# SIM800

## Sensor Integration Machine

**SICK**
Sensor Intelligence.

**Described product**

SIM800

**Manufacturer**

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**Original document**

This document is an original document of SICK AG.

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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}

{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 General safety notes

The following safety notes must always be observed regardless of specific application conditions:

- The device must only be mounted, commissioned, operated, and maintained by professionally qualified safety personnel.
- Electrical connections with peripheral devices must only be made when the voltage supply is disconnected.
- The device is only to be operated when mounted in a fixed position.
- The device voltage supply must be protected in accordance with the specifications.
- The specified ambient conditions must be observed at all times.
- The electrical connections to peripheral devices must be screwed on correctly.
- The cooling fins or fan - if present - must not be covered or restricted in their functionality.
- The pin assignment of pre-assembled cables must be checked and adjusted if necessary.
- These operating instructions must be made available to the operating personnel and kept ready to hand.

### 2.2 Intended use

The device is a programmable control and evaluation unit for sensors.

The device also acts as a link between system and plant controls, and the connected terminal devices. The device is mainly used in an industrial environment in production, testing, and control. Other applications are possible depending on the device-specific properties.

The device is programmed on a PC by using the development environment software SICK AppSpace. Depending on the application, a browser-based, graphical user interface (HMI) can be created, which provides opportunities defined by the application developer to influence an application at operator level.

The device connection to the peripherals is established by means of a range of industrial interfaces.

The device offers various interfaces for controlling, programming, and operating purposes, which can be activated as necessary via development environments, control systems (programmable logic controllers), or applications.

However, configuration, programming, and control requires various technical skills, depending on how the device is connected and used.

### 2.3 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.
- 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.

## 2.4 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, e.g.:**
- General information on cybersecurity
- Contact option for reporting vulnerabilities
- Information on known vulnerabilities (security advisories)

## 2.5 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

> ℹ️ **NOTE**
> **Programmable device**
>
> The Sensor Integration Machine (SIM) is a programmable device.
>
> Therefore, the respective programmer is responsible for his/her programming performance and the resulting operating principle of the device.
>
> The liability and warranty of SICK AG is limited to the device specification (hardware functionality and any programming interfaces) according to the agreed conditions.
>
> Therefore, SICK AG is not liable, among other things, for damages that are caused by programming of the customer or third parties.

## 2.6 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.

## 2.7 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 | ■ Basic practical technical training<br>■ Knowledge of the current safety regulations in the workplace |
| Electrical installation, device replacement | ■ Practical electrical training<br>■ Knowledge of current electrical safety regulations<br>■ Knowledge of the operation and control of the devices in their particular application |
| Commissioning, configuration | ■ Basic knowledge of the computer operating system used<br>■ Basic knowledge of the design and setup of the described connections and interfaces<br>■ Basic knowledge of data transmission |
| Operation of the device for the particular application | ■ Knowledge of the operation and control of the devices in their particular application<br>■ Knowledge of the software and hardware environment for the particular application |

## 2.8 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.

⚠️ **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.

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## 2.8.1 LED RG0

The product is fitted with LEDs in risk group 0. The accessible radiation from these LEDs does not pose a danger to the eyes or skin.
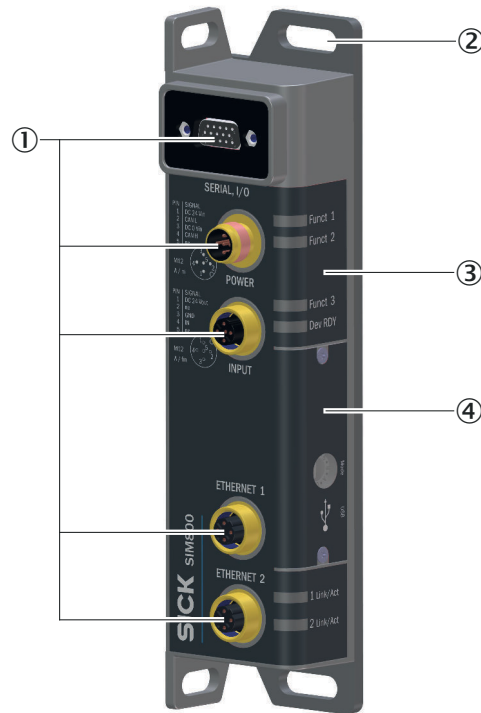
# 3 Product description

## 3.1 Device view



*Figure 1: SIM800 device view*

① Connections for voltage supply, sensors, Ethernet
② Elongated drill holes for mounting
③ LEDs for indicating the status
④ Servicing panel

## 3.2 Functionality

The SIM800 Sensor Integration Machine – part of the SICK AppSpace ecosystem – is opening up new possibilities for application solutions.

