mW (class 2)
Laser beam spot size at 10 m	< 10 mm
Range	≤ 50 m
Housing material	PA with 30% fiberglass
Dimensions	80 x 48 x 56 mm

PART REFERENCE

Laser alignment tool	YXL-0001-000

LASER ALIGNMENT TOOL

M12 4-POLE

TECHNICAL DATA

Rated voltage	250 V AC/DC max.
Rated current	4 A max.
Sleeve material	PUR non-inflammable IEC 332-2, halogen-free
	DIN VDE 0472 part 815, silicone-free, RoHS
Wire structure	4 x 0.34 mm²
Wire insulation	PP, halogen-free
Outer cable diameter	∅ 4.7 mm
Temperature range	-25 ... +80 °C (-13 ... +175 °F)
Degree of protection	IP 67
Certification	UL E227529, section 4

PART REFERENCE

PUR, unshielded, S12 4-pole, 2 m	S12-4FUG-020
PUR, unshielded, S12 4-pole, 5 m	S12-4FUG-050
PUR, unshielded, S12 4-pole, 10 m	S12-4FUG-100

M12 4-POLE WITH V4A (AISI 316L/DIN 1.4404) CONNECTORS (FOOD SAFE)

TECHNICAL DATA

Rated voltage	32 V AC/DC max.
Rated current	4 A max.
Sleeve material	PVC
Wire structure	4 x 0.34 mm²
Wire insulation	PVC
Outer cable diameter	∅ 5.2 mm ± 5 %
Temperature range	-5 ... +70 °C (+23 ... +158 °F)
Degree of protection	IP 67, IP 68 & IP 69K
Certification	CSA, Ecolab

PART REFERENCE

PVC, unshielded, S12 4-pole, 2 m	S12-4FVG-020-NNLN
PVC, unshielded, S12 4-pole, 5 m	S12-4FVG-050-NNLN
PVC, unshielded, S12 4-pole, 10 m	S12-4FVG-100-NNLN

M12 5-POLE SHIELDED

TECHNICAL DATA

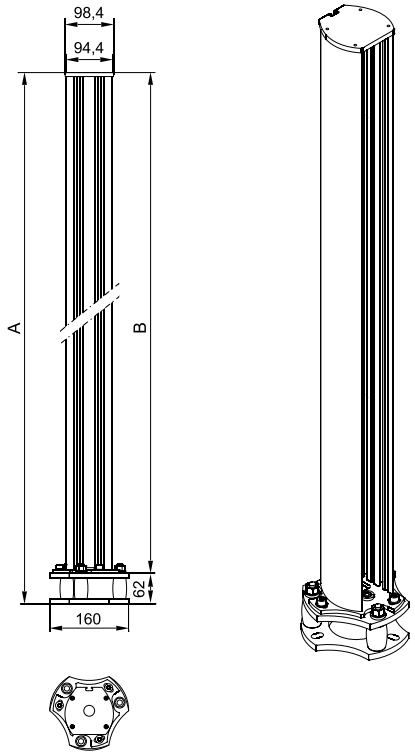
Rated voltage	60 V AC/DC max.
Rated current	4 A max. per contact
Electromagnetic protection	shielded
Sleeve material	PUR
Wire structure	5 x 0.34 mm²
Wire insulation	PP
Outer cable diameter	∅ 6.3 mm ± 5 %
Temperature range	-25 ... +80 °C (-13 ... +175 °F)
Degree of protection	IP 67
Certification	UL, CSA

PART REFERENCE

PUR, shielded, S12 5-pole, 2 m	S12-5FUG-020-NBSN
PUR, shielded, S12 5-pole, 5 m	S12-5FUG-050-NBSN
PUR, shielded, S12 5-pole, 10 m	S12-5FUG-100-NBSN

DEVICE COLUMNS

DIMENSIONS



DEVICE COLUMNS FOR LIGHT CURTAINS AND ACCESS CONTROL BARRIERS

- Robust protective profile, attractive design
- Special spring elements automatically reset position in case of mechanical impact
- Complete assembly kit for both device and floor mounting included
- Easy to mount: vertical and axial adjustments can be quickly completed in just a few steps

APPLICATION AREA

Free-standing floor mounting for safety light curtains and access control barriers, such as Safetinex YBB and YCA models

