



# CX0 series

Area sensors with high resolution and compact housing



Area sensor  
high resolution

## features

- Total crossbeam through all the optics
- Crossed area 160 and 320mm
- Pitch 5mm and 10mm
- Operating distance up to 3m (for 5mm pitch) and 6m (for 10mm pitch)
- 2 digital NPN and PNP outputs (teach-in model available only with PNP logic) NO/NC configurable
- Available with Teach in adjustment or with external trimmer
- High switching frequency to detection
- Intrinsic synchronism by cable (Teach-in models)



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## code description

|                  | Code | Description  |
|------------------|------|--|
| series           | CX0  | Area Sensor cubic section  |
| emitter          | E    | Emitter  |
| emitter type     | 0    | Emitter with I/O standard configuration                                |
|                  | 1    | Emitter with special I/O configuration: input Teach-in instead of test |
| receiver         | R    | Receiver   |
| receiver type    | P    | Receiver with PNP output   |
|                  | B    | Receiver with two digital outputs (NPN / PNP)                          |
| pitch            | 05   | Pitch 5 mm   |
|                  | 10   | Pitch 10 mm  |
| height           | 016  | Controlled height 160 mm   |
|                  | 032  | Controlled height 320 mm   |
| output           | V    | Output cable length 220 mm with M12 pigtail                            |
| special function |      | Standard version   |
|                  | 1    | Emitter and receiver with CX0 common wire and Teach-in emitter         |

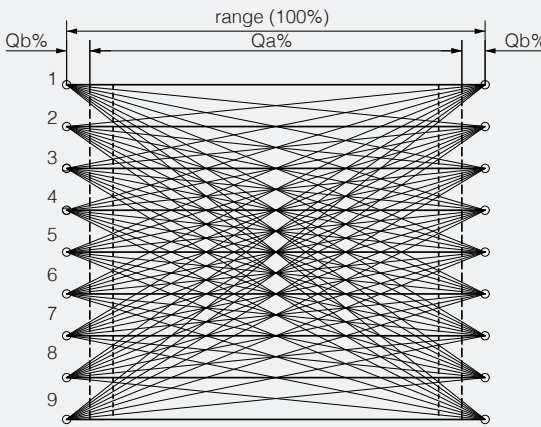
## available models

| OUTPUT |           |        | INPUT    |      |                                 | beams number | pitch (mm) | plot (P/I) <sup>(3)</sup> | working range (m) | detection height (h) | KIT (E + R) <sup>(2)</sup> |                 |
|--------|-----------|--------|----------|------|---------------------------------|--------------|------------|---------------------------|-------------------|----------------------|----------------------------|-----------------|
| state  | logic     | output | blanking | test | adjustment                      |              |            |                           |                   |                      |                            |                 |
| NO/NC  | NPN + PNP | 2      | -        | ●    | External Trimmer <sup>(1)</sup> | 32           | 5          | I                         | 0.3...3           | 160 mm               | CX0E0RB/05-016V            |                 |
|        |           |        |          |      |                                 | 17           | 10         |                           | 0.5...6           |                      | CX0E0RB/10-016V            |                 |
|        |           |        |          |      |                                 | 32           | 5          |                           | 1...6             |                      | CX0E0RB/10-032V            |                 |
|        | PNP       | 1      |          |      | -                               | Teach-In     | 32         |                           | 5                 | 0.3...3              | 160 mm                     | CX0E1RP/05-016V |
|        |           |        |          |      |                                 |              | 17         |                           | 10                | 0.5...6              | 160 mm                     | CX0E1RP/10-016V |
|        |           |        |          |      |                                 |              | 32         |                           | 10                | 1...6                | 320 mm                     | CX0E1RP/10-032V |

<sup>(1)</sup> External trimmer ST 140 sold separately <sup>(2)</sup> Sales code; single code (emitter or receiver) not available <sup>(3)</sup> Plot: P = parallel beams, I = crossed beams

