

Safetinx Safety light curtains and access control barriers



HIGHLIGHTS

Safety light curtains for hand and finger protection

Access control barriers

Safety relays

Device and mirror columns



**SAFETINEX
SAFETY LIGHT CURTAINS
AND ACCESS CONTROL BARRIERS**

CONTRINEX

Contrinex, a multinational company with headquarters in Switzerland, is specialized in the development, production and worldwide sales of industrial sensors for factory automation. Contrinex employs over 500 people, including 25 highly qualified R & D engineers, operates production units in Switzerland, Hungary, China and Brazil, has its own sales offices in all the major markets, and is represented in over 60 countries.



Contrinex applies stringent quality management and production principles which are reflected in its ISO 14001:2004 and ISO 9001:2008 certification. Additionally, Contrinex is subject to several client-based audits every year. Identical quality controls and equipment as well as staff recruitment and training policies are implemented at the different production sites, thus guaranteeing consistent product quality. The product range includes inductive, photoelectric, capacitive and ultrasonic sensors, as well as RFID systems and Safetinex safety systems.

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, with various lengths and connection options.

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. Safetinex light curtains and access control barriers feature the highest safety level, i.e. they correspond to safety category 4, PL e, according to EN/ISO 13849-1 (former EN 954-1) and type 4 according to IEC 61496-1 and -2. They have successfully obtained the highly rated TÜV certification.

ACTIVE OPTOELECTRONIC PROTECTIVE DEVICES

When looking to build a safety system around a danger zone, 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's control system.



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: Type 4, category 4, PL e devices are thus permanently self-controlled. An internal failure immediately 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 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.



**LIGHT CURTAINS
FINGER PROTECTION
14 MM**

MAIN FEATURES

- Resolution: 14 mm
- Operating range: 0.25 ... 3.5 m
- Protective height: 137 ... 1685 mm
- Category 4, PL e according to EN/ISO 13849-1 (former EN 954-1)
- Type 4 according to IEC 61496-1 and -2
- Certified TÜV, CE and UL
- 2-channel selection
- Optical synchronization
- Permanent autocontrol

TECHNICAL DATA

Dimensions	42 x 48 x Ht 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	Category 4, PL e (EN/ISO 13849-1) Type 4 (IEC 61496-1 and -2)
Protection class	III (IEC 61140)
Ambient temperature range	0 ... +50 °C
Storage temperature range	-25 ... +70 °C
Degree of protection	IP 65 (EN 60529)
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 coated with yellow epoxy finish. Dual fixing groove.

ELECTRONIC PROTECTION

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

CONNECTION

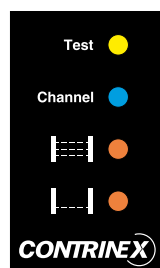
Safetinx light curtains with M12 5-pole connector are standard. Versions with M26 7-pole connector, short cable (pigtail) with M12 connector or PUR cable, 2 m, 5 m or 10 m long, are available on request.

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.

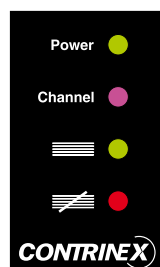
LEDS

LED indicators on the YBB **sender** unit



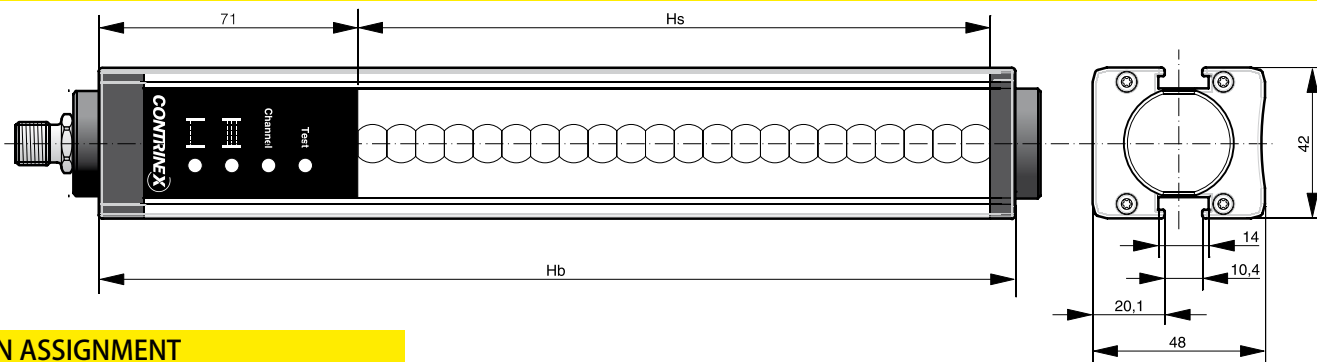
- Test : yellow when test mode is active
- Channel : blue when channel 1 is selected
purple when channel 2 is selected
- Alignment : steady orange when the screen is not fully aligned
flashing orange when the first third of the screen is aligned
off when screen is fully aligned
- Alignment : steady orange when the lowest beam is not aligned
flashing orange when the lowest beam is aligned
off when screen is fully aligned

LED indicators on the YBB **receiver** unit

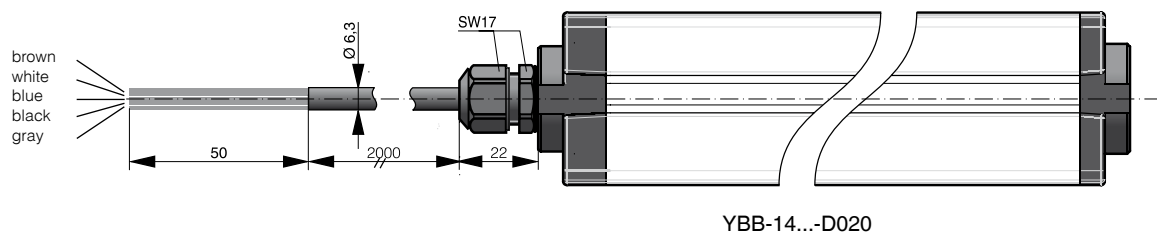
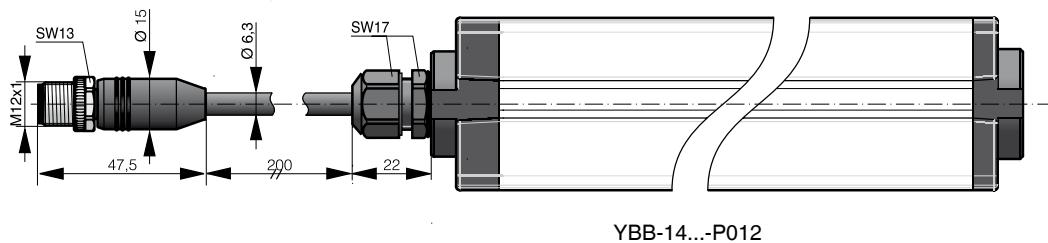
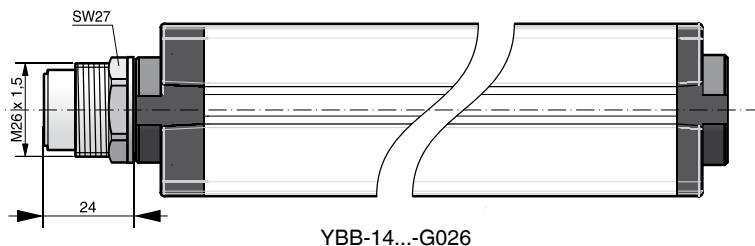
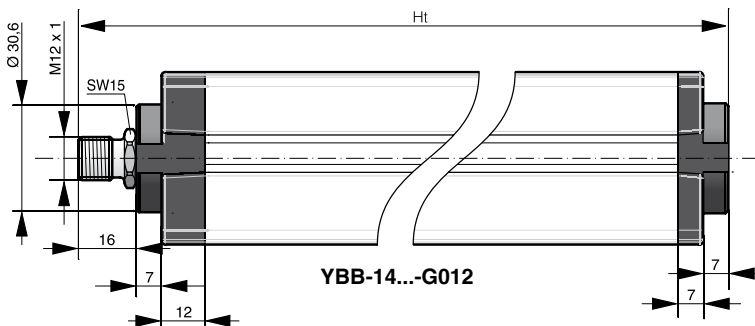
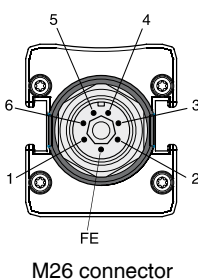
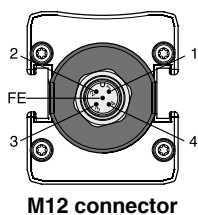