Data from SICK sensors such as fixed mount barcode scanners, image-based code readers, RFID read/write devices or photoelectric sensors can be evaluated, archived, and transmitted.

The SICK AppSpace open software platform enables tailor-made application programs to be developed for demanding applications.

The HMI and data visualization features can be provided on any browser-enabled notebook, PC, or tablet. The application software (app) is developed in SICK AppStudio.

## 3.3 SICK AppSpace

Detailed instructions on the SICK AppStudio as well as programming the device can be found at **supportportal.sick.com**.

## 3.4 Preset Ethernet interfaces

> **NOTE**
> Preset IP addresses of the ETHERNET interfaces:
> - ETHERNET 1: 192.168.0.1
> - ETHERNET 2: 192.168.1.1

**Changing the IP addresses**

The individual IP addresses can be changed using the "SICK AppManager" software tool.

# 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        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.

## 4.3        Storage

- Do not store outdoors.
- Store in a place protected from moisture and dust.
- Recommendation: Use the original packaging.
- Do not expose to any aggressive substances.
- Protect from sunlight.
- Avoid mechanical shocks.
- Storage temperature: see "Technical data", page 24.
- 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 Overview of mounting procedure

> ℹ **NOTE**
> The mounting procedure described here for the device meets the requirements for use in the target system.
>
> Additional or different requirements may become necessary in the laboratory and during preparation, and should be taken into account as necessary, see "Commissioning", page 20. If you have any questions or anything remains unclear in this regard, please contact our service team.

- Mounting the device.
- Connect the cables.
- Connecting peripheral devices.
- Connecting the voltage supply.

## 5.2 Scope of delivery

- SIM800
- Safety note
- Optional: ordered accessories

> ℹ **NOTE**
> For a list of cables suitable for use with the device, see: supportportal.sick.com.

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

## 5.3 Preparing for mounting

**Installation requirements**

- Select the mounting site: Plan space requirements and sufficient distance from other devices. Be aware of the possibility of heat dissipation.
- Unpack the device and allow to acclimatize to avoid formation of condensation.

**Preparing for mounting**

1. Place the device at the mounting site.
2. Mark the mounting holes.
3. Proceed to drill the mounting holes.

## 5.4 Mounting the device

1. Place device at mounting site.
2. Mount the device using at least two M6 cylinder head screws. Screw length depends on the mounting surface (wall thickness). Max. tightening torque 5 Nm.

> ❗ **NOTICE**
> Use self-locking or lock nuts on mounting sites that are exposed to vibrations to prevent the holding plates from loosening.

# 6 Electrical installation

## 6.1 Important information

> ⚠️ **WARNING**
> **Risk of injury and damage caused by electrical current!**
>
> Due to equipotential bonding currents, incorrect earthing can lead to the following dangers and faults: Voltage is applied to the metal housing, cable fires due to cable shields heating up, the product and other devices become damaged.
>
> - Generate the same ground potential at all grounding points.
> - Ground the equipotential bonding via the functional ground connection with a low impedance.

> ❗ **NOTICE**
> **Device damage due to improper supply voltage!**
>
> - Only operate the device with the specified supply voltage.
> - The voltage supply and all connected signals must meet the requirements for extra-low voltages with safe separation (SELV) as specified in EN 61010. The external voltage supply of the device must bridge a brief power outage of 20 ms.
> - Only devices that are also supplied with safety extra-low voltage must be connected.

> ℹ️ **NOTE**
> **Layout of data cables**
>
> - Use screened data cables with twisted-pair wires.
> - Implement the screening design correctly and completely.
> - To avoid interference, e.g. from switching power supplies, motors, clocked drives, and contactors, always use cables and layouts that are suitable for EMC.
> - Do not lay cables over long distances in parallel with power supply cables and motor cables in cable channels.

