

Camera ICD880/890 Generation 4

Image-based code readers

SICK
Sensor Intelligence.



Described product

ICD880/890 Generation 4

Manufacturer

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Original document

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1 About this document

1.1 Information on the Technical Information

This technical information describes the essential features of a device that is used as a subcomponent, along with other components, in SICK AG systems.

Prerequisites for safe work are:

- Adherence to all safety notes provided
- Compliance with local work safety regulations and general safety regulations for device applications

The technical information is intended to be used by qualified personnel and electrical specialists.



NOTE

To ensure you are familiar with the product and its functions, read this Technical Information carefully before commencing any work on the device.

The technical information is 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.

This technical information does not provide information on operating the machine or system in which the device is integrated. For more information, refer to the operating instructions of the specific machine or system.

1.2 Scope

The technical information supplements the system documentation of an ICR880/890 camera system with more detailed or additional information on the ICD880/890 camera subcomponent. The technical information does not provide task instructions.

This technical information applies to all available device types of the ICD880/890 Generation 4 camera. Functions specific to special devices are, where necessary, described in additional documents.

Available device types are listed on the online product page:

- www.sick.com/ICD88x
- www.sick.com/ICD89x

1.3 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.

1.4 Further information

**NOTE**

Further documentation for the device can be found on the online product page at:

- www.sick.com/ICD88x
- www.sick.com/ICD89x

There, additional information has been provided depending on the product, such as:

- Model-specific online data sheets for device types, containing technical data, dimensional drawing, and specification diagrams
 - EU declarations of conformity for the product family
 - Dimensional drawings and 3D CAD dimension models of the device types in various electronic formats
 - Other publications related to the devices described here
 - Publications dealing with accessories
-

2 Safety information

2.1 Intended use

The ICD880/890 device is an intelligent camera for identifying and decoding 1D codes and 2D codes on moving objects. The device can also execute a variety of image processing algorithms. The processed image information and read results for the 1D codes and 2D codes are transmitted via CAN or Ethernet to a higher-level SICK controller (e.g., MSC800 oder SIM) or directly to the customer system. The outstanding image quality also makes the device suitable for use in OCR and video coding applications.

The device is always operated in a mechanical combination with a compatible, application-dependent variant of the ICI890 illumination. The device is mounted on the rear of the illumination for this purpose and is electrically connected to the illumination. The illumination is triggered by the device in the read cycle.

The device is designed for use in industrial applications and meets the requirements for industrial ruggedness, interfaces and data processing. Additional functions related to image processing can be developed and made available 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.

2.1.1 Operating restrictions



NOTICE

Radio interference may occur when the device is used in residential areas!

- Only use the device in industrial environments (EN 61000-6-4).

2.1.2 Conditions for specified enclosure rating

To ensure compliance with the specified IP65 enclosure rating of the device during operation, the following requirements must be met: If these requirements are not met, the device does not fulfill any specified enclosure rating.

- The device is mounted flush to the illumination using all 4 screws.
- The storage media cover on the rear of the device is screwed tight to the device. For the recommended tightening torque for the cover screws, see "[Mechanics/electronics](#)", page 37.
- The cables plugged into the electrical M12 connections on the sides of the device are screwed tight.
- Any electrical M12 connections that are not being used must be sealed with protective caps, depending on type. These plugs or caps must be screwed tight (as delivered).



NOTICE

Only operate the device **without the storage media cover** for a short period while inserting or removing the optional storage media (SSD drive, microSD memory card). During this time, protect the device against moisture and dust.

2.1.3 Using the USB interface



NOTE

The USB interface of the device is used in industrial environments only as a service interface for temporary use (e.g. for configuration, troubleshooting). Permanent use in operational use of the system as a host interface is not intended.

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 at temperatures below $-10\text{ }^{\circ}\text{C}$.
- 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 these operating instructions must be strictly observed.
 - Shut down the product immediately in case of damage.
-

2.3 Internet protocol (IP) technology



NOTE

SICK uses standard IP technology in its products. The emphasis is placed on availability of products and services.

SICK always assumes the following prerequisites:

- The customer ensures the integrity and confidentiality of the data and rights affected by its own use of the aforementioned products.
 - In all cases, the customer implements the appropriate security measures, such as network separation, firewalls, virus protection, and patch management.
-

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

With special variants, where optional extras have been ordered, or owing to the latest technical changes, the actual scope of delivery may vary from the features and illustrations shown here.

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.

2.5.1 Exception: temporarily opening the cover on the device



NOTICE

The user may open the housing only in order to obtain temporary access to the optional storage media. The relevant cover for the storage media on the rear of the device can be opened temporarily for this purpose.

In open state, the device does not conform to a specified enclosure rating. The device should therefore be protected against moisture and dust during this time.

- ▶ Operate the device only for a short time without closed cover.



NOTE

The USB interface of the device is used in industrial environments only as a service interface for temporary use (e.g. for configuration, troubleshooting). Permanent use in operational use of the system as a host interface is not intended.

For further warranty provisions, see the General Terms and Conditions of SICK AG, e.g. on the delivery note of the device.

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.

This product documentation refers to the following qualification requirements for the various activities associated with the device:

- **Instructed personnel** have been briefed by the operator about the tasks assigned to them and about potential dangers arising from improper action.
- **Skilled personnel** have the specialist training, skills, and experience, as well as knowledge of the relevant regulations, to be able to perform tasks delegated to them and to detect and avoid any potential dangers independently.
- **Electricians** have the specialist training, skills, and experience, as well as knowledge of the relevant standards and provisions, to be able to carry out work on electrical systems and to detect and avoid any potential dangers independently. The electrician must comply with the provisions of the locally applicable work safety regulation.

