Data sheet

# IRT-P231C83

## ZoneControl

**PHOTOELECTRIC SENSORS**

SICK
Sensor Intelligence.

Illustration may differ

## Ordering information

| Type | part no. |
|---|---|
| IRT-P231C83 | 1063101 |

Other models and accessories ➜ www.sick.com/ZoneControl

## Detailed technical data

### Features

| | |
|---|---|
| **Functional principle** | Photoelectric proximity sensor |
| **Functional principle detail** | Background suppression |
| **Actuator** | Electrical |
| **Max. number of sensors** | Approx. 30 [1)]<br>Approx. 50 [2)] |
| **Logical principle of operation** | Single accumulation with sleep |
| **Type of Release** | Single release |
| **Dimensions (W x H x D)** | 20.6 mm x 99.2 mm x 48.9 mm |
| **Sensing range max.** | 60 mm ... 900 mm |
| **Sensing range** | 60 mm ... 900 mm |
| **Focus** | 7 ° |
| **Type of light** | Infrared light |
| **Light source** | LED [3)] |
| **Light spot size (distance)** | Ø 20 mm (500 mm) |
| **Angle of dispersion** | 7 ° |
| **Adjustment** | Potentiometer, 9 turns |
| **Special applications** | ZoneControl |

[1)] When powerd from the end of the IR daisy chain.
[2)] When powerd from center of the IR daisy chain.
[3)] 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 $V_{pp}$ [2] |
| **Current consumption** | 20 mA [3] |
| **Switching output** | PNP |
| **Signal voltage PNP HIGH/LOW** | Approx. $V_S$ – 0.5 V / 0 V |
| **Output current $I_{max.}$** | ≤ 100 mA |
| **Response time** | 2 ms |
| **Switching frequency** | 250 Hz |
| **Connection type** | Male connector M12, 4-pin |
| **Connection type for daisy chain** | Cable with female connector, M12, 4-pin 1.2 m |
| **Circuit protection** | A [4]<br>C [5]<br>D [6] |
| **Protection class** | III |
| **Weight** | 175 g |
| **Housing material** | Plastic, ABS |
| **Enclosure rating** | IP67 |
| **Shock and vibration resistance** | According to IEC 68 |
| **Ambient operating temperature** | –40 °C ... +60 °C |
| **Ambient temperature, storage** | –40 °C ... +75 °C |
| **UL File No.** | NRKH.E189383 & NRKH7.E189383 |
| **Mode of operation solenoid valve** | HIGH to Drive |

[1] Limit values.
[2] May not fall below or exceed $U_V$ tolerances.
[3] Without load and valve deenergized.
[4] A = $V_S$ connections reverse-polarity protected.
[5] C = interference suppression.
[6] D = outputs overcurrent and short-circuit protected.

## Safety-related parameters

| | |
|---|---|
| **$MTTF_D$** | 771 years |
| **$DC_{avg}$** | 0 % |

## Certificates

| | |
|---|---|
| **EU declaration of conformity** | ✓ |
| **China RoHS** | ✓ |

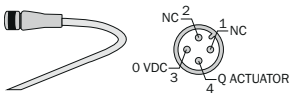
## Classifications

| | |
|---|---|
| **ECLASS 5.0** | 27270904 |
| **ECLASS 5.1.4** | 27270904 |
| **ECLASS 6.0** | 27270904 |
| **ECLASS 6.2** | 27270904 |
| **ECLASS 7.0** | 27270904 |
| **ECLASS 8.0** | 27270904 |

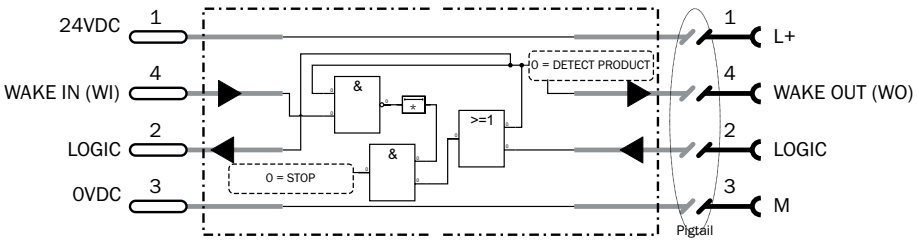
| | |
|---|---|
| **ECLASS 8.1** | 27270904 |
| **ECLASS 9.0** | 27270904 |
| **ECLASS 10.0** | 27270904 |
| **ECLASS 11.0** | 27270904 |
| **ECLASS 12.0** | 27270903 |
| **ETIM 5.0** | EC002719 |
| **ETIM 6.0** | EC002719 |
| **ETIM 7.0** | EC002719 |
| **ETIM 8.0** | EC002719 |
| **UNSPSC 16.0901** | 39121528 |

