

## CDF600-21xx Fieldbus module

Module for integrating a SICK identification sensor into PROFIBUS-DP networks

CDF600-2100  
CDF600-2103

**SICK**  
Sensor Intelligence.



### Correct use

The CDF600-21xx fieldbus module is used exclusively to integrate a single SICK identification sensor as a subscriber in PROFIBUS-DP networks in accordance with EN 50170 (V2).

The fieldbus module and identification sensor (referred to as the ID sensor below) represent a single data technology unit (subscriber) on the bus; they communicate with one another via a serial data interface (RS-232). One fieldbus module is required for each ID sensor on the PROFIBUS network.

The CDF600-21xx fieldbus module currently supports the following ID sensors:

In proxy mode:

- CLV61x FIELDBUS, CLV62x to CLV65x, CLV69x bar code scanners
- Lector®62x image-based code reader
- RFH62x and RFH63x (both HF), RFU62x and RFU63x (both UHF) RFID read/write devices

In gateway mode:

- SICK ID sensors, which do not yet support proxy mode, such as Lector®64x and Lector®65x image-based code readers
- SICK IDM1xx and IDM2xx hand-held scanners

- Any sensors with RS-232 interface and suitable data format and data transmission rate

The fieldbus module can be used at an ambient temperature range of -35 °C to + 50 °C.

Correct use also includes compliance with all information in these operating instructions and the supplementary CDF600-21xx Fieldbus Module Technical Information (no. 8015337).

### About this document

These operating instructions will help you to assemble **one** fieldbus module for the ambient temperature range from 0 to +50 °C quickly and easily and to establish an electrical connection between the module and the ID sensor, fieldbus and local trigger sensor (if there is one). Initial parameters such as the operating mode and bus address of the fieldbus module are set via the fieldbus module mechanical controls.

These operating instructions are applicable for the following fieldbus module models:

- CDF600-2100 (PROFIBUS connection: 2 x 5-pin M12)
- CDF600-2103 (PROFIBUS connection: 1 x 9-pin D-SUB)

The CDF600-21xx fieldbus module is referred to simply as “fieldbus module” in the following sections, except where a distinction has to be made between models.

### Supplementary and other relevant documents

More detailed information about the electrical installation and configuration of the fieldbus module is available in the CDF600-21xx Fieldbus Module Technical Information (no. 8015337). This document describes:

- The suppression of ground potential equalization currents in applications with widely distributed systems
- The use of the fieldbus module together with a heatable ID sensor that supports proxy mode in the deep-freeze range to a limit of -35 °C
- Setting up a small SICK CAN sensor network as a subnet-work on the ID sensor connected to the fieldbus module
- Integration of the fieldbus module into the bus master
- Proxy mode: procedure for configuring the fieldbus module with the SOPAS ET configuration software of the ID sensor supporting proxy mode or through the bus master with the help of modules from the GSD file
- Gateway mode: Connection and configuration of the hand-held scanner by means of controlled scanning of corresponding bar codes and/or configuration of the Lector®64x/65x with the SOPAS ET configuration software

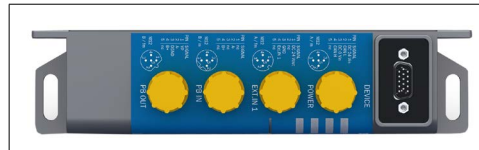
Information about PROFIBUS-related configuration is also available via the online help function of the SOPAS ET configuration software for the relevant proxy ID sensor.

The CDF600-21xx Fieldbus Module Technical Information is available as a PDF on the fieldbus module product site online: [www.mysick.com/en/cdf600-2](http://www.mysick.com/en/cdf600-2).

PDF visualizing software such as Acrobat® Reader® is required to view the documents on a PC (<http://get.adobe.com/reader>).

## Safety information

- This chapter is dedicated to the safety of commissioning personnel and personnel operating the system in which the fieldbus module is integrated.
- Read these operating instructions carefully before commissioning the fieldbus module in order to familiarize yourself with the device and its physical controls and status indicators. The operating instructions are a component part of the device and must be kept in the immediate vicinity of the fieldbus module where they can be accessed at all times.
- Protect the fieldbus module against moisture and dust if the side cover of the USB interface and the rotary encoding switch is open. In this state, the module does not conform to a specified IP enclosure rating. To safeguard IP 65 (CDF600-2100) or IP20 (CDF600-2103) enclosure rating in active operation, the following requirements must be met:
  - The side panel over the USB interface and the rotary encoding switches must be screwed tight to the device
  - Connections that are not being used must be fitted with yellow protective caps and plugs which must be screwed tight (as on delivery)
  - The seals on the D-SUB female connectors (DEVICE connection and type-specific PROFIBUS connection) must be present; the screws for the D-SUB plug connectors must be fastened tight



Protective caps and plugs in delivery condition, shown here on the CDF600-2100

- Opening the fieldbus module housing that is screwed tight with the cover will invalidate any warranty claims against SICK AG. The remaining warranty conditions are specified in the general terms and conditions of SICK AG, which you will find e.g. on the delivery note supplied with the fieldbus module.
- Data integrity: SICK AG uses standardized data interfaces, such as standard IP technology, in its products. The emphasis here is on the availability of products and their features. SICK AG always assumes that the integrity and confidentiality of the data and rights affected by the use of these products will be ensured by the customer. In all cases, appropriate security measures, such as network separation, firewalls, virus protection, and patch management, must be taken by the customer on the basis of the situation in question.

## Commissioning and configuration

### Scope of delivery

- Fieldbus module of the ordered type, equipped with protective caps and plugs on the M12 connections Without connecting cables.

- Printed operating instructions in German (no. 8015334) and English (no. 8015335) Possibly available in other languages as a PDF on the product site of the fieldbus module on the web: [www.mysick.com/en/cdf600-2](http://www.mysick.com/en/cdf600-2).
- Possible optionally ordered accessories (cables, trigger sensors, etc.)
- The required GSD files for the ID sensors are also available on the product site of the fieldbus module.

### Operating principle of the fieldbus module (overview)

On PROFIBUS, the fieldbus module functions as a slave. It can be operated by any PROFIBUS master that conforms to the relevant standards (e.g. PLC).

The fieldbus module operates as a proxy for a SICK identification sensor from the IDpro device families. For the bus master, only the ID sensor is visible. Alternatively, the fieldbus module can operate as a gateway for a sensor that is only gateway-compatible if it is outputting data and has a serial data interface (RS-232). In this case, for the bus master, only the fieldbus module is visible.