The following qualifications are required for various activities:

Table 1: Activities and technical requirements

| Activities | Qualification |
|---|--|
| Mounting, maintenance | <ul style="list-style-type: none"> ■ Basic practical technical training ■ Knowledge of the current safety regulations in the workplace |
| Electrical installation, device replacement | <ul style="list-style-type: none"> ■ Practical electrical training ■ Knowledge of current electrical safety regulations ■ Knowledge of the operation and control of the devices in their particular application |

| Activities | Qualification |
|--|--|
| Commissioning, configuration | <ul style="list-style-type: none"> ■ Basic knowledge of the computer operating system used ■ Basic knowledge of the design and setup of the described connections and interfaces ■ Basic knowledge of data transmission ■ Basic knowledge of 1D technology (bar code) or 2D technology (matrix code) |
| Operation of the device for the particular application | <ul style="list-style-type: none"> ■ Knowledge of the operation and control of the devices in their particular application ■ Knowledge of the software and hardware environment for the particular application |

2.7 Operational safety and particular hazards

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

LED radiation of the ICI890 illumination unit

Products with type code ICI890-2xxxx (LED color: visible red light) operate with an LED illumination unit of risk group 1.



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.

Products with type code ICI890-1xxxx (LED color: visible blue-white light), ICI890-3xxxx (LED color: visible white light) and ICI890-4xxxx (LED color: visible blue light) operate with an LED illumination unit of risk group 2.



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 systems may result in hazardous radiation exposure. Please note the accompanying production documentation.

Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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

The surface of the device can become hot during operation.

- 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.

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 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.

3 Product description

3.1 Product ID

3.1.1 Type label

The type label gives information for identification of the device.

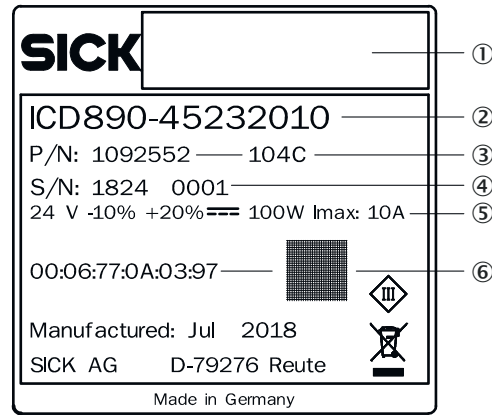


Figure 2: Elements of the type label (example)

- ① Certificates and symbols
- ② Type designation
- ③ Part number (7-digit)
- ④ Serial number
- ⑤ Supply voltage, power consumption and maximum current consumption
- ⑥ MAC address

3.1.2 Device types

The available device types differ with respect to the following features:

| ICD | 880/890 | - | a | b | c | d | e | f | g | h |
|-----|---------|---|---|---|---|---|---|---|---|----|
| 1 | 2 | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| Position | Feature | Characteristic |
|----------|---------------|--|
| 4 | Resolution | 4: Standard resolution 5: High resolution |
| 5 | Optics | 1: Focal length: 80 mm 2: Focal length: 120 mm 3: Focal length: 95 mm |
| 6 | Working range | 3: 1,550 mm ... 3,900 mm ¹⁾ 4: 1,550 mm ... 3,600 mm ¹⁾ 5: 850 mm ... 2,200 mm ¹⁾ |

¹⁾ Relative to the device reference point, see "Field of view diagrams", page 40.

3.2 Scope of delivery

The delivery of the device includes the following components:

Table 2: Scope of delivery

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

Associated components not contained in the delivery:

Table 3: Other components

| Component | Notes |
|--|---|
| SOPAS ET configuration software and device description file (*.sdd-file) | Available online at: <ul style="list-style-type: none"> • www.sick.com/SOPAS_ET |
| This documentation, available in English and German, and in other languages if necessary | Available online at: <ul style="list-style-type: none"> • www.sick.com/ICD88x • www.sick.com/ICD89x |

Accessories

The following accessories for setting up a reading station are not included in the scope of delivery of the device. Depends on the application; can be ordered separately if required:

- ICI890 illumination unit, variant with mounting brackets
- Deflector mirror
- System controller
- Read cycle trigger sensor, e.g. photoelectric retro-reflective sensor for object-specific triggering
- Cables
- Bracket

3.3 Product characteristics

3.3.1 Device view

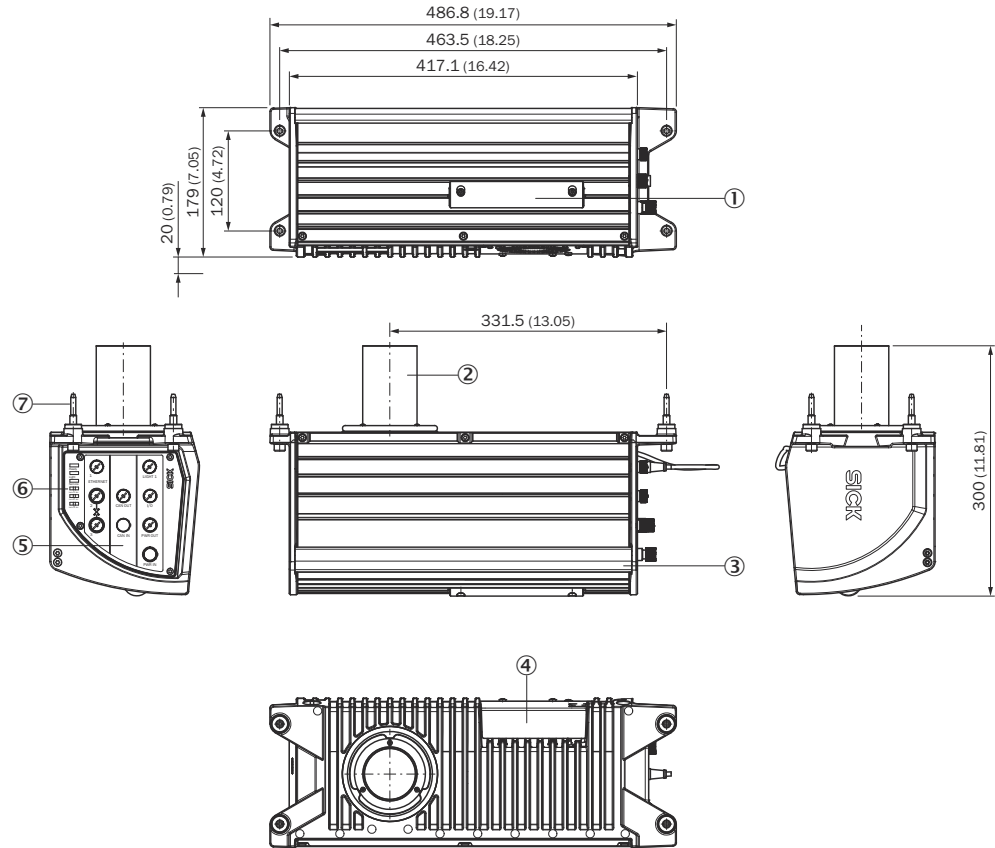


Figure 3: structure and device dimensions, unit: mm (inch), decimal separator: period