## 6.2 Preparing the electrical installation

To carry out the electrical installation, you will need:

- Connection cables for the peripheral devices, including the corresponding data sheets
- Voltage supply cable
- If customers assemble the cables: crimping tool, ferrules, soldering iron, and other installation material
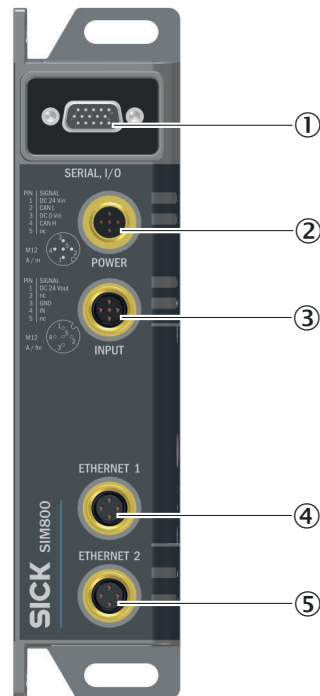
## 6.3 Overview of connections



*Figure 2: SIM800 connection overview*

① SERIAL, I/O: Connection for sensors and controller
② POWER: Voltage supply
③ INPUT: Digital input
④ ETHERNET 1: Ethernet port
⑤ ETHERNET 2: Ethernet port

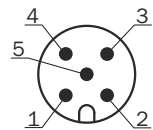## 6.4 Pin assignment

### POWER connection (supply voltage)



*Figure 3: Male connector, M12, 5-pin, A-coded*

| Pin | Signal | Function |
|-----|--------|----------|
| 1 | DC 24 Vin | Supply voltage IN |
| 2 | CAN L | CAN bus [1] |
| 3 | DC 0 Vin | Supply voltage ground |
| 4 | CAN H | CAN bus [1] |
| 5 | nc | – |
| – | – | Shield |

[1] The SIM800 does not offer any CAN functionality of its own. A CAN connection can, however, be established between the "Power" port and the "SERIAL, I/O" port for CAN-capable sensors.

Observe the requirements for the design of overcurrent protective devices according to EN 61010, "Technical data", page 24.

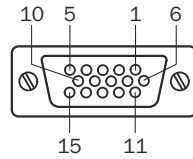**SERIAL, I/O connection**



*Figure 4: Female connector, D-SUB, 15-pin, coded*

| Pin | Signal | Function |
|---|---|---|
| 1 | DC 24 Vout | Supply voltage OUT |
| 2 | TxD from SERIAL 1 | RS-232, sender 1 |
| 3 | RxD from SERIAL 1 | RS-232, receiver 1 |
| 4 | Digital Out 2 | Digital output 2 (sensor 2) |
| 5 | GND | Supply voltage ground |
| 6 | nc | - |
| 7 | TxD from SERIAL 2 | RS-232, sender 2 |
| 8 | nc | - |
| 9 | RxD from SERIAL 2 | RS-232, Receiver 2 |
| 10 | CAN H | CAN bus [1] |
| 11 | CAN L | CAN bus [1] |
| 12 | Digital In 1 | Digital input 1 (result 1) |
| 13 | Digital In 2 | Digital input 2 (result 2) |
| 14 | Digital Out 1 | Digital output 1 (sensor 1) |
| 15 | nc | – |

[1] The SIM800 does not offer any CAN functionality of its own. A CAN connection can, however, be established between the "Power" port and the "SERIAL, I/O" port for CAN-capable sensors.

Max. 2 A output for supply voltage connection (internal fuse, not accessible)

**Digital outputs:**
- Max. output 100 mA., current limited
- Short-circuit protected
- Push-pull switch
- Min. high output logic level: $V_{CC}$ -2 V
- Max. low output logic level: 2 V

**Digital inputs:**
- High input logic level: 8 V … 30 V
- Low input logic level: 0 V … 4 V

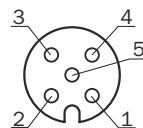**INPUT connection (digital input)**



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

| Pin | Signal | Function |
|-----|--------|----------|
| 1 | DC 24 Vout | Supply voltage OUT |
| 2 | nc | – |
| 3 | GND | Supply voltage ground |
| 4 | Digital In 3 | Digital input 3 |
| 5 | nc | – |