As a proxy, the fieldbus module loads the device description for its parameters from the ID sensor on system startup. The ID sensor must be capable of supporting the fieldbus module when it is functioning as a proxy. Communication takes place via the serial AUX interface of the ID sensor (RS-232). The fieldbus module also saves the parameter set of the ID sensor that supports proxy mode to its internal parameter memory; this makes the replacement process easier if the ID sensor should fail.

As a gateway for ID sensors that support gateway mode, the fieldbus module transmits data telegrams framed with STX and ETX. These telegrams are received at its serial data interface (can be set at 57.6 kBd or 9.6 kBd).

The ID sensor that supports proxy mode receives external object trigger signals via the PROFIBUS or locally e.g., from a trigger sensor via the switching input of the fieldbus module.

Four LEDs indicate statuses of the fieldbus module: Connection status, status of the switching input and diagnosed system and bus errors.

A smaller SICK-specific CAN sensor network of SICK ID sensors with CAN interface can be set up as a subnetwork using the CAN bus. In this case, the ID sensor connected to the PROFIBUS performs a coordinating function, e.g., as master. Wiring of the CAN bus is carried out via the POWER connection.

## Step 1: Mounting

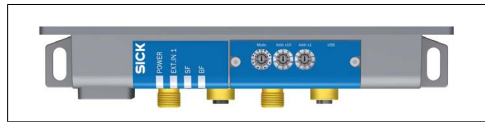
### Equipment required

- 2 cylinder head screws (M6) for mounting; screw length dependent upon fixing base (wall thickness). Max. tightening torque 5 Nm + 1.

### Mounting requirements

- The permissible ambient conditions for the operation of the fieldbus module must be observed (e.g., temperature, ground potential → see “Technical data”, page 6 and “Step 2: Electrical installation”, page 2).

- Shock and vibration-free mounting.
- The device must only be mounted by inserting two screws into the unpainted elongated drill holes.
- Stable mounting equipment with sufficient load-bearing capacity and appropriate dimensions for the fieldbus module. The module has been optimized for mounting on standard frame profiles. Weight depends on model, max. 385 g (not including cables).
- Dimension drawing → see "Device overview", page 4.
- Required switching space across the electrical connections approx. 300 mm, access to USB interface/rotary encoding switches: approx. 400 mm.
- Clear view of the transparent panels of the rotary encoding switches and optical indications
- In order to achieve electromagnetic-compatible mounting, a continuous metallic connection must be established with the housing.



1. Use the two elongated drill holes to mount the fieldbus module in the lugs of the cover or the bar on the side. Ideally, the fieldbus module should be mounted in a horizontal or vertical position, so that the writing on the rotary encoding switches reads correctly when viewed by the user.
2. Mount the ID sensor and align it with the codes/transponders to be identified as indicated in the corresponding operating instructions. The operating instructions of the relevant ID sensor are available on the corresponding product page online, e.g., for the CLV62x bar code scanner at [www.mysick.com/en/clv62x](http://www.mysick.com/en/clv62x).

## Step 2: Electrical installation

- Only skilled electricians with appropriate training and qualifications are permitted to perform electrical installation.
- Standard safety requirements must be met when working in electrical systems!
- Electrical connections between the fieldbus module and other devices may only be made or separated when there is no power to the system. Otherwise, the devices may be damaged.
- Where connecting cables with one end open are concerned, make sure that bare wire ends are not touching (risk of short-circuit when the supply voltage is switched on). Wires must be appropriately insulated from each other.
- Wire cross sections of the supply cable from the customer's power system for the fieldbus module should be designed and protected in accordance with the applicable standards. Insert a separate, external fuse (max. 3 A slow-blow) at the start of the supply cable to protect the fieldbus module (and the ID sensor connected to it).
- All electric circuits to be connected to the fieldbus module must be designed as SELV circuits (SELV = Safety Extra Low Voltage).

## ⚠ DANGER

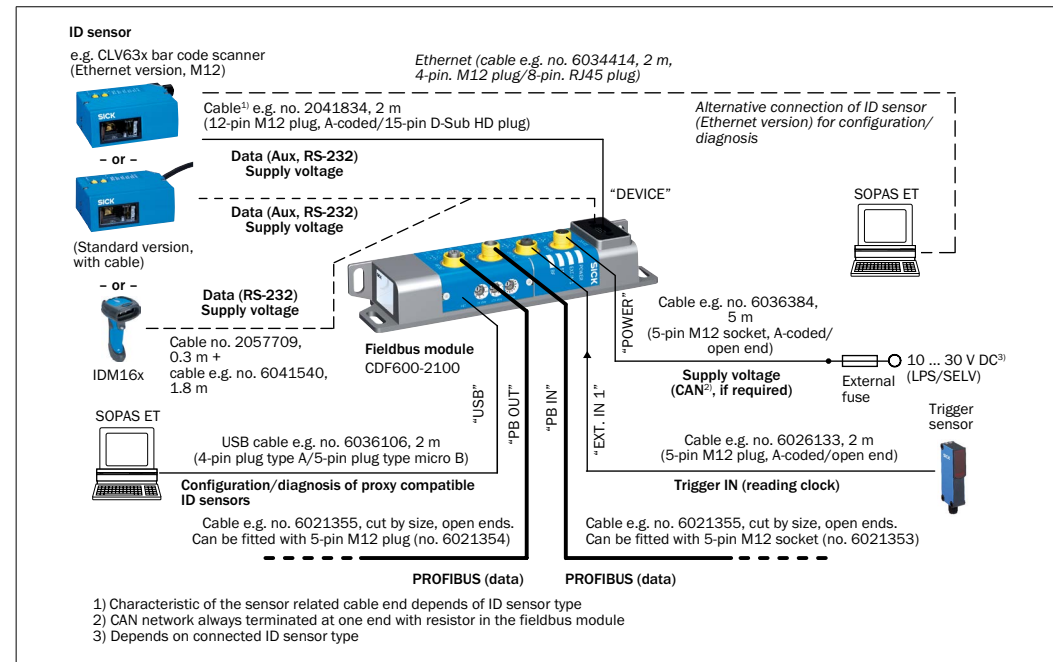
### Risk of injury and damage caused by electrical current!

The CDF600-21xx fieldbus module is designed for operation in a system with proficient grounding of all connected devices and mounting surfaces to the same ground potential. Incorrect grounding of the fieldbus module can result in equipotential bonding currents between the fieldbus module and other grounded devices in the system. This can lead to hazardous voltages being applied to metal housing, cause devices to malfunction or sustain irreparable damage and damage the cable shield as a result of heat rise, causing cables to set alight.

