

# CLV62x, CLV63x and CLV64x with IP69K Protective Housing

Fixed mount barcode scanner



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**Described product**

CLV62x, CLV63x and CLV64x fixed mount bar code scanner in IP69K protective housing

**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 is a supplement to the operating instructions for the following fixed mount bar code scanners:

- CLV62x operating instructions
- CLV63x, CLV64x, CLV65x operating instructions (combined operating instructions)

The information herein **supplements** the mounting and electrical installation information for devices equipped with an **IP69K protective housing**. This includes the CLV62x, CLV63x and CLV64x. The CLV65x does not offer a variant with an IP69K protective housing.

The operating instructions for the individual product families can be downloaded online from the respective product page on the Internet.

*Table 1: Operating instructions for the CLV62x, CLV63x and CLV64x fixed mount bar code scanners*

Device	Part number of operating instructions German	Part number of operating instructions English	Part number of operating instructions French	Product page on the Internet
CLV62x	8011964	8011965	8019585	<a href="http://www.sick.com/CLV62x">www.sick.com/CLV62x</a>
CLV63x	8019587	8019588	8019589	<a href="http://www.sick.com/CLV63x">www.sick.com/CLV63x</a>
CLV64x	8019587	8019588	8019589	<a href="http://www.sick.com/CLV64x">www.sick.com/CLV64x</a>

The operating instructions may be available in other language versions.

This Technical Information contains the device-specific information on the device, mounting and electrical connection. For more information, see the operating instructions of the respective product family.

Adherence to all the specified safety notes, warnings and guidelines in this Technical Information and in the corresponding operating instructions of the device used is a prerequisite for working safely.

This Technical Information is intended to be used by qualified personnel and electrical specialists.



### NOTE

Carefully read this Technical Information and the operating instructions of the fixed mount bar code scanner before carrying out any work with the device.

## 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.

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**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.

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**NOTE**

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

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## 2 Safety information

### 2.1 Intended use

The device consists of a fixed mount bar code scanner of the product family CLV62x, CLV63x or CLV64x in the Ethernet variant with a protective housing with enclosure rating IP69K.

The protective housing comprises two parts:

- Protective housing with a fixed mount bar code scanner permanently installed at the factory
- Accompanying protective double bushing including sealing material for the two electrical connections

When using suitable cables and correctly mounting the protective double bushing, the device is protected against water from high-pressure or steam cleaners and as well as against dust. For the specification, see ["Technical data", page 30](#).

#### Conditions for specified enclosure rating



#### NOTICE

The following requirements must be met in order to achieve the IP69K enclosure rating:

- Use only the connection cables specified by SICK.
- Seal the two cable outlets at the protective double bushing with the corresponding O-rings.
- The recessed flat seal on the side facing the protective housing is undamaged.

The O-rings are included in the device scope of delivery and are matched to the outer diameters of the plug connectors.

The device is an intelligent, opto-electronic SICK ID sensor and is used for automated, fixed identification and decoding of bar codes on moving or stationary objects. The device transmits the data content of the decoded bar codes to a higher-level control (PLC) for coordinating further processing.

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

### 2.2 Improper use

- The device must not be used in explosion-hazardous areas.
- The protective housing of the factory-installed fixed mount bar code scanner must not be opened.
- The device does not constitute a safety-relevant device according to the EC Machinery Directive (2006/42 / EC).
- Any other use that is not described as intended use is prohibited.
- The use of mounting accessories not approved by SICK AG is at your own risk.

### 2.3 Cybersecurity

#### Overview

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

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

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

### 2.3.1 Configuration with profile programming

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#### NOTE

The device can be configured for the specific application using the convenient "Profile programming" function. This involves presenting the device with a set of printed configuration bar codes. The bar codes can be created using the SOPAS ET configuration software.

The "Profile programming" function is activated in the default factory settings. After successfully configuring the device, deactivate this function using SOPAS ET to avoid any undesired configuration changes and exclude the resultant risks.

The configuration of this function and further documentation can be found on the Internet after logging on at: [supportportal.sick.com/profile-programming-clv](http://supportportal.sick.com/profile-programming-clv)

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## 2.4 Hazard warnings and operational safety

To reduce health risks and to avoid dangerous situations, observe the safety notes and warnings set out in the following sections of this Technical Information.

### 2.4.1 Laser radiation

The devices uses a red light laser diode operating at the wavelength 655 nm. They correspond to laser class 2.

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#### CAUTION

##### Optical radiation: Laser class 2

The human eye is not at risk when briefly exposed to the radiation for up to 0.25 seconds. Exposure to the laser beam for longer periods of time may cause damage to the retina. The laser radiation is harmless to human skin.

- Do not look into the laser beam intentionally.
  - Never point the laser beam at people's eyes.
  - If it is not possible to avoid looking directly into the laser beam, e.g., during commissioning and maintenance work, suitable eye protection must be worn.
  - Avoid laser beam reflections caused by reflective surfaces. Be particularly careful during mounting and alignment work.
  - Do not open the housing. Opening the housing may increase the level of risk.
  - Current national regulations regarding laser protection must be observed.
- 

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

It is not possible to entirely rule out temporary disorienting optical effects, particularly in conditions of dim lighting. Disorienting optical effects may come in the form of dazzle, flash blindness, afterimages, photosensitive epilepsy, or impairment of color vision, for example.

#### Output of laser radiation at the device

The entire viewing window is a laser output aperture.



