

# Safetinx Safety light curtains and access control barriers



NEW

IP 67 & IP 69K

Access control barriers

Multi-functional safety relay

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 Safetinx safety systems.

## SAFETINEX SAFETY SYSTEMS

The Safetinx 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. **New:** All types are available with improved **degree of protection IP 67 and IP 69K** for use in rough environments.

Safetinx 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. Safetinx 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 Safetinx 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.

Safetinx 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 Safetinx 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. Safetinx 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, Safetinx 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 HAND PROTECTION 30 MM

### 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 (former EN 954-1)
- Type 4 according to IEC 61496-1 and -2
- Certified TÜV, CE and UL
- Impervious: degrees of protection **IP 65, IP 67 & IP 69K**
- 2-channel selection
- Optical synchronization
- Permanent autocontrol

### TECHNICAL DATA

Dimensions	42 x 48 x Ht mm
Supply voltage range	24 VDC $\pm$ 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	0 ... +50 °C (+32 ... +122 °F)
Storage temperature range	-25 ... +70 °C (-13 ... +158 °F)
Degree of protection (EN 60529)	IP 65 & IP 67 / IP 65, IP 67 & IP 69K (-69K)
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. IP 69K models totally impervious.

### ELECTRONIC PROTECTION

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

### CONNECTION

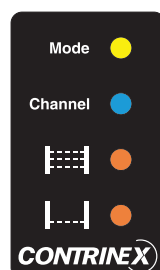
Safetinx light curtains with M12 5-pole connector are standard. Versions with PUR cable, 2 m, 5 m or 10 m long, are available on request.

### DOCUMENTATION

Detailed data sheets for these products can be found on the Contrinex website [www.contrinex.com](http://www.contrinex.com) or ordered free of charge from our distributors.

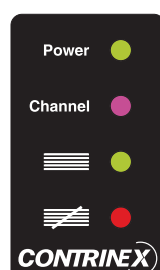
### LEDS

LED indicators on the YBB **sender** unit



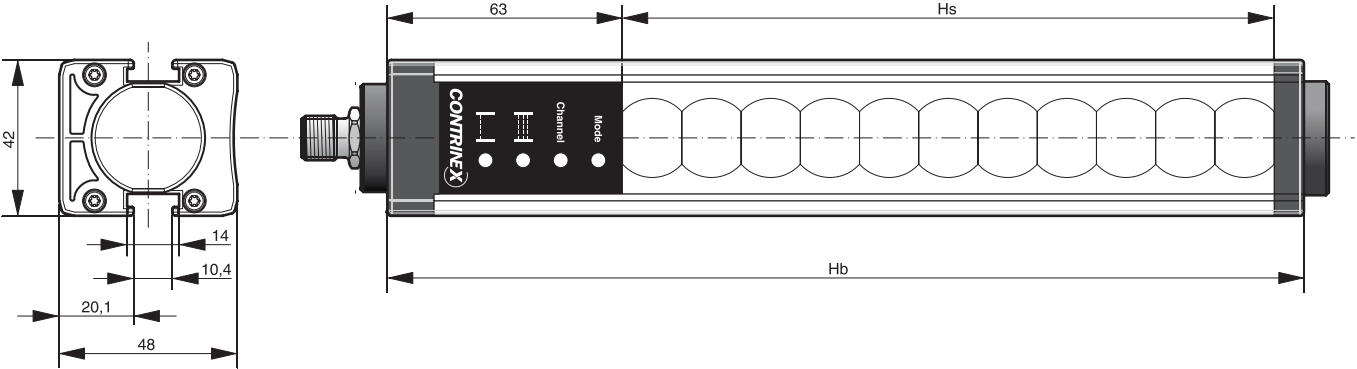
- Mode : yellow when test mode is active
- Channel : blue when channel 1 is selected  
purple when channel 2 is selected
- Alignment : steady orange when the screen is not fully aligned  
flashing orange when the first third of the screen is aligned  
off when screen is fully aligned
- Alignment : steady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