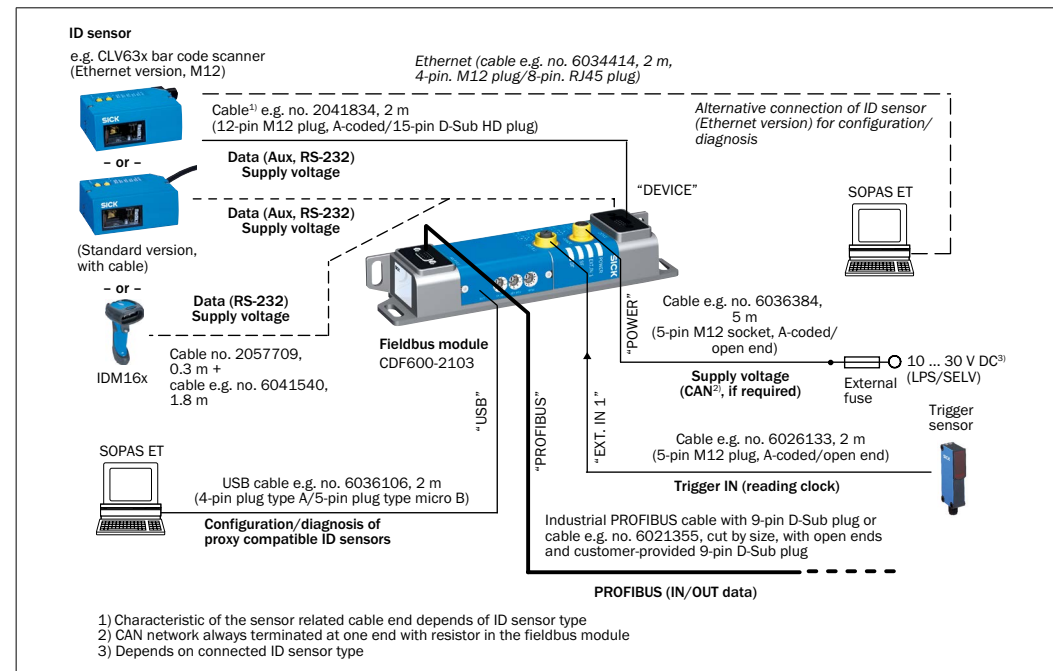
- Only skilled electricians should be permitted to carry out work on the electrical system.
- Ensure that the ground potential is the same at all grounding points.
- If the cable insulation is damaged, disconnect the power supply immediately and have the damage repaired.

See the [CDF600-21xx Fieldbus Module Technical Information](#) (no. 8015337), available on the product site online ([www.mysick.com/en/cdf600-2](http://www.mysick.com/en/cdf600-2)) for suggested courses of action for eliminating hazards.

1. In order to install the desired application, wire the fieldbus module as appropriate for the ID sensor type with the help of the optional, pre-assembled cables as shown in the block diagrams. The cables are only included as accessories in the delivery of the module if they are ordered separately. The part numbers for the required M12 adapter cable on D-SUB-HD (connection DEVICE) is type-dependent for the ID sensor with Ethernet interface. It can be found in the operating instructions or product information on the relevant product site online.
2. Build the PROFIBUS network according to the PNO recommendations. Terminate the main line of the network with termination resistors on both sides. If the fieldbus module is the first or last participant in the main line, then it must be terminated. In order to do this on the CDF600-2100 attach terminator no. 6021156 (M12 male connector) to the "PB OUT" connection. In the case of CDF600-2103 connect a 9-pin D-Sub plug connector with termination resistor on the "PROFIBUS" connection.
  - Cable types/lengths:
    - The cable used for the incoming supply cable must be a screened cable, length of cable < 30 m. Take appropriate measures to isolate unused open wire ends (CAN bus) for the "POWER" connection (risk of short-circuit).
    - Screened connection cable between fieldbus module and ID sensor < 5 m, as a RS-232 interface to the data transmission is used between fieldbus module and ID sensor.
3. Prepare and protect the supply voltage for the fieldbus module. The level of the supply voltage for the unit consisting of fieldbus module and ID sensor is dependent on the connected sensor, see → "CDF600-21xx-relevant specifications of ID sensors", page 3.



Block diagram: CDF600-2100 fieldbus module (PROFIBUS connection: M12) connected to bar code scanner or hand-held scanner (example)



Block diagram: CDF600-2103 fieldbus module (PROFIBUS connection: D-Sub-HD) connected to bar code scanner or hand-held scanner (example)

The fieldbus module offers a supply voltage range of DC 10 V to 30 V. The supply voltage is also applied to the connected ID sensor.

The power supply or the power supply unit must meet the requirements relating to SELV according to the currently valid EN 60950-1 standard. In addition, the supply voltage must be designed according to the requirements for LPS (Limited Power Source) as per the EN 60950-1 standard or must comply with NEC (National Electrical Code) Class 2.

**Power output of the power source:**

The fieldbus module itself consumes < 5 W power (without ID sensor and trigger sensor).

The additional power consumed by the connected ID sensor and trigger sensor (if there is one) varies by type.

The output of the power supply unit must be dimensioned based on the total consumption of all loads.

**NOTE**


**Risk of damage caused by electrical current!**

The supply voltage at the DEVICE connection is not short-circuit-protected. If the POWER LED no longer lights up following a short circuit between pin 1 and pin 5, the device must be sent to SICK Service so that its functionality can be re-established.

4. Do not switch on the supply voltage yet.

**CDF600-21xx-relevant specifications of ID sensors**

ID sensor	Supply voltage	Power consumption <sup>1)</sup>	Firmware version
ID sensors that support proxy mode			
CLV61x FIELD-BUS	DC 10 V ... 30 V	2.8 W, typical	V. 1.00
CLV62x	DC 10 V ... 30 V	Max. 4.5 W	V. 5.26
CLV63x line/raster	DC 18 V ... 30 V	5 W typical	
CLV63x Line with SwSP	DC 18 V ... 30 V	6 W typical	
CLV64x line/raster	DC 18 V ... 30 V	5 W typical	
CLV64x Line with SwSP	DC 18 V ... 30 V	6.5 W typical	
CLV65x line	DC 18 V ... 30 V	8.5 W typical	
CLV65x Line with SwSP	DC 18 V ... 30 V	Typical 9.5 W	
CLV63x ... 65x, for heating in addition <sup>2)</sup>	DC 24 V ±10%	Electronics type-specific, see above, heating max 30 W	
CLV69x <sup>3)</sup> line	DC 18 V ... 30 V	Max. 15 W	V. 1.4.0.10
CLV69x <sup>3)</sup> Line with SwSP	DC 18 V ... 30 V	Max. 17 W	V. 1.4.0.10
Lector®62x	DC 10 V ... 30 V	Typical 3 W	V. 1.50
RFH62x	DC 10 V ... 30 V	Max. 5 W	V. 1.32

