



RAY10-AB4CBL

RAY10 Reflex Array

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
RAY10-AB4CBL	1091724

Other models and accessories → www.sick.com/RAY10_Reflex_Array

Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	With minimum distance to reflector (dual lens system), 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
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_U = +25 °C.

Mechanics/electronics

Supply voltage U_B	10 V DC ... 30 V DC ¹⁾
Ripple	< 5 V _{pp}
Current consumption	30 mA ²⁾
Switching output	Push-pull: PNP/NPN ³⁾
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. $V_S - 2.5 \text{ V} / 0 \text{ V}$
Signal voltage NPN HIGH/LOW	Approx. $V_S / < 2.5 \text{ V}$
Output current $I_{\max.}$	≤ 100 mA
Response time	≤ 0.5 ms ⁴⁾
Switching frequency	1,000 Hz ⁵⁾
Connection type	Cable with M12 male connector, 4-pin, 300 mm ⁶⁾
Cable material	Plastic, PVC
Conductor cross section	0.13 mm ²
Cable diameter	Ø 3.6 mm
Circuit protection	A ⁷⁾ B ⁸⁾ C ⁹⁾ D ¹⁰⁾
Protection class	III
Weight	130 g
Housing material	Plastic, ABS
Optics material	Plastic, PMMA
Enclosure rating	IP67
Ambient operating temperature	-40 °C ... +60 °C ¹¹⁾
Ambient temperature, storage	-40 °C ... +70 °C
UL File No.	NRKH.E189383 & NRKH7.E189383

¹⁾ Limit values.

²⁾ Without load.

³⁾ Pin 4 and pin 2: This switching output must not be connected to another output.

⁴⁾ Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

⁵⁾ With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_S connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

¹¹⁾ Avoid condensation on the front screen of the sensor and on the reflector.

Safety-related parameters

MTTF_D	634 years
DC_{avg}	0%
T_M (mission time)	20 years

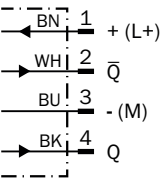
Certificates

EU declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓

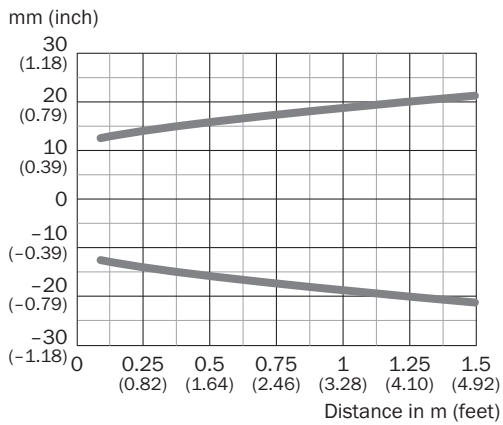
Classifications

ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

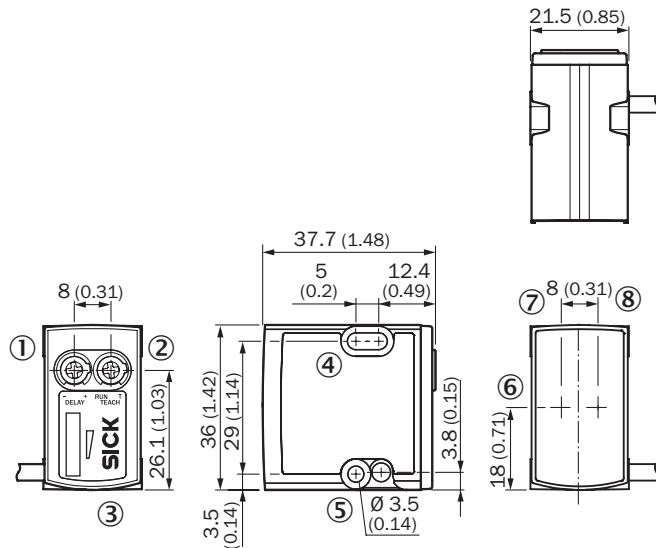
Connection diagram Cd-083



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/RAY10_Reflex_Array

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PVC Description: Sensor/actuator cable, unshielded Application: Zones with chemicals, Uncontaminated zones 	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> Connection type head A: Male connector, M12, 4-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² 	STE-1204-G	6009932
reflectors and optics			
	<ul style="list-style-type: none"> Description: Fine triple reflector, screw connection, suitable for laser sensors Dimensions: 52 mm 62 mm Ambient operating temperature: -30 °C ... +65 °C 	P250F	5308843
Mounting systems			
	<ul style="list-style-type: none"> Description: Plate N08 for universal clamp bracket Material: Steel, zinc diecast Details: Zinc plated steel (sheet), Zinc die cast (clamping bracket) Items supplied: Universal clamp (5322626), mounting hardware Usable for: W100, W150, W4S, W4F, W8, W9-3, W8G, W8 Laser, W8 Inox, G6, W100 Laser, W100-2, W10, G6 Inox, RAY10, W4SLG-3, W9, GR18, MultiPulse, Reflex Array, MultiLine, LUT3, KT5, KT8, KT10, CS8 	BEF-KHS-N08	2051607
	<ul style="list-style-type: none"> Description: Universal mounting bracket for reflectors Dimensions (W x H x L): 85 mm x 90 mm x 35 mm Material: Steel Details: Steel, zinc coated Suitable for: C110A, P250, PL20, PL30A, PL40A, PL80A 	BEF-WN-REFX	2064574

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