- ① Storage media cover with 2 fixing screws (hexagon socket, M4), captive
- ② Lens barrel (protective cap included with delivery)
- ③ Handle
- ④ Fan
- ⑤ Connection mask with M12 electrical connections, available connections depend on the variant (figure with variant B connection mask), protective caps included with delivery for some device types
- ⑥ Status LEDs
- ⑦ 4 M8 mounting screws with centering pin for mounting the device on the ICI890 illumination unit

Optional storage media

The service access is located under the long cover on the rear of the device.

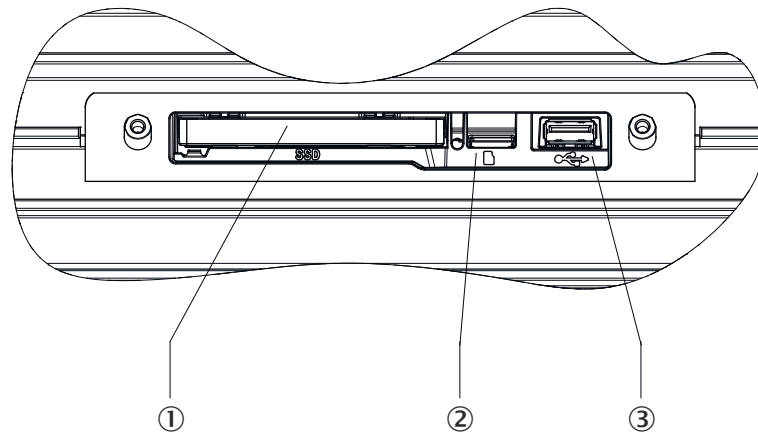


Figure 4: Room for optional storage media and USB interface

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

3.3.2 Display and operating elements

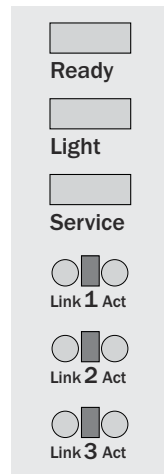


Figure 5: Status LEDs on the connection mask (side area)

Table 4: Function of the 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

For your own safety, please read and observe the following notes:



NOTICE

Damage to the product due to improper transport.

- The device must be packaged for transport with protection against shock and damp.
- Recommendation: Use the original packaging as it provides the best protection.
- Transport should be performed by trained specialist staff only.
- The utmost care and attention is required at all times during unloading and transportation on company premises.
- 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 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

Store the device under the following conditions:

- Recommendation: Use the original packaging.
- Electrical connections are provided with a protective cap (as in the delivery condition).
- Do not store outdoors.
- Store in a dry area that is protected from dust.
- 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.
- 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.
- Mount the device in a shock and vibration insulated manner.
- Make sure the device has a clear view of the codes of the objects to be scanned.

5.2 Mounting the device on the illumination unit



WARNING**Risk of injury due to damage to the device**

For reasons of safety, a device which is visibly damaged must not be operated or must be immediately taken out of operation. Damage includes, for example:

- Housing: Cracked or broken
 - Electrical connections: cracks or detachment from the housing
 - Device with fixed cable: Damage to the cable outlet or cable itself
-

For proper operation, the camera is mounted to the back of an ICI890 illumination.

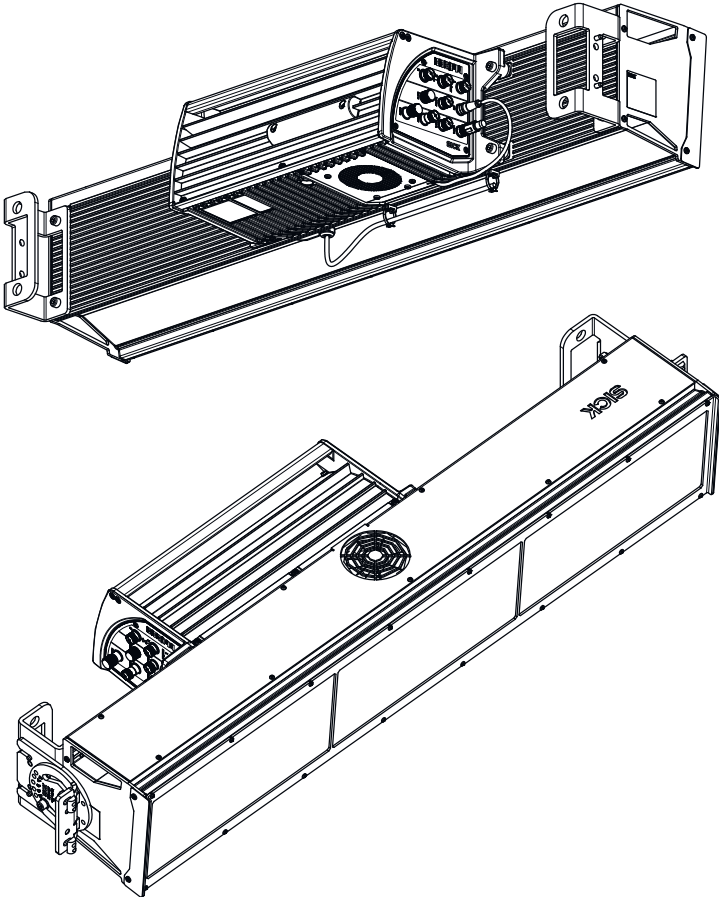


Figure 6: Combination of camera and illumination unit (after mounting)

6 Electrical installation

6.1 Safety

6.1.1 Conditions for specified enclosure rating

To ensure compliance with the specified IP65 enclosure rating of the device during operation, the following requirements must be met: If these requirements are not met, the device does not fulfill any specified enclosure rating.