## Connection diagram

xC8x: 4-PIN M12 Pigtail, 300 mm

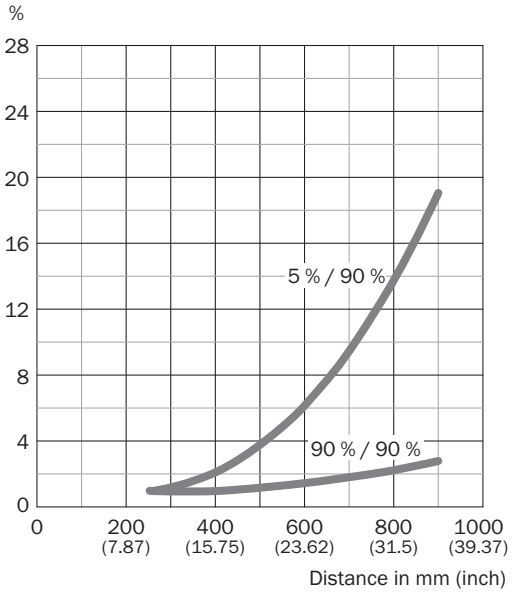



## Connection diagram Cd-265

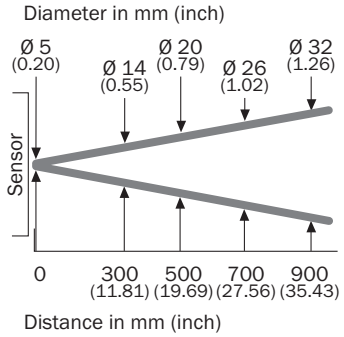



*After 9 s of no product, sensor goes into sleep.
Wake In input only active when sensor sleeping.