Max. 1 A output for supply voltage connection

- Can be wired, e.g., to PNP output of a trigger sensor
- High input logic level: 6 V … 32 V (0.7 mA … 5 mA)
- Max low input logic level: 2 V (≤ 0.3 mA)
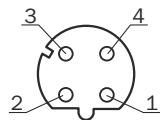
**ETHERNET 1 and ETHERNET 2 connection**



*Figure 6: M12 female connector, 4-pin, D-coded*

| Pin | Signal | Function |
|-----|--------|----------|
| 1 | TD+ | Sender+ |
| 2 | RD+ | Receiver+ |
| 3 | TD– | Sender– |
| 4 | RD– | Receiver– |

Transmission rate: max. 100 Mbit/s

## 6.5 Connecting peripheral devices

The device can be connected to a wide range of sensors.

The required pin assignments can be found in the data sheets for the peripherals to be connected as well as in the relevant connection descriptions, see "Pin allocation of the connections".

1. Connect the cables to peripheral devices.
2. Route the cables to the device using installation materials (cable channels, cable ties, etc.). When doing so, pay attention to cable strain relief.
3. Connect cables to the relevant device connections and screw together tightly.
4. Seal unused connections with dummy plugs.

## 6.6 Connecting voltage supply

For a list of cables suitable for use with the device, see the document "SIMxxxx_Cable-Overview" available from supportportal.sick.com.

Customer assembly of the cables is only necessary in special cases. Ensure a sufficient length of cable is provided, e.g., for strain-relief clamps.

> **!** **NOTICE**
> **Risk of damage/malfunction due to incorrect PIN assignment**
>
> Incorrect wiring of the male connectors/female connectors can lead to damage to or malfunctions in the system.
>
> - Observe data sheets provided by the cable manufacturer.
> - Observe the pin assignment.

> **!** **NOTICE**
> **Risk of damage to peripheral devices!**
>
> If peripheral devices are connected when the voltage supply is also applied, these devices can become damaged.
>
> - Only connect peripheral devices when the voltage supply is disconnected.

1. Ensure that the voltage has been disconnected by the user.
2. Connect voltage supply cable(s) to the device.
3. Lay the cable(s) with strain relief.
4. Have the user connect the voltage supply.
5. Have the user activate the voltage.

# 7 Commissioning

## 7.1 Preparatory commissioning

Commissioning for preparatory purposes and under laboratory conditions differs in some respects from commissioning in the target system.

In general, all safety and hazard warnings applicable to mounting (see "Mounting", page 14) and electrical installation (see "Important notes") must also be observed under laboratory conditions. In addition, further notes must be taken into consideration to guarantee the most effective preparation possible:

- Only connect those devices to the product that you want to configure or program.
- Operate the connected device in a controlled and contained network environment for the time being to check network communication if necessary.
- Note the company standards that apply to the use of checking and testing devices.
- For initial programming, use ideal conditions for sensor recognition.
- Use the largest possible deviations from these ideal conditions to check the programming with respect to its error tolerance and reliability, and to determine error limit values.

**Procedure**

1. Place the device on a non-slip base.
2. Connect the required peripheral devices, see "Connecting peripheral devices".
3. Connect the network connection.
4. Connect the voltage supply.
5. The device requires a certain start-up time. The readiness is indicated by the green "Dev RDY" LED.

# 8 Operation

## 8.1 Status LEDs

When the device is operating, the operational status of the connections is indicated visually by status LEDs.

Using these status indicators, the operator can find out quickly and easily whether the device and the peripherals are working properly or whether any faults or errors have occurred.

Monitoring the visual indicators is part of the routine inspection carried out on the device and the machine/plant area into which the device is incorporated.