ID sensor	Supply voltage	Power consumption <sup>1)</sup>	Firmware version
RFH63x	DC 10 V ... 30 V	< 6 W, typical	V. 1.80
RFU62x	DC 10 V ... 30 V <sup>4)</sup>	< 8 W <sup>5)</sup> , typical	V. 1.40
RFU63x	DC 18 V ... 30 V	< 20 W, typical	V. 1.30
ID sensors that support gateway mode			
Lector®64x/65x	DC 24 V ± 20%	20 W typical	–
IDM160	Transducer DC 24 V/5 V	1.15 W typical	–
IDM161	Transducer DC 24 V/5 V	0.9 W typical	–
IDM260	Transducer DC 24 V/5 V	1.68 W typical	–
IDM261	Transducer DC 24 V/5 V	1.65 W typical	–
1) Switching output without load. Power consumption of the fieldbus module additionally < 5 W.			
2) Connection plan see  CDF600-21xx Fieldbus Module Technical Information (no. 8015337)			
3) Without configuration option via configuration module in the GSD file.			
4) DC 20 V to 30 V when using the RFU62x-101xx in ambient temperatures of –20 °C to –40 °C.			
5) Additionally max. 12 W from –20 °C to –40 °C. Line w. OM = line scanner with oscillating mirror			

Other ID sensors on request.

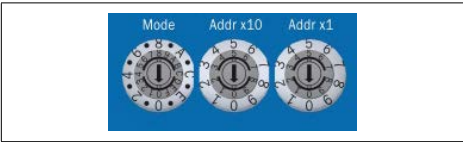
**Step 3: Configuration**

**a. Overview of the configuration process**

- Set operating mode and bus address of the fieldbus module with the three "Mode" and "Addr." rotary encoding switches.
- Integrate the fieldbus module in the fieldbus master.
- Configure data communication in the fieldbus.
- Only ID sensor that supports proxy mode:  
Use the SOPAS ET configuration software to set the remaining functions of the fieldbus module.

**b. Setting the operating mode and bus address in the fieldbus module**

- Open the side cover by unscrewing the two screws (10) (→ see "Device overview", page 4). You can now access the rotary encoding switches.



- Set the operating mode with the "Mode" switch.  
**Position 0 or 1:**  
Fieldbus module operates as a proxy for an ID sensor (e.g., bar code scanners from the CLV6xx product family).  
**Position 2 to 5:**  
Fieldbus module operates as a gateway for an ID sensor that supports gateway mode (e.g., hand-held scanner).  
Data transmission rate according to switch setting. List of modes that can be configured → see "Mode" rotary encoding switch (hexadecimal-coded)", page 4.

- Use the "Addr x10" and "Addr x1" rotary encoding switches to set a unique bus address for the fieldbus module (a bus address that only appears once in the PROFIBUS network).  
Overview of addresses that can be configured → see "Addr x10"/"Addr x1" rotary encoding switches (decimal-coded)", page 4.

The new settings are applied on the fieldbus module when the supply voltage is switched on. Changes to the settings of the rotary encoding switches after the power supply has been switched on are not applied in data communication initially; however, the "POWER" LED flashes cyclically 10 times.

To apply a change to the operating mode/bus address to the fieldbus module, restart both the fieldbus module and the ID sensor. In order to do this, switch off the supply voltage for the fieldbus module and switch it on again.

After the restart, the selected address is adopted by the ID sensor under SOPAS ET for display under SLAVE ADDRESS on the PROFIBUS/DEVICENET tab.

**c. Configuring the fieldbus module (resume here for ID sensor that supports proxy mode)**

The SOPAS ET configuration software for SICK identification sensors is used as standard for the commissioning and further configuration of the fieldbus module with the ID sensor that supports proxy mode connected to it.


**The configuration of the fieldbus module is integrated in the menu of the respective ID sensor supporting proxy mode.**

**Installing and starting the configuration software**


- Download and install the latest version of the SOPAS ET configuration software, as well as current device description files (\*.sdd), from the online product page for the software:  
[www.mysick.com/en/SOPAS\\_ET](http://www.mysick.com/en/SOPAS_ET)  
by following the instructions provided there.

**Connect the PC to the fieldbus module and switch on devices**

- Connect the PC (switched-off) as follows:
  - Serial version of the ID sensor, which supports proxy mode, with fixed connecting cable (serial data interfaces only):  
Use a data cable (e.g., no. 6036106, 2 m) to connect the USB interface of the fieldbus module (9) to the PC interface (USB).
  - Ethernet version of the ID sensor supporting proxy mode:  
Use a data cable (e.g., no. 6034414, 2 m) to connect the Ethernet interface of the ID sensor to the Ethernet network of the PC.
- On the user side, switch on the supply voltage DC 10 V to 30 V chosen according to the table on the left for the fieldbus module and the connected ID sensor.  
Following initialization of the fieldbus module and while attempting to establish communication with the ID sensor, the green "POWER" LED flashes. Once communication has been established and the fieldbus module is ready for operation, the "POWER" LED illuminates continually.  
Meaning of LEDs → see "Optical status indicators", page 4.

- Switch on PC and start configuration software via the "SOPAS" option. Path: Start > Programs > SICK > SOPAS ET Engineering Tool > SOPAS.
- Start communication with the ID sensor with SOPAS ET as described in the operating instructions for the connected ID sensor that supports proxy mode. In order to do this, select the required communication interface in the connection wizard.  
The remaining steps in the process of configuring the connected ID sensor are described in the  CDF600-21xx Fieldbus Module Technical Information (no. 8015337).

**d. Integrating the ID sensor in the field bus master and configuring data communication on the fieldbus**

This section provides a brief overview of the general procedure. This is covered in detail in relation to the ID sensor in the  CDF600-21xx Fieldbus Module Technical Information (no. 8015337).

**Important!**

The required GSD files are available on the on the product site of the fieldbus module online: [www.mysick.com/en/cdf600-2](http://www.mysick.com/en/cdf600-2).


