

# SAFETY LIGHT CURTAIN

**YBB-14 □4-1300-□□□□**



RESOLUTION 14 MM

TYPE 4 / PL e

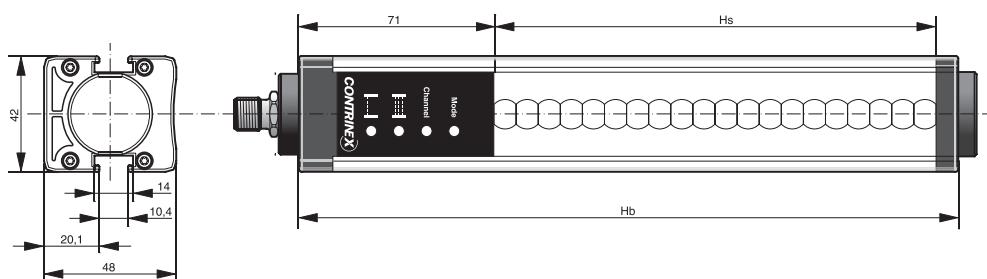
## OUTSTANDING FEATURES

- Protective height: 1303 mm
- Operating range: 0.25 ... 3.5 m
- Category 4, PL e according to EN/ISO 13849-1 (former EN 954-1)
- Type 4 according to IEC 61496-1/2
- 2-channel selection
- Optically synchronized units
- Permanent autocontrol

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

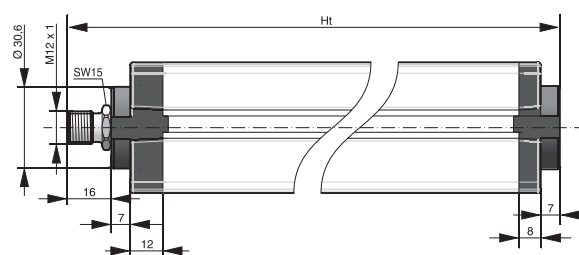
|                                   |                                                                                                                                                                    |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resolution                        | 14 mm                                                                                                                                                              |
| Beam axis interval                | 8 mm                                                                                                                                                               |
| Effective aperture angle          | < ± 2.5° (when operating distance ≥ 3 m)                                                                                                                           |
| Operating range                   | 0.25 ... 3.5 m                                                                                                                                                     |
| Dimensions                        | 42 mm x 48 mm x Ht (total height with M12 connector)                                                                                                               |
| Total height (Ht)                 | 1412 mm                                                                                                                                                            |
| Housing height (Hb)               | 1382 mm                                                                                                                                                            |
| Protective height (Hs)            | 1303 mm                                                                                                                                                            |
| Number of beams                   | 161                                                                                                                                                                |
| Response time                     | 34 ms                                                                                                                                                              |
| Supply voltage range              | 24 VDC ± 20 %                                                                                                                                                      |
| Current consumption               | sender: 50 mA max. / receiver: 145 mA max. (excl. load)                                                                                                            |
| Dissipated power                  | sender: 1.4 W max. / receiver: 4.2 W max. (excl. load)                                                                                                             |
| Output type                       | 2 PNP outputs                                                                                                                                                      |
| Output protection                 | short-circuit, overload protected                                                                                                                                  |
| Output monitoring                 | cross-circuit monitored                                                                                                                                            |
| Load current                      | max. 200 mA per output (at 50 °C / 122 °F)                                                                                                                         |
| Output voltage ON min.            | -1.0 V of the operating voltage                                                                                                                                    |
| Output voltage OFF max.           | 1.0 V                                                                                                                                                              |
| Output monitoring frequency       | 500 Hz                                                                                                                                                             |
| Leakage current when OFF state    | < 1 mA                                                                                                                                                             |
| Maximum load inductance           | 100 mH                                                                                                                                                             |
| Sender wavelength                 | IR 950 nm                                                                                                                                                          |
| Safety level                      | Category 4, Type 4 (IEC 61496-1/2)                                                                                                                                 |
|                                   | PL e, MTTF <sub>d</sub> = 45 years, DC <sub>avg</sub> = 94% (EN/ISO 13849-1)                                                                                       |
| Electrical protection class       | III (IEC 61140)                                                                                                                                                    |
| Startup delay                     | < 0.5 s                                                                                                                                                            |
| Vibration resistance              | 10 to 55 Hz, 0.35 mm amplitude, 1 octave/min.,<br>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. (TS 61496-2:2006) |
| Ambient temperature range         | -35 ... +60 °C (-31 ... +140 °F)                                                                                                                                   |
| Storage temperature range         | -40 ... +70 °C (-40 ... +158 °F)                                                                                                                                   |
| Air humidity                      | 15 ... 95 % (non-condensing)                                                                                                                                       |
| Degree of protection              | IP 65 + IP 67 (EN 60529/A1:2000)                                                                                                                                   |
| Housing material                  | aluminum profile, PMMA front screen                                                                                                                                |
| Material of upper and lower cover | PA + 30% fiberglass                                                                                                                                                |
| Cable runs                        | 10 m max. (at 10 nF capacitive load)                                                                                                                               |
| Weight                            | 2870 g per unit (with M12 connector)                                                                                                                               |
| Reference standards:              | safety IEC 61496-1:2004, IEC 61496-2:2006,<br>EN 60204-1:2006, EN 50178:1997                                                                                       |
|                                   | environment EN 60068-2-1,2,3,6,29                                                                                                                                  |
|                                   | EMC EN 61000-4-2,3,4,5,6,11                                                                                                                                        |
|                                   | radio disturbance EN 55011/A2:2007                                                                                                                                 |