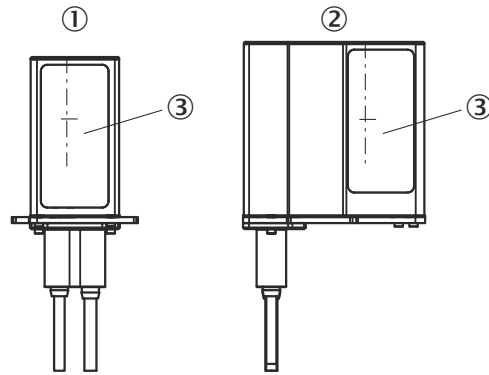


Figure 1: Viewing window and output aperture of the laser radiation in the IP69K protective housing

- ① CLV62x, CLV63x and CLV64x fixed mount bar code scanner with front viewing window
- ② CLV63x and CLV64x fixed mount bar code scanner with oscillating mirror and side viewing window
- ③ Viewing window and laser output aperture



#### NOTE

No maintenance is required to ensure compliance with Laser Class 2.

#### Warning symbol on the device

The laser warning label is lasered onto the protective housing. The type label is attached on the housing side of the connections.

#### Laser output data

In addition to other information, the type label also contains the relevant laser output data:

- Laser output power (maximum and average)
- Wavelength or wavelength range
- Pulse duration

If the device has been installed in an inaccessible location, see the “Features” section for the relevant device in ["Technical data", page 30](#).

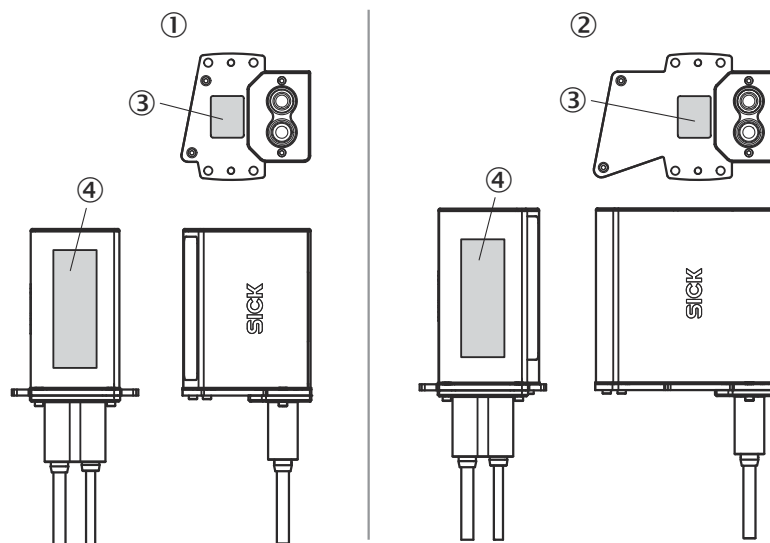


Figure 2: Position of type label and laser warning label on the IP69K protective housing

- ① CLV62x, CLV63x and CLV64x fixed mount bar code scanner with front viewing window
- ② CLV63x and CLV64x fixed mount bar code scanner with oscillating mirror and side viewing window
- ③ Position of the type label with supplementary information label
- ④ Position of the laser warning label

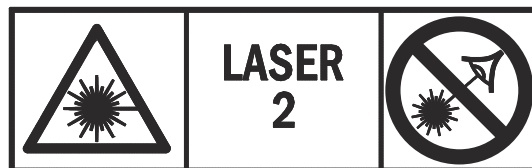


Figure 3: Contents of the laser warning label on the device

Meaning of the laser warning label: Laser radiation. Do not look into the light beam.  
Laser class 2



### NOTE

#### Additional laser warning label

If the laser warning label applied to the device is concealed when installed into a machine or paneling, the laser beam output aperture must be suitably labeled. For this purpose, an additional warning label of the same type must be applied next to the output aperture.

#### Controlling the laser diode



### NOTE

The device has no optical indicator for laser diode activity.

When operating properly, the device only switches the laser diode on if there is an object in the reading area, or if a reading is required (cyclic reading operation).

A laser timeout can switch off the laser diode automatically for this type of object trigger control. For example, for a **PSDI that has been pending for too long** because the conveyor system has stopped. In this case, the current internal reading interval of the device remains open.

Irrespective of the selected configuration type, the laser timeout can be set as follows:

- Using the SOPAS ET configuration software, on the **Illumination Control** device page
- During GSD parameterization with the “10\_Object Trigger Ctrl” module (PROFINET or PROFIBUS)

At the default setting, laser timeout is deactivated.

The laser diode is permanently or repeatedly switched on in the following device statuses:

- In the operating modes “Percentage evaluation” and “Auto setup”. Use these operating modes only temporarily for configuration or diagnostics.
- In reading operation in the PSDI types “Auto pulse” (adjustable duty cycle) or “Free”

If timeout is activated, it will have no effect here.

## 3 Product description

### 3.1 Type label

The type label is attached on the housing side next to the electrical connections.

For a description of the type label, see the operating instructions of the respective fixed mount bar code scanner.

