

# Camera ICD8xx Generation 4

Image-based code reader

**SICK**  
Sensor Intelligence.



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**Described product**

ICD8xx Generation 4

**Manufacturer**

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**Original document**

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# 1 About this document

## 1.1 Information on the operating instructions

These operating instructions provide important information on how to use devices from SICK AG.

Prerequisites for safe work are:

- Compliance with all safety notes and handling instructions supplied.
- Compliance with local work safety regulations and general safety regulations for device applications

The operating instructions are intended to be used by qualified personnel and electrical specialists.



### NOTE

Read these operating instructions carefully to familiarize yourself with the device and its functions before commencing any work.

The operating instructions are an integral part of the product. Store the instructions in the immediate vicinity of the device so they remain accessible to staff at all times. Should the device be passed on to a third party, these operating instructions should be handed over with it.

These operating instructions do not provide information on the handling and safe operation of the machine or system in which the device is integrated. Information on this can be found in the operating instructions for the machine or system.

## 1.2 Explanation of symbols

Warnings and important information in this document are labeled with symbols. Signal words introduce the instructions and indicate the extent of the hazard. To avoid accidents, damage, and personal injury, always comply with the instructions and act carefully.



### DANGER

... indicates a situation of imminent danger, which will lead to a fatality or serious injuries if not prevented.



### WARNING

... indicates a potentially dangerous situation, which may lead to a fatality or serious injuries if not prevented.



### CAUTION

... indicates a potentially dangerous situation, which may lead to minor/slight injuries if not prevented.



### NOTICE

... indicates a potentially harmful situation, which may lead to material damage if not prevented.



### NOTE

... highlights useful tips and recommendations as well as information for efficient and trouble-free operation.

### 1.3 Further information

More information can be found on the product page.

The page can be accessed via the **SICK Product ID: [pid.sick.com/{P/N}/{S/N}](https://pid.sick.com/{P/N}/{S/N})**

**{P/N}** corresponds to the part number of the product, see type label.

**{S/N}** corresponds to the serial number of the product, see type label (if indicated).

**The following information is available depending on the product:**

- Data sheets
- This document in all available language versions
- CAD files and dimensional drawings
- Certificates (e.g., declaration of conformity)
- Other publications
- Software
- Accessories

## 2 Safety information

### 2.1 Intended use

The ICD8xx image-based code reader is used to identify and decode 1D codes and 2D codes on moving objects. The product can also execute a variety of image processing algorithms. Processed image information and read results are transmitted via CAN or Ethernet to a higher-level SICK controller (e.g., MSC800 oder SIM) or to the customer system. The outstanding image quality makes the product suitable for use for optical character recognition (OCR) and video coding.

The product is a subcomponent of the ICR system and operated with a compatible ICI890 illumination unit. The product is mounted on the rear of the illumination unit for this purpose and is electrically connected to the illumination unit. The illumination unit is triggered by the product in the read cycle.

Only use the device in industrial environments (EN 61000-6-4). The product is intended for use in industrial machinery applications as defined in the electrical standard for industrial machinery NFPA 79. The product meets the applicable requirements for industrial robustness, interfaces and data processing. Additional functions related to image processing can be developed on request.

SICK AG assumes no liability for losses or damage arising from the use of the product, either directly or indirectly. This applies in particular to use of the product that does not conform to its intended purpose and is not described in this documentation.

### 2.2 Improper use

Any use outside of the stated areas, in particular use outside of the technical specifications and the requirements for intended use, will be deemed to be incorrect use.

- The device does not constitute a safety component in accordance with the respective applicable safety standards for machines.
- The device must not be used in explosion-hazardous areas, in corrosive environments or under extreme environmental conditions.
- The device must not be operated in the temperature range below  $-10\text{ °C}$ .
- Any use of accessories not specifically approved by SICK AG is at your own risk.



#### **WARNING**

#### **Danger due to improper use!**

Any improper use can result in dangerous situations.

Therefore, observe the following information:

- Product should be used only in accordance with its intended use.
- All information in the documentation must be strictly observed.
- Shut down the product immediately in case of damage.

### 2.3 Cybersecurity

#### **Overview**

To protect against cybersecurity threats, it is necessary to continuously monitor and maintain a comprehensive cybersecurity concept. A suitable concept consists of organizational, technical, procedural, electronic, and physical levels of defense and considers suitable measures for different types of risks. The measures implemented in this product can only support protection against cybersecurity threats if the product is used as part of such a concept.

You will find further information at [www.sick.com/psirt](http://www.sick.com/psirt), e.g.:

- General information on cybersecurity
- Contact option for reporting vulnerabilities
- Information on known vulnerabilities (security advisories)

### 2.4 Limitation of liability

Relevant standards and regulations, the latest technological developments, and our many years of knowledge and experience have all been taken into account when compiling the data and information contained in these operating instructions. The manufacturer accepts no liability for damage caused by:

- Non-adherence to the product documentation (e.g., operating instructions)
- Incorrect use
- Use of untrained staff
- Unauthorized conversions or repair
- Technical modifications
- Use of unauthorized spare parts, consumables, and accessories

### 2.5 Modifications and conversions



#### NOTICE

Modifications and conversions to the device may result in unforeseeable dangers.

Interrupting or modifying the device or SICK software will invalidate any warranty claims against SICK AG. This applies in particular to opening the housing, even as part of mounting and electrical installation.

### 2.6 Requirements for skilled persons and operating personnel



#### WARNING

##### Risk of injury due to insufficient training.

Improper handling of the device may result in considerable personal injury and material damage.

- All work must only ever be carried out by the stipulated persons.

The following qualifications are required for various activities:

*Table 1: Activities and technical requirements*

Activities	Qualification
Mounting, maintenance	<ul style="list-style-type: none"> <li>▪ Basic practical technical training</li> <li>▪ Knowledge of the current safety regulations in the workplace</li> </ul>
Electrical installation, device replacement	<ul style="list-style-type: none"> <li>▪ Practical electrical training</li> <li>▪ Knowledge of current electrical safety regulations</li> <li>▪ Knowledge of the operation and control of the devices in their particular application</li> </ul>
Commissioning, configuration	<ul style="list-style-type: none"> <li>▪ Basic knowledge of the computer operating system used</li> <li>▪ Basic knowledge of the design and setup of the described connections and interfaces</li> <li>▪ Basic knowledge of data transmission</li> <li>▪ Basic knowledge of 1D technology (bar code) or 2D technology (matrix code)</li> </ul>



Activities	Qualification
Operation of the device for the particular application	<ul style="list-style-type: none"> <li>■ Knowledge of the operation and control of the devices in their particular application</li> <li>■ Knowledge of the software and hardware environment for the particular application</li> </ul>

## 2.7 Operational safety and specific hazards

Please observe the safety notes and the warnings listed here and in other sections of this product documentation to reduce the possibility of risks to health and avoid dangerous situations.

Danger due to visible radiation is product-specific. See the technical data for more information.



### CAUTION

#### Optical radiation: LED risk group 1, visible radiation, 400 nm to 780 nm

The LEDs may pose a danger to the eyes in the event of incorrect use.

- Do not look into the light source intentionally.
- Do not open the housing. Opening the housing will not switch off the light source. Opening the housing may increase the level of risk.
- Comply with the current national regulations on photobiological security of lamps and lamp systems.



### CAUTION

#### Warning! Optical radiation: LED risk group 2, visible radiation, 400 nm to 780 nm

Potentially dangerous optical radiation. Can be damaging to the eyes.

- Do not look into the light source for extended periods of time.
- Never point the light source at people.
- Avoid any reflections on people from reflective surfaces. Be particularly careful during mounting and alignment work.
- Do not open the housing. Opening the housing will not switch off the light source. Opening the housing may increase the level of risk.
- Comply with the current national regulations on photobiological security of lamps and lamp systems.

Operating the product in conjunction with external illumination units may result in hazardous radiation exposure. Please note the accompanying product documentation.



### CAUTION

#### Risk of injury due to hot device surface.

The surface of the device can become hot.

- Before performing work on the device (e.g. mounting, cleaning, disassembly), switch off the device and allow it to cool down.
- Ensure good dissipation of excess heat from the device to the surroundings.



### WARNING

#### Risk of injury due to falling products!

- Secure devices and accessories when assembling or disassembling, for example with a second person.



### WARNING

#### Electrical voltage!

Electrical voltage can cause severe injury or death.

- Work on electrical systems must only be performed by qualified electricians.
- The power supply must be disconnected when attaching and detaching electrical connections.
- The product must only be connected to a voltage supply as set out in the requirements in the operating instructions.
- National and regional regulations must be complied with.
- Safety requirements relating to work on electrical systems must be complied with.



### WARNING

#### Risk of injury and damage caused by potential equalization currents!

Improper grounding can lead to dangerous equipotential bonding currents, which may in turn lead to dangerous voltages on metallic surfaces, such as the housing. Electrical voltage can cause severe injury or death.

- Work on electrical systems must only be performed by qualified electricians.
- Follow the notes in the operating instructions.
- Install the grounding for the product and the system in accordance with national and regional regulations.



### WARNING

#### Risk of injury due to damage to the device!

For reasons of safety, if a device shows visible signs of damage do not put it into operation, or take it out of operation immediately.

Possible damage (depending on the device type):

- Housing: cracking, splitting or fracture
- Device with permanently attached cable: Damage to the cable outlet or cable itself

## 2.8 Warning symbols on the product

Products with LED risk group 2 carry the following warning label on their housing:



Figure 1: Risk Group 2: Caution - Possibly hazardous visible radiation emitted from this product. Do not look into the lamp during operation. This could damage your eyes.

The warning label must not be covered when installing the product in a machine or paneling.

## 2.9 UL conformity

The UL certification is dependent on the type. Any existing UL certification can be found on the type label.



NFPA79 applications only. Adapters including field wiring cables are available.