**ID sensor that supports proxy mode:**

- Integrate the ID sensor as a new device (slave) in the fieldbus master (e.g., PLC). For this purpose, transfer the SICK sensor-specific GSD file for the corresponding ID sensor to the device description database of the fieldbus master.
- Set the desired lengths of the fieldbus input and output data appropriately based on the selected communication mode of the ID sensor and assign the corresponding PDOs (Process Data Objects) in the fieldbus master for data exchange with the fieldbus module.
- Specify the object trigger source and the output format of the ID sensor for the fieldbus using SOPAS ET.

**ID sensor that supports gateway mode:**

- Integrate the fieldbus module as a new device (slave) in the fieldbus master (e.g., PLC).  
For this purpose, transfer the SICK-specific GSD file for the fieldbus module (SICK0EOE.GSD) to the device description database of the fieldbus master.

**IDM1xx and IDM2xx hand-held scanner:**

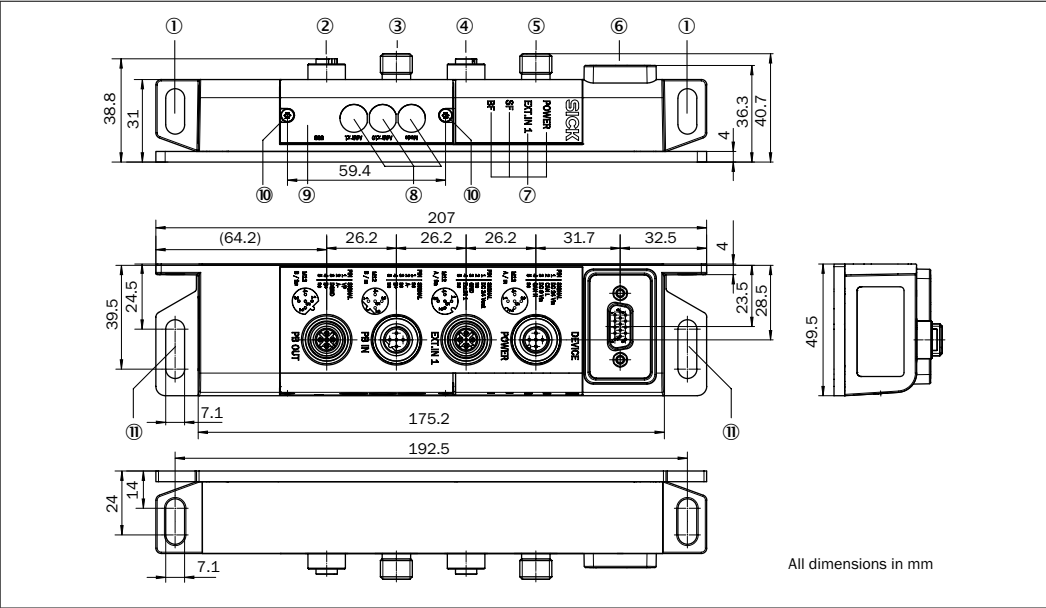
Use the configuration codes to configure the hand-held scanner for the fieldbus module. For more information see  CDF600-21xx Fieldbus Module Technical Information (no. 8015337).

- Any ID sensor with RS-232 interface:**  
Connect RS-232 interface to pin 2, 3, 5 of the fieldbus module (DEVICE connection).  
Set data string framing to STX and ETX, set data format to 8 data bits, no parity, 1 stop bit. Set a data transmission rate of 9.6 or 57.6 kBd in the sensor in accordance with the selected position of the "Mode" rotary encoding switch.

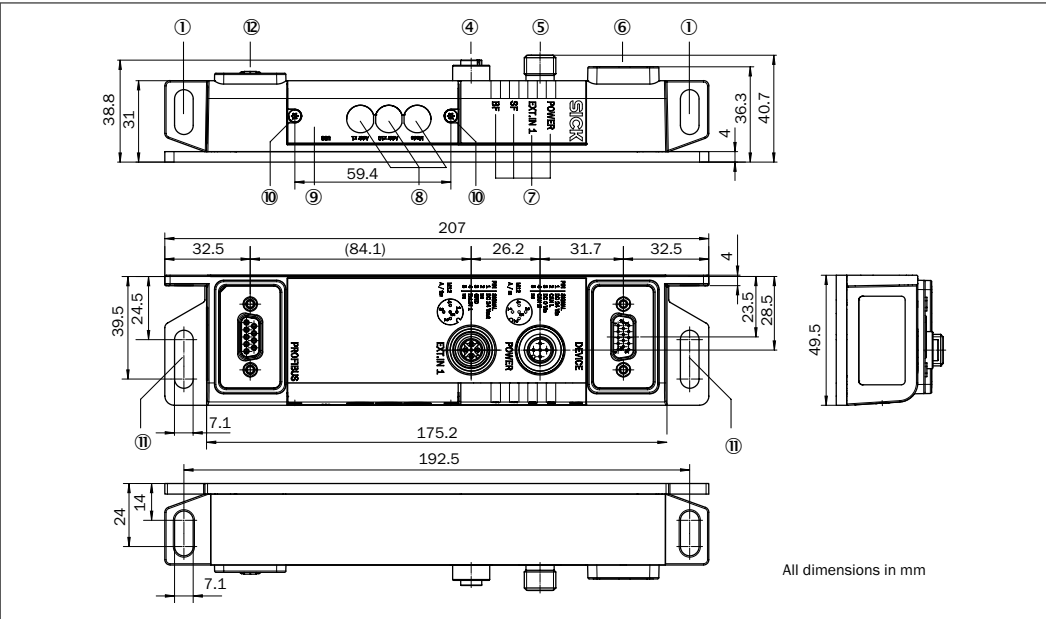


Description of the device

Device overview



CDF600-2100: View and dimensions



CDF600-2103: View and dimensions

Legend for device overview

- ① Elongated drill hole (2 x), length 10 mm, unpainted, for mounting with M6 screw
- ② "PB OUT" connection, 5-pin M12 female connector, B-coded (CDF600-2100 only)
- ③ "PB IN" connection, 5-pin M12 male connector, B-coded (CDF600-2100 only)
- ④ "EXT. IN 1" connection, 5-pin M12 female connector, A-coded
- ⑤ "POWER" connection, 5-pin M12 male connector, A-coded
- ⑥ "DEVICE" connection, 15-pin D-SUB HD female connector with seal
- ⑦ LED (4 x), status indicator (POWER, EXT. IN 1, SF, BF)
- ⑧ Rotary encoding switches (3 x), for operating mode and bus address, behind screw-mounted cover
- ⑨ "USB" connection, 5-pin micro B female connector, for configuration/diagnostics, behind screw-mounted cover
- ⑩ Screw, captive (2 x), for cover
- ⑪ Elongated drill hole (2 x), length 15 mm, unpainted, for alternative mounting with M6 screw
- ⑫ "PROFIBUS" connection, 9-pin D-SUB female connector with seal (CDF600-2103 only)

Configuration switches

"Mode" rotary encoding switch (hexadecimal-coded)

Operating mode (and communication mode) for ID sensor to be connected and bus address starting at 100.