### 3.2 Design

#### CLV62x in IP69K protective housing, front viewing window

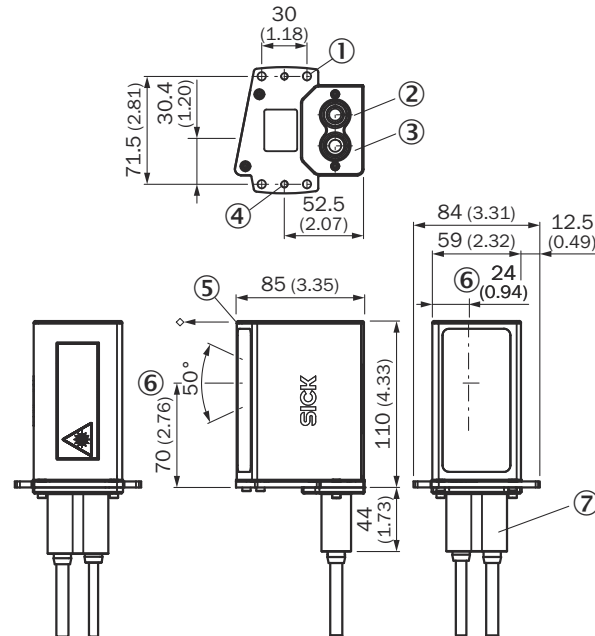


Figure 4: CLV62: Ethernet variant in IP69K protective housing, with front viewing window and two M12 connections. structure and device dimensions, unit: mm (inch), decimal separator: period

- ① Fixing holes, Ø 5.5 mm (4 x)
- ② “Ethernet” connection (female connector, M12, 4-pin, D-coded)
- ③ “Power / Serial Data / CAN / I/O” connection (male connector, M12, 17-pin, A-coded)
- ④ Threaded hole, M5 (2 x)
- ⑤ Reference point of the reading distance (from housing edge to object)
- ⑥ Position of the light emission (center position of the deflected laser beam)
- ⑦ Protective double bushing for the electrical connections

CLV63x or CLV64x in IP69K protective housing, front viewing window

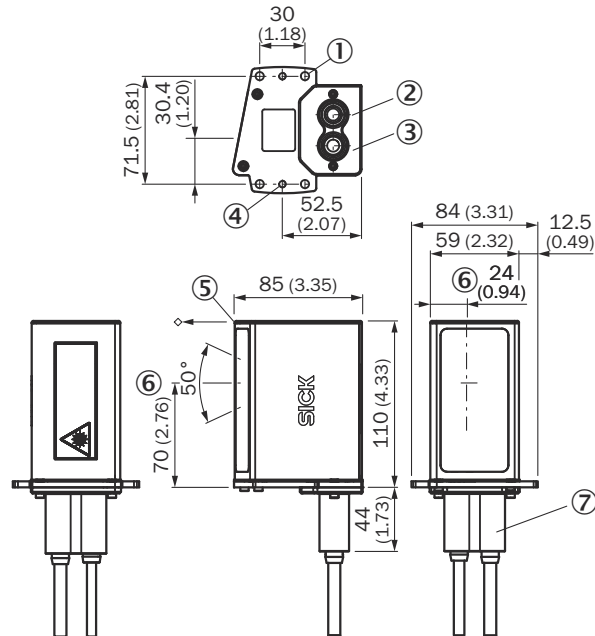


Figure 5: CLV63x/CLV64x: Ethernet variant in IP69K protective housing, with front viewing window and two M12 connections. structure and device dimensions, unit: mm (inch), decimal separator: period

- ① Fixing holes, Ø 5.5 mm (4 x)
- ② “Ethernet” connection (female connector, M12, 4-pin, D-coded)
- ③ “Power / Serial Data / CAN / I/O” connection (male connector, M12, 17-pin, A-coded)
- ④ Threaded hole, M5 (2 x)
- ⑤ Reference point of the reading distance (from housing edge to object)
- ⑥ Position of the light emission (center position of the deflected laser beam)
- ⑦ Protective double bushing for the electrical connections