More information can be found on the product page:

The page can be accessed via the **SICK Product ID: [pid.sick.com/{P/N}/{S/N}](https://pid.sick.com/{P/N}/{S/N})**

**{P/N}** corresponds to the part number of the product, see type label.

**{S/N}** corresponds to the serial number of the product, see type label (if indicated).

### 3 Product description

#### 3.1 Scope of delivery

No. of units	Component	Note
1	Device in the version ordered	<ul style="list-style-type: none"> <li>• Device with lens and fan</li> <li>• M12 electrical connections sealed with protective caps that are screwed tight</li> <li>• Optics protection hood with protective cap</li> </ul>
1	Printed safety notes, multilingual	Brief information and general safety notes

The actual scope of delivery may differ for special designs, additional orders or due to the latest technical changes.

#### 3.2 Product ID

##### 3.2.1 Type label

The type label gives information for identification of the device.



Figure 2: Elements of the type label (example)

- ① Type code
- ② Part number
- ③ Serial number
- ④ Supply voltage and power consumption
- ⑤ MAC address
- ⑥ Production date
- ⑦ Manufacturer and production location
- ⑧ Conformity mark and certification mark

##### 3.2.2 Type code

###### Type code structure

ICD8xx - a b c d e f g h i

Position	Description	Characteristic
a	Generation	4: 4. Generation

Position	Description	Characteristic
b	Sensor	4: iCMOS2 8k, monochrome (grayscale values) 5: iCMOS2 12k, monochrome (grayscale values) 6: iCMOS2 8k, color 7: iCMOS2 12k, color
c	Lens	1: Focal length: 80 mm 2: Focal length: 120 mm 3: Focal length: 95 mm
d	Focus versions	3: 1,396 mm-3,746 mm (GVK) / 1,550 mm-3,900 mm (GRP) 4: 1,396 mm-3,446 mm (GVK) / 1,550 mm-3,600 mm (GRP) 5: 696 mm-1,346 mm (GVK) / 850 mm-1,500 mm (GRP)
e	Electrical connection	2: Connection mask with Enet 1, Enet 2, Enet 3, FAN, CAN IN, CAN OUT, Illum 1, Illum 2, PWR IN, PWR OUT, SSD-Slot, SD-Slot, USB connections
f	Processing Board	01: COM Express - Advanced 02: COM Express - Standard
g	Digital Board	0: Standard

1) Device reference point: Zero point for read range, see "Field of view diagrams", page 41.

### 3.3 Device overview

#### Device overview

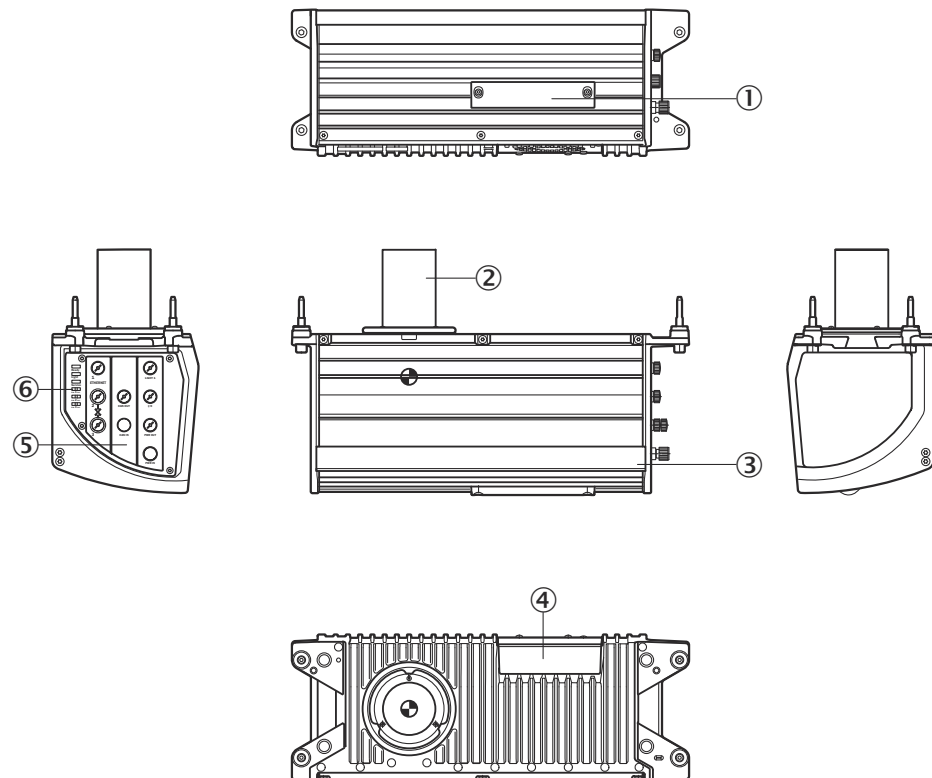


Figure 3: Example, product with variant B connection mask

- ① Storage media cover with 2 fixing screws (hexagon socket, M4), captive
- ② Protective cover for optics
- ③ Handle
- ④ Fan
- ⑤ Connection mask with electrical connections  
The connections available depend on the variant.
- ⑥ Status LEDs

#### Further topics

- [Dimensional drawing](#)

### 3.4 Optional storage media

The service access for the optional storage medium and the USB interface is located under the long cover at the rear of the device.

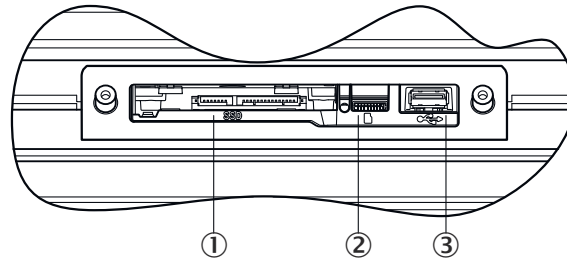


Figure 4: Optional storage media and USB interface

- ① Slot for optional SSD card (2.5 inch)
- ② Slot for optional microSD memory card
- ③ USB connection, type A for temporary use as a service interface only

### 3.5 Status indicators

#### Overview

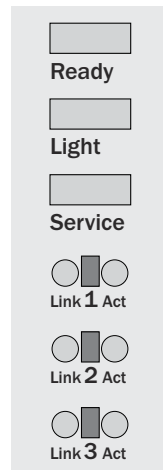


Figure 5: Status LEDs on the connection mask (side area)

#### Status LEDs

Display	LED (color)	Status
Ready	● (Green)	Device is ready for operation
	● (Red)	Hardware or software error
	○	Configuration mode
Light	● (Green)	Reading mode: Device has switched on the illumination (depending on the read cycle)
Service	● (Red)	Maintenance of the device by SICK required
Link/Act 1, 2, 3	● (Green)	Connection to Ethernet (1 GBit/s) established
	● (Orange)	Connection to Ethernet (100 MBit/s) established
Link/Act 1, 2, 3	● (Green)	Data traffic via Ethernet

● = Lights up; ● = Flashes; ○ = Does not light up.

### 4 Transport and storage

#### 4.1 Transport



##### NOTICE

##### Damage due to improper transport!

- The product must be packaged with protection against shock and damp.
  - Recommendation: Use the original packaging.
  - Note the symbols on the packaging.
  - Do not remove packaging until immediately before you start mounting.
- 

#### 4.2 Unpacking

- To protect the device against condensation, allow it to equilibrate with the ambient temperature before unpacking if necessary.
- Handle the device with care and protect it from mechanical damage.
- To avoid ingress of dust and water, only remove the protective elements, e.g. protective caps of the electrical connections just before attaching the connecting cable.

#### 4.3 Transport inspection

Immediately upon receipt in Goods-in, check the delivery for completeness and for any damage that may have occurred in transit. In the case of transit damage that is visible externally, proceed as follows:

- Do not accept the delivery or only do so conditionally.
  - Note the scope of damage on the transport documents or on the transport company's delivery note.
  - File a complaint.
- 



##### NOTE

Complaints regarding defects should be filed as soon as these are detected. Damage claims are only valid before the applicable complaint deadlines.

---

#### 4.4 Storage

- Electrical connections are provided with a protective cap.
- Do not store outdoors.
- Store in a place protected from moisture and dust.
- Recommendation: Use the original packaging.
- To allow any residual dampness to evaporate, do not package in airtight containers.
- Do not expose to any aggressive substances.
- Protect from sunlight.
- Avoid mechanical shocks.
- Storage temperature: [see "Technical data", page 36](#).
- Relative humidity: [see "Technical data", page 36](#).
- For storage periods of longer than 3 months, check the general condition of all components and packaging on a regular basis.



## 5 Mounting

### 5.1 Mounting instructions

- Observe the technical data.
- Protect the sensor from direct sunlight.
- To prevent condensation, avoid exposing the device to rapid changes in temperature.
- The mounting site has to be designed for the weight of the device.
- Mount the product in a shock and vibration insulated manner.
- Ensure good dissipation of excess heat from the device, in particular at higher ambient temperatures.
- The device must only be mounted with the 4 mounting screws with centering pin provided for this purpose.
- Make sure the device has a clear view of the codes.

### 5.2 Mounting the camera on the illumination unit

#### Approach

- ▶ Secure the camera to the back of an ICI890 illumination unit.

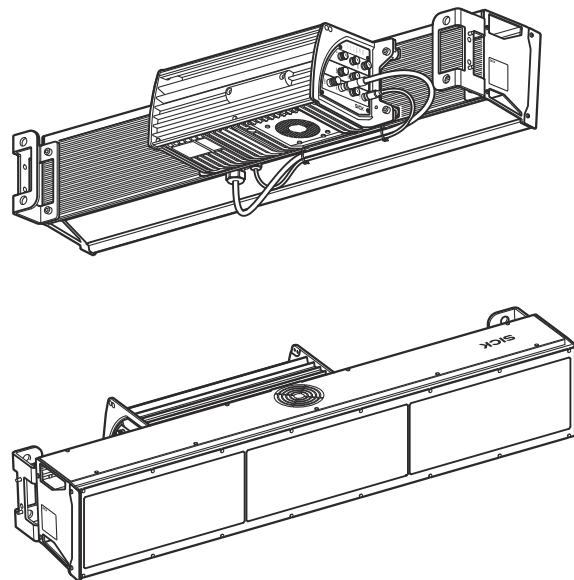


Figure 6: Combination of camera and illumination unit (after mounting)

### 6 Electrical installation

#### 6.1 Wiring instructions

**NOTE**

Pre-assembled cables can be found on the product page.