- Power : green when power is ON
- Channel : blue when channel 1 is selected
purple when channel 2 is selected
- Status : green when OSSD outputs are ON
- Status : red when OSSD outputs are OFF

DIMENSIONS



PIN ASSIGNMENT



ASSIGNMENT	FUNCTION	PINS/WIRES ON SENDER			PINS/WIRES ON RECEIVER		
		M12 / PIGTAIL	M26	CABLE	M12 / PIGTAIL	M26	CABLE
Supply voltage	24 VDC for channel 1 / 0 V for channel 2	1	1	brown	1	1	brown
Supply voltage	0 V for channel 1 / 24 VDC for channel 2	3	2	blue	3	2	blue
Test mode	0 V: test active / 24 V: test inactive	4	3	black	-	-	-
Output	OSSD1	-	-	-	2	4	white
Output	OSSD2	-	-	-	4	3	black
Functional earth	Shield	FE	FE	gray	FE	FE	gray



**LIGHT CURTAINS
FINGER PROTECTION (14 MM)
AVAILABLE MODELS**



TYPE-SPECIFIC DATA

Type	0150	0250	0400
Total height (Ht) [mm] *	245	374	503
Housing height (Hb) [mm]	215	344	473
Protective height (Hs) [mm]	137	266	395
Number of beams	17	33	49
Current consumption [mA]	135	140	145
Response time [ms]	5.2	8.4	11.6

PART REFERENCES (BOLD: PREFERRED TYPES)

PNP / Connector	Sender	YBB-14S4-0150-G012	YBB-14S4-0250-G012	YBB-14S4-0400-G012
M12	Receiver	YBB-14R4-0150-G012	YBB-14R4-0250-G012	YBB-14R4-0400-G012
	Sender	YBB-14S4-0150-G026	YBB-14S4-0250-G026	YBB-14S4-0400-G026
M26	Receiver	YBB-14R4-0150-G026	YBB-14R4-0250-G026	YBB-14R4-0400-G026
	Sender	YBB-14S4-0150-P012	YBB-14S4-0250-P012	YBB-14S4-0400-P012
Pigtail M12	Receiver	YBB-14R4-0150-P012	YBB-14R4-0250-P012	YBB-14R4-0400-P012
	Sender	YBB-14S4-0150-D020	YBB-14S4-0250-D020	YBB-14S4-0400-D020
PUR-cable 2 m	Receiver	YBB-14R4-0150-D020	YBB-14R4-0250-D020	YBB-14R4-0400-D020
	Sender	YBB-14S4-0150-D050	YBB-14S4-0250-D050	YBB-14S4-0400-D050
PUR-cable 5 m	Receiver	YBB-14R4-0150-D050	YBB-14R4-0250-D050	YBB-14R4-0400-D050
	Sender	YBB-14S4-0150-D100	YBB-14S4-0250-D100	YBB-14S4-0400-D100
PUR-cable 10 m	Receiver	YBB-14R4-0150-D100	YBB-14R4-0250-D100	YBB-14R4-0400-D100

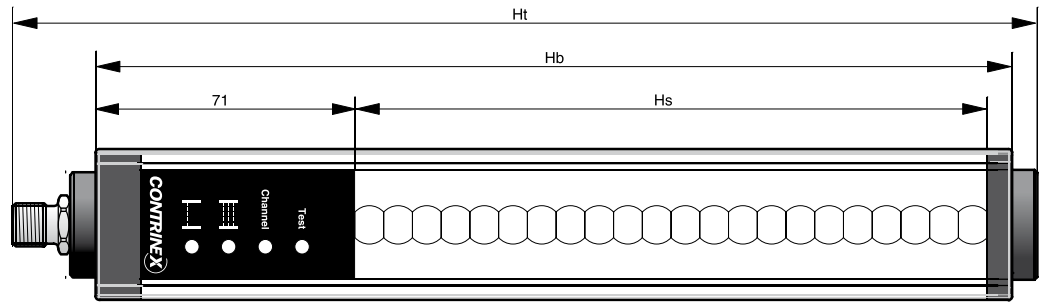
TYPE-SPECIFIC DATA

Type	1000	1200	1300
Total height (Ht) [mm] *	1148	1277	1406
Housing height (Hb) [mm]	1118	1247	1376
Protective height (Hs) [mm]	1040	1169	1298
Number of beams	129	145	161
Current consumption [mA]	175	185	190
Response time [ms]	27.6	30.8	34

PART REFERENCES (BOLD: PREFERRED TYPES)

PNP / Connector	Sender	YBB-14S4-1000-G012	YBB-14S4-1200-G012	YBB-14S4-1300-G012
M12	Receiver	YBB-14R4-1000-G012	YBB-14R4-1200-G012	YBB-14R4-1300-G012
	Sender	YBB-14S4-1000-G026	YBB-14S4-1200-G026	YBB-14S4-1300-G026
M26	Receiver	YBB-14R4-1000-G026	YBB-14R4-1200-G026	YBB-14R4-1300-G026
	Sender	YBB-14S4-1000-P012	YBB-14S4-1200-P012	YBB-14S4-1300-P012
Pigtail M12	Receiver	YBB-14R4-1000-P012	YBB-14R4-1200-P012	YBB-14R4-1300-P012
	Sender	YBB-14S4-1000-D020	YBB-14S4-1200-D020	YBB-14S4-1300-D020
PUR-cable 2 m	Receiver	YBB-14R4-1000-D020	YBB-14R4-1200-D020	YBB-14R4-1300-D020
	Sender	YBB-14S4-1000-D050	YBB-14S4-1200-D050	YBB-14S4-1300-D050
PUR-cable 5 m	Receiver	YBB-14R4-1000-D050	YBB-14R4-1200-D050	YBB-14R4-1300-D050
	Sender	YBB-14S4-1000-D100	YBB-14S4-1200-D100	YBB-14S4-1300-D100
PUR-cable 10 m	Receiver	YBB-14R4-1000-D100	YBB-14R4-1200-D100	YBB-14R4-1300-D100

* Total height given with M12 connector. For M26, add 8 mm. For cable, add 6 mm.