## DIMENSIONS



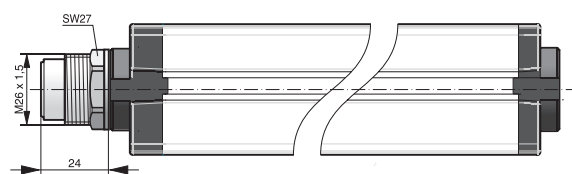
### connector M12

YBB-14S4-1300-G012  
YBB-14R4-1300-G012



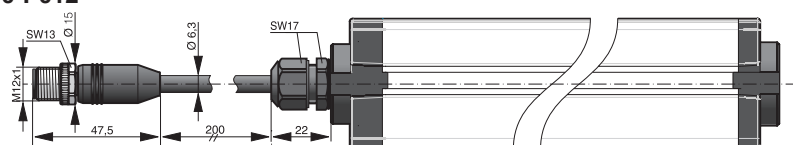
### connector M26

YBB-14S4-1300-G026  
YBB-14R4-1300-G026



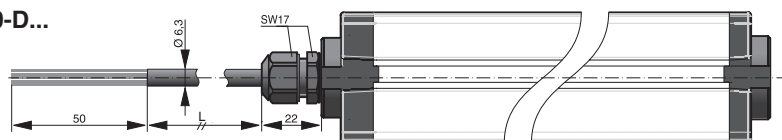
### pigtail M12

YBB-14S4-1300-P012  
YBB-14R4-1300-P012



### cable

YBB-14S4-1300-D...  
YBB-14R4-1300-D...

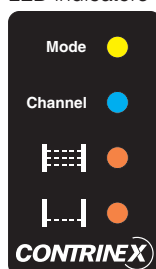


## PART REFERENCE

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

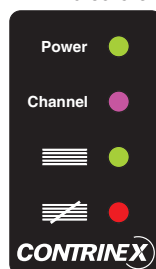
## LED INDICATORS

LED indicators on the YBB **sender** unit



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

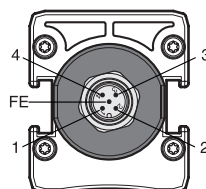
LED indicators on the YBB **receiver** unit



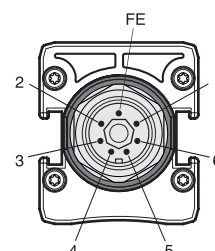
|         |   |                                                                      |
|---------|---|----------------------------------------------------------------------|
| Power   | : | green when power is ON                                               |
| Channel | : | blue when channel 1 is selected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

## PIN ASSIGNMENT

**M12 connector**



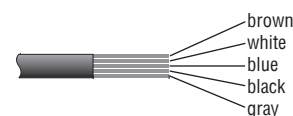
**M26 connector**



**Pigtail M12**



**cable**



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