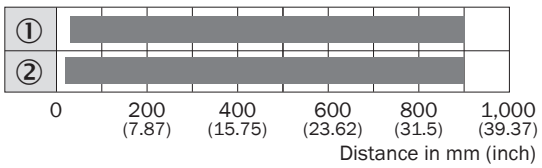
## Characteristic curve




## Light spot size



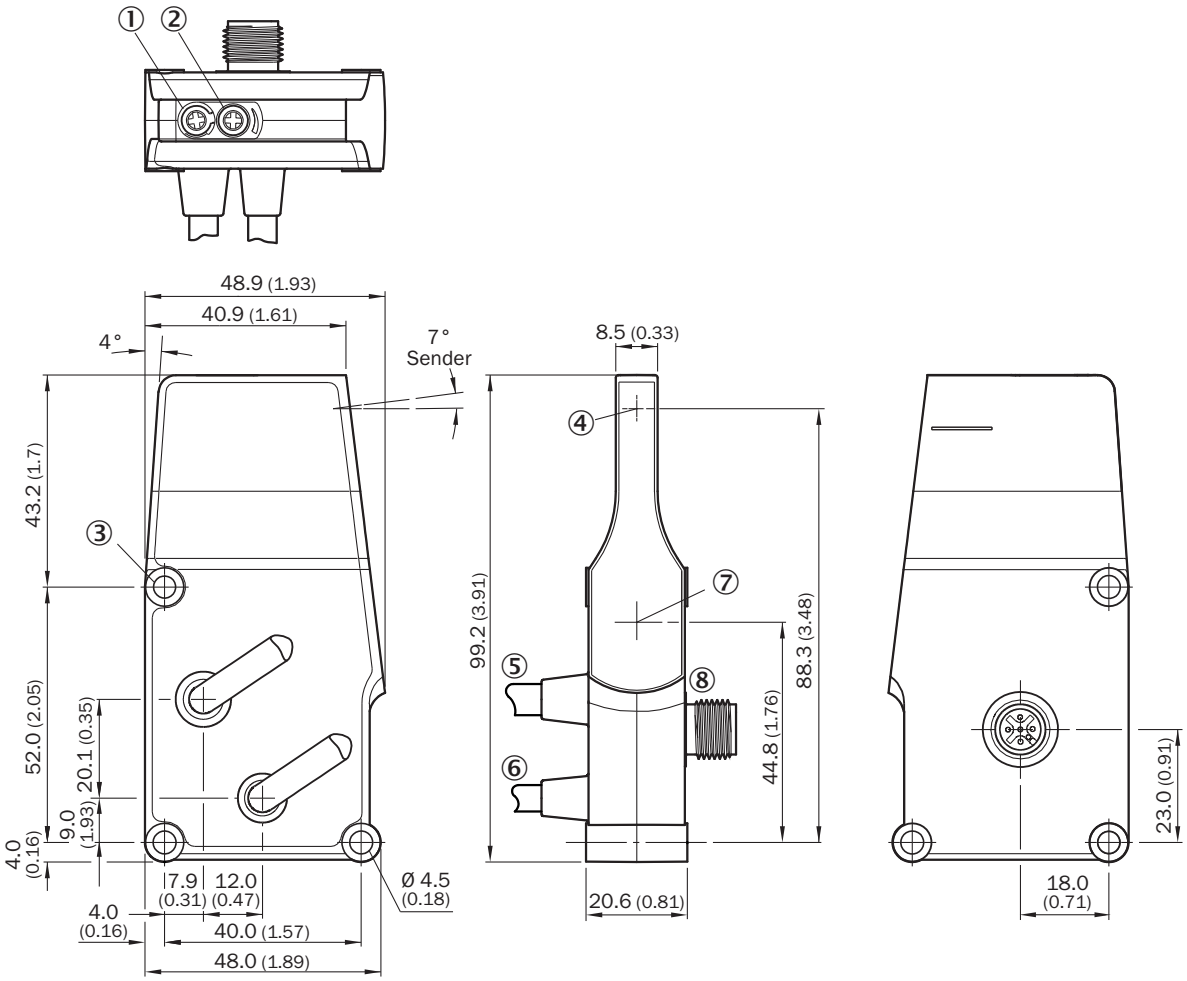

## Sensing range diagram




Sensing range max.

① Sensing range to black, 5% remission factor
② Sensing range on white, 90% remission factor

## Dimensional drawing IR, for Motor Driven Rollers (MDR)




Dimensions in mm (inch)

① LED
② Potentiometer
③ fixing hole
④ Center of optical axis, sender
⑤ series connection, cable with female connector
⑥ Connection for motor
⑦ Center of optical axis, receiver
⑧ male connector M12, 4-pin

## Recommended accessories

Other models and accessories ➜ www.sick.com/ZoneControl

| | Brief description | Type | part no. |
|---|---|---|---|
| Mounting systems | | | |
| | • **Description:** Mounting bracket<br>• **Material:** Steel<br>• **Details:** Steel, zinc coated<br>• **Items supplied:** Mounting hardware included | BEF-WN-RT/IRT | 2074621 |
| | • **Description:** Mounting bracket<br>• **Material:** Steel<br>• **Details:** Steel, zinc coated<br>• **Items supplied:** Mounting hardware included<br>• **Usable for:** WTR/WLR, IRT | BEF-WK-WTR | 2051786 |
| | • **Description:** Plate N11N for universal clamp bracket<br>• **Material:** Stainless steel<br>• **Details:** Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)<br>• **Items supplied:** Universal clamp (5322627), mounting hardware<br>• **Usable for:** DeltaPac, Glare, WTD20E | BEF-KHS-N11N | 2071081 |
| connectors and cables | | | |
| | • **Connection type head A:** Female connector, M12, 4-pin, straight, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 4-wire, PVC<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Application:** Zones with chemicals, Uncontaminated zones | YF2A14-050VB3XLEAX | 2096235 |
| | • **Connection type head A:** Male connector, M12, 4-pin, straight, A-coded<br>• **Description:** Unshielded<br>• **Connection systems:** Screw-type terminals<br>• **Permitted cross-section:** ≤ 0.75 mm² | STE-1204-G | 6009932 |
| | • **Connection type head A:** Female connector, M12, 4-pin, straight, A-coded<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 4-wire, PUR, halogen-free<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Application:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation | YF2A14-050UB3XLEAX | 2095608 |

# 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



SICK
Sensor Intelligence.