

SAFETY LIGHT CURTAIN

YBES-30□4-□□□□-P012



RESOLUTION 30 MM

TYPE 4 / PL e

OUTSTANDING FEATURES

- Protective height: 170 mm ... 1610 mm
- Operating range: 0.25 ... 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 | 30 mm |
| Beam axis interval | 20 mm |
| Effective aperture angle | < ± 2.5° (when operating distance ≥ 3 m) |
| Operating range | 0.25 ... 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

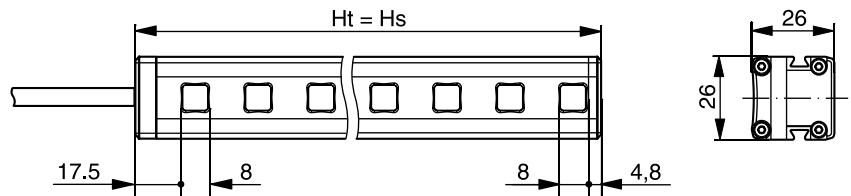
BEAM RESOLUTION: 30 MM

| Part reference | Protective Height Hs [mm] | Total Height Ht [mm] | Number of Beams | Current Consumption [mA max.]* | Response Time [ms] | MTTF _d [years] | DC _{avg} | PFH | Dissipated power [W max.]* | Weight [g] |
|---------------------|---------------------------|----------------------|-----------------|--------------------------------|--------------------|---------------------------|-------------------|------------------------|----------------------------|------------|
| YBES-30x4-0170-P012 | 170 | 170 | 8 | 30 (S), 35 (R) | 7.8 | 3049 | 96.80% | 2.523x10 ⁻⁸ | 1.76 | 150 |
| YBES-30x4-0330-P012 | 330 | 330 | 16 | 30 (S), 35 (R) | 9.6 | 2780 | 96.99% | 2.527x10 ⁻⁸ | 1.76 | 260 |
| YBES-30x4-0490-P012 | 490 | 490 | 24 | 30 (S), 35 (R) | 11.4 | 2555 | 97.16% | 2.531x10 ⁻⁸ | 1.76 | 370 |
| YBES-30x4-0650-P012 | 650 | 650 | 32 | 30 (S), 35 (R) | 13.2 | 2364 | 97.29% | 2.534x10 ⁻⁸ | 1.76 | 490 |
| YBES-30x4-0810-P012 | 810 | 810 | 40 | 30 (S), 35 (R) | 15 | 2199 | 97.41% | 2.538x10 ⁻⁸ | 1.76 | 600 |
| YBES-30x4-0970-P012 | 970 | 970 | 48 | 30 (S), 35 (R) | 16.8 | 2055 | 97.52% | 2.542x10 ⁻⁸ | 1.76 | 710 |
| YBES-30x4-1130-P012 | 1130 | 1130 | 56 | 30 (S), 35 (R) | 18.6 | 1930 | 97.61% | 2.545x10 ⁻⁸ | 1.76 | 820 |
| YBES-30x4-1290-P012 | 1290 | 1290 | 64 | 30 (S), 35 (R) | 20.4 | 1818 | 97.69% | 2.549x10 ⁻⁸ | 1.76 | 930 |
| YBES-30x4-1450-P012 | 1450 | 1450 | 72 | 30 (S), 35 (R) | 22.2 | 1719 | 97.76% | 2.552x10 ⁻⁸ | 1.76 | 1040 |
| YBES-30x4-1610-P012 | 1610 | 1610 | 80 | 30 (S), 35 (R) | 24 | 1630 | 97.82% | 2.556x10 ⁻⁸ | 1.76 | 1150 |

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

* Excl. load

HOUSING SIZE



M12 pigtail

YBES-30S4-####-P012
YBES-30R4-####-P012
YBES-30K4-####-P012

PART REFERENCE

| Output type | Sender | Receiver | Kit (Sender + Receiver) |
|-------------------|---------------------|---------------------|-------------------------|
| PNP / Pigtail M12 | YBES-30S4-0170-P012 | YBES-30R4-0170-P012 | YBES-30K4-0170-P012 |
| PNP / Pigtail M12 | YBES-30S4-0330-P012 | YBES-30R4-0330-P012 | YBES-30K4-0330-P012 |
| PNP / Pigtail M12 | YBES-30S4-0490-P012 | YBES-30R4-0490-P012 | YBES-30K4-0490-P012 |
| PNP / Pigtail M12 | YBES-30S4-0650-P012 | YBES-30R4-0650-P012 | YBES-30K4-0650-P012 |
| PNP / Pigtail M12 | YBES-30S4-0810-P012 | YBES-30R4-0810-P012 | YBES-30K4-0810-P012 |
| PNP / Pigtail M12 | YBES-30S4-0970-P012 | YBES-30R4-0970-P012 | YBES-30K4-0970-P012 |
| PNP / Pigtail M12 | YBES-30S4-1130-P012 | YBES-30R4-1130-P012 | YBES-30K4-1130-P012 |
| PNP / Pigtail M12 | YBES-30S4-1290-P012 | YBES-30R4-1290-P012 | YBES-30K4-1290-P012 |
| PNP / Pigtail M12 | YBES-30S4-1450-P012 | YBES-30R4-1450-P012 | YBES-30K4-1450-P012 |
| PNP / Pigtail M12 | YBES-30S4-1610-P012 | YBES-30R4-1610-P012 | YBES-30K4-1610-P012 |

LED INDICATORS

LED indicators on the YBES **sender** unit



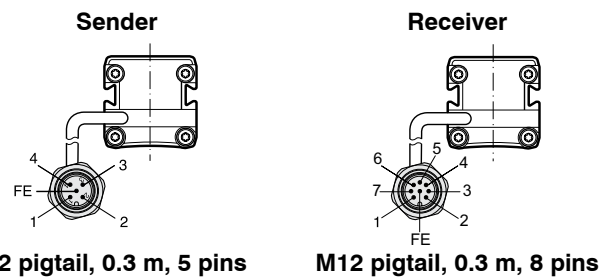
- Bluetooth® : **blue** when communication through Bluetooth® is enabled
blinking blue when data are exchanged (1 Hz)
OFF when communication through Bluetooth® is disabled
- Beam coding : **purple** when "Beam Coding #1" option is enabled
yellow when "Beam Coding #2" option is enabled
blue when "Beam 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 |

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