**CLV63x or CLV64x with oscillating mirror in the IP69K protective housing, side viewing window**

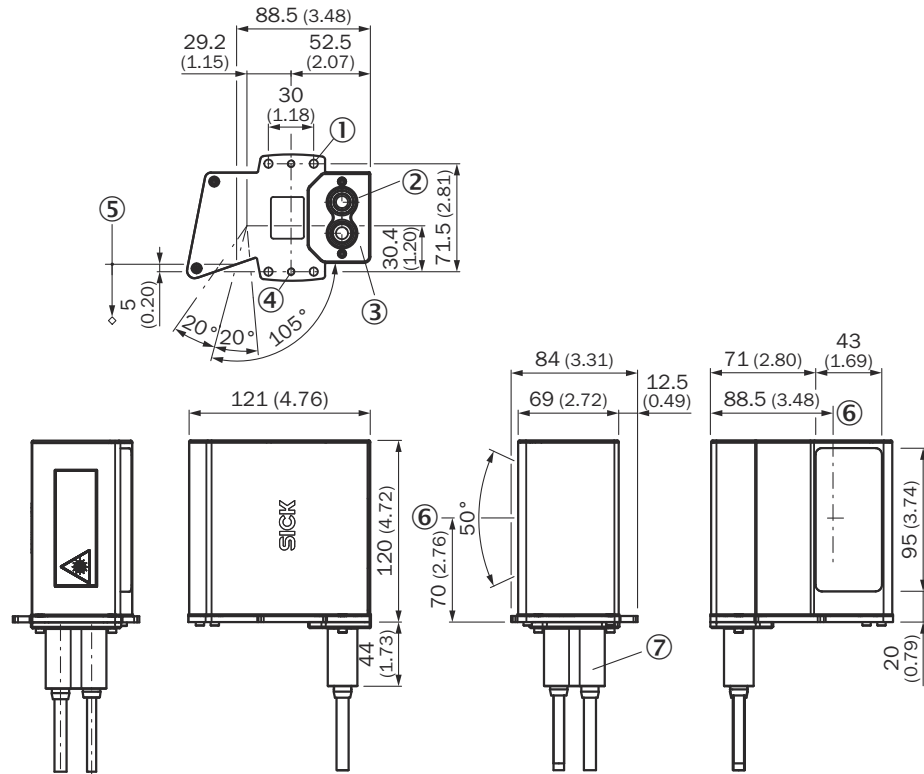


Figure 6: CLV63x / CLV64x: Ethernet variant in IP69K protective housing, with oscillating mirror (side viewing window) and two M12 connections. structure and device dimensions, unit: mm (inch), decimal separator: period

- ① Fixing holes, Ø 5.5 mm (4 x)
- ② “Ethernet” connection (female connector, M12, 4-pin, D-coded)
- ③ “Power / Serial Data / CAN / I/O” connection (male connector, M12, 17-pin, A-coded)
- ④ Threaded hole, M5 (2 x)
- ⑤ Reference point of the reading distance (housing edge to the object)
- ⑥ Position of the light emission (center position of the deflected laser beam)
- ⑦ Protective double bushing for the electrical connections

**3.3 Scope of delivery**

The scope of delivery of the device includes the following components:

Table 2: Scope of delivery

Item	Component	Description
1	CLV62x, CLV63x or CLV64x fixed mount bar code scanner in the ordered version, in the screwed tight and sealed off IP69K protective housing	Both M12 connections are sealed off with protective elements of the appropriate type

Item	Component	Description
1	Protective double bushing for the two electrical connections in the terminal compartment	The sleeve seals the connections and the two line outlets to the outside. Use of both pass-throughs, or only one pass-through with a protective element for the free pass-through. Protective double bushing equipped with: <ul style="list-style-type: none"> <li>• Recessed flat seal on the side to the protective housing</li> <li>• One internal groove in each case at the end of the bushings (cable outlet) to accommodate an O-ring for sealing</li> <li>• Two captive mounting screws for securing on the protective housing</li> </ul>
2	O-ring Inside diameter x cord thickness: 11.0 mm x 4.0 mm	Seals the plug connector for the "Ethernet" connection towards the protective double bushing. One O-ring serves as a spare part.
2	O-ring Inside diameter x cord thickness: 13.5 mm x 3.0 mm	Seals off the plug connector for the "Power/Serial Data/CAN/I/O" connection towards the protective double bushing. One O-ring serves as a spare part.
1	Protective element	If the Ethernet connection is not used, the element seals off the free pass-through of the protective double bushing. Suitable O-ring: 11.0 mm x 4.0 mm.
1	Printed Safety Notes (safety information), multilingual	The document contains: <ul style="list-style-type: none"> <li>• Information on safe handling of the device</li> <li>• Note for online access to the operating instructions and other documentation</li> </ul>

### Connecting cables

Not included with delivery for the device is the required cables for connecting the supply voltage/serial data/ I/O and for accessing the Ethernet. The cables must be ordered separately. For an overview see "Accessories", page 39.

### Further required components

The following associated components are not included with delivery of the device. The components are available on the Internet.

Table 3: Scope of delivery, other components

Component	Note
SOPAS ET configuration software and device description file (*.sdd file for SOPAS ET) for the CLV62x	Available online at: <ul style="list-style-type: none"> <li>• <a href="http://www.sick.com/SOPAS_ET">www.sick.com/SOPAS_ET</a></li> </ul>
Technical Information "CLV62x, CLV63x and CLV64x with IP69K Protective Housing", part no. 8021479 as a PDF in the following languages: English, German. Other languages may be available.	For devices with an IP69K protective housing. Provides information about the electrical connection and mounting the protective double bushing on the protective housing. Available online at: <ul style="list-style-type: none"> <li>• <a href="http://www.sick.com/CLV62x">www.sick.com/CLV62x</a></li> </ul>

Component	Note
CLV62x operating instructions as PDF in the following language versions: English, German and French. Other languages may be available.	Provides general information about mounting, electrical installation and other aspects of the device. Supplements this Technical Information. Available online at: <ul style="list-style-type: none"> <li>• <a href="http://www.sick.com/CLV62x">www.sick.com/CLV62x</a></li> </ul>
<b>or</b>	
Joint CLV63x to CLV65x operating instructions as PDF Available in the following language versions: English, German and French. Other languages may be available.	Provides general information about mounting, electrical installation and other aspects of the device. Supplements this Technical Information. Available online at: <ul style="list-style-type: none"> <li>• <a href="http://www.sick.com/CLV63x">www.sick.com/CLV63x</a></li> <li>• <a href="http://www.sick.com/CLV64x">www.sick.com/CLV64x</a></li> </ul>

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

#### 3.4 Differences: Devices in IP65 standard housing and devices in IP69K protective housing

Table 4: Devices in IP65 standard housing and devices in IP69K protective housing

