

SAFETY LIGHT CURTAIN

YBES-14□4-□□□□-P012



RESOLUTION 14 MM

TYPE 4 / PL e

OUTSTANDING FEATURES

- Protective height: 170 mm ... 1290 mm
- Operating range: 0.4 ... 5 m
- No blind zone
- Beam coding, EDM, start and restart interlock configurable functions
- Type 4 according to IEC 61496-1/2
- SIL 3 according to IEC 61508
- Category 4, PL e according to EN/ISO 13849-1
- Permanent autocontrol and optical sync.
- Wireless configuration through Bluetooth®

TECHNICAL DATA (at +23°C ±5°C, 24 VDC)

Resolution	14 mm
Beam axis interval	10 mm
Effective aperture angle	< ± 2.5° (when operating distance ≥ 3 m)
Operating range	0.4 ... 5 m
Housing size	26 mm x 26 mm x Ht
Total height (Ht)	see type-specific data (page 2)
Protective height (Hs)	see type-specific data (page 2)
Number of beams	see type-specific data (page 2)
Response time	see type-specific data (page 2)
Supply voltage	24 VDC ± 20%
Current consumption	see type-specific data (page 2)
Dissipated power	see type-specific data (page 2)
Polarity	2 PNP outputs
Output protection	short-circuit, overload protected
Output monitoring	cross-circuit monitored
Output current	max. 400 mA per output (at 55°C/131°F)
Output voltage ON min.	-2 V @400 mA of the operating voltage
Output voltage OFF max.	1.0 V
Output monitoring frequency	5 Hz
Leakage current when OFF state	< 2 mA
Maximum load inductance	100 mH
Sender wavelength	IR 850 nm
Safety level	Cat. 4, PL e (EN/ISO 13849-1), Type 4 (IEC 61496-1/-2), SIL 3 (IEC 61508-1/-2/-3), SILCL3 (IEC 62061:A2)
Electrical protection class	III (IEC 61140)
Startup delay	< 3 s
Vibration resistance	10 to 55 Hz, 0.35 mm amplitude, 1 octave/min., 20 sweeps for each axis
Shock resistance	10 g during 16 ms, 1000 times for each axis
Light immunity	incandescent lamp: 3000 lx max. (light intensity on receiver surface); xenon flash tube: flash duration 1.2 ms max. with a frequency of 2 Hz max. (IEC 61496-2)
Ambient temperature range	0 ... +55°C (+32 ... +131°F)
Storage temperature range	-25 ... +70°C (-13 ... +158°F)
Air humidity	15 ... 95% (non-condensing)
Enclosure rating	IP65 (EN 60529/A1)
Housing material	aluminum profile, PC front screen
Material of upper and lower cover	PA + 30% fiberglass
Cable runs	100 m max. (at 10 nF capacitive load)
Weight	see type-specific data (page 2)
Reference standards:	
safety	IEC 61496-1/-2, IEC 61508-1/-2/-3, IEC 62061:A2, ISO 13849-1, EN 60204-1, EN 50178
environment	EN 60068-2-1, 2, 3, 6, 27
EMC	EN 61000-4-2, 3, 5, 6
radio disturbance	EN 55011/A2
Bluetooth®	Low energy (LE), V5.0 (compatible 4.1 or later)
EDM (External Device Monitoring)	Enabled or disabled
Start and restart interlock	Automatic or manual
Beam coding	3 selectable codes
Configuration	Through Bluetooth® with ContriApp, range <20 m

TYPE-SPECIFIC DATA

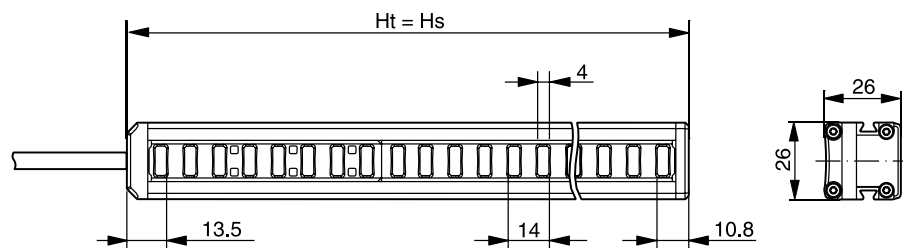
BEAM RESOLUTION: 14 MM

Part reference	Protective Height Hs [mm]	Total Height Ht [mm]	Number of Beams	Current Consumption [mA max.]*	Response Time [ms]	MTTFd [years]	DCavg	PFH	Dissipated power [W max.]*	Weight [g]
YBES-14x4-0170-P012	170	170	16	30 (S), 35 (R)	9.6	2780	96.99%	2.527×10^{-8}	1.76	150
YBES-14x4-0330-P012	330	330	32	30 (S), 35 (R)	13.2	2364	97.29%	2.534×10^{-8}	1.76	260
YBES-14x4-0490-P012	490	490	48	30 (S), 35 (R)	16.8	2055	97.52%	2.541×10^{-8}	1.76	370
YBES-14x4-0650-P012	650	650	64	30 (S), 35 (R)	20.4	1818	97.69%	2.549×10^{-8}	1.76	490
YBES-14x4-0810-P012	810	810	80	30 (S), 35 (R)	24	1630	97.82%	2.556×10^{-8}	1.76	600
YBES-14x4-0970-P012	970	970	96	30 (S), 35 (R)	27.6	1477	97.93%	2.563×10^{-8}	1.76	710
YBES-14x4-1130-P012	1130	1130	112	30 (S), 35 (R)	31.2	1351	98.02%	2.570×10^{-8}	1.76	820
YBES-14x4-1290-P012	1290	1290	128	30 (S), 35 (R)	34.8	1244	98.10%	2.578×10^{-8}	1.76	930