0500	0700	0800	0900
632	761	890	1019
602	731	860	989
524	653	782	911
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-G026	YBB-14S4-0700-G026	YBB-14S4-0800-G026	YBB-14S4-0900-G026
YBB-14R4-0500-G026	YBB-14R4-0700-G026	YBB-14R4-0800-G026	YBB-14R4-0900-G026
YBB-14S4-0500-P012	YBB-14S4-0700-P012	YBB-14S4-0800-P012	YBB-14S4-0900-P012
YBB-14R4-0500-P012	YBB-14R4-0700-P012	YBB-14R4-0800-P012	YBB-14R4-0900-P012
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
1535	1664	1793
1505	1634	1763
1427	1556	1685
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-G026	YBB-14S4-1600-G026	YBB-14S4-1700-G026
YBB-14R4-1400-G026	YBB-14R4-1600-G026	YBB-14R4-1700-G026
YBB-14S4-1400-P012	YBB-14S4-1600-P012	YBB-14S4-1700-P012
YBB-14R4-1400-P012	YBB-14R4-1600-P012	YBB-14R4-1700-P012
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





**LIGHT CURTAINS
HAND PROTECTION
30 MM**

MAIN FEATURES

- Resolution: 30 mm
- Operating range: 0.25 ... 12 m
- Protective height: 274 ... 1822 mm
- Category 4, PL e according to EN/ISO 13849-1 (former EN 954-1)
- Type 4 according to IEC 61496-1 and -2
- Certified TÜV, CE and UL
- 2-channel selection
- Optical synchronization
- Permanent autocontrol

TECHNICAL DATA

Dimensions	42 x 48 x Ht 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	Category 4, PL e (EN/ISO 13849-1) Type 4 (IEC 61496-1 and -2)
Protection class	III (IEC 61140)
Ambient temperature range	0 ... +50 °C
Storage temperature range	-25 ... +70 °C
Degree of protection	IP 65 (EN 60529)
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 coated with yellow epoxy finish. Dual fixing groove.

ELECTRONIC PROTECTION

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

CONNECTION

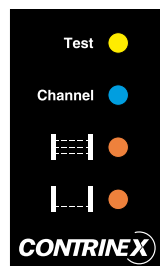
Safetinx light curtains with M12 5-pole connector are standard. Versions with M26 7-pole connector, short cable (pigtail) with M12 connector or PUR cable, 2 m, 5 m or 10 m long, are available on request.

DOCUMENTATION

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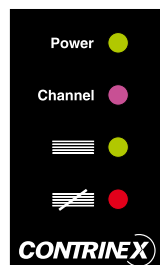
LEDS

LED indicators on the YBB **sender** unit



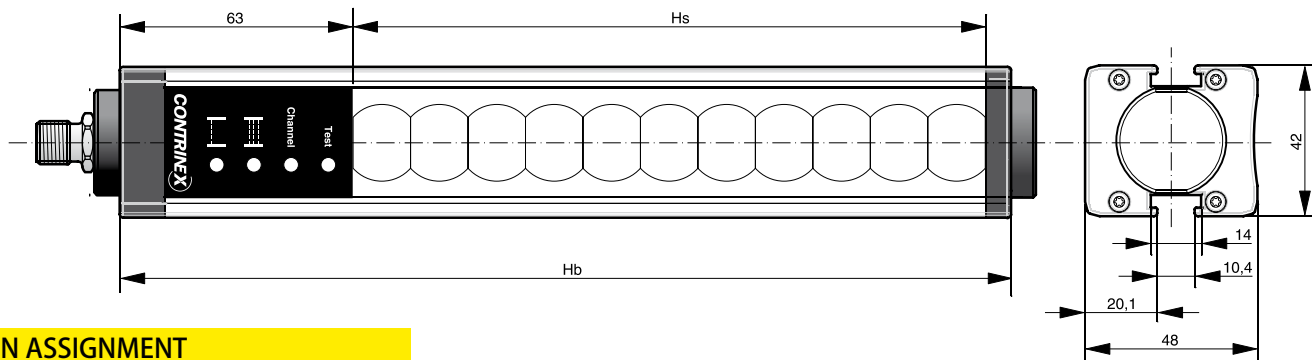
- Test : yellow when test mode is active
- Channel : blue when channel 1 is selected
purple when channel 2 is selected
- Alignment : steady orange when the screen is not fully aligned
flashing orange when the first third of the screen is aligned
off when screen is fully aligned
- Alignment : steady orange when the lowest beam is not aligned
flashing orange when the lowest beam is aligned
off when screen is fully aligned

LED indicators on the YBB **receiver** unit

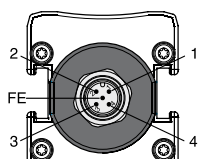


- Power : green when power is ON
- Channel : blue when channel 1 is selected
purple when channel 2 is selected
- Status : green when OSSD outputs are ON
- Status : red when OSSD outputs are OFF