Feature	Devices in IP65 standard housing	Devices in IP69K protective housing
Housing variant	Front viewing window: CLV62x, CLV63x and CLV64x	Front viewing window: CLV62x, CLV63x and CLV64x
	Side viewing window and oscillating mirror: CLV63x and CLV64x	Side viewing window and oscillating mirror: CLV63x and CLV64x
	Side viewing window: CLV62x, CLV63x and CLV64x	Not applicable
Housing material	Die-cast aluminum	Stainless steel
Housing color	Blue, painted	Unpainted
Enclosure rating	IP65	IP69K
Window material of the viewing window	Glass or plastic	Plastic
Reading fields	For glass: 100% For plastic: depth of field reduced by 10%	Depth of field reduced by 10% Distance to device smaller
Laser warning label	Combined with type label applied to the rear of the device	Laser etched on the rear of the device
Type label	See laser warning label	Applied next to the electrical connections
Additional plate for type label	Applied on the right side of the device	Applied next to the electrical connections
Status displays	CLV62x: 6 LEDs CLV63x and CLV64x: 6 LEDs and bar graph display	Omitted
Operating buttons	CLV62x: None CLV63x and CLV64x: 2	Omitted
Optional plug-in memory card for parameter cloning	CLV62x: None CLV63x and CLV64x: 1	Omitted



Feature	Devices in IP65 standard housing	Devices in IP69K protective housing
Mounting	2 x 2 M5 blind tapped hole, 5 mm deep	4 x holes 5.5 mm 2 x threaded holes M5
SOPAS ET	Shows the reading field of the devices in the standard housing	Shows the reading field of the devices in the standard housing

### 3.5 Reading fields

The reading fields of the devices in the IP69K protective housing differ from the reading fields of the devices in the IP65 standard housing as follows:

- **Position to housing edge:** The distance between the reading field and housing edge is smaller than on the standard devices in the case of devices in IP69K protective housing. The reason for this is the longer light path in the IP69K protective housing.
- **Depth of field:** On devices in the IP69K protective housing, the depth of field is reduced by approx. 10% due to reduction of reading fields on both sides by 5% in each case for all module widths. The reason is the plastic viewing window.

On devices in IP69K protective housing, the distance between the viewing window and housing edge is reduced as follows compared with the viewing window (glass) of a device in the standard housing:

- Fixed mount bar code scanner with front viewing window: 10.7 mm
- Fixed mount bar code scanner with oscillating mirror and side viewing window: 11.16 mm

**Example: Reading fields of the CLV631 with front viewing window**

The following table shows the reading fields of two comparable fixed mount bar code scanners by way of example.

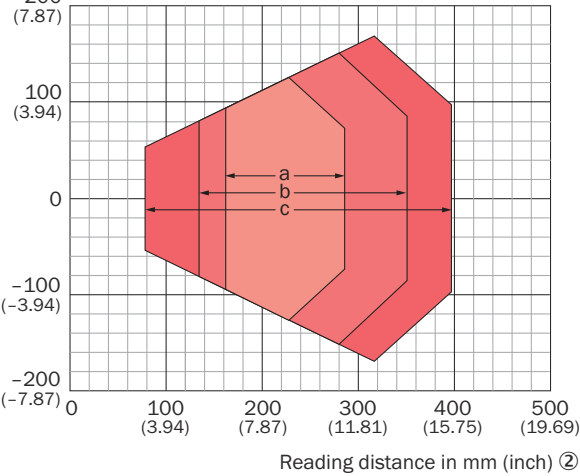
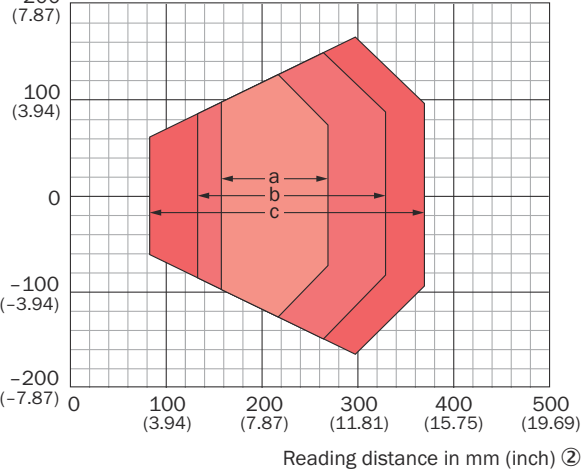
Table 5: CLV631 reading fields with front viewing window

CLV631 in standard housing	CLV631 in IP69K protective housing
<p>Reading field height in mm (inch) ①</p> <p>Resolution ③</p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #f08080; margin-right: 5px;"></span> a: 0.25 mm (9.8 mil)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #e04040; margin-right: 5px;"></span> b: 0.35 mm (13.8 mil)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #c00000; margin-right: 5px;"></span> c: 0.50 mm (19.7 mil)</li> </ul> <p>Figure 7: Reading field diagram of CLV631-0120, front viewing window (glass)</p> <p>① Reading field height in mm (inch)                  ② Reading distance in mm (inch)                  ③ Resolution</p>	<p>Reading field height in mm (inch) ①</p> <p>Resolution ③</p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #f08080; margin-right: 5px;"></span> a: 0.25 mm (9.8 mil)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #e04040; margin-right: 5px;"></span> b: 0.35 mm (13.8 mil)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #c00000; margin-right: 5px;"></span> c: 0.50 mm (19.7 mil)</li> </ul> <p>Figure 8: Reading field diagram of CLV631-0831S01, front viewing window (plastic)</p> <p>① Reading field height in mm (inch)                  ② Reading distance in mm (inch)                  ③ Resolution</p>

**Example: Reading fields of CLV631 with oscillating mirror and side viewing window**

The following table shows the reading fields of two comparable fixed mount bar code scanners by way of example.