Position	Operating mode/Functions	Address range
<b>Proxy mode for ID sensor that supports proxy mode</b>		
0	Operation with ID sensor that supports proxy mode. CDF600 communication mode (factory default)	00 ... 99
1	Parameter cloning for ID sensor. Configuration with parameterization modules of GSD file possible via bus master.	100 ... 125 <sup>1)</sup>
<b>Gateway mode for ID sensor that supports gateway mode</b>		
2	Operation with ID sensor that supports gateway mode. Fieldbus module operates as gateway. CMF400 communication mode. Data transmission rate between ID sensor and fieldbus module: 57.6 kBd.	00 ... 99
3		100 ... 125 <sup>1)</sup>
4	As pos. 2 and 3, but data transmission rate between ID sensor and fieldbus module: 9.6 kBd.	00 ... 99
5		100 ... 125 <sup>1)</sup>
<b>Further functions</b>		
6 ... D	Reserved for future use	-
E	Operation for firmware update of fieldbus module <sup>2)</sup> . No communication with PROFIBUS.	-
F	Transparent operation <sup>3)</sup> of the fieldbus module for firmware update of ID sensor. No communication with PROFIBUS.	-

- 1) In this mode, the address range 126 ... 199 is not defined.
- 2) "POWER" LED flashes cyclically 14 times
- 3) Data transmission rate 57.6 kBd. "POWER" LED flashes cyclically 15 times

"Addr x10"/"Addr x1" rotary encoding switches (decimal-coded)

Addr x10 switch		Addr x1 switch	
Position	Value	Position	Value
0	0	0	0
1	10	1	1
...	...	...	...
9	90	9	9

Important!

For an address of 100 or higher, the "Mode" rotary encoding switch must also be used.

Examples for mode/bus address setting:

- 0 1 7, gives:  
ID sensor that supports proxy mode with address 17
- 1 2 3, gives:  
ID sensor that supports proxy mode with address 123
- 2 5 4, gives:  
ID sensor that supports gateway mode with address 54 and data transmission rate: 57.6 kBd

Factory-set defaults for rotary encoding switches:

"Mode" rotary switch:	0
"Addr x10" rotary switch:	0
"Addr x1" rotary switch:	3

Optical status indicators

Display	LED	Status	Status
POWER	-	OFF	Fieldbus module without supply voltage
POWER		Green	Sequence: 1 x: Operating mode 0 or 1 only (proxy): Following startup: The fieldbus module is searching for the ID sensor that supports proxy mode 3 x: PROFIBUS: Parameterization error on the fieldbus master (e.g., incorrect ID), no data exchange 4 x: PROFIBUS: Error on fieldbus master affecting configuration with modules, no data exchange 5 x: PROFIBUS: General error 10 x: Position of the "Mode" rotary encoding switch has been changed during operation. This has no influence on active operation. After a restart the fieldbus module then works in the operating mode represented by the new position of the rotary encoding switch 11 x: Position of the "Addr x10" or "Addr x1" rotary encoding switch has been changed during operation (generates a new bus address for the fieldbus module on restart) or bus address >125 selected 14 x: Firmware update of the fieldbus module (operating mode E). No communication with PROFIBUS.

Display	LED	Status	Status
<b>POWER</b> (continued)		Green	Flashes cyclically
		Green	ON
<b>EXT. IN1</b>	–	OFF	No power supply to external input 1 <sup>*)</sup>
		Yellow	Power supply to external input 1 <sup>*)</sup>
<b>SF</b>	–	OFF	Fieldbus module without internal error
		Red	Operating mode 0 or 1 (proxy): Following startup the fieldbus module searches for the ID sensor that supports proxy mode or bus address > 125 selected
<b>BF</b>	–	OFF	Data exchange between fieldbus module (slave) and fieldbus master via PROFIBUS possible.
		Red	ON No connection between fieldbus module (slave) and fieldbus master. Possible causes: – No electrical connection between fieldbus module and PROFIBUS. – Fieldbus master not available or switched off – Bus address of the fieldbus module (e.g., 20) does not match the bus address in the PLC program (e.g., 22) (bus address in permissible range ≤ 125) – wrong GSD file used – wrong GSD module selected
		Red	Flashes cyclically Frequency 0.5 Hz Possible causes: – Parameterization error on fieldbus master (e.g., incorrect ID), no data exchange – Error on fieldbus master affecting configuration with modules, no data exchange

SF = system failure, BF = bus failure  
\*) Regardless of the logic assigned to the input via the SOPAS ET configuration software of the ID sensor

● = illuminated; = flashes

Overview of pin assignments and wire colors (cables)

1. POWER connection (supply voltage)

Cable no. 6036384 (5 m)

M12 - A / female connector      Illustration may differ

Pin	Signal	Function	Wire color
1	DC 24 V <sub>in</sub>	Supply voltage IN (DC 10 V ... 30 V)	Brown
2	CAN L	CAN bus <sup>*)</sup>	White
3	DC 0 V <sub>in</sub>	Supply voltage ground	Blue
4	CAN H	CAN bus <sup>*)</sup>	Black
5	N.c.	–	Gray
–	–	Shield	Metal

<sup>\*)</sup> CAN-Bus only with support from ID sensor with CAN interface.

Pin assignment of the 5-pin M12 POWER female connector (A-coded, straight) of the cable and wire colors of the open cable end.

Cable no. 6049456<sup>\*)</sup>, SPEEDCON (3 m)

M12 - A / female connector      Illustration may differ

Pin	Signal	Function	Wire color
1	DC 24 V <sub>out</sub>	Supply voltage IN (DC 10 V ... 30 V)	Brown
2	CAN L	CAN bus <sup>*)</sup>	White
3	DC 0 V <sub>in</sub>	Supply voltage ground	Blue
4	CAN H	CAN bus <sup>*)</sup>	Black
5	N.c.	–	Gray
–	–	Shield	Metal

<sup>\*)</sup> CAN-Bus only with support from ID sensor with CAN interface.

Pin assignment of the 5-pin M12 POWER female connector (A-coded, 90° angle) of the cable and wire colors of the open cable end.