- The device is mounted flush to the illumination using all 4 screws.
- The storage media cover on the rear of the device is screwed tight to the device. For the recommended tightening torque for the cover screws, see "[Mechanics/electronics](#)", page 37.
- The cables plugged into the electrical M12 connections on the sides of the device are screwed tight.
- Any electrical M12 connections that are not being used must be sealed with protective caps, depending on type. These plugs or caps must be screwed tight (as delivered).



NOTICE

Only operate the device **without the storage media cover** for a short period while inserting or removing the optional storage media (SSD drive, microSD memory card). During this time, protect the device against moisture and dust.

6.1.2 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:

- Metal housings are vulnerable to dangerous currents.
- 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 (e.g., ensuring low-impedance and current-carrying equipotential bonding).

The cable shield of the electrical connections is connected to the metal housing of the device via an M12 male connector.

If the peripheral devices have metal housings, and if the cable shields are also electrically connected 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

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.

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.

6.2 Wiring instructions



NOTE

Pre-assembled cables can be found online at:

- www.sick.com/ICD88x
- www.sick.com/ICD89x



NOTICE

Faults during operation and device or system defects!

Incorrect wiring may result in operational faults and defects.

- Follow the wiring notes precisely.

All electrical connections of the device are configured as M12 round connectors.

The protection class 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 and PS2 (EN 62368-1) or SELV and LPS (EN 60950-1).

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.

Connect the connecting cables in a de-energized state. Do not switch on the supply voltage until installation is complete and all connection work on the device and controller has been finished.

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.

6.2.1 Data cables



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.
-
- The possible length of cable between the device and host computer depends on the following factors:
 - The physical version of the host interface selected
 - The data transmission rate set in the device
 For further information, see ["Wiring the CAN interface", page 28](#)

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 CDF600 fieldbus module.



Figure 7: Variant A connection mask



Figure 8: Variant B connection mask

ETHERNET 1 ... 3 connections

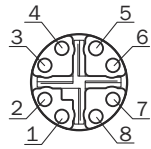


Figure 9: Female connector, M12, 8-pin, X-coded

Table 5: Pin assignment of the “ETHERNET 1 ...3” connections (GBit)

| 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)

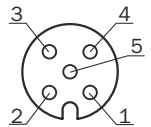


Figure 10: Female connector, M12, 5-pin, A-coded



NOTE

Device 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 used exclusively for supplying voltage to and controlling the device’s fan.

Table 6: Pin assignment of the “FAN” connection

| Pin | Signal | Function |
|-----|------------------------|---------------------------|
| 1 | V _{S OUT} FAN | Fan supply voltage (12 V) |
| 2 | Tacho FAN | Fan RPM signal |
| 3 | GND FAN | Fan ground |
| 4 | N. c. | - |
| 5 | N. c. | - |

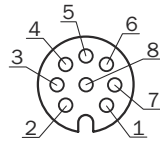
LIGHT 1 connection

Figure 11: Female connector, M12, 8-pin, A-coded

Table 7: 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. | - |

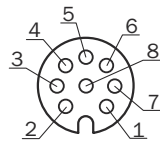
LIGHT 2 connection (depends on variant)

Figure 12: 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 8: 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. | - |
| 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)

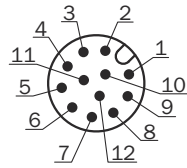


Figure 13: Female connector, M12, 12-pin, A-coded



NOTE

Device with variant A connection mask: not available.
 Device with variant B connection mask: available.

Table 9: Pin assignment of the “I/O” connection

| Pin | Signal | Function |
|-----|----------------|---|
| 1 | V _S | Supply voltage (24 V) ¹⁾ |
| 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 |

¹⁾ Voltage supply for external devices or the CDF600 connection module. No voltage supply for the ICD880/890 device.

PWR OUT connection

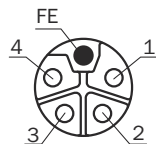


Figure 14: Female connector, M12, 5-pin, L-coded

Table 10: Pin assignment of the “PWR OUT” connection

| Pin | Signal | Function |
|-----|----------------------------------|----------------------------------|
| 1 | N. c. | – |
| 2 | N. c. | – |
| 3 | GND | Ground (ICI) |
| 4 | V _{S OUT} ¹⁾ | Supply voltage (ICI), max. 200 W |
| 5 | FE | Functional earth |

¹⁾ Type and level of the supply voltage V_{S IN/OUT} see "Mechanics/electronics", page 37.

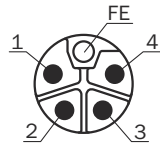
PWR IN connection

Figure 15: Male connector, M12, 5-pin, L-coded

Table 11: Pin assignment of the "PWR IN" connection

| Pin | Signal | Function |
|-----|------------------|----------------------|
| 1 | $V_{S\ IN}^{1)}$ | Supply voltage (ICD) |
| 2 | GND | Ground (ICD) |
| 3 | GND | Ground (ICI) |
| 4 | $V_{S\ IN}^{1)}$ | Supply voltage (ICI) |
| 5 | FE | Functional earth |

¹⁾ Type and level of the supply voltage $V_{S\ IN/OUT}$ see "Mechanics/electronics", page 37.

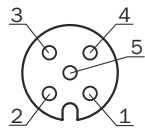
CAN OUT connection

Figure 16: Female connector, M12, 5-pin, A-coded

The "CAN OUT" connection is galvanically isolated from the device.

