# CLV650-6000F0

CLV65x

**FIXED MOUNT BAR CODE SCANNERS**

**SICK**
Sensor Intelligence.

## Ordering information

| Type | Part no. |
|---|---|
| CLV650-6000F0 | 1052181 |

Other models and accessories ➜ www.sick.com/CLV65x

## Detailed technical data

### Features

| | |
|---|---|
| **Version** | Standard Density |
| **Connection type** | Cable |
| **Reading field** | Oscillating mirror |
| **Scanning method** | Line scanning |
| **Sensor type** | Line scanner |
| **Optical focus** | Auto focus |
| **Light source** | |
| Light spot | Laser, Visible, Red, 658 nm |
| **Laser class** | 2 (IEC 60825-1:2014, EN 60825-1:2014) |
| **Aperture angle** | ≤ 50° |
| **Scanning frequency** | 600 Hz ... 1,000 Hz |
| **Code resolution** | 0.25 mm ... 1 mm |
| **Reading distance** | 125 mm ... 1,570 mm [1] |
| **Oscillating mirror functions** | Fixed (adjustable position), oscillating (variable or fixed amplitude), one shot |
| Oscillation frequency | 0.5 Hz ... 6.25 Hz |
| Angle of deflection | −20° ... 20° |
| **Heating** | ✔ |

[1] For details see reading field diagram.

### Mechanics/electronics

| | |
|---|---|
| **Connection type** | 1 x 15-pin D-Sub HD male connector (0.9 m)<br>1 x cable, open-ended, 3-wire (2 m) |
| **Supply voltage** | ≤ 24 V DC, ± 10 % |
| **Power consumption** | 40 W |
| **Housing** | Aluminum die cast |
| **Housing color** | Light blue (RAL 5012) |

[1] At 25 °C.

| Front screen | Glass |
|---|---|
| Enclosure rating | IP65 (EN 60529) |
| Protection class | III (EN 61140) |
| Weight | 520 g, with connecting cable |
| Dimensions (L x W x H) | 95 mm x 107 mm x 50 mm |
| MTBF | 100,000 h |
| MTTF | 40,000 h (Laser diode) [1] |

[1] At 25 °C.

## Performance

| Readable code structures | 1D codes |
|---|---|
| Bar code types | All current code types, Code 39, Code 128, Code 93, Codabar, GS1-128 / EAN 128, UPC / GTIN / EAN, Interleaved 2 of 5, Pharmacode, GS1 DataBar, Telepen, MSI/Plessey |
| Print ratio | 2:1 … 3:1 |
| No. of codes per scan | 1 … 20 (Standard decoder)<br>1 … 6 (SMART decoder) |
| No. of codes per reading interval | 1 … 50 (auto-discriminating) |
| No. of characters per reading interval | 5,000<br>500 (for multiplexer function in CAN operation) |
| No. of multiple readings | 1 … 99 |

## Interfaces

| PROFINET | ✓ |
|---|---|
| Type of fieldbus integration | Optional over external fieldbus module CDF600-2 |
| Function | PROFINET Single Port, PROFINET Dual Port |
| **EtherCAT** | ✓ |
| Type of fieldbus integration | Optional over external fieldbus module CDF600 |
| **Serial** | ✓, RS-232, RS-422, RS-485 |
| Function | Host, AUX |
| Data transmission rate | 2,400 Baud … 115.2 kBaud, AUX: 57.6 kBaud (RS-232) |
| **CAN** | ✓ |
| Function | SICK CAN sensor network CSN (master/slave, multiplexer/server) |
| Data transmission rate | 20 kbit/s … 1 Mbit/s |
| **CANopen** | ✓ |
| Data transmission rate | 20 kbit/s … 1 Mbit/s |
| **PROFIBUS DP** | ✓ |
| Type of fieldbus integration | Optional over external fieldbus module CDF600-2 |
| **DeviceNet™** | ✓ |
| Type of fieldbus integration | Optional, over external connection module CDM + CMF |
| **Digital inputs** | 4 ("Sensor 1", "Sensor 2", 2 inputs via optional parameter storage CMC600 in CDB620/CDM420) |
| **Digital outputs** | 4 ("Result 1", "Result 2", 2 outputs via optional parameter storage CMC600 in CDB620/CDM420) |
| **Reading pulse** | Digital inputs, non-powered, serial interface, auto pulse, CAN |
| **Optical indicators** | 6 LEDs (Ready)<br>, Result |

|  | , laser<br>, Data<br>, CAN<br>, LNK TX<br>, Bar graph for displaying the reading rate percentage (10 LEDs) |
|---|---|
| **Acoustic indicators** | Beeper/buzzer (can be switched off, can be allocated as a result indication function) |
| **Control elements** | 2 buttons (choose and start/stop functions) |
| **Configuration software** | SOPAS ET |
| **Memory card** | MicroSD memory card (flash card), optional |