1) Other lengths: no. 6049455 (1.5 m), no. 6049457 (5 m), no. 6049458 (10 m)

2. EXTERNAL IN 1 connection (digital switching input)

Cable no. 6026133 (2 m)

M12 - A / male connector      Illustration may differ

Pin	Signal	Function	Wire color
1	DC 24 V <sub>out</sub>	Supply voltage OUT (DC 10 V ... 30 V), max, 400 mA	Brown
2	N.c.	–	White
3	GND	Supply voltage ground	Blue
4	EXT. IN 1	External input 1	Black
5	N.c.	–	Gray

Pin assignment of the 5-pin M12 male connector EXT. IN1 (A-coded, straight) of the cable and wire colors of the open cable end.

3. CDF600-2100: PB IN (PROFIBUS IN) connection

M12 - B / m

Pin	Signal	Function	Wire color PROFIBUS cable
1	N.c.	–	
2	A–	Receive/send data N	Green
3	N.c.	–	
4	B+	Receive/send data P	Red
5	N.c.	–	

Pin assignment of the 5-pin M12 male connector PB IN (B-coded). Marked on the device with M12 B / m (m = male).

4. CDF600-2100: PB OUT (PROFIBUS OUT) connection

M12 - B / fm

Pin	Signal	Function	Wire color PROFIBUS cable
1	VP	Supply voltage (ISO +5 V) for bus termination	
2	A–	Receive/send data N	Green
3	DGND	Data reference potential (ISO GND)	
4	B+	Receive/send data P	Red
5	N.c.	–	

Pin assignment of the 5-pin M12 female connector PB OUT (B-coded). Marked on the device with M12 B / fm (fm = female).

5. CDF600-2103: PROFIBUS (PROFIBUS IN/OUT) connection

Pin	Signal	Function	Wire color PROFIBUS cable
1	N.c.	–	
2	N.c.	–	
3	B+	Receive/send data P	Red
4	N.c.	–	
5	DGND	Data reference potential (ISO GND)	
6	VP	Supply voltage (ISO +5 V) for bus termination	
7	N.c.	–	
8	A–	Receive/send data N	Green
9	N.c.	–	

Pin assignment of the 9-pin D-SUB female connector PROFIBUS

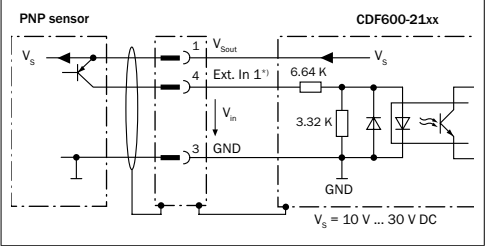
6. DEVICE connection

Pin	Signal	Function
1	DC 24 V <sub>out</sub>	Supply voltage OUT (DC 10 V ... 30 V), max, 2 A
2	TxD (AUX)	RS-232, sender
3	RxD (AUX)	RS-232, receiver
5	GND	Supply voltage ground
4, 6 ... 9	N.c.	–
10	CAN H	CAN bus <sup>*)</sup>
11	CAN L	CAN bus <sup>*)</sup>
12 ... 15	N.c.	–

<sup>\*)</sup> CAN-Bus only with support from ID sensor with CAN interface

Pin assignment of the 15-pin D-SUB HD female connector DEVICE

Wiring of the "EXT. IN 1" switching input



Example wiring of the EXT. IN 1 switching input

Features	Description
Switching behavior	Power at the input starts the assigned function in the ID sensor that supports proxy mode (default: level active high, debounce 10 ms)
Features	Reverse polarity protected. Can be wired, e.g., to current sourcing output of a trigger sensor
Electrical values	Low:  V <sub>in</sub>   ≤ 2 V;  I <sub>lin</sub>   ≤ 0.3 mA High: 6 V ≤  V <sub>in</sub>   ≤ 32 V; 0.7 mA ≤  I <sub>lin</sub>   ≤ 5 mA
LED "EXT. IN 1"	Low: OFF    High: ON


Specifications of the EXT. IN 1 switching input

Parameter Cloning (in the proxy mode)

In the same way as the optional CMC600 parameter memory module (which can be installed in the CDB and CDM connection modules), the CDF600-21xx fieldbus module provides an external parameter memory for the ID sensor. When the parameter values in the connected ID sensor are permanently saved (proxy mode 0 or 1), the fieldbus module also stores a copy of this parameter set in its parameter memory. This makes it easier to exchange the ID sensor in the event of device failure because the new device of the same type automatically loads the parameter set from the parameter memory of the fieldbus module.

This means that manual configuration is not required. In the event of failure of the fieldbus module, the ID sensor which supports proxy mode automatically copies its parameter set

