

RAY10-AB4CBLA00

Reflex Array

MULTITASK PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

| Type | Part no. |
|-----------------|----------|
| RAY10-AB4CBLA00 | 1096100 |

Other models and accessories → www.sick.com/Reflex_Array



Detailed technical data

Features

| | |
|--|---|
| Device type | Photoelectric sensors |
| Sensor/ detection principle | Photoelectric retro-reflective sensor, Dual lens Reflex Array |
| Dimensions (W x H x D) | 21.5 mm x 36 mm x 37.7 mm |
| Housing design (light emission) | Rectangular |
| Minimum object size | 5 mm, position-independent detection within the light array |
| Detection height | 25 mm |
| Sensing range max. | 0 m ... 1.5 m ¹⁾ |
| Distance of the sensor to reflector | 0.3 m ... 1.5 m ¹⁾ |
| Type of light | Visible red light |
| Light source | PinPoint LED ²⁾ |
| Light spot size (distance) | 37 mm x 12 mm (1 m) |
| Wave length | 635 nm |
| Adjustment | Potentiometer IO-Link |
| Pin 2 configuration | External Input (test), Teach-in, switching signal |
| AutoAdapt | ✓ |
| Special applications | Detecting transparent objects, Detecting perforated objects, Detecting uneven, shiny objects, Detecting objects with position tolerances, Detecting flat objects |

¹⁾ Reflector P250F.

²⁾ Average service life: 100,000 h at T_J = +25 °C.

Mechanics/electronics

| | |
|--|---|
| Supply voltage | 10 V DC ... 30 V DC ¹⁾ |
| Ripple | < 5 V _{pp} |
| Current consumption | 30 mA ²⁾ |
| Switching output | Push-pull: PNP/NPN |
| Output: Q_{L1} / C | Switching output or IO-Link mode |
| Output function | Factory setting: Pin 2 / white (MF): NPN normally closed (light switching), PNP normally open (dark switching), Pin 4 / black (QL1 / C): NPN normally open (dark switching), PNP normally closed (light switching), IO-Link |
| Switching mode | Light/dark switching |
| Switching mode selector | Via IO-Link |
| Signal voltage PNP HIGH/LOW | Approx. V _S - 2.5 V / 0 V |
| Signal voltage NPN HIGH/LOW | Approx. V _S / < 2.5 V |
| Output current I_{max.} | ≤ 100 mA |
| Response time | ≤ 0.5 ms ³⁾ |
| Switching frequency | 1,000 Hz ⁴⁾ |
| Connection type | Cable with M12 male connector, 4-pin, 300 mm ⁵⁾ |
| Cable material | PVC |
| Conductor cross-section | 0.13 mm ² |
| Cable diameter | Ø 3.6 mm |
| Circuit protection | A ⁶⁾ B ⁷⁾ C ⁸⁾ D ⁹⁾ |
| Protection class | III |
| Weight | 130 g |
| Housing material | Plastic, ABS |
| Optics material | Plastic, PMMA |
| Enclosure rating | IP67 |
| Ambient operating temperature | -40 °C ... +60 °C ¹⁰⁾ |
| Ambient temperature, storage | -40 °C ... +70 °C |
| UL File No. | NRKH.E189383 & NRKH7.E189383 |

¹⁾ Limit values.

²⁾ Without load.

³⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁴⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁵⁾ Do not bend below 0 °C.

⁶⁾ A = V_S connections reverse-polarity protected.

⁷⁾ B = inputs and output reverse-polarity protected.

⁸⁾ C = interference suppression.

⁹⁾ D = outputs overcurrent and short-circuit protected.

¹⁰⁾ Avoid condensation on the front screen of the sensor and on the reflector.

Communication interface

| | |
|--------------------------------|--------------|
| Communication interface | IO-Link V1.1 |
|--------------------------------|--------------|

| | |
|---------------------------------------|--|
| Communication Interface detail | COM2 (38,4 kBaud) |
| Cycle time | 2.3 ms |
| Process data length | 16 Bit |
| Process data structure | Bit 0 = switching signal Q _{L1} Bit 1 = switching signal Q _{L2} Bit 2 ... 15 = empty |
| VendorID | 26 |
| DeviceID HEX | 0x8001DD |
| DeviceID DEC | 8389085 |

Smart Task

| | |
|----------------------------------|--|
| Smart Task name | Base logics |
| Logic function | Direct AND OR Window Hysteresis |
| Timer function | Deactivated On delay Off delay ON and OFF delay Impulse (one shot) |
| Inverter | Yes |
| Switching frequency | SIO Direct: 500 Hz ¹⁾ SIO Logic: 500 Hz ²⁾ IOL: 217 Hz ³⁾ |
| Response time | SIO Direct: 1 ms ¹⁾ SIO Logic: 1 ms ²⁾ IOL: 2,3 ms ³⁾ |
| Repeatability | SIO Direct: 1 ms ¹⁾ SIO Logic: 1 ms ²⁾ IOL: 2,3 ms ³⁾ |
| Switching signal | |
| Switching signal Q _{L1} | Switching output |
| Switching signal Q _{L2} | Switching output |