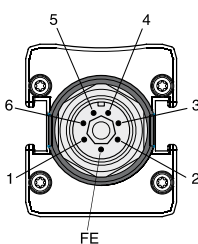
DIMENSIONS



PIN ASSIGNMENT



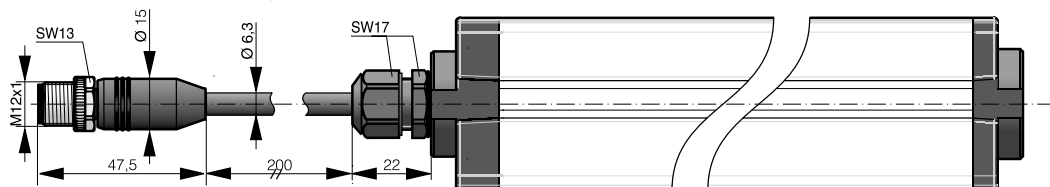
M12 connector



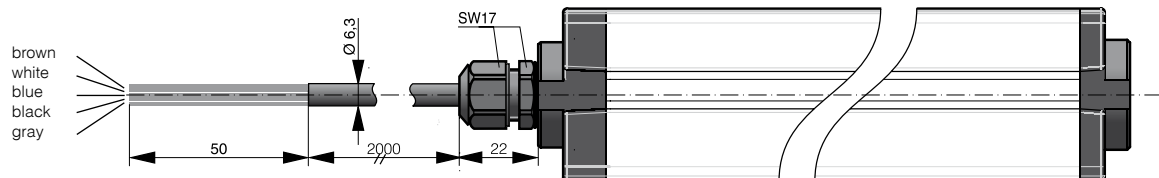
M26 connector



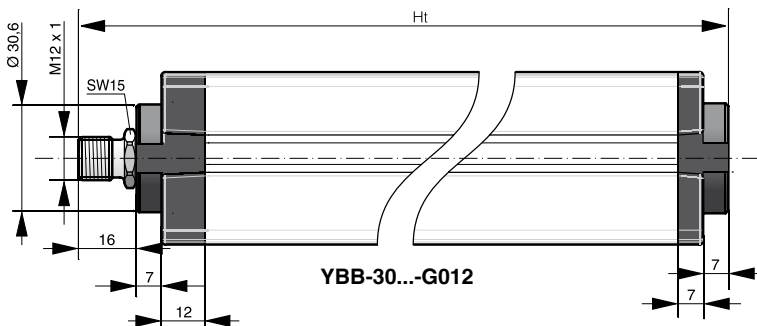
Pigtail M12



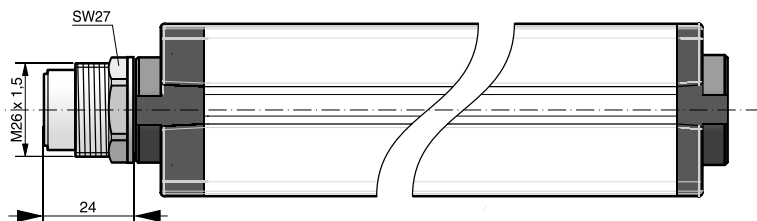
YBB-30...-P012



YBB-30...-D020



YBB-30...-G012



YBB-30...-G026

ASSIGNMENT	FUNCTION	PINS/WIRES ON SENDER			PINS/WIRES ON RECEIVER		
		M12 / PIGTAIL	M26	CABLE	M12 / PIGTAIL	M26	CABLE
Supply voltage	24 VDC for channel 1 / 0 V for channel 2	1	1	brown	1	1	brown
Supply voltage	0 V for channel 1 / 24 VDC for channel 2	3	2	blue	3	2	blue
Test mode	0 V: test active / 24 V: test inactive	4	3	black	-	-	-
Output	OSSD1	-	-	-	2	4	white
Output	OSSD2	-	-	-	4	3	black
Functional earth	Shield	FE	FE	gray	FE	FE	gray



**LIGHT CURTAINS
HAND PROTECTION (30 MM)
AVAILABLE MODELS**



TYPE-SPECIFIC DATA

Type	0250	0400	0500
Total height (Ht) [mm] *	374	503	632
Housing height (Hb) [mm]	344	473	602
Protective height (Hs) [mm]	274	403	532
Number of beams	17	25	33
Current consumption [mA]	125	130	130
Response time [ms]	5.2	6.8	8.4

PART REFERENCES (BOLD: PREFERRED TYPES)

PNP / Connector	Sender	YBB-30S4-0250-G012	YBB-30S4-0400-G012	YBB-30S4-0500-G012
M12	Receiver	YBB-30R4-0250-G012	YBB-30R4-0400-G012	YBB-30R4-0500-G012
	Sender	YBB-30S4-0250-G026	YBB-30S4-0400-G026	YBB-30S4-0500-G026
M26	Receiver	YBB-30R4-0250-G026	YBB-30R4-0400-G026	YBB-30R4-0500-G026
	Sender	YBB-30S4-0250-P012	YBB-30S4-0400-P012	YBB-30S4-0500-P012
Pigtail	Receiver	YBB-30R4-0250-P012	YBB-30R4-0400-P012	YBB-30R4-0500-P012
	Sender	YBB-30S4-0250-D020	YBB-30S4-0400-D020	YBB-30S4-0500-D020
PUR-cable 2 m	Receiver	YBB-30R4-0250-D020	YBB-30R4-0400-D020	YBB-30R4-0500-D020
	Sender	YBB-30S4-0250-D050	YBB-30S4-0400-D050	YBB-30S4-0500-D050
PUR-cable 5 m	Receiver	YBB-30R4-0250-D050	YBB-30R4-0400-D050	YBB-30R4-0500-D050
	Sender	YBB-30S4-0250-D100	YBB-30S4-0400-D100	YBB-30S4-0500-D100
PUR-cable 10 m	Receiver	YBB-30R4-0250-D100	YBB-30R4-0400-D100	YBB-30R4-0500-D100

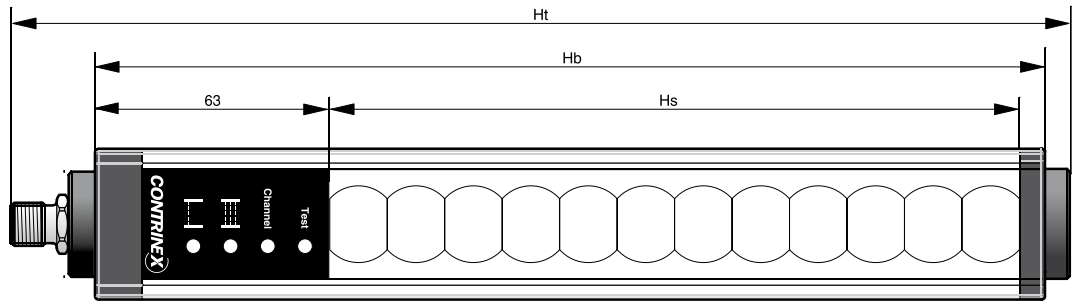
TYPE-SPECIFIC DATA

Type	1200	1300	1400
Total height (Ht) [mm] *	1277	1406	1535
Housing height (Hb) [mm]	1247	1376	1505
Protective height (Hs) [mm]	1177	1306	1435
Number of beams	73	81	89
Current consumption [mA]	150	155	160
Response time [ms]	16.4	18	19.6

PART REFERENCES (BOLD: PREFERRED TYPES)

PNP / Connector	Sender	YBB-30S4-1200-G012	YBB-30S4-1300-G012	YBB-30S4-1400-G012
M12	Receiver	YBB-30R4-1200-G012	YBB-30R4-1300-G012	YBB-30R4-1400-G012
	Sender	YBB-30S4-1200-G026	YBB-30S4-1300-G026	YBB-30S4-1400-G026
M26	Receiver	YBB-30R4-1200-G026	YBB-30R4-1300-G026	YBB-30R4-1400-G026
	Sender	YBB-30S4-1200-P012	YBB-30S4-1300-P012	YBB-30S4-1400-P012
Pigtail	Receiver	YBB-30R4-1200-P012	YBB-30R4-1300-P012	YBB-30R4-1400-P012
	Sender	YBB-30S4-1200-D020	YBB-30S4-1300-D020	YBB-30S4-1400-D020
PUR-cable 2 m	Receiver	YBB-30R4-1200-D020	YBB-30R4-1300-D020	YBB-30R4-1400-D020
	Sender	YBB-30S4-1200-D050	YBB-30S4-1300-D050	YBB-30S4-1400-D050
PUR-cable 5 m	Receiver	YBB-30R4-1200-D050	YBB-30R4-1300-D050	YBB-30R4-1400-D050
	Sender	YBB-30S4-1200-D100	YBB-30S4-1300-D100	YBB-30S4-1400-D100
PUR-cable 10 m	Receiver	YBB-30R4-1200-D100	YBB-30R4-1300-D100	YBB-30R4-1400-D100

* Total height given with M12 connector. For M26, add 8 mm. For cable, add 6 mm.