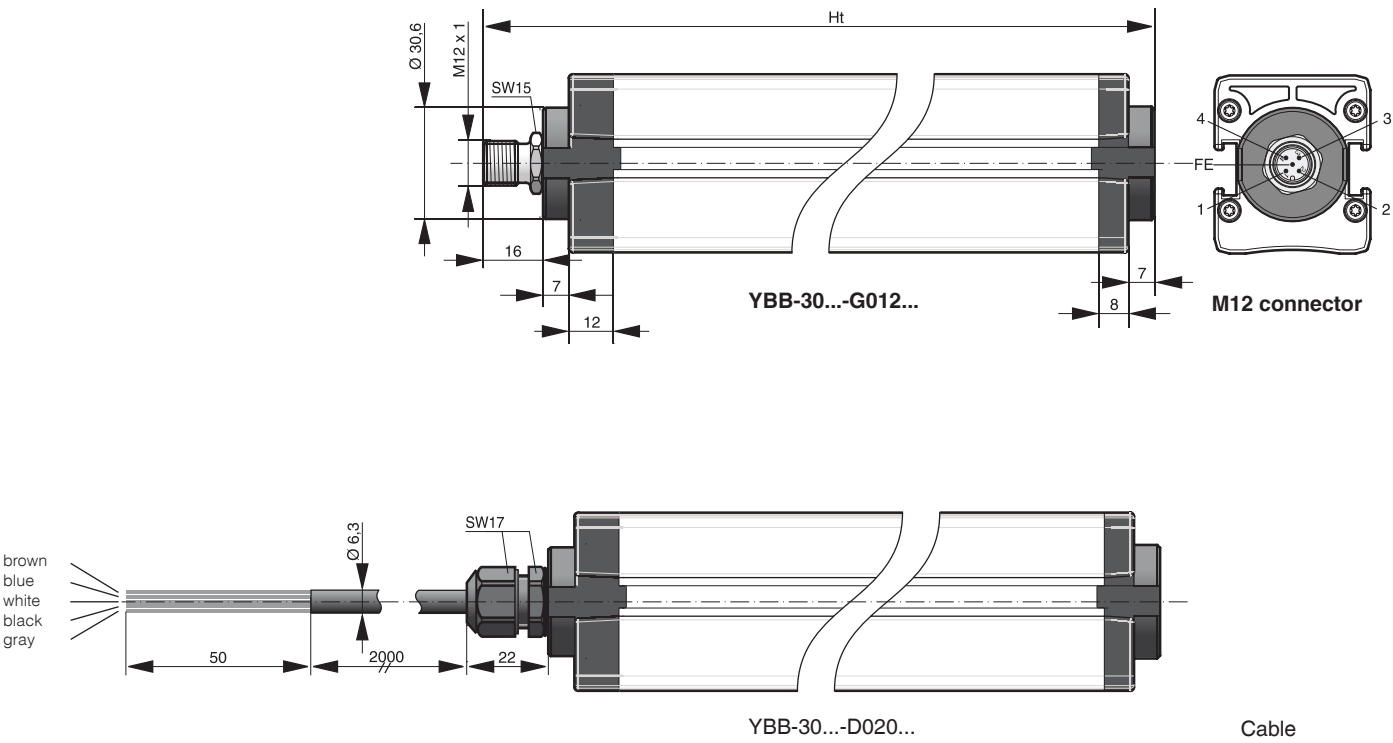


- Power : green when power is ON
- Channel : blue when channel 1 is selected  
purple when channel 2 is selected
- Status : green when OSSD outputs are ON
- Status : red when OSSD outputs are OFF

# DIMENSIONS



# PIN ASSIGNMENT



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



LIGHT CURTAINS  
HAND PROTECTION (30 MM)  
AVAILABLE MODELS



## 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 REFERENCES (BOLD: PREFERRED TYPES)

IP 65 & IP 67	PNP / Connector M12	Sender	<b>YBB-30S4-0250-G012</b>	<b>YBB-30S4-0400-G012</b>	<b>YBB-30S4-0500-G012</b>
		Receiver	<b>YBB-30R4-0250-G012</b>	<b>YBB-30R4-0400-G012</b>	<b>YBB-30R4-0500-G012</b>
	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
IP 65, IP 67 & IP 69K	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
	PNP / Connector M12	Sender	<b>YBB-30S4-0250-G012-69K</b>	<b>YBB-30S4-0400-G012-69K</b>	<b>YBB-30S4-0500-G012-69K</b>
		Receiver	<b>YBB-30R4-0250-G012-69K</b>	<b>YBB-30R4-0400-G012-69K</b>	<b>YBB-30R4-0500-G012-69K</b>
	PNP / PUR-cable 2 m	Sender	YBB-30S4-0250-D020-69K	YBB-30S4-0400-D020-69K	YBB-30S4-0500-D020-69K
		Receiver	YBB-30R4-0250-D020-69K	YBB-30R4-0400-D020-69K	YBB-30R4-0500-D020-69K
	PNP / PUR-cable 5 m	Sender	YBB-30S4-0250-D050-69K	YBB-30S4-0400-D050-69K	YBB-30S4-0500-D050-69K
		Receiver	YBB-30R4-0250-D050-69K	YBB-30R4-0400-D050-69K	YBB-30R4-0500-D050-69K
	PNP / PUR-cable 10 m	Sender	YBB-30S4-0250-D100-69K	YBB-30S4-0400-D100-69K	YBB-30S4-0500-D100-69K
		Receiver	YBB-30R4-0250-D100-69K	YBB-30R4-0400-D100-69K	YBB-30R4-0500-D100-69K