The page can be accessed via the **SICK Product ID: [pid.sick.com/{P/N}/{S/N}](https://pid.sick.com/{P/N}/{S/N})**

**{P/N}** corresponds to the part number of the product, see type label.

**{S/N}** corresponds to the serial number of the product, see type label (if indicated).

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**NOTICE****Faults during operation and defects in the device or the system**

Incorrect wiring may result in operational faults and defects.

- Follow the wiring notes precisely.
- 

The enclosure rating stated in the technical data is achieved only with screwed plug connectors or protective caps.

Configure the circuits connected to the device as ES1 circuits or as SELV circuits (SELV = Safety Extra Low Voltage). The voltage source must meet the requirements of ES1 (EN 62368-1) or SELV (EN 60950-1).

Connect the connecting cables in a de-energized state. Do not switch on the supply voltage until installation is complete and all connecting cables are connected to the device and control.

Perform all connection work only at ambient temperatures above 0 °C.

Wire cross-sections in the supply cable from the customer's power system must be implemented in accordance with the applicable standards.

In the case of open end cables, make sure that bare wire ends do not touch. Wires must be appropriately insulated from each other.

Wire cross-sections of the data and switching signal cables have to also be designed in accordance with the applicable national standards.

Protect the device with an external slow-blow fuse at the beginning of the supply cable. The required fuse rating is 10 A slow-blow.

Use only category CYJV or PVVA cables to connect the device.

Use copper (Cu) cables with a cross-section of at least 2.5 mm<sup>2</sup> / AWG 14 for the voltage supply.

The temperature range of the supply cable must extend to at least - 10 °C .... +75 °C.

### 6.1.1 Data cables

#### Important information

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#### NOTE

##### Layout of data cables

- Use screened data cables with twisted-pair wires.
  - Implement the screening design correctly and completely.
  - To avoid interference, always use EMC-compliant cables and layouts. This applies, for example, to cables for switched-mode power supplies, motors, clocked drives, and contactors.
  - Do not lay cables over long distances in parallel with power supply cables and motor cables in cable channels.
- 

#### Length of cable and data transmission rate

The maximum length of cable between device and, for example, host computer depends on the interface type and the data transmission rate.

#### Further topics

- For information on data transmission rates and lengths of cable: [CAN interface](#)

## 6.2 Prerequisites for safe operation of the device

---



#### WARNING

##### Risk of injury and damage caused by electrical current!

As a result of equipotential bonding currents between the device and other grounded devices in the system, faulty grounding of the device can give rise to the following dangers and faults:

- Dangerous voltages are applied to the metal housings.
- Devices will behave incorrectly or be destroyed.
- Cable shielding will be damaged by overheating and cause cable fires.

#### Remedial measures

- Only skilled electricians should be permitted to carry out work on the electrical system.
  - If the cable insulation is damaged, disconnect the voltage supply immediately and have the damage repaired.
  - Ensure that the ground potential is the same at all grounding points.
  - Where local conditions do not meet the requirements for a safe earthing method, take appropriate measures. For example, ensure low-impedance and current-carrying equipotential bonding.
- 

The device is connected to the peripheral devices (any local trigger sensor(s), system controller) via shielded cables. The cable shield – for the data cable, for example – rests against the metal housing of the device.

The device can be grounded through the cable shield or through a blind tapped hole in the housing, for example.

If the peripheral devices have metal housings and the cable shields are also in contact with their housings, it is assumed that all devices involved in the installation have the **same ground potential**.

This is achieved by complying with the following conditions:

- Mounting the devices on conductive metal surfaces
- Correctly grounding the devices and metal surfaces in the system
- If necessary: low-impedance and current-carrying equipotential bonding between areas with different ground potentials

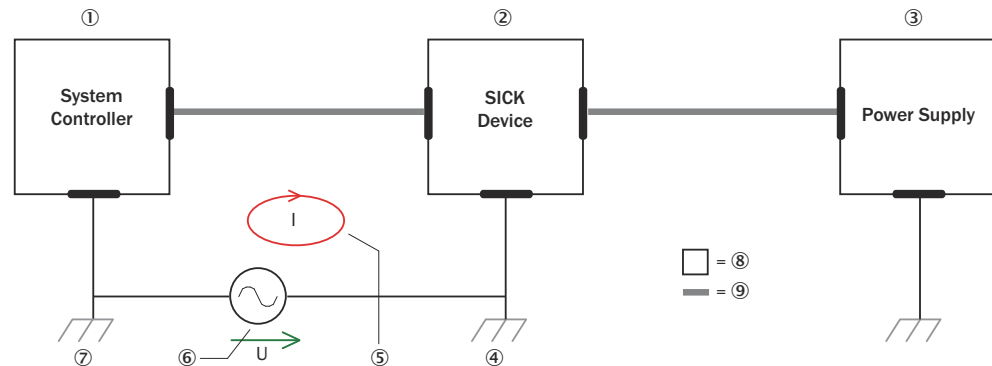


Figure 7: Example: Occurrence of equipotential bonding currents in the system configuration

- ① System controller
- ② Device
- ③ Voltage supply
- ④ Grounding point 2
- ⑤ Closed current loop with equalizing currents via cable shield
- ⑥ Ground potential difference
- ⑦ Grounding point 1
- ⑧ Metal housing
- ⑨ Shielded electrical cable

If these conditions are not fulfilled, equipotential bonding currents can flow along the cable shielding between the devices due to differing ground potentials and cause the hazards specified. This is, for example, possible in cases where there are devices within a widely distributed system covering several buildings.

### Remedial measures

The most common solution to prevent equipotential bonding currents on cable shields is to ensure low-impedance and current-carrying equipotential bonding. If this equipotential bonding is not possible, the following solution approaches serve as a suggestion.



### NOTICE

We expressly advise against opening up the cable shields. This would mean that the EMC limit values can no longer be complied with and that the safe operation of the device data interfaces can no longer be guaranteed.

### Measures for widely distributed system installations

On widely distributed system installations with correspondingly large potential differences, the setting up of local islands and connecting them using commercially available **electro-optical signal isolators** is recommended. This measure achieves a high degree of resistance to electromagnetic interference.

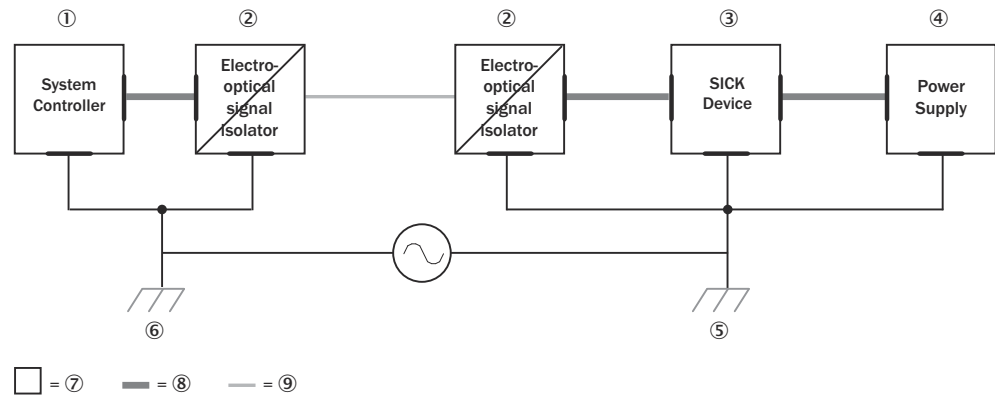


Figure 8: Example: Prevention of equipotential bonding currents in the system configuration by the use of electro-optical signal isolators

- ① System controller
- ② Electro-optical signal isolator
- ③ Device
- ④ Voltage supply
- ⑤ Grounding point 2
- ⑥ Grounding point 1
- ⑦ Metal housing
- ⑧ Shielded electrical cable
- ⑨ Optical fiber

The use of electro-optical signal isolators between the islands isolates the ground loop. Within the islands, a stable equipotential bonding prevents equalizing currents on the cable shields.

#### Measures for small system installations

For smaller installations with only slight potential differences, insulated mounting of the device and peripheral devices may be an adequate solution.

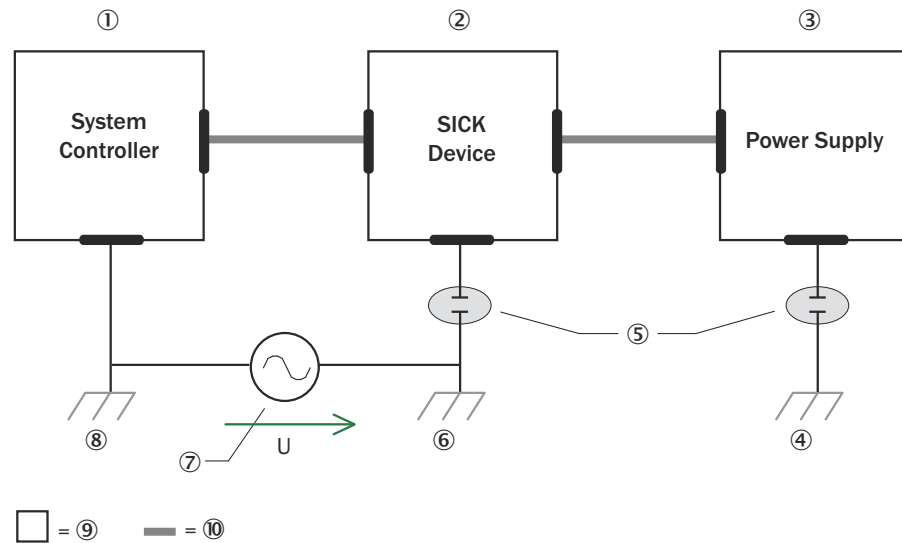


Figure 9: Example: Prevention of equipotential bonding currents in the system configuration by the insulated mounting of the device

- ① System controller
- ② Device
- ③ Voltage supply
- ④ Grounding point 3
- ⑤ Insulated mounting
- ⑥ Grounding point 2
- ⑦ Ground potential difference
- ⑧ Grounding point 1
- ⑨ Metal housing
- ⑩ Shielded electrical cable

Even in the event of large differences in the ground potential, ground loops are effectively prevented. As a result, equalizing currents can no longer flow via the cable shields and metal housing.