Table 12: Pin assignment of the "CAN OUT" connection

| Pin | Signal | Function |
|-----|-----------------------|---|
| 1 | Shield | Shielding |
| 2 | CAN $V_{S\ OUT}^{1)}$ | 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) |

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

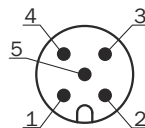
CAN IN connection

Figure 17: Male connector, M12, 5-pin, A-coded

The "CAN IN" connection is galvanically isolated from the device.

Table 13: Pin assignment of the "CAN IN" connection

| Pin | Signal | Function |
|-----|----------------------|--|
| 1 | Shield | Shielding |
| 2 | CAN $V_{S\ IN}^{1)}$ | Supply voltage, max. 4 A input current |

| Pin | Signal | Function |
|-----|---------|-----------------------|
| 3 | CAN_GND | Ground |
| 4 | CAN_H | CAN-Bus High (IN/OUT) |
| 5 | CAN_L | CAN-Bus Low (IN/OUT) |

1) 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 Wiring the 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 14: 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 ¹⁾ | 226 m |
| 500 kBit/s | 76 m |

1) Device default.

Total length of the stub cables

Table 15: 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 16: Wire cross-section as a function of the data transmission rate

| Data transmission rate | Required wire cross-section |
|------------------------|-----------------------------|
| 0 m ... 40 m | $\geq 0.25\ \text{mm}^2$ |
| 40 m ... 300 m | $\geq 0.34\ \text{mm}^2$ |
| 300 m ... 600 m | $\geq 0.5\ \text{mm}^2$ |
| 600 m ... 1,000 m | $\geq 0.75\ \text{mm}^2$ |

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 Configuring the device using SOPAS ET

Adjustment of the device parameters to the application, diagnostics in the event of malfunctions, and uploading of firmware updates is performed by default using the SOPAS ET configuration software. The device supports this process by displaying the images it has recorded in SOPAS ET (required SOPAS ET version: 3.0 or higher).

**NOTE**

Image output takes place only via the Ethernet interface.

- SOPAS ET is intended to be used on a computer. Download and install the latest version of the SOPAS ET configuration software and the current device description files (*.sdd) from the online product page for the software by following the instructions provided there: www.sick.com/SOPAS_ET. In this case, select the **complete** option as suggested by the installation wizard. Administrator rights may be required on the computer to install the software.
- The following user levels are available in SOPAS ET:
 - Operator (no entry of password required): all application parameters, standard diagnostics information, and logging features
 - Service (entry of password required): all application parameters, extended diagnostics information, and extended logging features
- Access via the Ethernet network
- Options for backing up the parameter set to a location outside the device memory:
 - Manually to a configuration file on the computer
 - Semi-automatically to optional external storage media (e.g., microSD memory card)

**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 and 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 file types that can be uploaded
- Whitelist contains only the IP address of the device
- Use of unique combination of user name and password

8 Maintenance

8.1 Maintenance plan

During operation, the device works maintenance-free.

**NOTE**

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

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.
-

8.3 Replacing a Camera System or Component

Faulty or damaged system components must be dismantled and replaced with new or repaired components.

**WARNING****Risk of injury due to falling products!**

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

9 Troubleshooting

9.1 Overview of Potential Errors and Faults



WARNING

Risk of injury due to damage to the device

For reasons of safety, a device which is visibly damaged must not be operated or must be immediately taken out of operation. Damage may include, depending on the device type:

- Housing: cracking, splitting or fracture
- Electrical connections: cracks or detachment from the housing
- Device with cable connection: damage to the cable outlet or cable itself

Table 17: Errors and faults

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

9.2 Detailed fault analysis

9.2.1 LEDs on the device

The following states are indicated by the status LEDs of the device:

- Result of the self-test
- Operational readiness (**Ready**)
- Read result status (“Good Read” or “No Read”)
- Maintenance or service activity required

The status LEDs can indicate possible errors or faults. Further information on this can be found in the “System Information” section.

The LED signals are described in Chapter "[Display and operating elements](#)", page 16 of this product documentation.

9.2.2 System information

The device outputs any occurring faults in different ways. Fault output is staggered, allowing for an increasingly detailed level of analysis:

- Communication errors can occur when transmitting telegrams to the device. The device then returns a fault code.
- For faults that occur during reading, the device writes fault codes in the status log (see "Status log", page 33).

9.3 Status log



NOTE

The status log is retained even after switching the device off and on again.

The device distinguishes between four types of fault:

- Information
- Warning
- Fault
- Critical fault

The device saves only the last five entries for each fault type.

9.3.1 Displaying the status log

To display the status log, connect the SOPAS ET configuration software with the device online.

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

9.4 SICK service

If the fault cannot be rectified, the device may be defective.

The device may not be repaired by the user. Interference with or modification of the device will invalidate any warranty claims against SICK AG.

Rapid replacement of a device by the user is, however, possible.

- ▶ Where a fault cannot be rectified, make contact with the SICK Service department. To find your agency, see the final page of this document.



NOTE

Before calling, make a note of all type label data such as type designation and serial number to ensure faster telephone processing.

9.5 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.

9.6 Returns

- ▶ Do not dispatch devices to the SICK Service department without consultation.
- ▶ 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 during operation.

- Before commencing disassembly, switch off the device and allow it to cool down as necessary.

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.

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 data sheet for your product, including technical data, dimensional drawing, and connection diagrams can be downloaded, saved, and printed from the Internet:

- www.sick.com/ICD88x
- www.sick.com/ICD89x

Please note: This documentation may contain further technical data.