## Ambient data

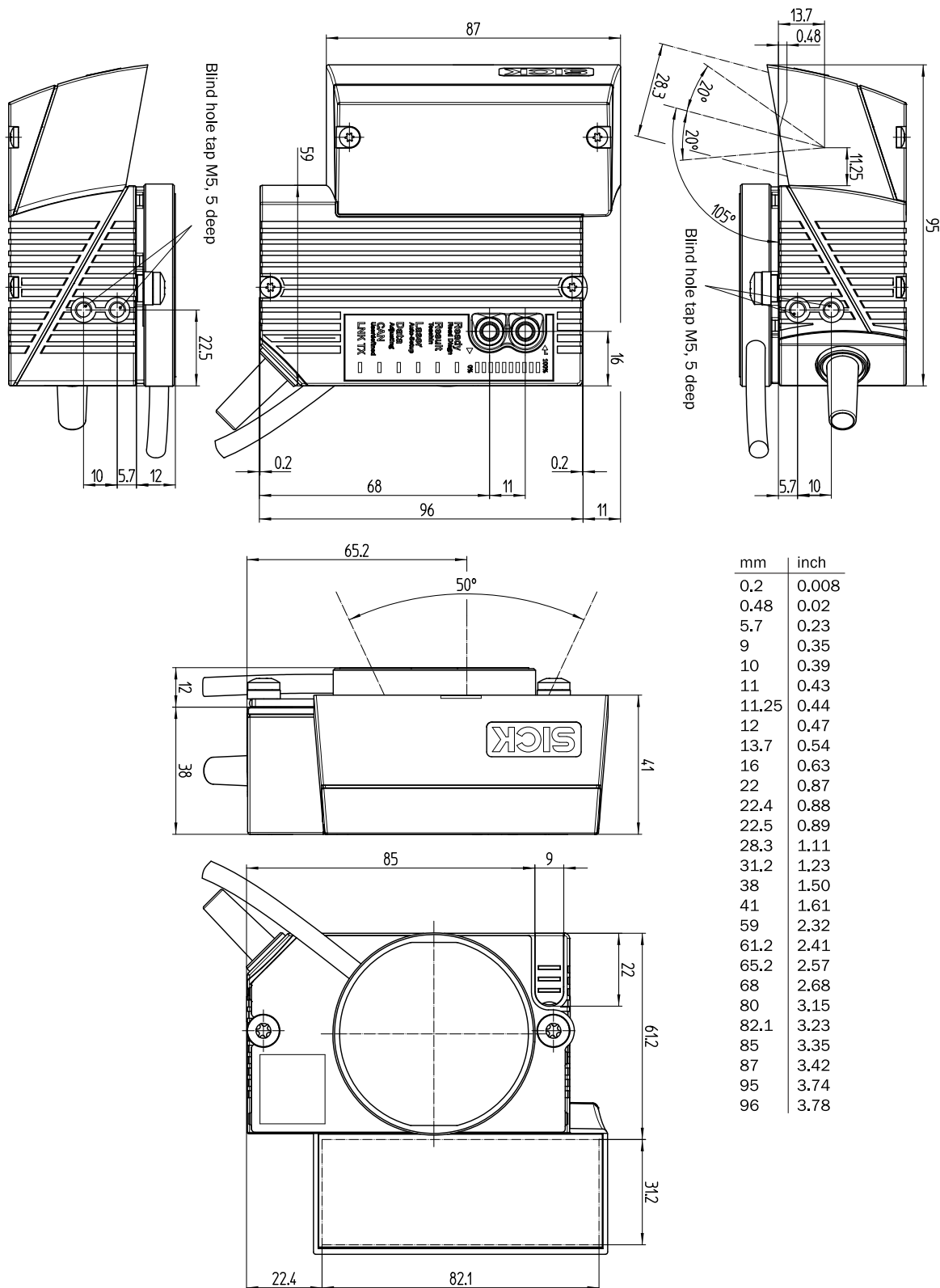| **Electromagnetic compatibility (EMC)** | EN 61000-6-3 (2001-10) / EN 61000-6-2:2005 |
|---|---|
| **Vibration resistance** | EN 60068-2-6 (1995) |
| **Shock resistance** | EN 60068-2-27 (1993) |
| **Ambient operating temperature** | –35 °C ... +35 °C |
| **Storage temperature** | –20 °C ... +70 °C |
| **Permissible relative humidity** | 90 %, Non-condensing |
| **Ambient light immunity** | 2,000 lx, on bar code |
| **Bar code print contrast (PCS)** | ≥ 60 % |