**NOTICE**

The voltage supply for the device and the connected peripheral devices must also guarantee the required level of insulation. Under certain circumstances, a tangible potential can develop between the insulated metal housings and the local ground potential.

### 6.3 Pin assignments of electrical connections

#### Connection mask (variant A, variant B)

The device is equipped with either the variant A connection mask or variant B connection mask. Different electrical connections are available depending on the connection mask. For each electrical connection described below, the available connection masks for that connection have been indicated.

The variant A can only be operated with a Sensor Integration Machine (SIM). The variant B can be operated with both a SIM and a Connection Device Fieldbus fieldbus module.

The UL certification is dependent on the type. Devices with the variant A connection mask are not checked by UL. Any existing UL certification for devices with the variant B connection mask can be found on the type label.



Figure 10: Variant A connection mask



Figure 11: Variant B connection mask

### ETHERNET 1 ... 3 connections

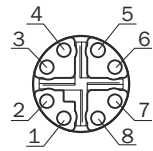


Figure 12: Female connector, M12, 8-pin, X-coded

Table 2: Pin assignment of the ETHERNET 1 ...3 (GBit) connections

Pin	Signal	Function
1	TRD0_P	Sender+/receiver+0
2	TRD0_N	Sender-/receiver- 0
3	TRD1_P	Sender+/receiver+1
4	TRD1_N	Sender-/receiver- 1
5	TRD3_P	Sender+/receiver+3
6	TRD3_N	Sender-/receiver- 3
7	TRD2_N	Sender-/receiver- 2
8	TRD2_P	Sender+/receiver+2

### FAN connection (depends on variant)

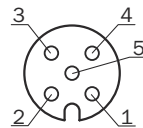


Figure 13: Female connector, M12, 5-pin, A-coded



### NOTE

Devices with variant A connection mask: available

Device with variant B connection mask: not available. The device has an integrated fan connection.



**NOTE**

The FAN connection is intended exclusively for regulating and supplying voltage to the device-internal fan.

Table 3: Pin assignment of the FAN connection

Pin	Signal	Function
1	V <sub>S OUT</sub> FAN	Fan supply voltage (12 V)
2	Tacho FAN	Fan RPM signal
3	GND FAN	Fan ground
4	N. c.	-
5	N. c.	-

**LIGHT 1 connection**

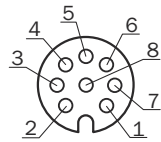


Figure 14: Female connector, M12, 8-pin, A-coded

Table 4: Pin assignment of the LIGHT 1 connection

Pin	Signal	Function
1	N.c.	-
2	LAMP_ON+ (Q1)	Trigger signal for illumination unit 1
3	N.c.	-
4	N.c.	-
5	RD+/TD+ (RS-485)	Sender+/receiver+
6	RD-/TD- (RS-485)	Sender-/receiver-
7	GND	Ground
8	N.c.	-

**LIGHT 2 connection (depends on variant)**

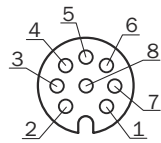


Figure 15: Female connector, M12, 8-pin, A-coded



**NOTE**

Device with variant A connection mask: available, no function.

Device with variant B connection mask: not available.

Table 5: Pin assignment of the LIGHT 2 connection

Pin	Signal	Function
1	N.c.	-
2	LAMP_ON+ (Q2)	Trigger signal for illumination unit 2
3	N.c.	-
4	N.c.	-



Pin	Signal	Function
5	RD+/TD+ (RS-485)	Sender+/receiver+
6	RD-/TD- (RS-485)	Sender-/receiver-
7	GND	Ground
8	N.c.	-

#### I/O connection (depends on variant)

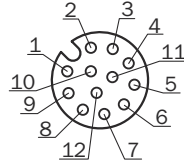


Figure 16: Female connector, M12, 12-pin, A-coded



#### NOTE

Device with variant A connection mask: not available.

Device with variant B connection mask: available.

Table 6: Pin assignment of the I/O connection

Pin	Signal	Function
1	V <sub>S</sub>	Supply voltage (24 V) <sup>1)</sup>
2	GND	Ground
3	Trigger IN ISO	Trigger, digital input (24 V), galvanically isolated
4	GND IN ISO	Ground, digital input (24 V), galvanically isolated
5	INC B	Encoder, digital input (24 V), galvanically isolated
6	GND INC ISO	Encoder ground, digital input (24 V), galvanically isolated
7	RxD RS-232	RS-232
8	OUT1	Digital output 1 (24 V)
9	OUT2	Digital output 2 (24 V)
10	OUT3	Digital output 3 (24 V)
11	INC A	Encoder, digital input (24 V), galvanically isolated
12	TxD RS-232	RS-232

<sup>1)</sup> Voltage supply for external devices or the Connection Device Fieldbus connection module. No voltage supply for the ICD8xx device.

#### PWR OUT connection

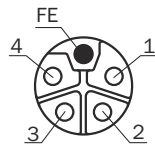


Figure 17: Female connector, M12, 5-pin, L-coded

Table 7: Pin assignment of the PWR OUT connection

Pin	Signal	Function
1	N. c.	-
2	N. c.	-
3	GND	Ground (ICI)

Pin	Signal	Function
4	V <sub>S OUT</sub> <sup>1)</sup>	Supply voltage (ICI), max. 210 W
5	FE	Functional earth

<sup>1)</sup> Type and level of the supply voltage V<sub>S IN/OUT</sub> see "Mechanics/electronics", page 37.

**PWR IN connection**

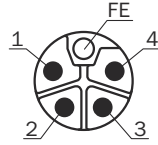


Figure 18: Male connector, M12, 5-pin, L-coded

Table 8: Pin assignment of the PWR IN connection

Pin	Signal	Function
1	V <sub>S IN</sub> <sup>1)</sup>	Supply voltage (ICD)
2	GND	Ground (ICD)
3	GND	Ground (ICI)
4	V <sub>S IN</sub> <sup>1)</sup>	Supply voltage (ICI)
5	FE	Functional earth

<sup>1)</sup> Type and level of the supply voltage V<sub>S IN/OUT</sub> see "Mechanics/electronics", page 37.

**CAN OUT connection**

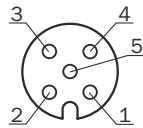


Figure 19: Female connector, M12, 5-pin, A-coded

The CAN OUT connection is galvanically isolated from the device.

Table 9: Pin assignment of the CAN OUT connection

Pin	Signal	Function
1	Shield	Shielding
2	CAN V <sub>S OUT</sub> <sup>1)</sup>	Supply voltage, output current max. 4 A
3	CAN GND	Ground
4	CAN_H	CAN-Bus High (IN/OUT)
5	CAN_L	CAN-Bus Low (IN/OUT)

<sup>1)</sup> The CAN V<sub>S OUT</sub> supply voltage is galvanically isolated from the supply voltage for the device. The device is supplied with voltage via the PWR IN connection.

**CAN IN connection**

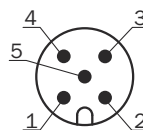


Figure 20: Male connector, M12, 5-pin, A-coded

The CAN IN connection is galvanically isolated from the device.

Table 10: Pin assignment of the CAN IN connection

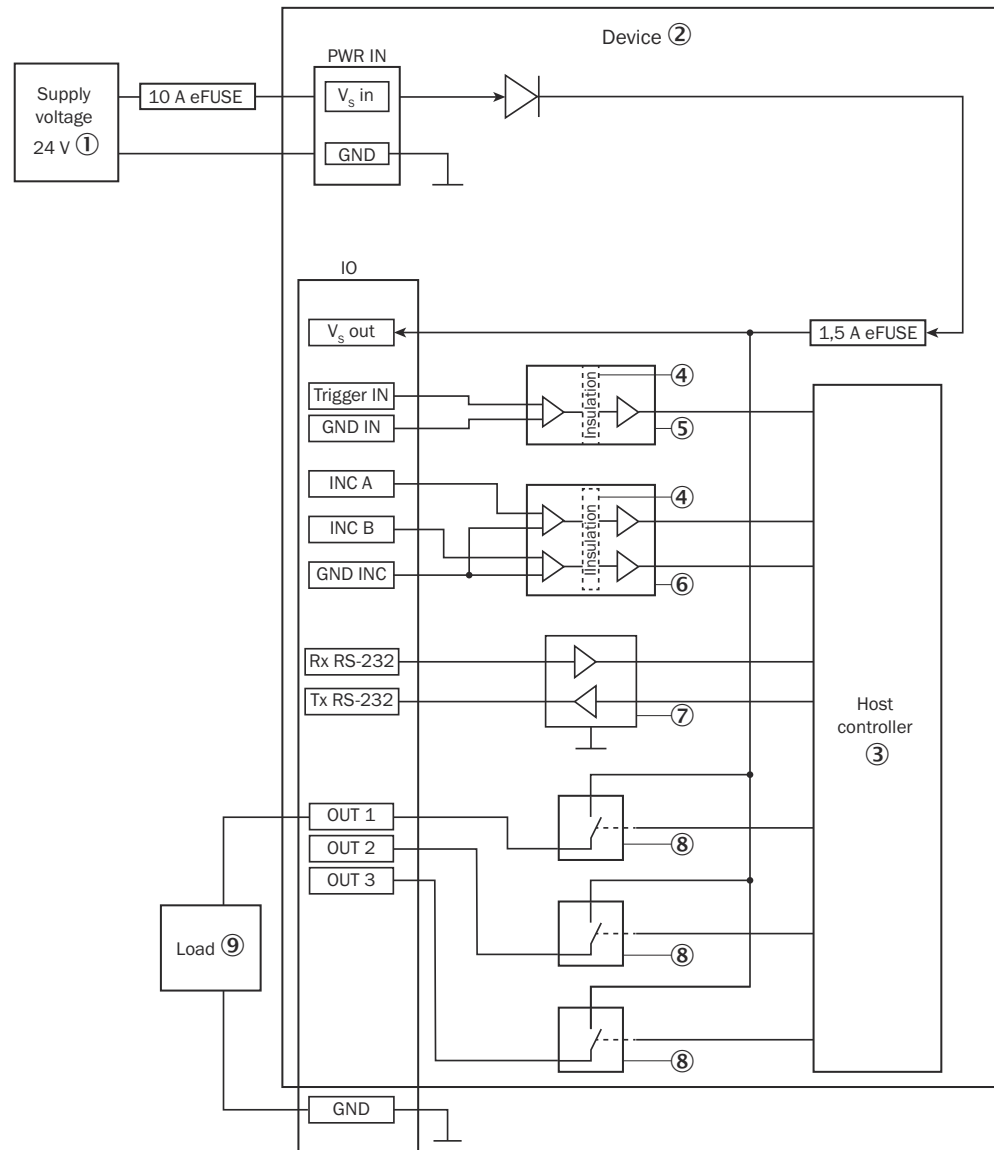
Pin	Signal	Function
1	Shield	Shielding
2	CAN $V_{S\ IN}$ <sup>1)</sup>	Supply voltage, input current max. 4 A
3	CAN GND	Ground
4	CAN_H	CAN-Bus High (IN/OUT)
5	CAN_L	CAN-Bus Low (IN/OUT)