0700	0800	0900	1000
761	890	1019	1148
731	860	989	1118
661	790	919	1048
41	49	57	65
135	140	140	145
10	11.6	13.2	14.8

YBB-30S4-0700-G012	YBB-30S4-0800-G012	YBB-30S4-0900-G012	YBB-30S4-1000-G012
YBB-30R4-0700-G012	YBB-30R4-0800-G012	YBB-30R4-0900-G012	YBB-30R4-1000-G012
YBB-30S4-0700-G026	YBB-30S4-0800-G026	YBB-30S4-0900-G026	YBB-30S4-1000-G026
YBB-30R4-0700-G026	YBB-30R4-0800-G026	YBB-30R4-0900-G026	YBB-30R4-1000-G026
YBB-30S4-0700-P012	YBB-30S4-0800-P012	YBB-30S4-0900-P012	YBB-30S4-1000-P012
YBB-30R4-0700-P012	YBB-30R4-0800-P012	YBB-30R4-0900-P012	YBB-30R4-1000-P012
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
1664	1793	1922
1634	1763	1892
1564	1693	1822
97	105	113
160	165	170
21.2	22.8	24.4



YBB-30S4-1600-G012	YBB-30S4-1700-G012	YBB-30S4-1800-G012
YBB-30R4-1600-G012	YBB-30R4-1700-G012	YBB-30R4-1800-G012
YBB-30S4-1600-G026	YBB-30S4-1700-G026	YBB-30S4-1800-G026
YBB-30R4-1600-G026	YBB-30R4-1700-G026	YBB-30R4-1800-G026
YBB-30S4-1600-P012	YBB-30S4-1700-P012	YBB-30S4-1800-P012
YBB-30R4-1600-P012	YBB-30R4-1700-P012	YBB-30R4-1800-P012
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





ACCESS CONTROL BARRIERS

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 (former EN 954-1)
- Type 4 according to IEC 61496-1 and -2
- Certified TÜV and CE
- 2-channel selection
- Optical synchronization
- Permanent autocontrol

TECHNICAL DATA

Dimensions	42 x 48 x Ht 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	Category 4, PL e (EN/ISO 13849-1)
	Type 4 (IEC 61496-1 and -2)
Protection class	III (IEC 61140)
Ambient temperature range	0 ... +50 °C
Storage temperature range	-25 ... +70 °C
Degree of protection	IP 65 (EN 60529)
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 yellow epoxy finish. Dual fixing groove.

CONFIGURATION OF OPERATING RANGE

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

ELECTRONIC PROTECTION

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

CONNECTION

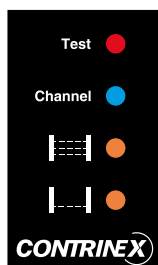
Safetinex access control barriers with M12 5-pole connector are standard. Versions with M26 7-pole connector, short cable (pigtail) with M12 connector or PUR cable, 2 m, 5 m or 10 m long, are available on request.

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.

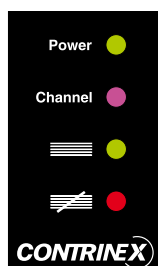
LEDS

LED indicators on YCA **sender** unit



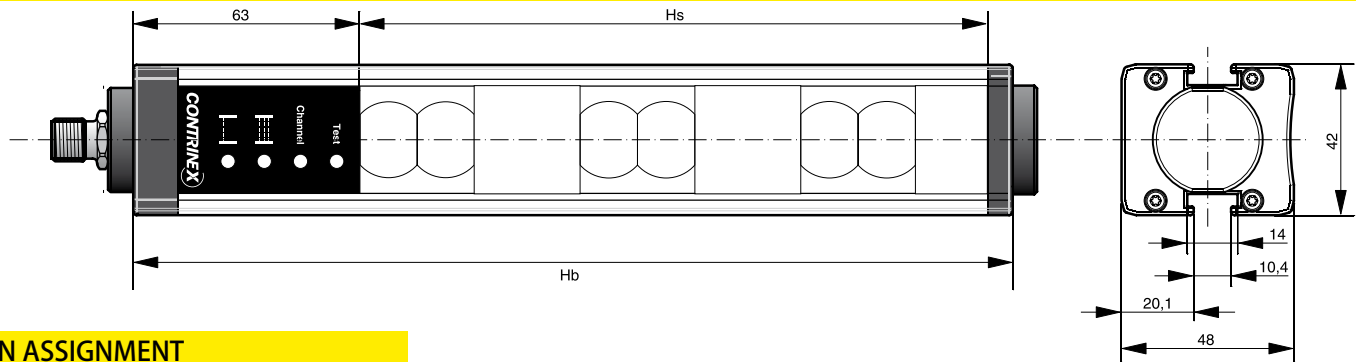
- Operating range: off when max. operating range 15m
blue when max. operating range 50m
red or purple in case of wiring error
- Channel : blue when channel 1 selected
purple when channel 2 selected
- Alignment : steady orange when screen not fully aligned
flashing orange when first third of screen aligned
off when screen fully aligned
- Alignment : steady orange when lowest beam not aligned
flashing orange when lowest beam aligned
off when screen fully aligned

LED indicators on YCA **receiver** unit

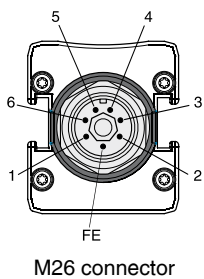
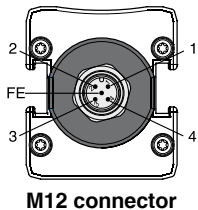


- Power : green when power ON
- Channel : blue when channel 1 selected
purple when channel 2 selected
- Status : green when OSSD outputs ON
- Status : red when OSSD outputs OFF