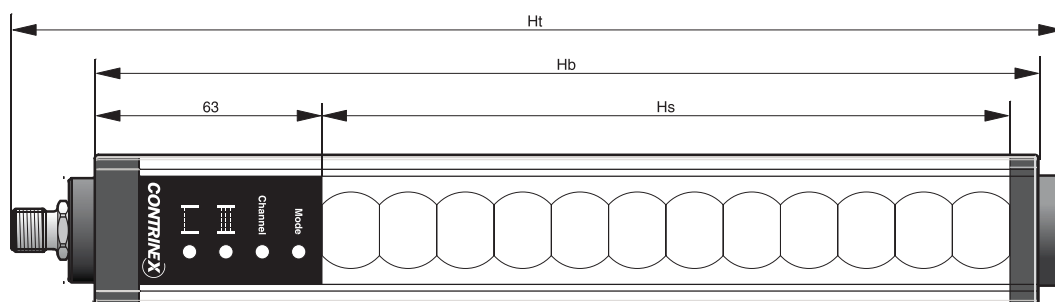
## TYPE-SPECIFIC DATA

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 REFERENCES (BOLD: PREFERRED TYPES)

IP 65 & IP 67	PNP / Connector M12	Sender	<b>YBB-30S4-1200-G012</b>	<b>YBB-30S4-1300-G012</b>	<b>YBB-30S4-1400-G012</b>
		Receiver	<b>YBB-30R4-1200-G012</b>	<b>YBB-30R4-1300-G012</b>	<b>YBB-30R4-1400-G012</b>
	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
IP 65, IP 67 & IP 69K	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
	PNP / Connector M12	Sender	<b>YBB-30S4-1200-G012-69K</b>	<b>YBB-30S4-1300-G012-69K</b>	<b>YBB-30S4-1400-G012-69K</b>
		Receiver	<b>YBB-30R4-1200-G012-69K</b>	<b>YBB-30R4-1300-G012-69K</b>	<b>YBB-30R4-1400-G012-69K</b>
	PNP / PUR-cable 2 m	Sender	YBB-30S4-1200-D020-69K	YBB-30S4-1300-D020-69K	YBB-30S4-1400-D020-69K
		Receiver	YBB-30R4-1200-D020-69K	YBB-30R4-1300-D020-69K	YBB-30R4-1400-D020-69K
	PNP / PUR-cable 5 m	Sender	YBB-30S4-1200-D050-69K	YBB-30S4-1300-D050-69K	YBB-30S4-1400-D050-69K
		Receiver	YBB-30R4-1200-D050-69K	YBB-30R4-1300-D050-69K	YBB-30R4-1400-D050-69K
	PNP / PUR-cable 10 m	Sender	YBB-30S4-1200-D100-69K	YBB-30S4-1300-D100-69K	YBB-30S4-1400-D100-69K
		Receiver	YBB-30R4-1200-D100-69K	YBB-30R4-1300-D100-69K	YBB-30R4-1400-D100-69K

\* 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-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-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
YBB-30S4-0700-G012-69K	YBB-30S4-0800-G012-69K	YBB-30S4-0900-G012-69K	YBB-30S4-1000-G012-69K
YBB-30R4-0700-G012-69K	YBB-30R4-0800-G012-69K	YBB-30R4-0900-G012-69K	YBB-30R4-1000-G012-69K
YBB-30S4-0700-D020-69K	YBB-30S4-0800-D020-69K	YBB-30S4-0900-D020-69K	YBB-30S4-1000-D020-69K
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YBB-30R4-0700-D050-69K	YBB-30R4-0800-D050-69K	YBB-30R4-0900-D050-69K	YBB-30R4-1000-D050-69K
YBB-30S4-0700-D100-69K	YBB-30S4-0800-D100-69K	YBB-30S4-0900-D100-69K	YBB-30S4-1000-D100-69K
YBB-30R4-0700-D100-69K	YBB-30R4-0800-D100-69K	YBB-30R4-0900-D100-69K	YBB-30R4-1000-D100-69K

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-30S4-1700-G012	YBB-30S4-1800-G012
YBB-30R4-1600-G012	YBB-30R4-1700-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
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YBB-30R4-1600-D100	YBB-30R4-1700-D100	YBB-30R4-1800-D100
YBB-30S4-1600-G012-69K	YBB-30S4-1700-G012-69K	YBB-30S4-1800-G012-69K
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