**Meaning of symbols**
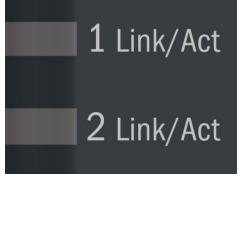
| Symbol | Purpose |
|---|---|
| ○ | LED off |
| ● | LED on |
| ☀ | LED flashes |

**Device status**

| Location | Designation | LED behavior | Description |
|---|---|---|---|
| Funct 1 / Funct 2 / Funct 3 / Dev RDY | Dev RDY | ● | Device ready, no errors detected [1] |
| | | ● | Device is booting [1]/ boot process error |
| | Funct 1 Funct 2 | ○ ● | User-defined, configurable using SICK AppSpace |
| | Funct 3 | ○ ● ● | User-defined, configurable with AppSpace |

[1] Time delay before availability due to boot process (approx. 20 s)

**ETHERNET 1 - 2**

| Location | Designation | LED behavior | Description |
|---|---|---|---|
| 1 Link/Act 2 Link/Act | Link/Act | ○ | Connection not established with Ethernet. |
| | | ● | Connection established with Ethernet. |
| | | ☀ | Data transmission via Ethernet. |

# 9   Maintenance

## 9.1   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.

▶   The device must be cleaned regularly from the outside to guarantee heat dissipation and therefore operation. Use a dry cloth or an industrial vacuum cleaner for cleaning. Do not use cleaning agents.

## 9.2   Maintenance plan

During operation, the device works maintenance-free.

Depending on the assignment location, the following preventive maintenance tasks may be required for the device at regular intervals:

*Table 2: Maintenance plan*

| Maintenance work | Interval | To be carried out by |
|---|---|---|
| Check device and connecting cables for damage at regular intervals. | Depends on ambient conditions and climate. | Specialist |
| Clean housing. | Depends on ambient conditions and climate. | Specialist |
| Clean any fans and check their function | Depends on ambient conditions and climate. Recommended: At least every 6 months. | Specialist |
| Check that all unused connections are sealed with protective caps. | Depends on ambient conditions and climate. Recommended: At least every 6 months. | Specialist |

# 10    Decommissioning

## 10.1    Disposal

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.

---

! **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.

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# 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}**
>
> {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

| Feature | Parameter |
| --- | --- |
| Task | Data recording, evaluation, and archiving |
| Supported devices (excerpt) | Fixed mount barcode scanners, image-based code readers, RFID read/write devices, photoelectric sensors |
| Technology | Embedded hardware architecture:<br>• Single-core 64-bit Arm® Cortex®-A53, Dual-core Arm® Cortex®-R5F |
| | Software:<br>• Can be programmed within the SICK AppSpace environment<br>• SICK Interface & Algorithm API |
| Random Access Memory | 512 MB |
| Flash memory | 5 GB |
| programming software | SICK AppStudio |
| Sensor data processing | According to SICK Interface & Algorithm API |

## 11.2 Interfaces

| Feature | Parameter |
| --- | --- |
| User interfaces | Web server (GUI), SICK AppStudio (programming), SICK AppManager (app installation, firmware update) |
| Data storage and retrieval | Data logging via internal flash/RAM |
| **SERIAL (RS-232)** | |
| Quantity | 2 |
| Function | RS-232 |
| Maximum data transmission rate | 115.2 kBaud |
| **Ethernet** | |
| Quantity | 2 |
| Function | Data output, configuration, firmware update |
| Data transmission rate | 10/100 Mbit/s |
| Protocol | TCP/IP |
| **Digital inputs/outputs** | |
| Quantity | "SERIAL, I/O" connection: 2 x digital input, 2 x digital output<br>"INPUT" connection: 1 x digital input<br>Details "Pin assignment", page 16 |

| Feature | Parameter |
|---|---|
| **USB** | |
| Quantity | 1 |
| Function | USB 2.0 (Micro-B), reserved |
| **Rotary encoding switch** | |
| Quantity | 1 |
| Function | Reserved |

## 11.3      Mechanics and electronics

| Feature | Parameter |
|---|---|
| Electrical connection | POWER: 1 x M12, 5-pin male connector, A-coded<br>SERIAL, I/O: 1 x 15-pin D-Sub HD female connector, with seal<br>INPUT: 1 x M12, 5-pin female connector, A-coded<br>ETHERNET: 2 x M12, 4-pin female connector, D-coded<br>USB: Micro-B (under servicing panel) |
| Supply voltage | 10 ... 30 V DC, SELV in accordance with EN 61010, also applies to digital inputs |
| Operating current | Must be limited by external power supply unit to max. 12 A |
| Power consumption | 5 W max., without connected sensors |
| Power output | Max. 100 W total (all connections) |
| Housing material | Aluminum |
| Housing color | Uncoated cast aluminum, anthracite labeling film |
| Protection class | III |
| Weight | 360 g |
| Dimensions (W x D x H) | 207 mm x 49.5 mm x 40.7 mm (without cables connected) |