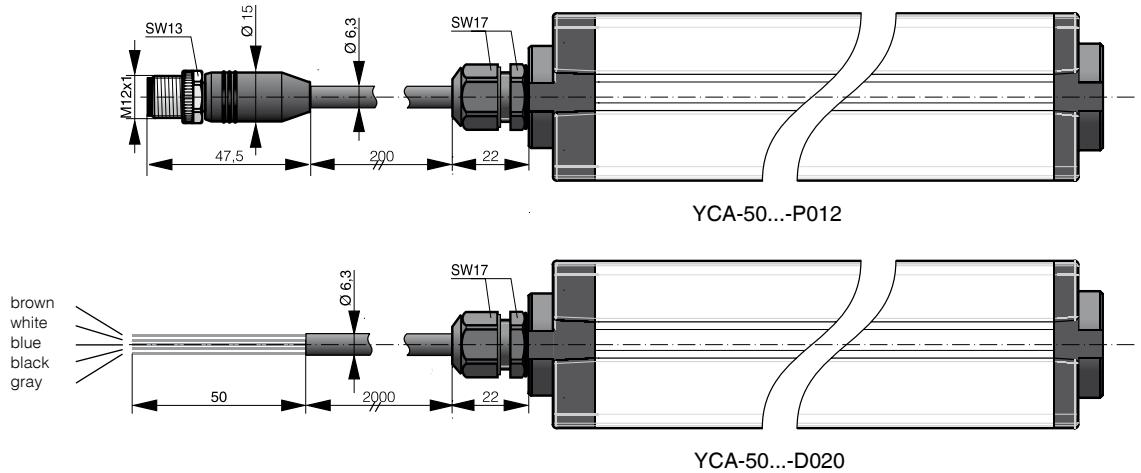
DIMENSIONS



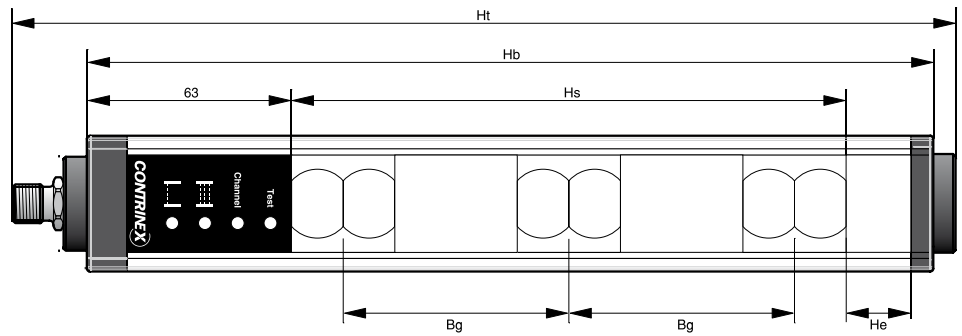
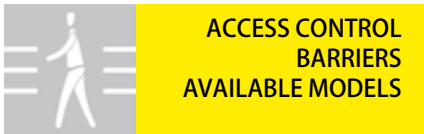
PIN ASSIGNMENT



Cable



ASSIGNMENT	FUNCTION	PINS/WIRES ON SENDER			PINS/WIRES ON RECEIVER		
		M12 / PIGTAIL	M26	CABLE	M12 / PIGTAIL	M26	CABLE
Supply voltage	24 VDC for channel 1 / 0 V for channel 2	1	1	brown	1	1	brown
Supply voltage	0 V for channel 1 / 24 VDC for channel 2	3	2	blue	3	2	blue
Operating range selection	24 V: operating range 10 ... 50 m 0 V: operating range 1 ... 15 m	4	3	black	-	-	-
Operating range selection	0 V: operating range 10 ... 50 m 24 V: operating range 1 ... 15 m	2	4	white	-	-	-
Output	OSSD1	-	-	-	2	4	white
Output	OSSD2	-	-	-	4	3	black
Functional earth	Shield	FE	FE	gray	FE	FE	gray



TYPE-SPECIFIC DATA

Number of beams	4	5	6
Beam gap (Bg) [mm]	300	300	300
Total height (Ht) [mm] *	1148	1406	1664
Housing height (Hb) [mm]	1118	1376	1634
Protective height (Hs) [mm]	932	1232	1532
Height extension (He) [mm]	117	75	33
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 / Connector M26	Sender	YCA-50S4-4300-G026	YCA-50S4-5300-G026	YCA-50S4-6300-G026
	Receiver	YCA-50R4-4300-G026	YCA-50R4-5300-G026	YCA-50R4-6300-G026
PNP / Pigtail M12	Sender	YCA-50S4-4300-P012	YCA-50S4-5300-P012	YCA-50S4-6300-P012
	Receiver	YCA-50R4-4300-P012	YCA-50R4-5300-P012	YCA-50R4-6300-P012
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] *	1019	1406	1148
Housing height (Hb) [mm]	989	1376	1118
Protective height (Hs) [mm]	832	1232	1032
Height extension (He) [mm]	88	75	17
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 / Connector M26	Sender	YCA-50S4-3400-G026	YCA-50S4-4400-G026	YCA-50S4-3500-G026
	Receiver	YCA-50R4-3400-G026	YCA-50R4-4400-G026	YCA-50R4-3500-G026
PNP / Pigtail M12	Sender	YCA-50S4-3400-P012	YCA-50S4-4400-P012	YCA-50S4-3500-P012
	Receiver	YCA-50R4-3400-P012	YCA-50R4-4400-P012	YCA-50R4-3500-P012
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 M26, add 8 mm. For cable, add 6 mm.

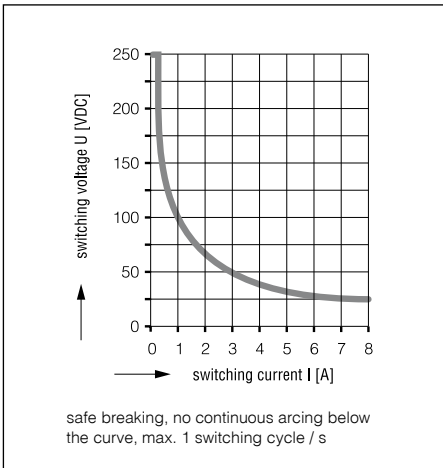


Diagram 1: limit curve for arc-free operation under resistive load

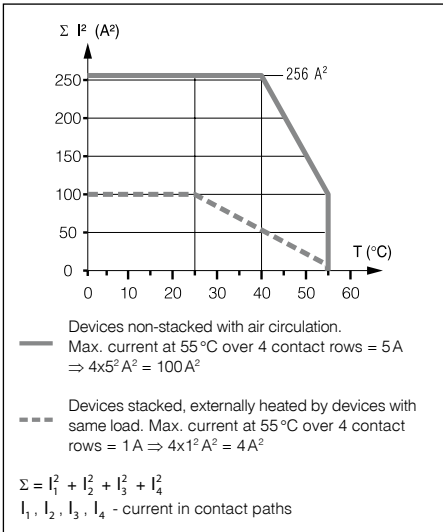
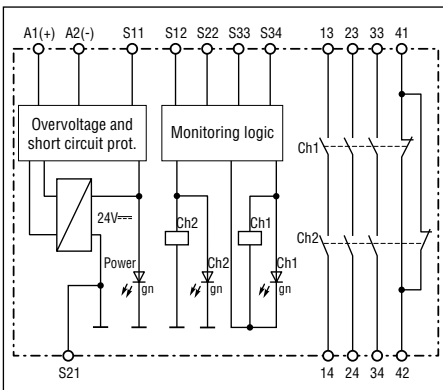