<sup>1)</sup> The CAN  $V_{S\ IN}$  supply voltage is galvanically isolated from the supply voltage for the device. The device is supplied with voltage via the PWR IN connection.

## 6.4 Performance specifications of the ICI890 illumination unit

Device type	Performance needs	Power consumption
ICI890-23xxx	24 V $\pm$ 20%	210 W
ICI890-24xxx	24 V $\pm$ 20%	200 W
ICI890-25xxx	24 V $\pm$ 20%	110 W
ICI890-33xxx	24 V $\pm$ 20%	210 W
ICI890-34xxx	24 V $\pm$ 20%	200 W
ICI890-35xxx	24 V $\pm$ 20%	110 W

## 6.5 Wiring the inputs and outputs



- ① 24-V supply voltage
- ② Device
- ③ Host controller
- ④ Insulation
- ⑤ Digital input
- ⑥ Incremental encoder
- ⑦ RS-232 receiver
- ⑧ Digital output
- ⑨ External load

## 6.6 CAN interface

### Framework Conditions for the CAN Interface

The SICK-specific CAN-SENSOR network is based on the CAN bus. The CAN bus is set up in line topology.

### Data transmission rate

The maximum allowable length of cable between the device and the host computer depends on the selected physical type of the host interface and the data transmission rate set in the device.

Table 11: Maximum length of cable as a function of the data transmission rate

Data transmission rate	Maximum data cable length
10 kbit/s	4,976 m
20 kBit/s	2,476 m
50 kBit/s	976 m
100 kBit/s	576 m
125 kBit/s	476 m
250 kBit/s <sup>1)</sup>	226 m
500 kBit/s	76 m

1) Device default.

### Total length of the stub cables

Table 12: Permissible total length of all stubs

Data transmission rate	Maximum total of all stub cables
125 kBit/s	156 m
250 kBit/s	78 m
500 kBit/s	39 m



#### NOTE

Do not exceed this total length. Each stub cable may be a maximum of 6 m long.

### Wire cross-section of the data cable

Table 13: Wire cross-section as a function of the data transmission rate

Data transmission rate	Required wire cross-section
0 m ... 40 m	$\geq 0.25 \text{ mm}^2$ (AWG 24)
40 m ... 300 m	$\geq 0.34 \text{ mm}^2$ (AWG 22)
300 m ... 600 m	$\geq 0.5 \text{ mm}^2$ (AWG 20)
600 m ... 1,000 m	$\geq 0.75 \text{ mm}^2$ (AWG 18)

The required wire cross-section for the data cable depends on the total length of the network. The table shows the overview as per ISO 11898.



#### NOTE

Activate the CAN data interface in the device with a configuration tool, e.g., the configuration software SOPAS ET.

## 7 Commissioning

### 7.1 SOPAS ET

#### Important information



#### NOTE

##### Access data of the FTP protocol

When using the FTP protocol, the access data (user name and password) are transmitted as unencrypted text.

Take this aspect into account when designing and segmenting the network. Implement appropriate safety measures on the customer side.

##### Possible safety measures of the FTP server:

- Restriction of the FTP user's rights in the network
- Restriction of the uploaded file types
- Allowlist contains only the IP address of the device
- Unique combination of user name and password

#### Prerequisites

- Computer with the SOPAS ET configuration software installed (version 3.0 or above)  
The most up-to-date version of the SOPAS ET software can be downloaded from [www.sick.com/SOPAS\\_ET](http://www.sick.com/SOPAS_ET). The respective system requirements for installing SOPAS ET are also specified there.
- Available Ethernet connection
- Device description file for the device (SDD file)  
You can install the SDD file using the device catalog in SOPAS ET. The SDD file is saved on the device and can be installed from there. Alternatively, installation is possible from the SICK website (Internet connection required).
- Safety measures of the FTP server

#### SOPAS ET functions

- Parameterization: tailoring the parameters for the application
- Diagnostics: determining the cause of a fault
- Firmware update

The device outputs the recorded images to SOPAS ET for display.

#### User levels

Table 14: Available user levels

User levels	Password required?	Available functions
Operator	No	<ul style="list-style-type: none"> <li>• All application parameters</li> <li>• Standard diagnostic information</li> <li>• Logging features</li> </ul>
Service	Yes	<ul style="list-style-type: none"> <li>• All application parameters</li> <li>• Extended diagnostic information</li> <li>• Extended logging features</li> </ul>

## 7.2 External data back-up

### **Manual data backup using project file**

The parameter set can be manually saved on the computer as a project file (\*.sopas). This is the generally recommended procedure. Using the project file, the parameter set can be transferred to a replacement device via download.

### **Automatic data backup**

An external storage medium (e.g. MicroSD memory card) is required to automatically save the parameter set to an external location. The device is permanently connected to the external storage medium.

### 8 Maintenance

#### 8.1 Maintenance plan

During operation, the device works maintenance-free.

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**NOTE**

No maintenance is required to ensure compliance with the LED risk group.

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#### 8.2 Cleaning



**NOTICE**

**Equipment damage due to improper cleaning.**

Improper cleaning may result in equipment damage.

- Only use recommended cleaning agents and tools.
  - Never use sharp objects for cleaning.
-



## 9 Troubleshooting

### 9.1 Troubleshooting

Situation	Status
Mounting	<ul style="list-style-type: none"> <li>■ Camera system poorly aligned to objects with 1D or 2D codes (e.g., dazzle)</li> <li>■ Read-cycle sensor incorrectly positioned, e.g., internal reading gate opened too late or closed too early</li> <li>■ Focus position switching: sensors for detecting the respective object height incorrectly positioned</li> <li>■ Incremental encoder (optional) incorrectly positioned</li> </ul>
Electrical installation	<ul style="list-style-type: none"> <li>■ Interfaces of the camera system incorrectly wired</li> </ul>
Configuration	<ul style="list-style-type: none"> <li>■ Functions not adapted to local conditions, e.g., parameters for the data interface not set correctly</li> <li>■ Device limits not observed, e.g., reading distance or aperture angle</li> <li>■ Trigger source for read-cycle not selected correctly</li> </ul>
Operation	<ul style="list-style-type: none"> <li>■ Tracking operation: minimum distance of the objects in the conveying direction not met</li> <li>■ Device faults (hardware, software)</li> <li>■ Supply voltage is interrupted unexpectedly: For smooth operation, wait 60 seconds before switching the supply voltage back on.</li> </ul>

#### Complementary information

For faults that cannot be rectified based on the error description, please contact SICK Service. To help us to resolve the matter quickly, please note down the details on the type label.

### 9.2 System information

The device reports any errors that occur in a number of ways. The error output is staggered. This allows an increasingly detailed level of analysis:

- Communication errors can occur when transmitting telegrams to the device. The device then returns a fault code.
- For errors that occur during reading, the device writes error codes in the status log.

### 9.3 Displaying the status log

#### Overview

The product saves only the last five entries for each error type. The status log is retained even after switching the product off and on again.

#### Error types

- Information
- Warning
- Error
- Critical fault

#### Approach

1. Connect the SOPAS ET configuration software to the product.
2. Opening the product in the project tree: **SERVICE > SYSTEM STATUS > SYSTEM INFORMATION** tab.

### 9.4 Repairs

Repair work on the device may only be performed by qualified and authorized personnel from SICK AG. Interruptions or modifications to the device by the customer will invalidate any warranty claims against SICK AG.

### 9.5 Returns

- ▶ Only send in devices after consulting with SICK Service.
- ▶ The device must be sent in the original packaging or an equivalent padded packaging.



#### NOTE

To enable efficient processing and allow us to determine the cause quickly, please include the following when making a return:

- Details of the contact person
  - Description of the application
  - Description of the fault that occurred
-

## 10 Decommissioning

### 10.1 Disposal



#### CAUTION

##### **Risk of injury due to hot device surface.**

The surface of the device can become hot.

- Before performing work on the device (e.g. mounting, cleaning, disassembly), switch off the device and allow it to cool down.
- Ensure good dissipation of excess heat from the device to the surroundings.

If a device can no longer be used, dispose of it in an environmentally friendly manner in accordance with the applicable country-specific waste disposal regulations. Do not dispose of the product along with household waste.

Battery not removable.

Try to recycle as many constituent materials (metals, plastics) as possible during the disposal process.



#### NOTICE

##### **Danger to the environment due to improper disposal of the device.**

Disposing of devices improperly may cause damage to the environment.

Therefore, observe the following information:

- Always observe the national regulations on environmental protection.
- Separate the recyclable materials by type and place them in recycling containers.

#### 10.1.1 Disposal of used batteries

##### **Batteries must not be disposed of with household waste!**

Batteries must be disposed of in accordance with statutory requirements and can be taken to local collection points or anywhere that sells batteries, for example.