11.1 Features

| | ICD880-4515x02x | ICD890-4434x02x | ICD890-4434x01x | ICD890-4523x01x |
|---------------------------------------|--|--|--|--|
| Function | line camera with integrated 1D/2D code decoder, image output and additional optional 2D vision functions | | | |
| Focus | Dynamic focus control or constant focus | | | |
| Sensor | CMOS line sensor Type: High resolution | CMOS line sensor Type: Standard resolution | CMOS line sensor Type: Standard resolution | CMOS line sensor Type: High resolution |
| Processor | Standard performance | Standard performance | High performance | High performance |
| Line frequency (scanning rate) | Max. 43 kHz | Max. 50 kHz | Max. 50 kHz | Max. 43 kHz |
| Code resolution | ≥ 0.1 mm | | | |
| Working range | 850 mm ... 1,500 mm ¹⁾ | 1,550 mm ... 3,600 mm ¹⁾ | 1,550 mm ... 3,600 mm ¹⁾ | 1,550 mm ... 3,900 mm ¹⁾ |
| Field of view | Conveyor width 1,000 mm at 220 dpi resolution Conveyor width 800 mm at 277 dpi resolution | Conveyor width 1,200 mm at 170 dpi resolution Conveyor width 1,035 mm at 200 dpi resolution | Conveyor width 1,200 mm at 170 dpi resolution Conveyor width 1,035 mm at 200 dpi resolution | Conveyor width 1,800 mm at 170 dpi resolution Conveyor width 1,560 mm at 200 dpi resolution |
| Operating mode | Forward, Backward, Start/Stop | | | |
| Lens | Integrated Focal length: 80 mm | Integrated Focal length: 95 mm | Integrated Focal length: 95 mm | Integrated Focal length: 120 mm |
| 2D Vision functionality ²⁾ | <ul style="list-style-type: none"> • Extended analysis of code quality • empty tote detection • hazardous material detection • object classification • 2D dimensioning (image-based calculation of object dimensions) | | | |

¹⁾ Relative to the device reference point, see "Field of view diagrams", page 40.

²⁾ For further 2D Vision functions, contact SICK Sales. To find your agency, see the final page of this document.

11.2 Mechanics/electronics

| Type | ICD880-4515x02x | ICD890-4434x02x | ICD890-4434x01x | ICD890-4523x01x |
|------------------------|--|-----------------|-----------------|-----------------|
| Connection type | Variant A connection mask: <ul style="list-style-type: none"> • 3 female connectors, M12, 8-pin, X-coded, CAT 6A (Ethernet 1 ... 3) • 1 female connector, M12, 5-pin, A-coded (FAN) ¹⁾ • 1 female connector, M12, 5-pin, A-coded (CAN OUT) • 1 male connector, M12, 5-pin, A-coded (CAN IN) • 1 female connector, M12, 8-pin (Light 1) • 1 female connector, M12, 8-pin (Light 2) ²⁾ • 1 female connector, M12, 5-pin, L-coded (PWR OUT) • 1 male connector, M12, 5-pin, L-coded (PWR IN) • 1 female connector, USB, 5-pin, type A Variant B connection mask: <ul style="list-style-type: none"> • 3 female connectors, M12, 8-pin, X-coded, CAT 6A (Ethernet 1 ... 3) • 1 female connector, M12, 5-pin, A-coded (CAN OUT) • 1 male connector, M12, 5-pin, A-coded (CAN IN) • 1 female connector, M12, 8-pin (Light 1) • 1 female connector, M12, 5-pin, L-coded (PWR OUT) • 1 male connector, M12, 5-pin, L-coded (PWR IN) • 1 female connector, M12, 12-pin, A-coded (I/O) • 1 female connector, USB, 5-pin, type A | | | |
| Supply voltage V_S | DC 24 V -10 % +20 % ES1 according to EN62368-1 or SELV according to EN60950-1 (each according to currently valid standard) | | | |
| Power consumption | Operation: Typically 80 W ³⁾ , max. 100 W ⁴⁾ Standby ⁵⁾ : 50 W typical | | | |
| Current consumption | Max. 10 A | | | |
| Housing material | Aluminum housing | | | |
| Housing color | Light blue (RAL 5012), silver, black | | | |
| Cover (rear of device) | Function: For temporary access to optional storage media Hinged ⁶⁾ , 2 fixing screws (hexagon socket, M4), captive Recommended tightening torque: 1.5 Nm \pm 0.2 Nm | | | |
| Mechanical mounting | 4 screws, M8 with centering pin, captive | | | |
| Enclosure rating | IP65 (EN 60529:1991-10/A2:2000-02 / A3:2013) Other conditions see " Conditions for specified enclosure rating ", page 7 | | | |
| Protection class | III (according to currently valid standard EN 61140) | | | |
| Electrical safety | EN 61010-1:2010-10 | | | |
| Weight | Approx. 11 kg | | | |
| Dimensions (L x W x H) | 486.8 mm x 300 mm x 179 mm ⁸⁾ | | | |
| MTBF | 80,000 h ⁹⁾ | | | |
| MTTR | < 10 min | | | |

1) For connecting the fan only.

2) No function.

3) At +25 °C.

4) At +50 °C.

5) No read cycle, illumination switched off.

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

7) Camera protection tube without protective cap inserted into the corresponding opening of the illumination. Device is mounted flush to the illumination using the 4 mounting screws.

8) see "[Device view](#)", page 15.

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

11.3 Performance

| Type | ICD880-4515x02x | ICD890-4434x02x | ICD890-4434x01x | ICD890-4523x01x |
|--------------------------------|---|-----------------|-----------------|-----------------|
| Readable code structures | 1D, 2D, Stacked, OCR, OCV | | | |
| 1D code types (bar code types) | GS1-128 / EAN 128, UPC / GTIN / EAN, 2/5 Interleaved, Pharmacode, GS1 DataBar, Code 39, Code 128, Codabar, Code 32, Code 93, USPS (Postnet, Planet, USPS4SCB), Australia Post, Dutch KIX Post, Royal Mail, Swedish Post | | | |
| 2D code types | Data Matrix ECC200, GS1 Data Matrix, MaxiCode, QR code, Aztek | | | |
| Stacked code types | PDF417 | | | |
| Mounting bracket | Max. 75° ¹⁾ | | | |
| Conveyor speed | Max. 4.5 m/s ¹⁾ | | | |
| Minimum object distance | ≥ 50 mm | | | |
| Number of objects per second | ≤ 10 | | | |
| Image output formats | JPEG, TIFF, BMP, thumbnail, up to 5 FTP clients | | | |

¹⁾ Depending on the activated functionality.