## General notes

| **Note on use** | For Ethernet connection please use an Ethernet version of CLV6xx |
|---|---|

## Classifications

| **ECl@ss 5.0** | 27280102 |
|---|---|
| **ECl@ss 5.1.4** | 27280102 |
| **ECl@ss 6.0** | 27280102 |
| **ECl@ss 6.2** | 27280102 |
| **ECl@ss 7.0** | 27280102 |
| **ECl@ss 8.0** | 27280102 |
| **ECl@ss 8.1** | 27280102 |
| **ECl@ss 9.0** | 27280102 |
| **ECl@ss 10.0** | 27280102 |
| **ECl@ss 11.0** | 27280102 |
| **ETIM 5.0** | EC002550 |
| **ETIM 6.0** | EC002550 |
| **ETIM 7.0** | EC002550 |
| **ETIM 8.0** | EC002550 |
| **UNSPSC 16.0901** | 43211701 |

## Dimensional drawing (Dimensions in mm (inch))



| mm | inch |
|------|-------|
| 0.2 | 0.008 |
| 0.48 | 0.02 |
| 5.7 | 0.23 |
| 9 | 0.35 |
| 10 | 0.39 |
| 11 | 0.43 |
| 11.25 | 0.44 |
| 12 | 0.47 |
| 13.7 | 0.54 |
| 16 | 0.63 |
| 22 | 0.87 |
| 22.4 | 0.88 |
| 22.5 | 0.89 |
| 28.3 | 1.11 |
| 31.2 | 1.23 |
| 38 | 1.50 |
| 41 | 1.61 |
| 59 | 2.32 |
| 61.2 | 2.41 |
| 65.2 | 2.57 |
| 68 | 2.68 |
| 80 | 3.15 |
| 82.1 | 3.23 |
| 85 | 3.35 |
| 87 | 3.42 |
| 95 | 3.74 |
| 96 | 3.78 |

## Reading field diagram

Reading field height in mm (inch)

Reading distance in mm (inch)
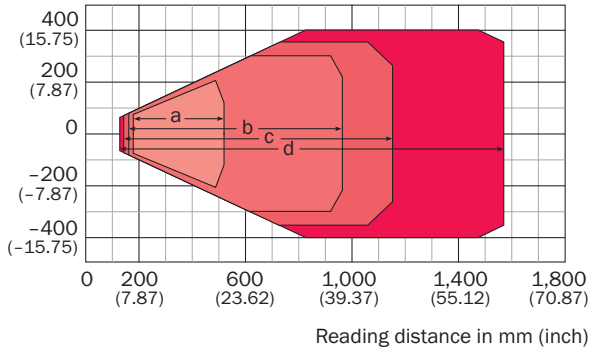
### Resolution

- a: 0.25 mm (9.8 mil)
- b: 0.35 mm (13.8 mil)
- c: 0.50 mm (19.7 mil)
- d: 1.00 mm (39.4 mil)

## Deflection width

Deflection range in mm (inch)

Reading distance in mm (inch)
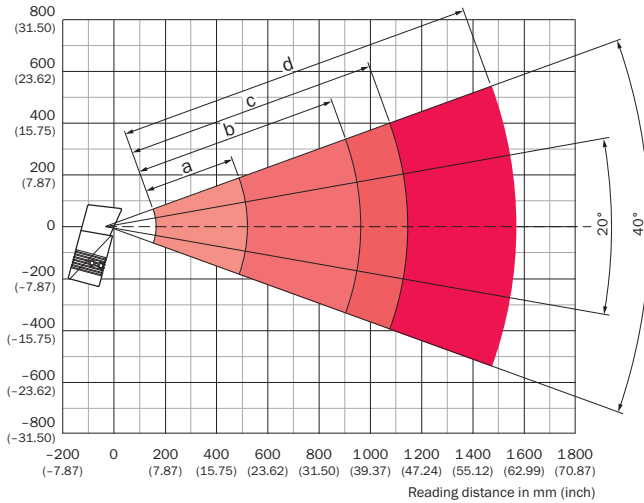
### Resolution