Diagram 2: total current limit curve



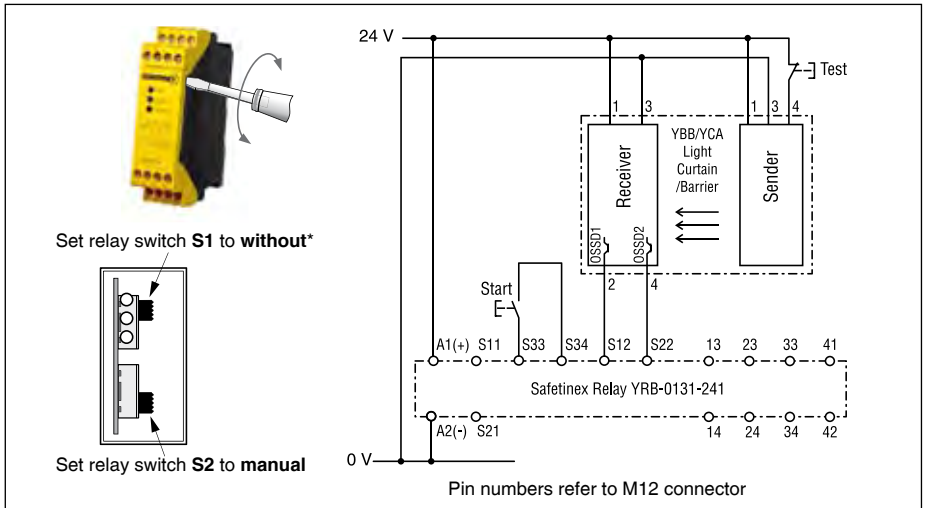
Relay block diagram

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

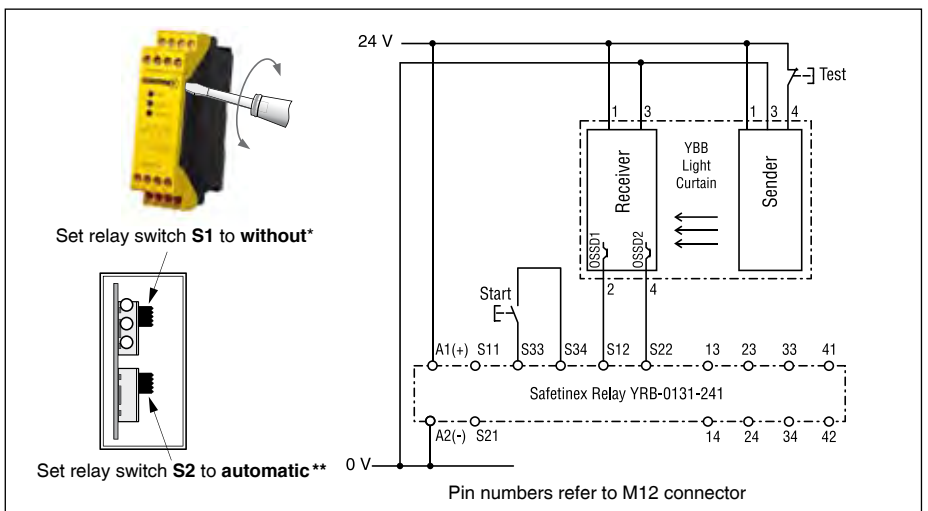
PART REFERENCE

Safety relay	YRB-0131-241
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MANUAL RESTART MODE (Channel 1)



AUTOMATIC RESTART MODE (Channel 1)



* Position of switch S1:

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

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

**MULTI-FUNCTIONAL
SAFETY RELAY
YRB-0330-242**



MAIN FEATURES

- 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
- Outputs:
 - 3 x N.O. safety contacts
 - 2 semiconductor outputs, short-circuit and overload protected
- Wire-break detection on AOPD input
- With 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

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 tested 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

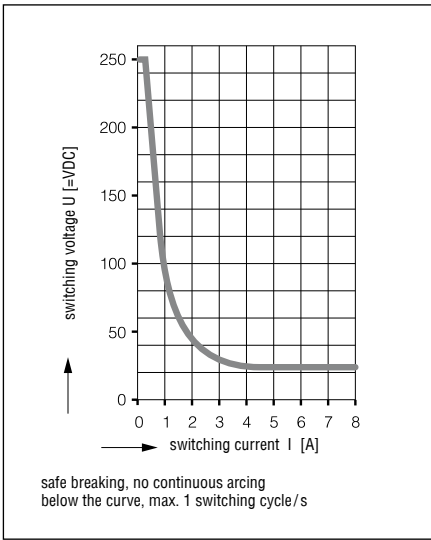
TECHNICAL DATA

INPUT

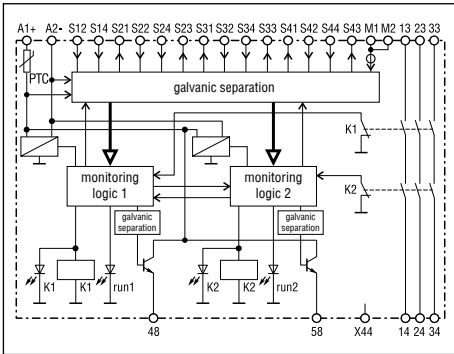
Nominal voltage U_N	24 VDC
Voltage range at max. 5% ripple content	0.85 ... 1.15 U_N
Nominal consumption	max. 170 mA (no load on semiconductor outputs)
Control voltage on	
S21, S23, S31, S33, S41, S43, S48, S58	23 VDC at U_N
Control current on	
S12, S14, S22, S24, S32, S34, S42, S44	4.5 mA each at U_N
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

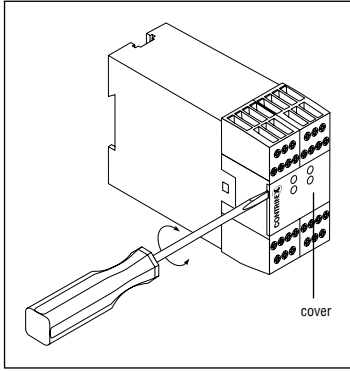
GENERAL DATA

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	
Clearance and creepage distance:		
Nominal impulse voltage / Pollution degree	4 kV / 2	IEC/EN 60664-1
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	

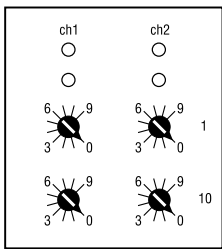
PART REFERENCE

Multi-functional safety relay	YRB-0330-242
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APPLICATION EXAMPLES



Device setting



Inside view

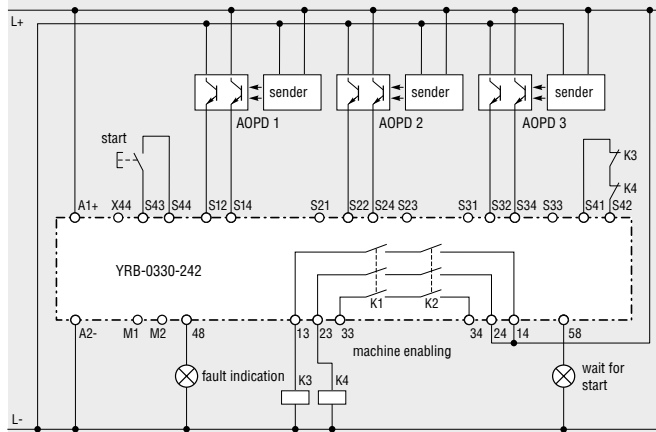


Diagram 1: Protective operation with 3 AOPDs, manual or automatic start, setting with feedback input