| CX0E*R*/**_***               |  |
|------------------------------|--|
|                              |   |
| nominal sensing distance     | 0.3 ... 3 m (beam pitch 5 mm, detection height 160 mm)<br>0.5 ... 6 m (beam pitch 10 mm, detection height 160 mm)<br>1 ... 6 m (beam pitch 10 mm, detection height 320 mm) |
| emission                     | 850 nm (beam pitch 5 mm)<br>880 nm (beam pitch ≥10 mm)   |
| operating voltage            | 16.8...30 Vdc  |
| ripple                       | < 1.2 Vpp  |
| power consumption (receiver) | 1...1.5 W  |
| power consumption (emitter)  | 1...1.5 W  |
| outputs                      | 1 x PNP, 1 x NPN (CX0RB); 1 x PNP (CX0RP)  |
| output current               | < 100 mA   |
| output voltage drop          | < 1.5 V @ 100 mA   |
| minimum load resistance      | 280 Ω  |
| leakage current              | ≤ 10 µA  |
| tolerated capacitive load    | < 0.7 µF   |
| power on delay               | 200 ms   |
| Teach-In                     | < 15 s   |
| response time                | < 6.6 ms Dark On; < 11 ms Light On   |
| operating temperature        | -10°C...55°C   |
| storage temperature          | -25°C...60°C   |
| artificial light rejection   | IEC EN 60947-5-2   |
| ambient light rejection      | IEC EN 60947-5-2   |
| IP mechanical protection     | IP67   |
| humidity                     | 95% max (no condensation)  |
| vibrations                   | IEC EN 60947-5-2   |
| shocks                       | IEC EN 60947-5-2   |
| cable length                 | < 20 m   |
| connectors / cables          | 1 x M12, 4 poles, male (CX0E), 1 x M12, 5 poles, male (CX0R)   |
| housing material             | painted aluminium RAL5002  |
| optic materials              | PMMA   |

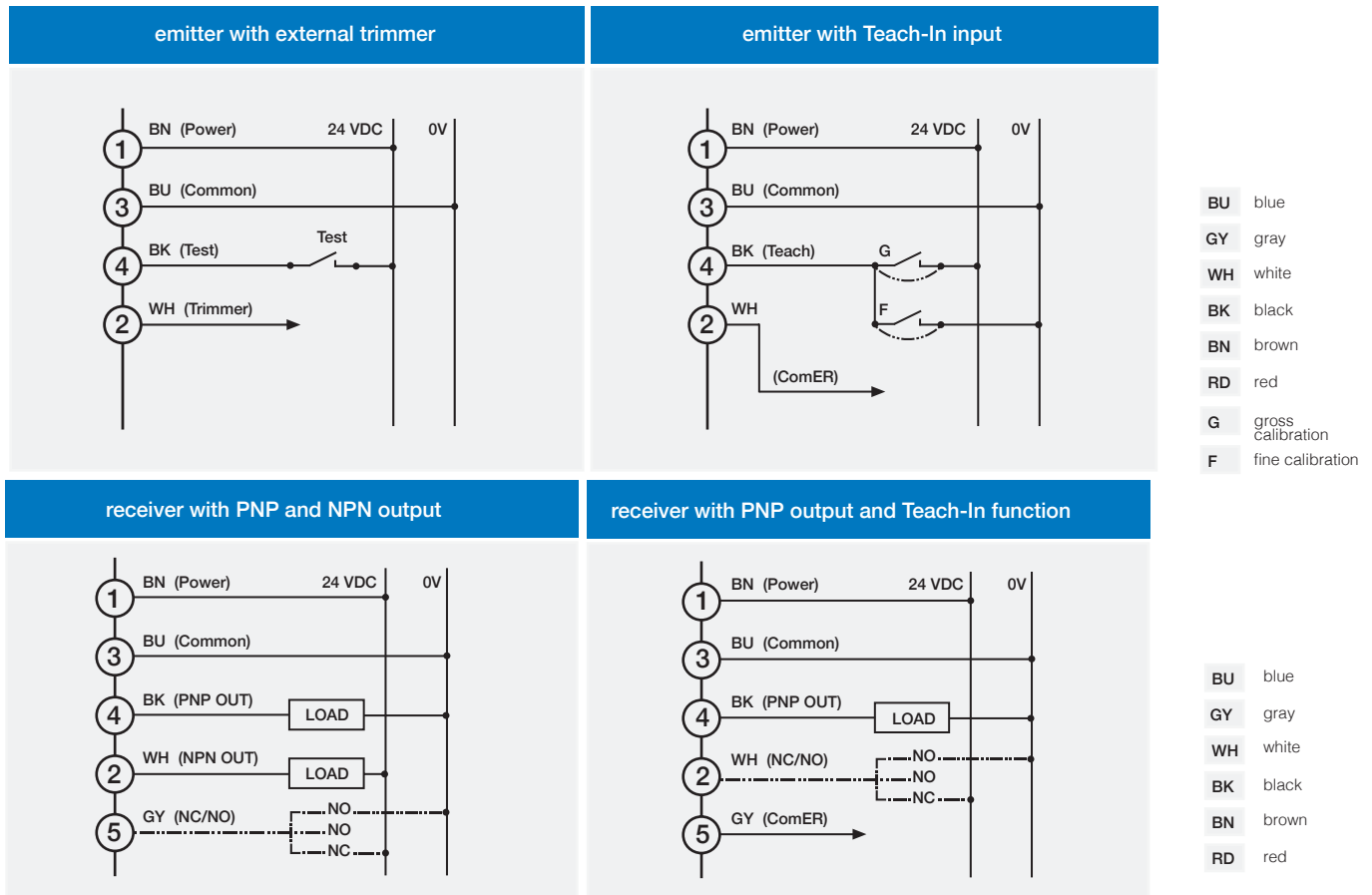
## MDO (Minimum Detectable Object)

| beams                  | step (mm) | resolution <sup>(1)</sup> (mm) | Qa 17 beams | Qa 32 beams | total crossed-beam   |
|------------------------|-----------|--------------------------------|-------------|-------------|--|
| crossed <sup>(2)</sup> | 5         | 2,5                            | -           | 96%         |  |
|                        | 10        | 5                              | 93%         | 96%         |  |