The following symbol on batteries and rechargeable batteries, on the device or in this document indicate this obligation:



If mercury (Hg), cadmium (Cd) or lead (Pb) is present above the legally defined limit value, the appropriate chemical labeling of the substance is also indicated: **Hg, Cd, Pb**.

## 11 Technical data



### NOTE

The relevant online product page for your product, including technical data, dimensional drawing, and connection diagrams, can be downloaded, saved, and printed from the Internet.

The page can be accessed via the **SICK Product ID: [pid.sick.com/{P/N}/{S/N}](http://pid.sick.com/{P/N}/{S/N})**

**{P/N}** corresponds to the part number of the product, see type label.

**{S/N}** corresponds to the serial number of the product, see type label (if indicated).

Please note: This documentation may contain further technical data.

### 11.1 Features

<b>Function</b>	line camera with integrated 1D / 2D code decoder, image output and additional optional 2D vision functions
<b>Optical focus</b>	Dynamic focus control or constant focus
<b>Sensor</b>	ICD8xx-44xxxxx: iCMOS2 8k, monochrome (grayscale values) ICD8xx-45xxxxx: iCMOS2 12k, monochrome (grayscale values) ICD8xx-46xxxxx: iCMOS2 8k, color ICD8xx-47xxxxx: iCMOS2 12k, color
<b>Lens</b>	Integrated ICD8xx-4x1xxxx: Focal length, 80 mm ICD8xx-4x2xxxx: Focal length, 120 mm ICD8xx-4x3xxxx: Focal length, 95 mm
<b>Working range</b>	ICD8xx-4xx3xxx: 1,550 mm ... 3,900 mm <sup>1)</sup> ICD8xx-4xx4xxx: 1,550 mm ... 3,600 mm <sup>1)</sup> ICD8xx-xxx5xxx: 850 mm ... 1,500 mm <sup>1)</sup>
<b>Line frequency (scanning rate)</b>	ICD8xx-44xxxxx: max. 50 kHz ICD8xx-45xxxxx: max. 43 kHz
<b>Code resolution</b>	≥ 0.1 mm
<b>Field of view</b>	ICD880-45xxxxx: Conveyor width 1,000 mm at 220 dpi resolution, conveyor width 800 mm at 277 dpi resolution ICD890-44xxxxx: Conveyor width 1,200 mm at 170 dpi resolution, conveyor width 1,035 mm at 200 dpi resolution ICD890-45xxxxx: Conveyor width 1,800 mm at 170 dpi resolution, conveyor width 1,560 mm at 200 dpi resolution
<b>Processor</b>	ICD8xx-4xxx01x: COM Express - Advanced ICD8xx-4xxx02x: COM Express - Standard
<b>Operating mode</b>	Forward, Backward, Start and Stop
<b>2D vision functionality <sup>2) 3)</sup></b>	<ul style="list-style-type: none"> <li>Extended analysis of code quality</li> <li>empty tote detection</li> <li>hazardous material detection</li> <li>object classification</li> <li>2D dimensioning (image-based calculation of object dimensions)</li> </ul>

<b>LED risk group (illumination ICI)</b>	ICI890-2xxxx: Illumination (visible red light) Risk group 1 (low risk) according to IEC 62471-1: 2006-07 / EN 62471-1: 2008-09.
	ICI890-1xxxx: Illumination (visible blue-white light) ICI890-3xxxx: Illumination (visible white light) ICI890-4xxxx: Illumination (visible blue light) Risk group 2 (moderate risk) according to IEC 62471-1: 2006-07 / EN 62471-1: 2008-09.

- 1) Relative to the device reference point, see "Field of view diagrams", page 41.
- 2) The 2D machine vision functionality depends on the system specification. Additional licensing may be required to use the 2D vision functions.
- 3) For further 2D Vision functions, contact SICK Sales. To find your agency, see the final page of this document.

## 11.2 Mechanics/electronics

<b>Connection type</b>	<b>Variant A connection mask:</b> <ul style="list-style-type: none"> <li>• 3 female connectors, M12, 8-pin, X-coded, CAT 6A (Ethernet 1 ... 3)</li> <li>• 1 female connector, M12, 5-pin, A-coded (FAN) <sup>1)</sup></li> <li>• 1 female connector, M12, 5-pin, A-coded (CAN OUT)</li> <li>• 1 male connector, M12, 5-pin, A-coded (CAN IN)</li> <li>• 1 female connector, M12, 8-pin (Light 1)</li> <li>• 1 female connector, M12, 8-pin (Light 2) <sup>2)</sup></li> <li>• 1 female connector, M12, 5-pin, L-coded (PWR OUT)</li> <li>• 1 male connector, M12, 5-pin, L-coded (PWR IN)</li> <li>• 1 female connector, USB, 5-pin, type A</li> </ul>
	<b>Variant B connection mask:</b> <ul style="list-style-type: none"> <li>• 3 female connectors, M12, 8-pin, X-coded, CAT 6A (Ethernet 1 ... 3)</li> <li>• 1 female connector, M12, 5-pin, A-coded (CAN OUT)</li> <li>• 1 male connector, M12, 5-pin, A-coded (CAN IN)</li> <li>• 1 female connector, M12, 8-pin (Light 1)</li> <li>• 1 female connector, M12, 5-pin, L-coded (PWR OUT)</li> <li>• 1 male connector, M12, 5-pin, L-coded (PWR IN)</li> <li>• 1 female connector, M12, 12-pin, A-coded (I/O)</li> <li>• 1 female connector, USB, 5-pin, type A</li> </ul>
<b>Supply voltage <math>V_S</math></b>	DC 24 V -10 % +20 % ES1 according to EN 62368-1 or SELV according to EN 60950-1 (each according to currently valid standard)
<b>Power consumption</b>	<b>ICD:</b> <ul style="list-style-type: none"> <li>• Operation: Typically 80 W <sup>3)</sup>, max. 115 W <sup>4)</sup></li> <li>• Dynamic: The max. power consumption can increase by 50% for a duration of &lt; 12 ms.</li> </ul>
	<b>ICI:</b> <ul style="list-style-type: none"> <li>• Max. 210 W <sup>5)</sup></li> </ul>
<b>Battery</b>	Type: TL-2450 cell (1/10C cell), soldered, non-rechargeable Chemical system: Lithium thionyl chloride (Li-SOCl <sub>2</sub> ) Lithium quantity: 0.2 g
<b>Housing material</b>	Aluminum housing
<b>Housing color</b>	Light blue (RAL 5012), silver, black

<b>Cover (rear of device)</b>	<b>Function</b> <ul style="list-style-type: none"> <li>• Inserting or removing the optional memory card</li> <li>• Temporary use of the USB interface as a service interface</li> </ul> Hinged <sup>6)</sup> , 2 fixing screws (hexagon socket, M4), captive Recommended tightening torque: 1.5 Nm ± 0.2 Nm
<b>Mechanical mounting</b>	4 screws, M8 with centering pin, captive
<b>Enclosure rating</b>	IP65 (EN 60529:1991-10/A2:2000-02 / A3:2013)
<b>Electrical safety</b>	IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016
<b>Weight</b>	Approx. 11 kg
<b>Dimensions (L x W x H)</b>	486.8 mm x 300 mm x 179 mm
<b>MTBF</b>	120,000 h
<b>MTTR</b>	< 10 minutes

1) For connecting the fan only.

2) No function.

3) At +25 °C.

4) At +50 °C.

5) Without external consumers, [see "Performance specifications of the ICI890 illumination unit", page 27.](#)

6) When the cover is open, the device no longer conforms with the specified enclosure rating.

7) **Prerequisites**

- The camera protection tube is inserted into the corresponding opening of the illumination unit without a protective cap.
- Device is mounted flush to the illumination unit using all 4 screws.
- The storage media cover is screwed tight to the device.
- The cables plugged into the electrical connections must be screwed tight. Electrical connections that are not being used are sealed off with protective caps.

8) Continuous operation at an ambient operating temperature of +25 °C.

### 11.3 Dimensional drawing

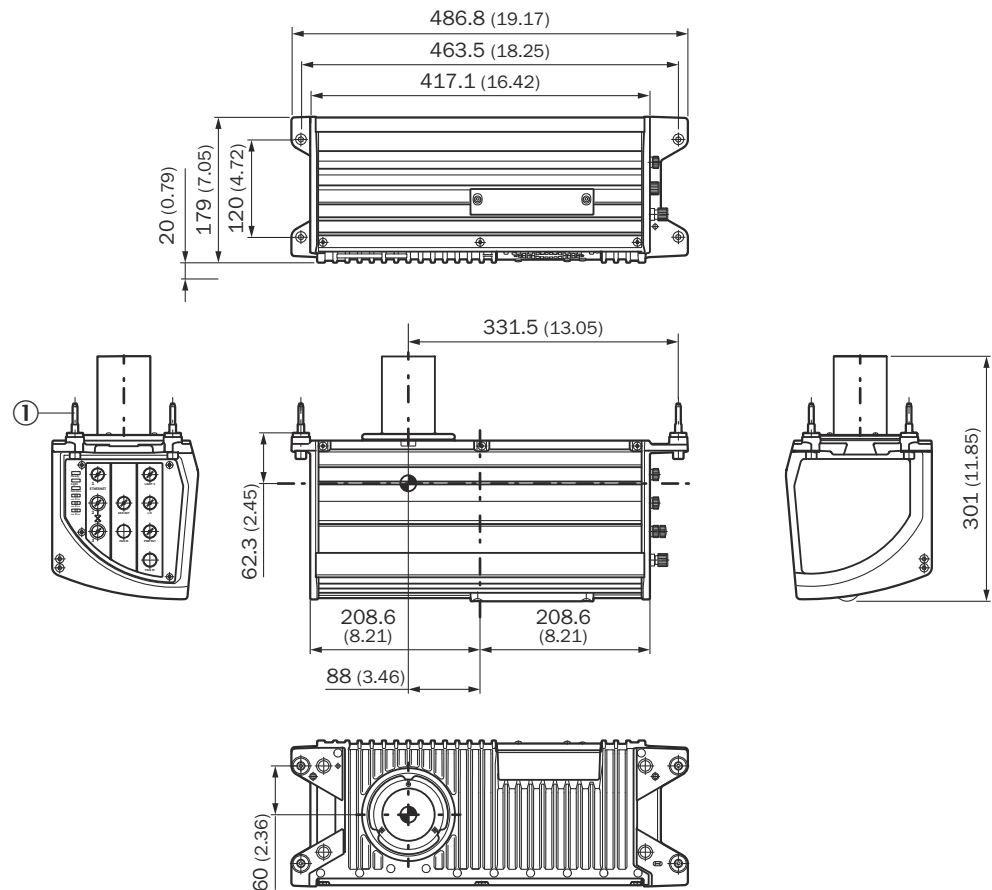


Figure 21: structure and device dimensions, unit: mm (inch), decimal separator: period