Table 6: Reading fields of CLV631 with oscillating mirror and side viewing window

CLV631 in standard housing	CLV631 in IP69K protective housing
<p>Reading field height in mm (inch) ①</p>  <p>Resolution ③</p> <ul style="list-style-type: none"> <li>a: 0.25 mm (9.8 mil)</li> <li>b: 0.35 mm (13.8 mil)</li> <li>c: 0.50 mm (19.7 mil)</li> </ul>	<p>Reading field height in mm (inch) ①</p>  <p>Resolution ③</p> <ul style="list-style-type: none"> <li>a: 0.25 mm (9.8 mil)</li> <li>b: 0.35 mm (13.8 mil)</li> <li>c: 0.50 mm (19.7 mil)</li> </ul>
<p>Figure 9: Reading field diagram of CLV631-6120, oscillating mirror and side viewing window (glass)</p>	<p>Figure 10: Reading field diagram of CLV631-6831S01, oscillating mirror and side viewing window (plastic)</p>
<p>① Reading field height in mm (inch)</p> <p>② Reading distance in mm (inch)</p> <p>③ Resolution</p>	<p>① Reading field height in mm (inch)</p> <p>② Reading distance in mm (inch)</p> <p>③ Resolution</p>

**Display of reading field diagrams in SOPAS ET**

The SOPAS ET configuration software displays the reading field diagrams of the fixed mount bar code scanners in standard housing (viewing window made of glass). The diagrams therefore do not provide a true representation of the restricted and displaced reading areas of the fixed mount bar code scanners in IP69K protective housing (viewing window made of plastic).



**NOTE**

As a simplified rule: The depth of field is reduced by approx. 10% for devices with a plastic viewing window.

### 4 Transport and storage

#### 4.1 Bar code scanners CLV62x, CLV63x and CLV64x with IP69K protective housing

For transport and storage of the devices, see the operating instructions of the respective fixed mount bar code scanner.

During transport and storage, additionally make sure that the connections on the protective housing are sealed off with the corresponding protective elements.

## 5 Mounting

### 5.1 Overview of mounting procedure

- Choose and prepare the mounting location.
- Connect the connection cables via the protective double bushing on the protective housing.
- Seal off the cable exit points.
- Mount the protective double bushing on the protective housing.
- Mount the device on a bracket.
- Align the device towards objects with bar code.
- Adjust the device.

For mounting location, mounting, alignment and adjustment, see the operating instructions of the respective fixed mount bar code scanner.

### 5.2 Mounting requirements

The following tools and auxiliary equipment are required for mounting:

- Lubricant, e.g., Vaseline

Observe the following points:

- Pay attention to the space requirements of the device. See type-specific dimensional drawing and reading field diagram.
- Observe the technical data of the device.
- To prevent condensation, avoid exposing the device to rapid changes in temperature.
- Protect the device from direct or indirect sunlight.
- Mount the device so that it is not exposed to shock and vibration.
- Preferably route the connection cables downwards away from the device.

### 5.3 Mounting options

You can mount the device as follows:

- Mount the device on an optional SICK bracket. The device is mounted on the bracket by means of the two M5 threaded holes. For the optional SICK brackets, see [www.sick.com](http://www.sick.com).
- Mount the device on a user-supplied bracket. You can mount the device on the bracket as follows:
  - With at least two M5 screws (in pairs) using two of the four 5.5 mm holes
  - Using the 2 M5 blind tapped holesDimensional drawings see "Design", page 12.

For an exact description of the device mounting procedure, see the operating instructions of the respective fixed mount bar code scanner.

#### Requirements for a user-supplied bracket

- The bracket must be designed for the weight of the device including connection cables, see "Technical data", page 30
- The bracket must be able to support the device free of vibrations and oscillations.
- It must be possible to adjust the bracket in x- and y-axes.
- The bracket must have the required holes for mounting the device on the bracket.

### 5.4 Mounting the protective double bushing on the protective housing

During assembly, the connection cables are routed through the supplied protective double bushing and connected to the device in the protective housing.

When the Ethernet interface is not being used, seal off the free pass-through of the protective double bushing with the supplied protective element.



#### NOTE

Use connection cables with a sufficient length.

---



#### NOTICE

**Equipment damage or unpredictable operation due to working with live parts.**

Working with live parts may result in unpredictable operation.

- Only carry out wiring work when the power is off.
  - Only connect and disconnect electrical connections when the power is off.
- 



#### NOTICE

Do not damage the O-rings by using sharp or pointed tools. The O-rings seal the protective double bushing towards the outside and therefore guarantee the enclosure rating.

---

#### 5.4.1 Assembly with use of the Ethernet connection

##### Noting the MAC address

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#### NOTE

The MAC address for the Ethernet interface is located on the type label. The address is partially or completely covered when the device is mounted on a bracket.

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- ▶ Note the MAC address together with the name of the reading station.

##### Mounting the protective double bushing on the protective housing

The assembly procedure is described for the protective housing with front viewing window. The protective housing for fixed mount bar code scanners with oscillating mirror and side viewing window is assembled analogously.