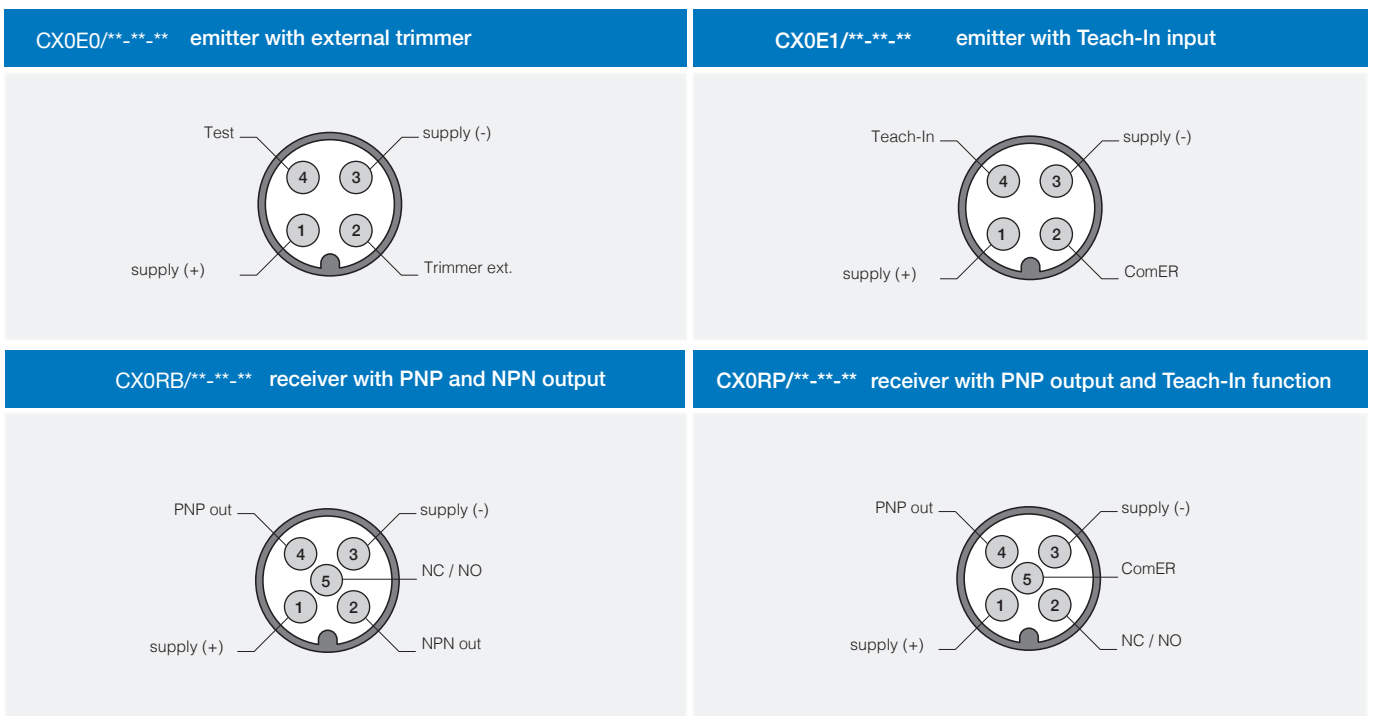
<sup>(1)</sup> = Resolution detected with ST140 or with Teach Gross

<sup>(2)</sup> = The optics cross beam allows detection of objects with a very small diameter or very thin (such as a sheet of paper or an envelope). For those targets with small diameter, the detecting resolution is less effective exactly in the centre between Emitter and Receiver (see Resolution) as well as at the ends of detection area (near to the sensors); the mentioned detection is obtained in the central area Qa with a width equal to a certain % of the distance between the 2 sensors.