## 11.4      Ambient data

| Feature | Parameter |
|---|---|
| Electromagnetic compatibility (EMC) | Immunity to interference as per: IEC 61000-6-2:2016 / IEC61000-6-2:2005<br>Radiated emission as per: IEC 61000-6-4:2018 |
| Vibration resistance | IEC 60068-2-6:2007-12 |
| Shock resistance | IEC 60068-2-27:2008-02 |
| Electrical safety | IEC 61010-1:2010 + Cor.: 2011<br>IEC 61010-2-201:2017 |
| Enclosure rating | IP65 as per IEC 60529 AMD 1:1999-11 (blind plugs must be inserted into unused connections) |
| Altitude | max. 2000 m |
| Ambient operating temperature | –35 °C ... +50 °C |
| Storage temperature | –35 °C ... +70 °C |
| Permissible relative humidity | 90%, non-condensing |

# 12 Annex

## 12.1 Dimensional drawings
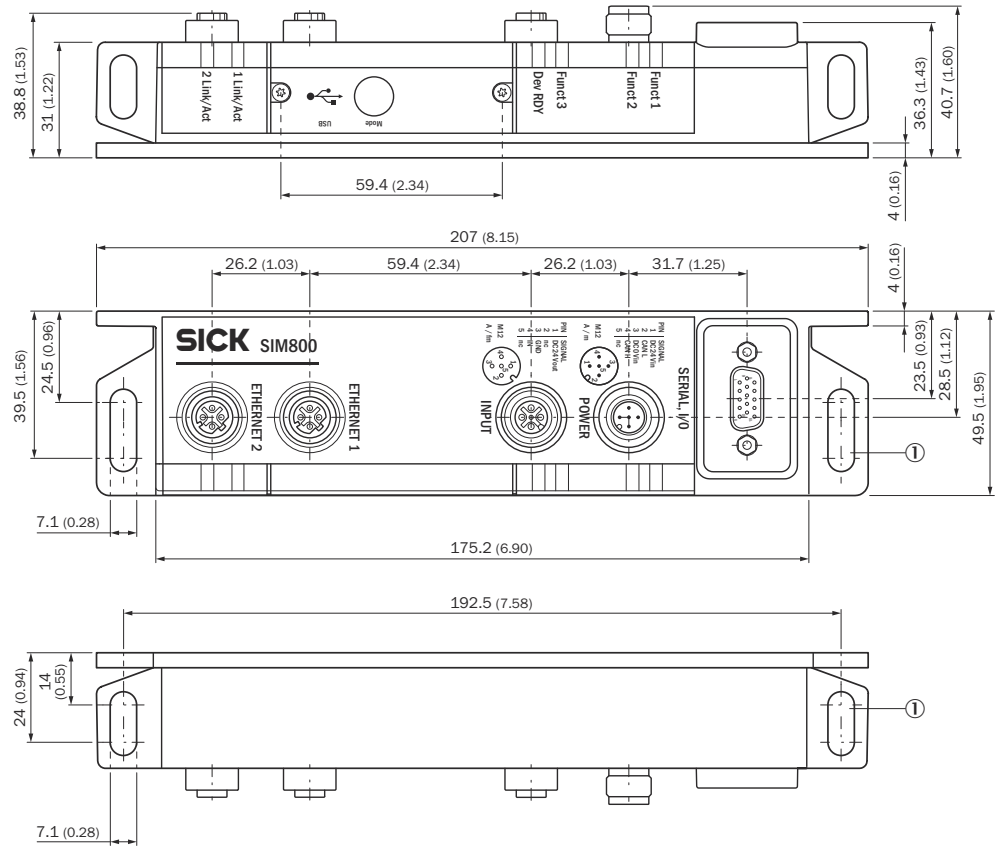


*Figure 7: Device dimensions, unit: mm (inch), decimal separator: period*

1    Elongated drill hole for mounting, for M6 cylinder head screws, max. tightening torque 5 Nm

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