## Component overview

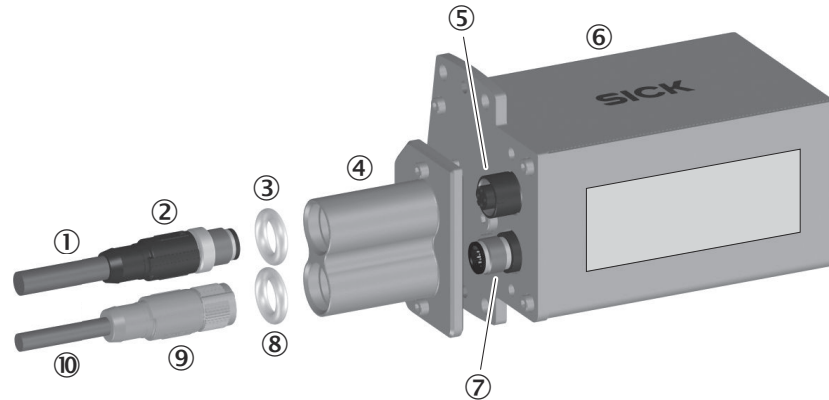


Figure 11: Assembly of IP69K protective housing, with use of the Ethernet connection

- ① Connection cable for “Ethernet” connection
- ② Plug connector of connection cable for “Ethernet” connection
- ③ O-ring 11.0 mm x 4.0 mm
- ④ Protective double bushing
- ⑤ “Ethernet” connection, female connector, M12, 4-pin, D-coded
- ⑥ Protective housing, here for fixed mount bar code scanners with front viewing window
- ⑦ “Power/Serial Data/CAN/I/O” connection, male connector, M12, 17-pin, A-coded
- ⑧ O-ring 13.5 mm x 3.0 mm
- ⑨ Plug connector of connection cable for “Power/Serial Data/CAN/I/O” connection
- ⑩ Connection cable for “Power/Serial data/CAN/I/O” connection

When delivered, both connections on the protective housing are sealed off with a protective element.

### Auxiliary equipment required

- Lubricant such as Vaseline

1. Position the device at the operating location.
2. Unscrew the protective element from the 4-pin female connector. Turn the protective element counterclockwise for this purpose.
3. Unscrew the protective element from the 17-pin male connector. Turn the protective element counterclockwise for this purpose.



Figure 12: Assembly of IP69K protective housing, with use of the Ethernet connection – Step 1

4. Guide the 13.5 mm x 3,0 mm O-ring over the plug connector of the “Power/Serial data/CAN/I/O” connection cable.
5. Guide the 11.0 mm x 4.0 mm O-ring over the plug connector of the “Ethernet” connection cable.

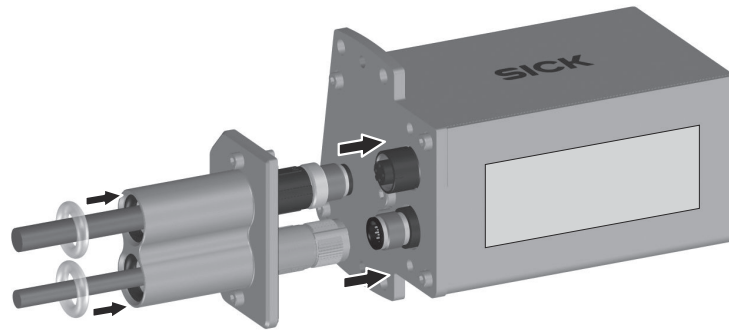


Figure 13: Assembly of IP69K protective housing, with use of the Ethernet connection – Step 2

6. Guide plug connector of the “Ethernet” connection cable through the protective double bushing.
7. Connect “Ethernet” connection cable to the M12 female connector of the protective housing.
8. Tighten coupling nut of the connected connection cable.
9. Guide the plug connector for the “Power/Serial Data/CAN/I/O” connection cable through the protective double bushing.
10. Connect the “Power/Serial Data/CAN/I/O” connection cable at the M12 male connector of the protective housing.
11. Tighten coupling nut of the connected connection cable.
12. Position O-rings in the provided grooves of the protective double bushing.

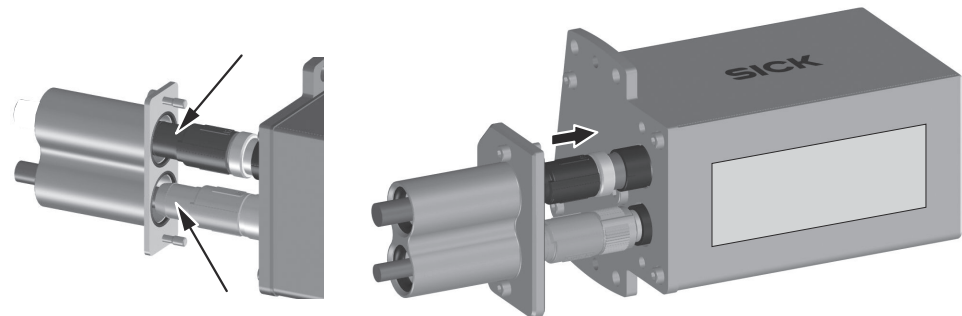


Figure 14: Assembly of IP69K protective housing, with use of the Ethernet connection – Step 3

13. Apply a small amount of lubricant, e.g., Vaseline to the indicated locations. This makes it easier to slide the protective double bushing over the plug connectors.
14. Carefully push the protective double bushing over the plug connectors.
15. Make sure that the O-rings are correctly positioned in the grooves of the protective double bushing.