¹⁾ SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Diagnosis

| | |
|-------------------------|----------------------------|
| Device status | Yes |
| Quality of teach | Yes |
| Quality of run | Yes, Contamination display |

Classifications

| | |
|---------------------|----------|
| ECl@ss 5.0 | 27270902 |
| ECl@ss 5.1.4 | 27270902 |
| ECl@ss 6.0 | 27270902 |
| ECl@ss 6.2 | 27270902 |

| | |
|-----------------------|----------|
| ECI@ss 7.0 | 27270902 |
| ECI@ss 8.0 | 27270902 |
| ECI@ss 8.1 | 27270902 |
| ECI@ss 9.0 | 27270902 |
| ECI@ss 10.0 | 27270902 |
| ECI@ss 11.0 | 27270902 |
| ETIM 5.0 | EC002717 |
| ETIM 6.0 | EC002717 |
| ETIM 7.0 | EC002717 |
| ETIM 8.0 | EC002717 |
| UNSPSC 16.0901 | 39121528 |

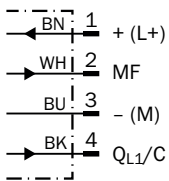
Connection/pin assignment

| | |
|-------------------------------|--|
| Connection type | Cable with M12 male connector, 4-pin, 300 mm ¹⁾ |
| Connection type Detail | |
| Cable material | PVC |
| Conductor cross-section | 0.13 mm ² |

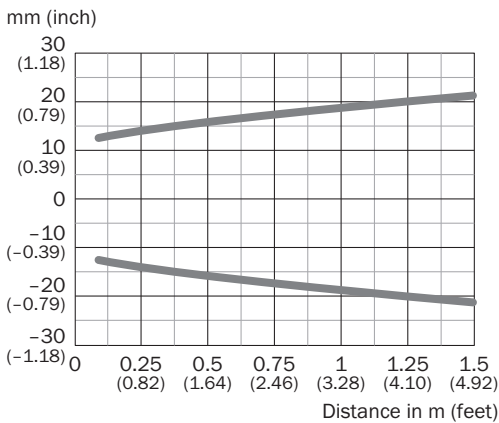
¹⁾ Do not bend below 0 °C.

Connection diagram

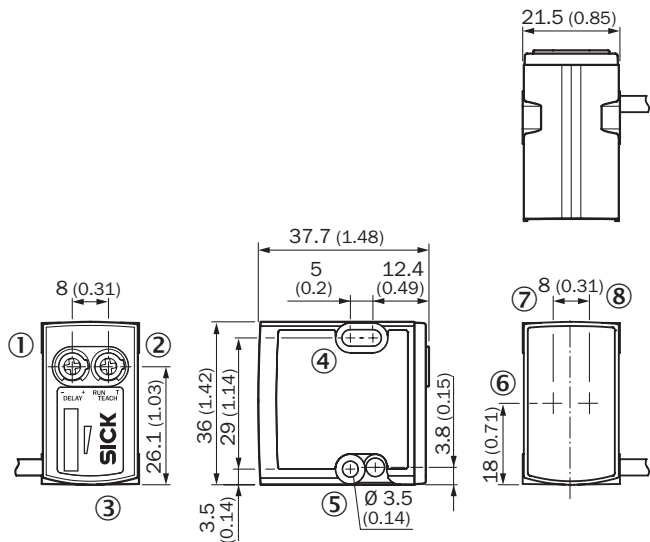
Cd-390



Light spot size







Dimensional drawing (Dimensions in mm (inch))




- ① Potentiometer / LED indicator green
- ② Potentiometer / LED indicator orange
- ③ BluePilot blue: signal strength light bar during teach process / AutoAdapt indicator during run
- ④ Mounting hole M3 (Ø 3.1 mm)
- ⑤ Mounting hole M3 (Ø 3.1 mm)
- ⑥ Optical axis
- ⑦ Optical axis
- ⑧ Optical axis

Recommended accessories

Other models and accessories → www.sick.com/Reflex_Array

| | Brief description | Type | Part no. |
|---|--|--------------------|----------|
| Universal bar clamp systems | | | |
|  | Plate N08 for universal clamp bracket, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware | BEF-KHS-N08 | 2051607 |
| Mounting brackets and plates | | | |
|  | Universal mounting bracket for reflectors, steel, zinc coated | BEF-WN-REFX | 2064574 |
| Plug connectors and cables | | | |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A14-050VB3XLEAX | 2096235 |
|  | Head A: male connector, M12, 4-pin, straight Head B: - Cable: unshielded | STE-1204-G | 6009932 |

| | Brief description | Type | Part no. |
|---|--|-------|----------|
| Reflectors | | | |
|  | Fine triple reflector, screw connection, suitable for laser sensors, 52 mm x 62 mm, PM-MA/ABS, Screw-on, 2 hole mounting | P250F | 5308843 |

Recommended services

Additional services → www.sick.com/Reflex_Array

| | Type | Part no. |
|---|------------------------|------------|
| Function Block Factory | | |
| <ul style="list-style-type: none"> Description: The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&R. More information on the FBF can be found <a _blank"="" href="https://fbf.cloud.sick.com target=">here. | Function Block Factory | On request |

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com