# electric diagrams of the connections



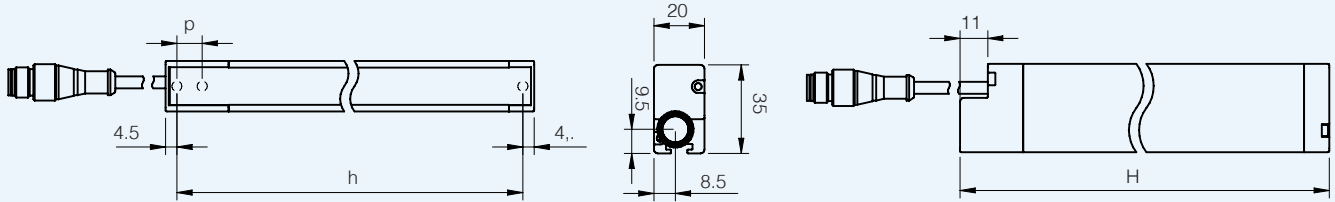
## plugs



## dimensions (mm)

CX0/\*\*\_\*\*

H (barrier height) = h (controlled height) + 9 mm

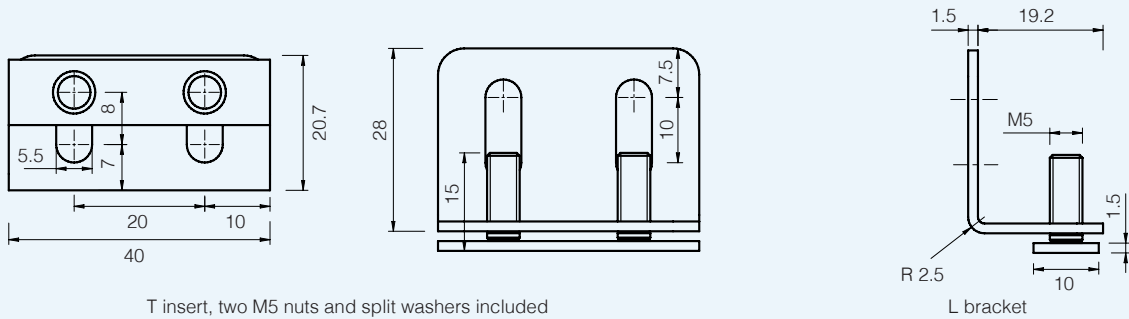


|        |     |     |     |     |     |     |
|--------|-----|-----|-----|-----|-----|-----|
| h (mm) | 160 | 320 | 480 | 640 | 800 | 960 |
| H (mm) | 169 | 329 | 489 | 649 | 809 | 969 |

## dimensions (mm)

accessories included with all models

accessories fixing kit ST151



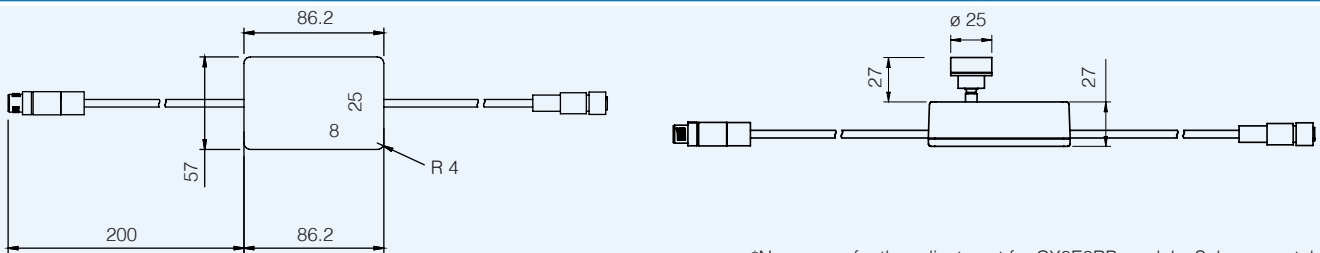
T insert, two M5 nuts and split washers included

| code   | description  |
|--------|--|
| ST4V S | 4 pcs. kit antivibration basement for barriers with 150 mm protected height                    |
| ST8V S | 8 pcs. kit antivibration basement for barriers with protected height from 1,500 mm to 1,050 mm |

## accessories

not included

accessory for external adjustment ST 140



\*Necessary for the adjustment for CX0E0RB models. Sale separately.

| code           | description   |
|----------------|---|
| CD12M/0B-050A1 | power connector M12, 4 wires, female, axial, cable 5 m PVC  |
| CD12M/0B-100A1 | power connector M12, 4 wires, female, axial, cable 10 m PVC |
| CD12M/0B-150A1 | power connector M12, 4 wires, female, axial, cable 15 m PVC |
| CD12M/0B-050A5 | power connector M12, 4 wires, female, axial, cable 5 m PUR  |
| CD12M/0B-100A5 | power connector M12, 4 wires, female, axial, cable 10 m PUR |
| CD12M/0B-150A5 | power connector M12, 4 wires, female, axial, cable 15 m PUR |
| CD12M/0H-050A5 | power connector M12, 5 wires, female, axial, cable 5 m PUR  |
| CD12M/0H-100A5 | power connector M12, 5 wires, female, axial, cable 10 m PUR |
| CD12M/0H-150A5 | power connector M12, 5 wires, female, axial, cable 15 m PUR |