- ① 4 M8 mounting screws with centering pin for mounting the device on the ICI890 illumination unit

### 11.4 Performance

<b>Readable code structures</b>	1D, 2D, Stacked, OCR, OCV
<b>1D code types (bar code types)</b>	GS1-128 / EAN 128, UPC/GTIN/EAN, 2/5 Interleaved, Pharma-code, GS1 DataBar, Code 39, Code 128, Codabar, Code 32, Code 93, postal Codes
<b>2D code types</b>	Data Matrix ECC200, GS1 Data Matrix, MaxiCode, QR code, Aztek
<b>Stacked code types</b>	PDF417
<b>Mounting bracket</b>	Max. 75° <sup>1)</sup>
<b>Conveyor speed</b>	Max. 4.5 m/s <sup>1)</sup>
<b>Minimum object distance</b>	≥ 50 mm
<b>Number of objects per second</b>	≤ 10
<b>Image type</b>	JPEG, TIFF, BMP
<b>Image output</b>	Up to 4 FTP clients, AWS S3 Client, FTP Server, Samba Server, REST Server

<sup>1)</sup> Depending on the activated functionality.

### 11.5 Interfaces

<b>USB <sup>1)</sup></b>	1 USB 2.0 (service)
<b>Ethernet GBit</b>	3 Ethernet GBit Ethernet 2 and 3 are connected via a switch Function: data output (read result), image transmission, and configuration with SOPAS ET Data transmission rate: 1 GBit/s, full duplex Protocols: TCP/IP, FTP (real time image output)
<b>CAN</b>	1 CAN IN, 1 CAN OUT Protocol: CSN (SICK CAN Sensor Network) Function: data output (read result) Data transmission rate: 20 kBit/s ... 500 kBit/s Bus length depends on data transmission rate and length of cable, see "CAN interface", page 28
<b>Light (depends on variant)</b>	<b>Variant A connection mask:</b> <ul style="list-style-type: none"> <li>• 1 Light 1, 1 Light 2</li> <li>• Light 1 function: communication with the illumination unit</li> <li>• Light 2 function: no function</li> </ul>
	<b>Variant B connection mask:</b> <ul style="list-style-type: none"> <li>• 1 Light 1</li> <li>• Function: communication with the illumination unit</li> </ul>
<b>FAN (depends on variant)</b>	<b>Variant A connection mask:</b> <ul style="list-style-type: none"> <li>• 1 FAN</li> <li>• Function: voltage supply and regulation of the device fan</li> <li>• <math>I_{Max} = 0.5 \text{ A}</math></li> </ul>
	Variant B connection mask: not available, integrated fan connection available in the device
<b>I/O (depends on variant)</b>	Variant A connection mask: not available
	<b>Variant B connection mask:</b> <ul style="list-style-type: none"> <li>• Function: supply voltage, trigger, encoder, RS-232 data interface, 3 digital outputs</li> <li>• Length of cable: max. 10 m</li> <li>• Encoder switching frequency: max. 30 kHz</li> <li>• Trigger switching frequency: max. 30 kHz</li> <li>• Digital output switching frequency: max. 1 kHz</li> <li>• Total output currents (supply voltage, digital outputs): max. 1.5 A (internal electronic fuse)</li> <li>• Digital output current: max. 0,4 A</li> <li>• RS-232 baud rate: max 115.2 kBd (cable-dependent)</li> </ul>
<b>Optical indicators</b>	3 status LEDs (device status indicators) 3 double LEDs (Ethernet status indicators)
<b>Configuration software</b>	SOPAS ET configuration software (workflow parameterization, installation wizard, diagnostic tools, status information)
<b>Storage media <sup>2)</sup></b>	1 2.5 inch SSD (image and data logging) 1 microSD memory card (configuration data back-up)

1) Data interface only for temporary use (service).

2) Optional, not included with delivery.

### 11.6 Ambient data

<b>Electromagnetic compatibility (EMC)</b>	Interference: IEC 61000-6-4:2018 Immunity: EN IEC 61000-6-2:2019 (Industrial Environment)
<b>Vibration resistance</b>	IEC 60068-2-6:2007-12



<b>Shock resistance</b>	IEC 60068-2-27:2008-02
<b>Ambient operating temperature</b>	-10 °C ... +50 °C <sup>2)</sup>
<b>Storage temperature</b>	-20 °C ... +70 °C
<b>Permissible relative humidity</b>	Max. 95%, non-condensing
<b>Ambient light immunity</b>	2,000 lx on code

- 1) With connected, functional fan.
- 2) At an ambient temperature < 0 °C, the full performance of the device is available after a warm-up time of a few minutes.

## 11.7 Field of view diagrams

### ICD880-4515xxx

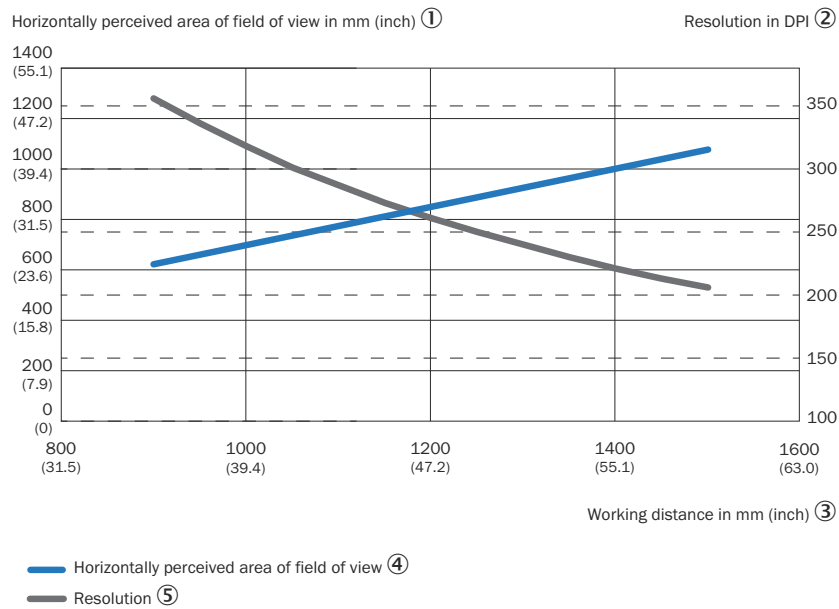


Figure 22: Field of view diagram for ICD880-4515xxx

- ① Horizontal perceived field of view area in mm (inch)
- ② Resolution in DPI
- ③ Working distance in mm (inch)
- ④ Horizontal perceived field of view area
- ⑤ Resolution

ICD890-4434xxxx

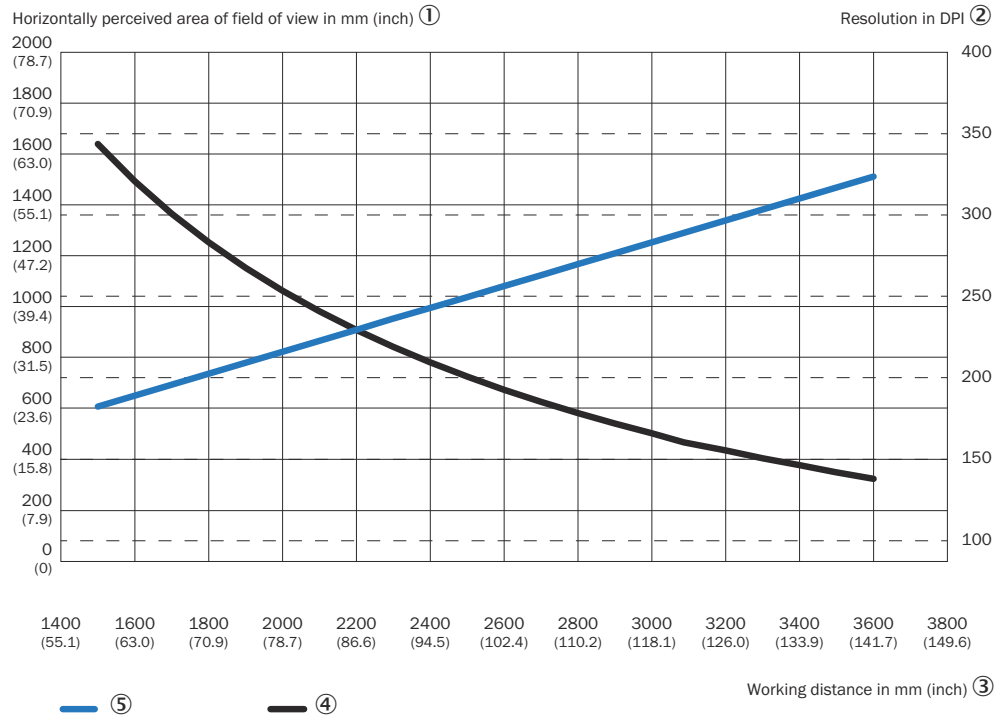


Figure 23: Field of view diagram for ICD890-4434xxxx

- ① Horizontally perceived field of view area in mm (inch)
- ② Resolution in DPI
- ③ Working distance in mm (inch)
- ④ Horizontally perceived field of view area
- ⑤ Resolution