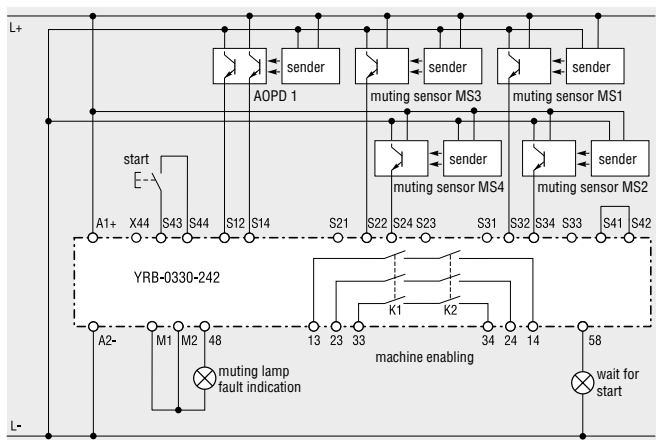


Diagram 2: Protective operation with muting, 4 muting sensors, 1 AOPD

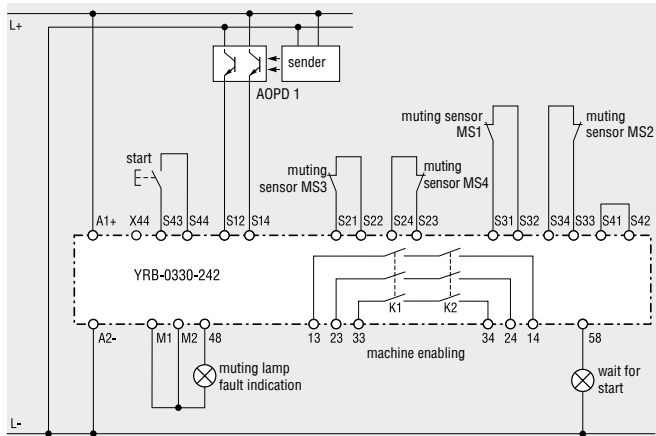


Diagram 3: Protective operation with muting via 4 muting-sensor contacts

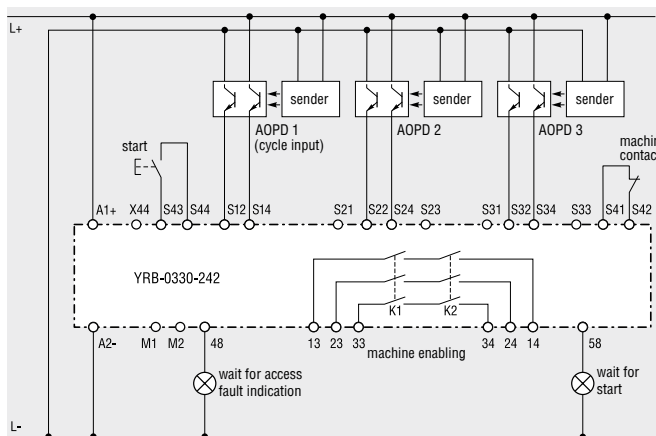


Diagram 4: Stepping operation with 3 AOPDs

CABLE CONNECTORS

TECHNICAL DATA

S12 4-POLE

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 mm ²
Wire insulation	PP, halogen-free
Outer cable diameter	∅ 4.7 mm
Temperature range	-25 ... +80 °C
Degree of protection	IP 67
Certification	UL E227529, section 4

PART REFERENCES

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

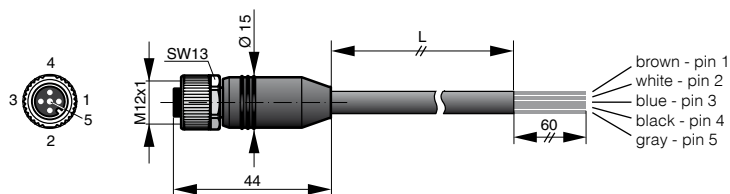
S12 5-POLE

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 mm ²
Wire insulation	PP
Outer cable diameter	∅ 6.3 mm ± 5 %
Temperature range	-25 ... +80 °C
Degree of protection	IP 67
Certification	UL, CSA

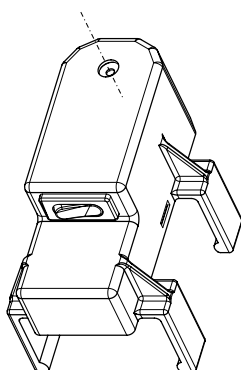
PART REFERENCES

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

DIMENSIONS



LASER ALIGNMENT TOOL



MAIN FEATURES

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

TECHNICAL DATA

Laser module optical output power	< 1 mW
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
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DEVICE COLUMNS

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

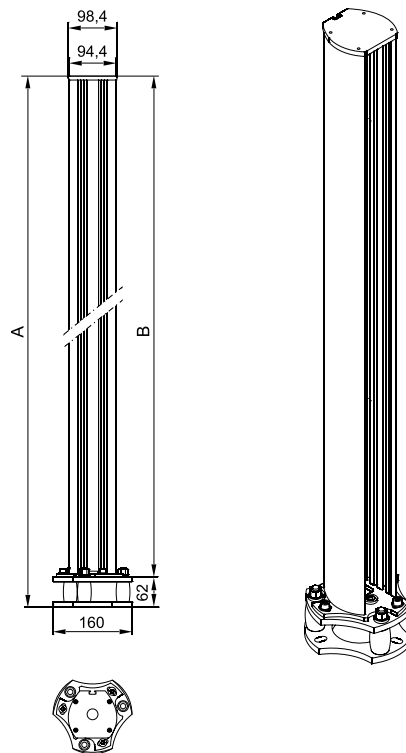
APPLICATION AREA

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)

DIMENSIONS



PART REFERENCES

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

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

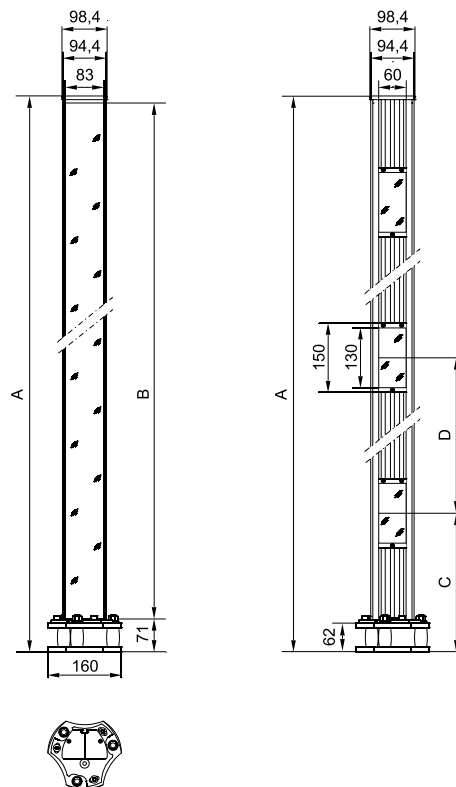
The mirror columns YXC-####-M## are used for the beam deflection of safety light curtains and access control barriers, such as Safetindex YBB and YCA models, in order to achieve multi-sided safeguarding of danger zones, while eliminating the need for additional light curtains or access control barriers. 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)

DIMENSIONS



PART REFERENCES

Single-mirror column	Total height (A) [mm]	Mirror height (B) [mm]	Multi-mirror column	Total height (A) [mm]	Beam gap (D) [mm]	Height lowest beam (C) [mm]
YXC-1060-M11	1060	974	YXC-1360-M23	1360	2 x 400	300
YXC-1360-M11	1360	1274	YXC-1360-M24	1360	3 x 300	300
YXC-1660-M11	1660	1574				
YXC-1960-M11	1960	1874				