Technical data

Model name	CDF600-2100 (no. 1058965)		CDF600-2103 (no. 1058966)
Function	Proxy or gateway for PROFIBUS-DP networks		
Supported SICK identification sensors	ID sensors that support proxy mode: CLV61x FIELDBUS, CLV62x ... 65x, CLV69x bar code scanners Lector®620 image-based code reader RFH620 and RFH630 RFID read/write devices (both HF) RFU62x and RFU63x (both UHF) ID sensors that support gateway mode: Lector®64x and Lector®65x image-based code readers IDM1xx and IDM2xx hand-held scanner		
Station type	Slave		
Supported communication modes	Dependent upon ID sensor type, see  21xx Fieldbus Module Technical Information (no. 8015337) In operating mode 0 or 1 (Proxy): CDF600 mode with handshake, CDF600 mode without handshake CMF400 mode with handshake, CMF400 mode without handshake BMV mode In operating mode 2 ... 4 (gateway): CMF400 mode with handshake		
PROFIBUS data interface	Serial (RS-485) according to EN 50170 (V2), electrically isolated from the supply voltage of the fieldbus module, 9.6 kBit/s... 12 MBit/s(automatic detection) Telegram length 8 ... 240 bytes, with blocking max. 4,000 bytes		
AUX data interface (DEVICE connection)	Serial (RS-232), 57.6 kBd or 9.6 kBd, for data communication with the ID sensor		
CAN bus data interface (POWER connection)	Connection of an ID sensor via the fieldbus module as a last participant on a CAN bus. 10 kBit/s .... 1 MBit/s, CAN sensor network. CAN network in the fieldbus module with termination resistor already connected on one side		
USB data interface	USB 2.0 for configuration and diagnostics		
Digital switching inputs	1 (opto-decoupled), V <sub>in</sub> = max. 32 V, can be wired, e.g., with current sourcing output of a trigger sensor		
Digital switching outputs	-		
Optical indicators	4 x LED		
Parameter cloning	Integrated (configuration data of the connected ID sensor, in proxy mode)		
Electrical connections	1 x 15-pin. D-SUB HD fem. connector (DEVICE), with seal 1 x 5-pin M12 male connector (POWER), A-coded 1 x 5-pin. M12 female connector (EXT. IN 1), A-coded 1 x 5-pin M12 male connector (PB IN), B-coded 1 x 5-pin M12 female connector (PB OUT), B-coded 1 x micro USB female connector, type B (covered) <sup>1)</sup>	1 x 15-pin. D-SUB HD fem. connector (DEVICE), with seal 1 x 5-pin M12 male connector (POWER), A-coded 1 x 5-pin. M12 female connector (EXT. In 1), A-coded 1 x 9-pin. D-SUB female connector (PROFIBUS), with seal 1 x micro USB female connector, type B (covered) <sup>1)</sup>	
Supply voltage IN	DC 10 V ... 30 V, reverse polarity protected. Voltage range might be restricted by connected ID sensor → see “CDF600-21xx-relevant specifications of ID sensors”, page 3. Power supply unit: SELV acc. to EN 60950-1:2006-04 and LPS acc. to EN 60950-1:2006-04 or Class 2 (UL 1310) Protection of the supply cable with max. 3 A		
Supply voltage OUT (DEVICE)	As supply voltage IN, not short-circuit-protected.		
Power consumption	< 5 W (no ID sensor connected, switching input "EXT. IN 1" not connected)		
Fieldbus module power consumption	Max. 250 mA		
Current flow to ID sensor	2 A, max. (internal fuse, cannot be accessed)		
Housing/housing color	Cast aluminum, metal colors, light-blue labeling film (RAL 5012)		
Safety	According to EN 60950-1:2006-04 + A11:2009-03 + A1:2010-03		
Enclosure rating	IP 65, acc. to EN 60529:1991-10 + A1:2000-02 <sup>2)</sup>	IP 20, acc. to EN 60529:1991-10 + A1:2000-02 <sup>2)</sup>	
Electrical protection class	III, EN 60950-1:2006-04 + A11:2009-03 + A1:2010-03		
Dimensions	207 mm x 49.5 mm x 40.7 mm (without connectors plugged in)		
Weight	385 g	375 g	
Electromagnetic compatibility (EMC)	Radiated emission: acc. to EN 61000-6-3:2007-01 + A1:2011-03 Shock resistance: acc. to EN 61000-6-2:2005-08		
Vibration resistance/Shock resistance	Acc. to EN 60068-2-6:2008-02 / acc. to EN 60068-2-27:2009-05		
Ambient temperature	Operation: -35 °C ... +50 °C / Storage: -35 °C ... +70 °C		
Permissible relative humidity	Max 90 %, non-condensing		
Mark of conformity	CE, UL 60950-1 (E244281)		

1) For configuration and diagnostics only

2) In the following conditions: When using a SICK scanner standard connection cable for the ID sensor. M12 plug connectors of connected lines are clamped and unused connections are equipped with yellow, secured protective caps or plugs.

For detailed technical specifications, see the *Online data sheet* on the product site on the web ([www.mysick.com/en/cdf600-2](http://www.mysick.com/en/cdf600-2)).

into the empty parameter memory of the replaced, connected fieldbus module of the same type automatically after initialization.

Maintenance and care

With the exception of cleaning the transparent panels covering the rotary encoding switches and status indicators, the CDF600-21xx fieldbus module is maintenance-free in operation.

- In contaminated environments, the side cover with the circular transparent panels covering the rotary encoding switches and the transparent panels covering the status indicators should be cleaned from time to time. Use a soft cloth dipped in a mild cleaning agent for this purpose.

Transport and storage

Transport and store the fieldbus module in the original packaging, with protective plugs and protective caps completely screwed in. Do not store outdoors. To ensure that any residual moisture present can escape, do not store the device in airtight containers. Do not expose to aggressive media (e.g. solvents).  
Storage conditions: dry, dust-free, no direct sunlight, minimal vibrations, storage temperature –35 ... +70 °C, relative humidity max. 90% (non-condensing).

Repairs

Repair work on the fieldbus module may only be performed by qualified and authorized service personnel from SICK AG.

Disassembly and disposal

Any fieldbus module which can no longer be used at the end of the product life cycle must be disposed of in an environmentally friendly manner in accordance with the respective applicable country-specific waste disposal regulations. As they are categorized as electronic waste, fieldbus modules must never be disposed of with household waste. SICK AG does currently not take back fieldbus modules that are no longer fit for use.

Sources for obtaining additional information

The following sources of additional information about the CDF600-21xx fieldbus module, its optional accessories, and SICK identification sensors are available in electronic format on the corresponding SICK product pages on the web:

**Fieldbus module CDF600-21xx**  
**[www.mysick.com/en/cdf600-2](http://www.mysick.com/en/cdf600-2)**

- Detailed technical specifications (online data sheet)
- Technical information CDF600-21xx fieldbus module in German (no. 8015336) and English (no. 8015337)
- GSD files for the ID sensors and the fieldbus module for integration in the fieldbus master
- EC declarations of conformity
- Dimensional drawing and 3D CAD dimension models in various electronic formats
- Eplan connection diagrams (drawings)
- Suitable accessories (including cables, trigger sensors)
- Operating instructions CDF600-21xx fieldbus module in German (no. 8015334) and English (no. 8015335) as well as in other languages if applicable
- Ordering information in the identification solutions product catalog

SICK ID sensors that support proxy mode

**e.g. CLV62x bar code scanner**  
**[www.mysick.com/en/CLV62x](http://www.mysick.com/en/CLV62x)**

- Operating instructions

SICK ID sensors that support gateway mode

**e.g. LECTOR®65x image-based code reader**  
**[www.mysick.com/en/lector65x](http://www.mysick.com/en/lector65x)**

- Operating instructions

e.g. hand-held scanner:

**1D hand-held scanner**  
**[www.mysick.com/en/idm14x](http://www.mysick.com/en/idm14x)**  
**[www.mysick.com/en/idm16x](http://www.mysick.com/en/idm16x)**

**2D hand-held scanner**  
**[www.mysick.com/en/idm24x](http://www.mysick.com/en/idm24x)**  
**[www.mysick.com/en/idm26x](http://www.mysick.com/en/idm26x)**

- Operating instructions for the IDM1xx and IDM2xx hand-held scanners

Support is also available from your sales partner: [www.sick.com/worldwide](http://www.sick.com/worldwide).