11.4 Interfaces

| Type | ICD880-4515x02x | ICD890-4434x02x | ICD890-4434x01x | ICD890-4523x01x |
|----------------------------|---|-----------------|-----------------|-----------------|
| USB ¹⁾ | 1 USB 2.0 (service) | | | |
| Ethernet GBit | 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) | | | |
| CAN | 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 " Wiring the CAN interface ", page 28 | | | |
| Light (depends on variant) | Variant A connection mask: <ul style="list-style-type: none"> • 1 Light 1, 1 Light 2 • Light 1 function: communication with the illumination unit • Light 2 function: no function Variant B connection mask: <ul style="list-style-type: none"> • 1 Light 1 • Function: communication with the illumination unit | | | |
| FAN (depends on variant) | Variant A connection mask: <ul style="list-style-type: none"> • 1 FAN • Function: voltage supply and regulation of the device fan • I_{Max} = 0.5 A Variant B connection mask: not available, integrated fan connection available in the device | | | |

| Type | ICD880-4515x02x | ICD890-4434x02x | ICD890-4434x01x | ICD890-4523x01x |
|-----------------------------|---|-----------------|-----------------|-----------------|
| I/O (depends on variant) | Variant A connection mask: not available Variant B connection mask: <ul style="list-style-type: none"> • Function: supply voltage, trigger, encoder, RS-232 data interface, 3 digital outputs • Maximum length of cable: 10 m • Maximum encoder switching frequency: 30 kHz • Maximum switching frequency for trigger: 30 kHz • Maximum switching frequency for digital output: 1 kHz • Total output currents (supply voltage, digital outputs): max 1.5 A (internal electronic fuse) • Maximum current for digital output: 0.4 A • Maximum baud rate for RS-232: 115.2 kBd (depends on cable) | | | |
| Optical indicators | 3 status LEDs (device status indicators) 3 double LEDs (Ethernet status indicators) | | | |
| Configuration software | SOPAS ET configuration software (workflow parameterization, installation wizard, diagnostic tools, status information) | | | |
| Storage media ²⁾ | 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.

11.5 Ambient data

| Type | ICD880-4515x02x | ICD890-4434x02x | ICD890-4434x01x | ICD890-4523x01x |
|-------------------------------------|--|-----------------|-----------------|-----------------|
| Electromagnetic compatibility (EMC) | Interference: IEC 61000-6-4:2018 Immunity: EN IEC 61000-6-2:2019 (Industrial Environment) | | | |
| Vibration resistance | IEC 60068-2-6:2007-12 | | | |
| Shock resistance | IEC 60068-2-27:2008-02 | | | |
| Ambient operating temperature | -10 °C ... +50 °C | | | |
| Storage temperature | -20 °C ... +70 °C | | | |
| Permissible relative humidity | Max. 95 %, non-condensing | | | |
| Ambient light immunity | 2,000 lx on code | | | |

1) With connected, functional fan.

11.6 Dimensional drawing

Dimensions [see "Device view", page 15.](#)

11.7 Field of view diagrams

Field of view diagram for ICD880-4515xxxx

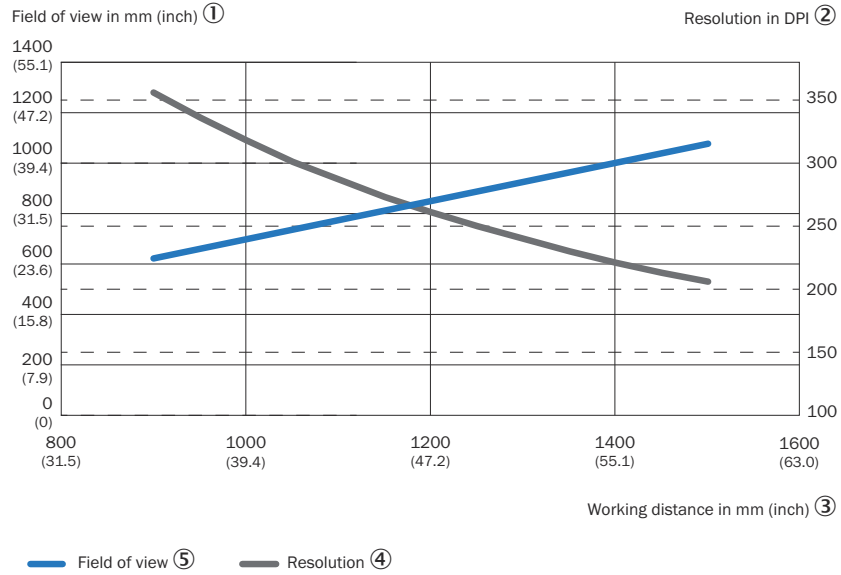


Figure 18: Field of view diagram for ICD880-4515xxxx

- ① Field of view in mm (inch)
- ② Resolution in DPI
- ③ Working distance in mm (inch)
- ④ Resolution
- ⑤ Field of view