ICD890-4523xxx

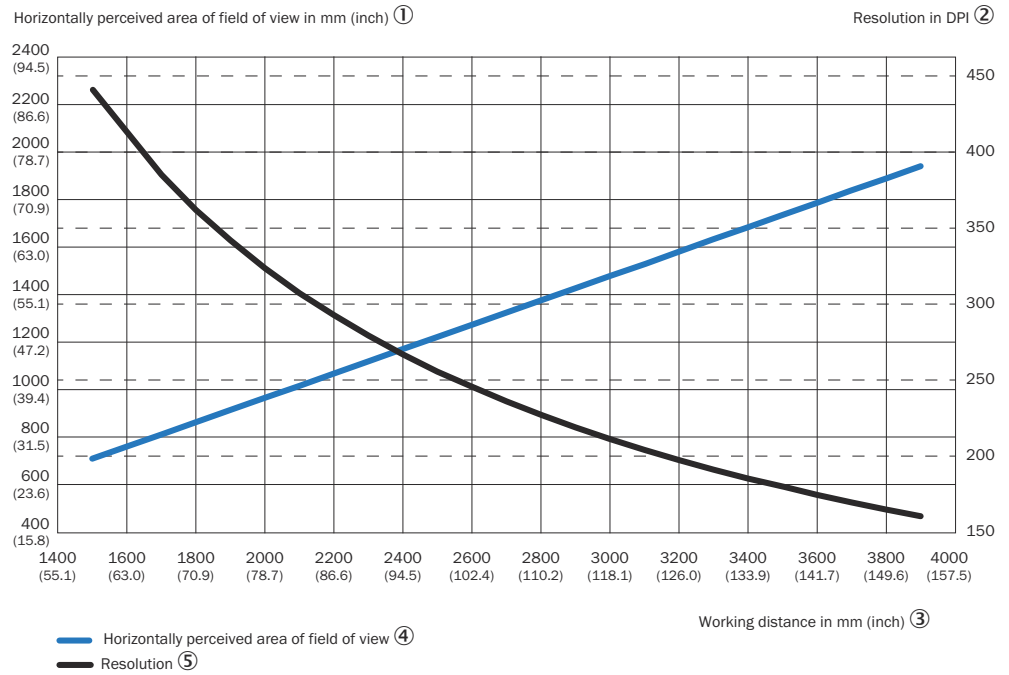


Figure 24: Field of view diagram for ICD890-4523xxx

- ① Horizontal perceived field of view area in mm (inch)
- ② Resolution in DPI
- ③ Working distance in mm (inch)
- ④ Horizontally perceived field of view area
- ⑤ Resolution

ICD890-4723xxxx

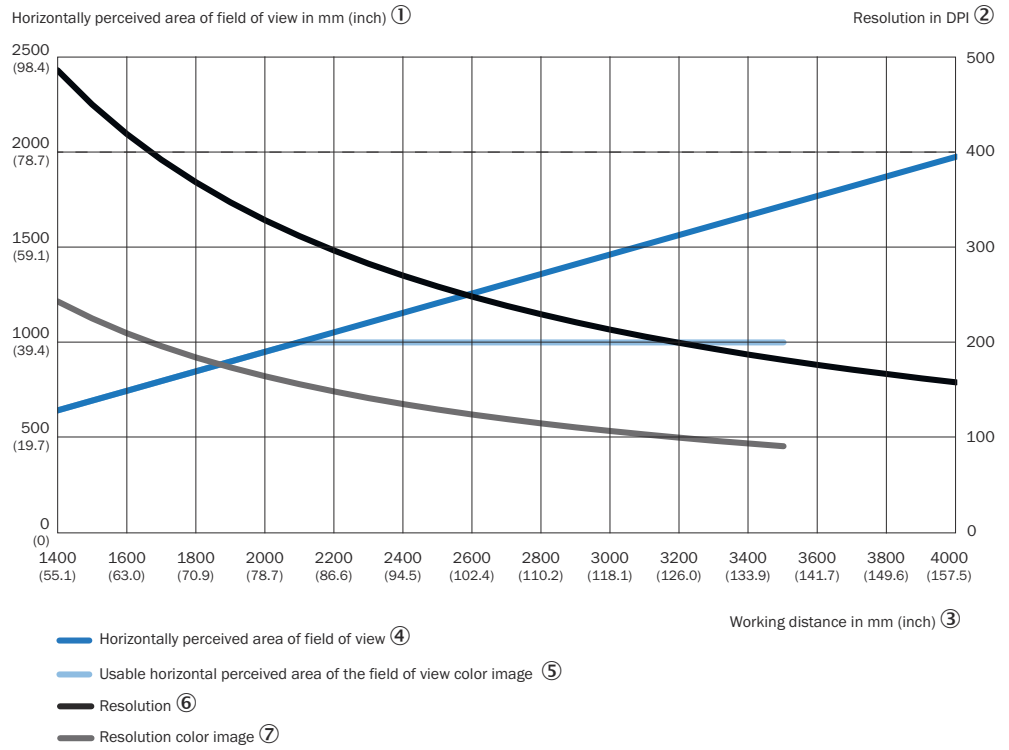


Figure 25: Field of view diagram for ICD890-4723xxxx

- ① Horizontal perceived field of view area in mm (inch)
- ② Resolution in DPI
- ③ Working distance in mm (inch)
- ④ Horizontal perceived field of view area
- ⑤ Usable horizontal perceived field of view area - color image
- ⑥ Resolution
- ⑦ Resolution of color image

ICD890-4634xxxx

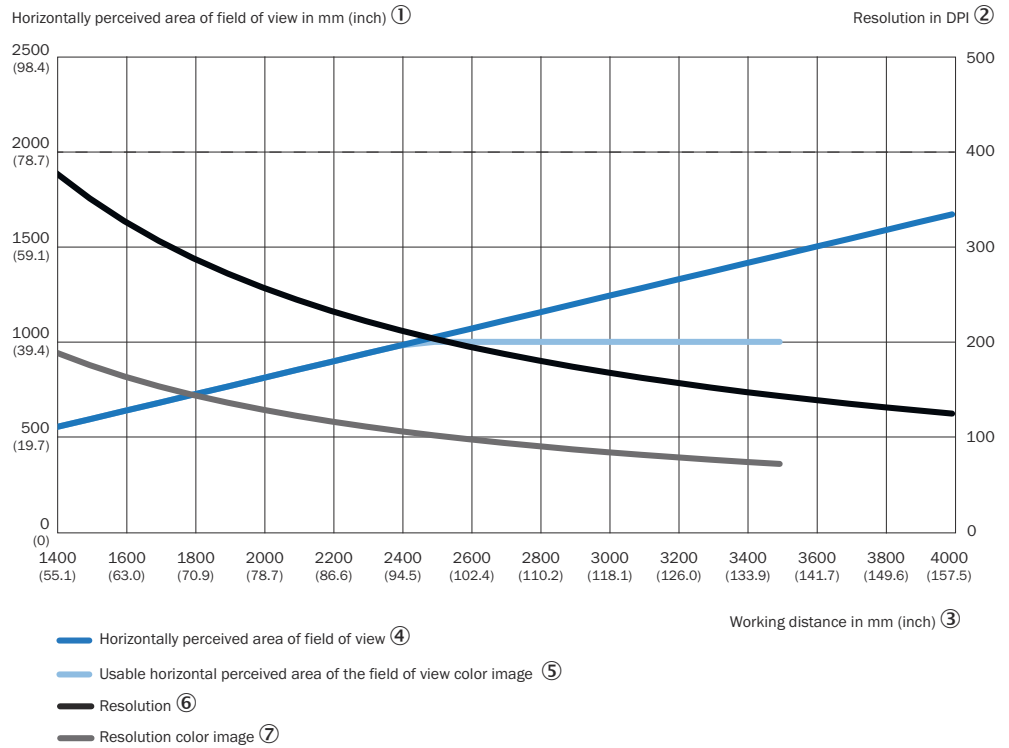


Figure 26: Field of view diagram for ICD890-4634xxxx

- ① Horizontal perceived field of view area in mm (inch)
- ② Resolution in DPI
- ③ Working distance in mm (inch)
- ④ Horizontal perceived field of view area
- ⑤ Usable horizontal perceived field of view area - color image
- ⑥ Resolution
- ⑦ Resolution of color image

Device reference point

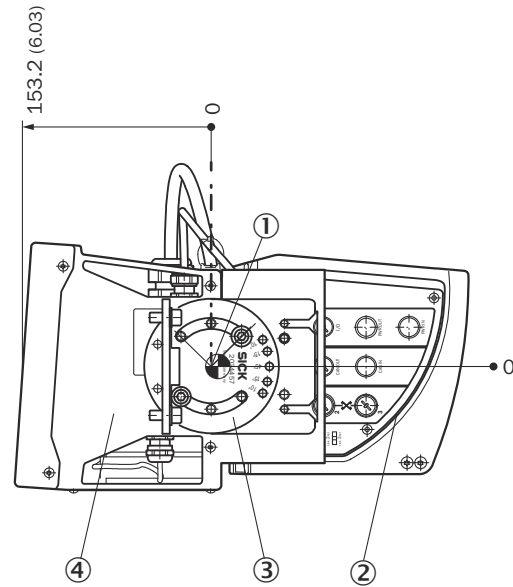


Figure 27: Device reference point for working distance (combination of camera with illumination)

- ① Device reference point
- ② Camera
- ③ Mounting bracket
- ④ Lighting

## 12 Accessories

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**NOTE**

On the product page you will find accessories and, if applicable, related installation information for your product.

The page can be accessed via the **SICK Product ID: [pid.sick.com/{P/N}/{S/N}](https://pid.sick.com/{P/N}/{S/N})**

**{P/N}** corresponds to the part number of the product, see type label.

**{S/N}** corresponds to the serial number of the product, see type label (if indicated).

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## 13 Annex

### 13.1 Declarations of conformity and certificates

You can download declarations of conformity and certificates via the product page.

The page can be accessed via the **SICK Product ID: [pid.sick.com/{P/N}/{S/N}](http://pid.sick.com/{P/N}/{S/N})**

**{P/N}** corresponds to the part number of the product, see type label.

**{S/N}** corresponds to the serial number of the product, see type label (if indicated).

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