- a: 0.25 mm (19.7 mil)
- b: 0.35 mm (13.8 mil)
- c: 0.50 mm (19.7 mil)
- d: 1.00 mm (39.5 mil)

## Recommended accessories

Other models and accessories ➜ www.sick.com/CLV65x

| | Brief description | Type | Part no. |
|---|---|---|---|
| **Cloning module** | | | |
| | External parameter memory for integration in CDB620/CDB650/CDM42x | CMC600-101 | 1042259 |

| | Brief description | Type | Part no. |
|---|---|---|---|
| **Electronic modules** | | | |
| | Additional board for connecting a bar code scanner with heater in combination with CDM-420 | Additional board | 2055071 |
| **Storage media** | | | |
| | microSD memory card with 1 GB for industrial use | microSD memory card | 4051366 |
| **Mounting brackets and plates** | | | |
| | Hanger-shaped mounting bracket, thermally isolated for use with heating devices, mounting hardware included | Mounting bracket | 2050705 |
| **Plug connectors and cables** | | | |
| | Head A: male connector, M12, 4-pin, straight, D-coded<br>Head B: male connector, RJ45, 8-pin, straight<br>Cable: Ethernet, shielded, 2 m | YM2D24-020EB2MRJA4 | 6050198 |
| **Modules** | | | |
| | • **Sub product family:** CDB620<br>• **Supported products:** CLV61x - CLV65x, Lector62x, RFH6xx, RFU62x<br>• **Brief description:** Small connection module for one sensor, 4 cable glands, base for CMC600 | CDB620-001 | 1042256 |
| | • **Sub product family:** CDM420<br>• **Fieldbus interface:** PROFIBUS DP, Ethernet, DeviceNet™<br>• **Supported products:** Lector62x, CLV61x - CLV65x, Mobile hand-held scanners, RFH6xx, RFU62x, RFU63x<br>• **Brief description:** Modular connection module for one sensor | CDM420-0001 | 1025362 |

## Recommended services

Additional services ➜ www.sick.com/CLV65x

| | Type | Part no. |
|---|---|---|
| **Performance check** | | |
| • **Product area:** Fixed mount bar code scanners<br>• **Range of services:** Inspection of defined functions, e.g., reading performance<br>• **Travel expenses:** The prices do not include travel costs such as hotel, flight, travel time and expenses.<br>• **Duration:** Additional work will be invoiced separately | Performance check CLV4xx/CLV6xx | 1682028 |
| **Product, system, and software training** | | |
| • **Range of services:** SICK offers training courses for numerous target groups ranging from basic to expert levels, Training format and location can be worked out in collaboration with SICK | Training for the CLV6 series | 1612231 |
| **Warranty extensions** | | |
| • **Product area:** Identification solutions, machine vision, Distance sensors, Detection and ranging solutions<br>• **Range of services:** The services correspond to the scope of the statutory manufacturer warranty (SICK general terms and conditions of purchase)<br>• **Duration:** Five-year warranty from delivery date. | Extended warranty for a total of five years from delivery date | 1680671 |

| | Type | Part no. |
|---|---|---|
| **Commissioning** | | |
| • **Product area:** Fixed mount bar code scanners<br>• **Range of services:** Inspection of connection, fine adjustment, optimization of parameters of SICK product as well as tests, Setup of previously defined functions of reading configuration, code configuration, data processing and network, interfaces or inputs and outputs<br>• **Travel expenses:** The prices do not include travel costs such as hotel, flight, travel time and expenses.<br>• **Duration:** Additional work will be invoiced separately | Commissioning CLV65x ... CLV69x | 1681926 |
| **Service agreements** | | |
| • **Product area:** Fixed mount bar code scanners<br>• **Range of services:** According to the scope defined in the contract, for example extended warranty, repair service, availability guarantee as well as spare parts provided periodically by SICK (bracket with shock absorber), Other possible contractual elements<br>• **Duration:** 3 year duration from delivery date of the initial hardware | Forklift Package CLV65x for 3 years | 1614610 |
| • **Product area:** Fixed mount bar code scanners<br>• **Range of services:** According to the scope defined in the contract, for example extended warranty, repair service, availability guarantee as well as spare parts provided periodically by SICK (bracket with shock absorber), Other possible contractual elements<br>• **Duration:** 5 year duration from delivery date of the initial hardware | Forklift Package CLV65x for 5 years | 1614609 |

# SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is "Sensor Intelligence."**

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