Field of view diagram for ICD890-4434xxxx

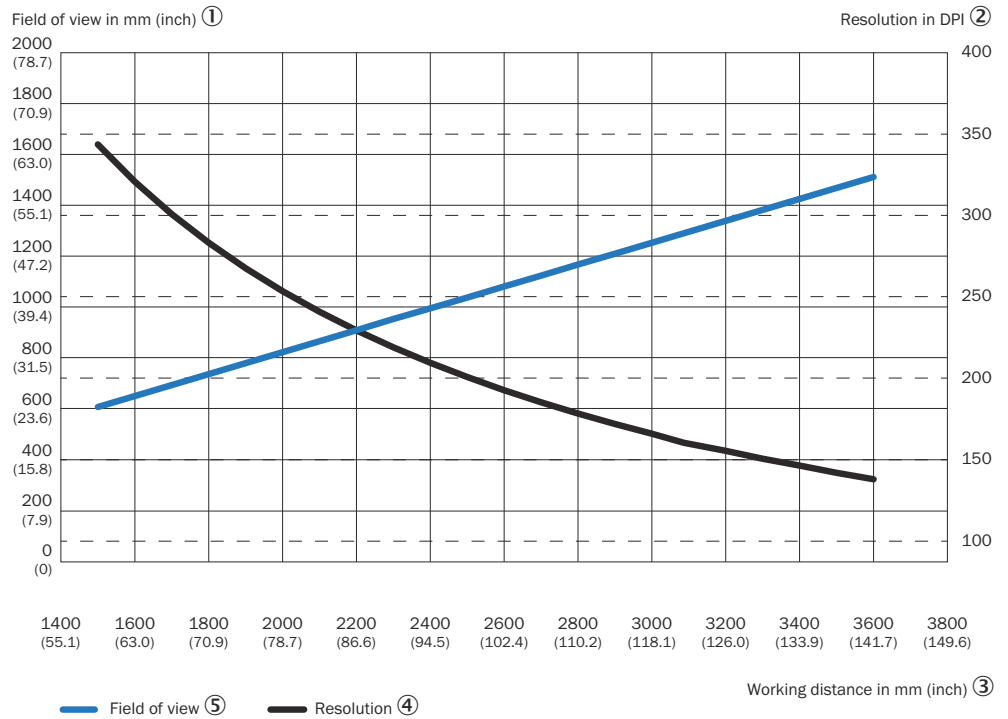


Figure 19: Field of view diagram for ICD890-4434xxxx

- ① Field of view in mm (inch)
- ② Resolution in DPI
- ③ Working distance in mm (inch)
- ④ Resolution
- ⑤ Field of view

Field of view diagram for ICD890-4523xxxx

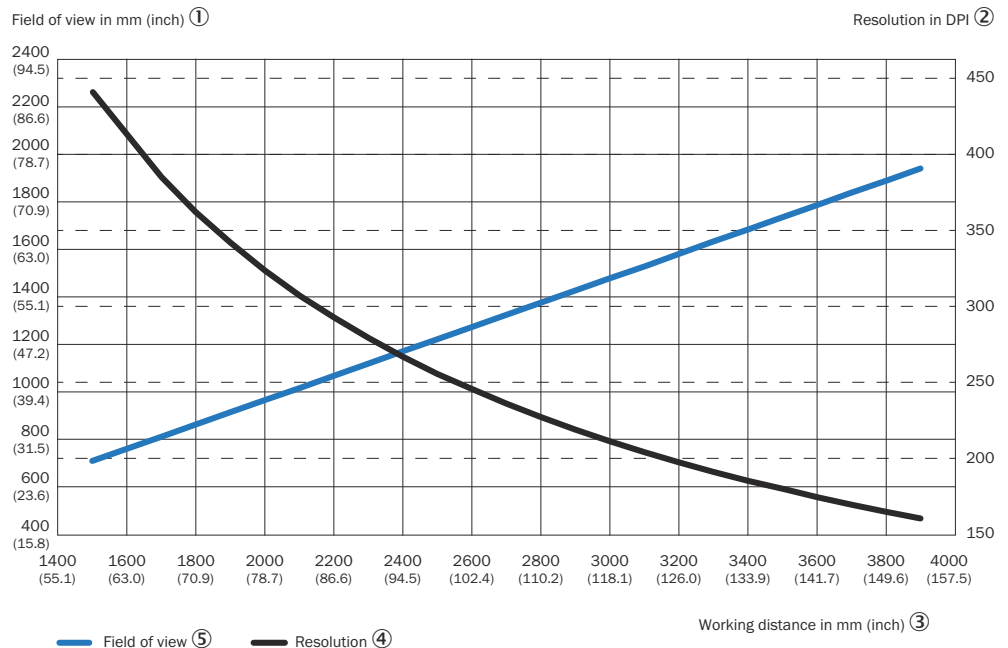


Figure 20: Field of view diagram for ICD890-4523xxxx

- ① Field of view in mm (inch)

- ② Resolution in DPI
- ③ Working distance in mm (inch)
- ④ Resolution
- ⑤ Field of view

Device reference point

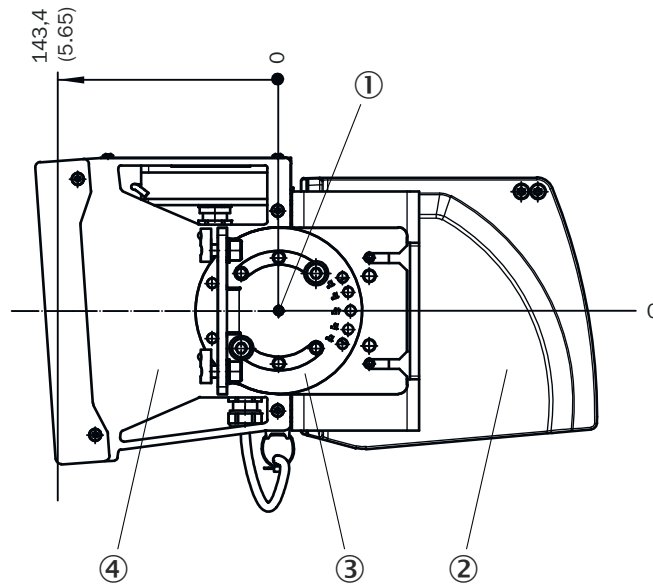


Figure 21: Device reference point for working distance (combination of camera with illumination)

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

12 Accessories



NOTE

Accessories and where applicable mounting information can be found online at:

- www.sick.com/ICD88x
 - www.sick.com/ICD89x
-

13 Annex

13.1 EU declaration of conformity/Certificates

The EU declaration of conformity and other certificates can be downloaded from the Internet at:

- www.sick.com/ICD88x
- www.sick.com/ICD89x

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