x = S for sender / R for receiver / K for kit (sender + receiver)

* Excl. load

HOUSING SIZE



M12 pigtail

YBES-14S4-####-P012

YBES-14R4-####-P012

YBES-14K4-####-P012

PART REFERENCE

Output type	Sender	Receiver	Kit (Sender + Receiver)
PNP / Pigtail M12	YBES-14S4-0170-P012	YBES-14R4-0170-P012	YBES-14K4-0170-P012
PNP / Pigtail M12	YBES-14S4-0330-P012	YBES-14R4-0330-P012	YBES-14K4-0330-P012
PNP / Pigtail M12	YBES-14S4-0490-P012	YBES-14R4-0490-P012	YBES-14K4-0490-P012
PNP / Pigtail M12	YBES-14S4-0650-P012	YBES-14R4-0650-P012	YBES-14K4-0650-P012
PNP / Pigtail M12	YBES-14S4-0810-P012	YBES-14R4-0810-P012	YBES-14K4-0810-P012
PNP / Pigtail M12	YBES-14S4-0970-P012	YBES-14R4-0970-P012	YBES-14K4-0970-P012
PNP / Pigtail M12	YBES-14S4-1130-P012	YBES-14R4-1130-P012	YBES-14K4-1130-P012
PNP / Pigtail M12	YBES-14S4-1290-P012	YBES-14R4-1290-P012	YBES-14K4-1290-P012

LED INDICATORS

LED indicators on the YBES **sender** unit



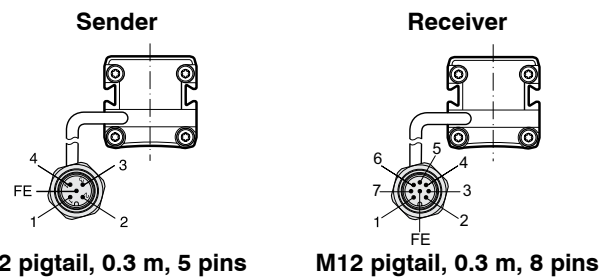
- Bluetooth® : **blue** when communication through Bluetooth® is enabled
blinking blue when data are exchanged (1 Hz)
OFF when communication through Bluetooth® is disabled
- Beam coding : **purple** when "Beam Coding #1" option is enabled
yellow when "Beam Coding #2" option is enabled
blue when "Beam Coding #3" option is enabled
- Test : **yellow** when intrusion simulation is enabled
OFF when there is no intrusion simulation

LED indicators on the YBES **receiver** unit



- Interlock : **yellow** when light curtain is waiting for restart/start
OFF when restart/start is initiated or when automatic restart is configured
- OSSD : **green** when both OSSD1 and OSSD2 are ON
red when both OSSD1 and OSSD2 are OFF
- Bluetooth® : **blue** when communication through Bluetooth® is enabled
blinking blue when data are exchanged (1 Hz)
OFF when communication through Bluetooth® is disabled
- Alignment : **steady orange** when no beam is aligned
blinking orange when less of total beam number are aligned (frequency about 1 Hz)
OFF when all beams are fully aligned
- EDM : **orange** when EDM is enabled
OFF when EDM is disabled
- Beam Coding : **purple** when "Beam Coding #1" option is enabled
yellow when "Beam Coding #2" option is enabled
blue when "Beam Coding #3" option is enabled

PIN ASSIGNMENT



ASSIGNMENT	FUNCTION	PINS/WIRES ON SENDER		PINS/WIRES ON RECEIVER	
		M12	OPEN CABLE	M12	OPEN CABLE
Power supply	24 VDC	1	brown	2	brown
Power supply	0 V	3	blue	7	blue
Test mode	24 V: test inactive 0 V: test active	4	black	–	–
Output	OSSD1	–	–	5	grey
Output	OSSD2	–	–	6	pink
Functional earth	Shield	FE	gray	FE	red
EDM	EDM input	–	–	4	yellow
Restart Interlock	Input for restart button	–	–	1	white
Not used	–	2	white	3	green

Operators of the products we supply are responsible for compliance with measures for the protection of persons. The use of our equipment in applications where the safety of persons might be at risk is only authorized if the operator observes and implements separate, appropriate and necessary measures for the protection of persons and machines. Terms of delivery and rights to change design reserved.