TECHNICAL DATA

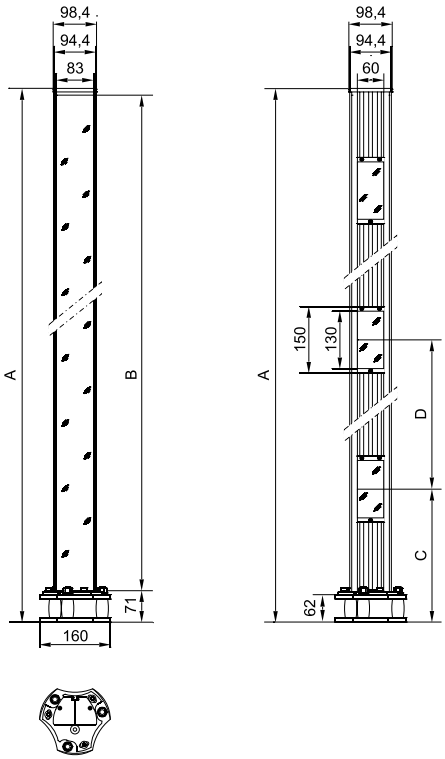
Housing	Aluminum profile and steel floor plates
Surface	Powder-varnished, yellow (RAL 1021)

PART REFERENCE

Device column	Total height (A) [mm]	Housing height (B) [mm]	Suitable for
YXC-1060-F00	1060	974	YBB-####-0150-#### to YBB-####-0800-####
YXC-1360-F00	1360	1274	YBB-####-0900-####, YBB-####-1000-####, YCA-####-3400-####, YCA-####-4300-####
YXC-1660-F00	1660	1574	YBB-####-1200-#### to YBB-####-1400-####, YCA-####-3500-####, YCA-####-5300-####, YCA-####-4400-####
YXC-1960-F00	1960	1874	YBB-####-1600-####, YBB-####-1700-####, YCA-####-6300-####

MIRROR COLUMNS

DIMENSIONS



MIRROR COLUMNS FOR LIGHT CURTAINS AND ACCESS CONTROL BARRIERS

- Robust protective profile, attractive design
- **Special spring elements automatically reset position in case of mechanical impact**
- Complete assembly kit for both device and floor mounting included
- Easy to mount: vertical and axial adjustments can be quickly completed in just a few steps
- Single mirror or exchangeable and separately adjustable individual mirrors in accordance with EN 999

APPLICATION AREA

The mirror columns YXC-####-M## are used for the beam deflection of safety light curtains and access control barriers, such as Safetinex YBB and YCA models, in order to achieve multi-sided safeguarding of danger zones, while eliminating the need for additional light curtains or access control barriers. Spring elements at the base of the column provide for automatic reset following mechanical impact.

YXC-####-M11 models feature a single large mirror and are therefore suitable for use with light curtains as well as access control barriers. YXC-1360-M23/M24, on the other hand, feature 3 or 4 smaller mirrors and may consequently only be used with access control barriers.

TECHNICAL DATA

Housing	Aluminum profile and steel floor plates
Surface	Powder-varnished, yellow (RAL 1021)

PART REFERENCE

Single-mirror column	Total height (A) [mm]	Mirror height (B) [mm]
YXC-1060-M11	1060	974
YXC-1360-M11	1360	1274
YXC-1660-M11	1660	1574
YXC-1960-M11	1960	1874

Multi-mirror column	Total height (A) [mm]	Beam gap (D) [mm]	Height lowest beam (C) [mm]
YXC-1360-M23	1360	2 x 400	300
YXC-1360-M24	1360	3 x 300	300

CONTRINEX

ALL OVER THE WORLD

EUROPE
Austria
Belgium*
Croatia
Czech Republic
Denmark
Estonia
Finland
France*
Germany*
Great Britain*
Greece
Hungary
Ireland
Italy*
Luxembourg
Netherlands
Norway
Poland
Portugal*
Romania
Russian Federation
Slovakia
Slovenia
Spain
Sweden
Switzerland*
Turkey
Ukraine

AFRICA
Morocco
South Africa

THE AMERICAS
Argentina
Brazil*
Canada
Chile
Mexico*
Peru
United States*
Venezuela

ASIA
China*
India*
Indonesia
Japan*
Korea
Malaysia
Pakistan
Philippines
Singapore*
Taiwan
Thailand
Vietnam

AUSTRALASIA
Australia
New Zealand

MIDDLE EAST
Israel
United Arab Emirates

* Contrinex subsidiary

HEADQUARTERS

CONTRINEX AG Industrial Electronics
route André Piller 50 - PO Box - CH 1762 Givisiez - Switzerland
Tel: +41 26 460 46 46 - **Fax:** +41 26 460 46 40
Internet: www.contrinex.com - **E-mail:** info@contrinex.com

www.contrinex.com

999 316 002 - KAY - 11.14 - 3000