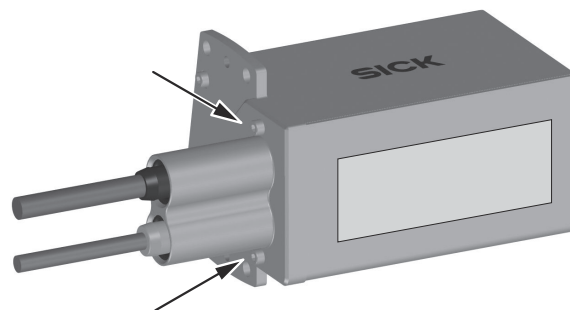


Figure 15: Assembly of IP69K protective housing, with use of the Ethernet connection – Step 4

16. Mount the protective double bushing on the protective housing using the two screws provided.



## 5.4.2 Assembly without use of the Ethernet connection

### Mounting the protective double bushing on the protective housing

The assembly procedure is described for the protective housing with front viewing window. The protective housing for fixed mount bar code scanners with oscillating mirror and side viewing window is assembled analogously.

### Component overview

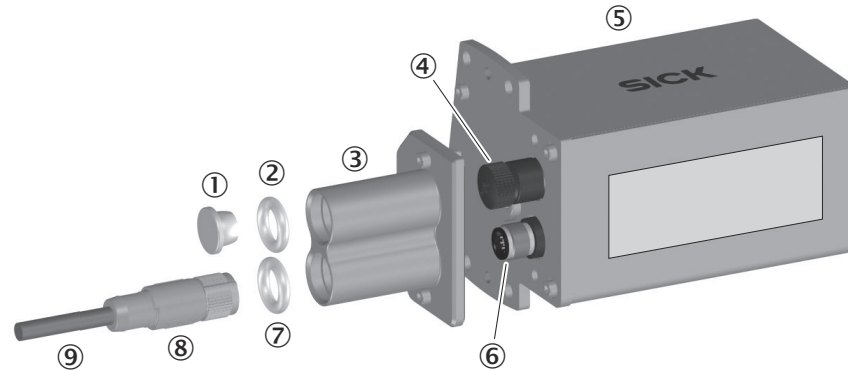


Figure 16: Assembly of IP69K protective housing, without use of the Ethernet connection

- ① Protective element for "Ethernet" pass-through
- ② O-ring 11.0 mm x 4.0 mm
- ③ Protective double bushing
- ④ Protective element for unused Ethernet connection, female connector, M12, 4-pin, D-coded
- ⑤ Protective housing, here for fixed mount bar code scanners with front viewing window
- ⑥ "Power/Serial Data/CAN/I/O" connection. male connector, M12, 17-pin, A-coded
- ⑦ O-ring 13.5 mm x 3.0 mm
- ⑧ Plug connector of connection cable
- ⑨ Connection cable for "Power/Serial data/CAN/I/O" connection

When delivered, both connections on the protective housing are sealed off with a protective element.

### Auxiliary equipment required

- Lubricant such as Vaseline

1. Make sure that the protective plug of the Ethernet connection is securely tightened.
2. Guide connection cable through the protective double bushing. Seal the lower feedthrough with the O-ring. Connect the connection cable at the protective housing, [see "Assembly with use of the Ethernet connection", page 22](#)
3. Position the 11.0 mm x 4.0 mm O-ring in the groove of the upper pass-through of the protective double bushing.
4. Close off the upper pass-through of the protective double bushing with the supplied protective element.

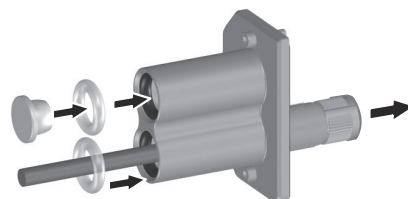
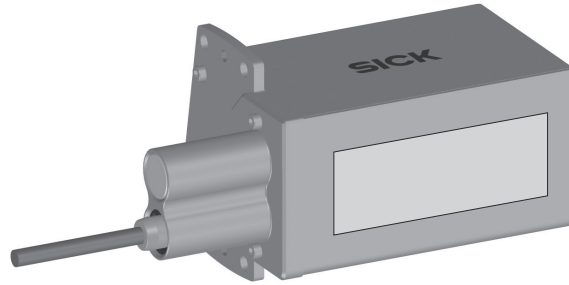


Figure 17: Assembly of IP69K protective housing, without use of the Ethernet connection – protective element

5. Apply lubricant. Push the protective double bushing over the plug connector and the Ethernet connection. Mount the protective double bushing on the protective housing, see ["Assembly with use of the Ethernet connection"](#), page 22



*Figure 18: Assembly of IP69K protective housing, without use of the Ethernet connection*

## 6 Electrical installation

### 6.1 Safety

#### 6.1.1 Notes on electrical installation



##### NOTICE

##### Equipment damage due to incorrect supply voltage!

An incorrect supply voltage may result in damage to the equipment.

- Only operate the device using a protected low voltage and safe electrical insulation as per protection class III.



##### NOTICE

##### Equipment damage or unpredictable operation due to working with live parts.

Working with live parts may result in unpredictable operation.

- Only carry out wiring work when the power is off.
- Only connect and disconnect electrical connections when the power is off.

- **Electrical installation must only be performed by electrically qualified personnel.**
- **Standard safety requirements must be observed when working on electrical systems.**
- Only switch on the supply voltage for the device when the connection tasks have been completed and the wiring has been thoroughly checked.
- When using extension cables with open ends, ensure that bare wire ends do not come into contact with each other (risk of short-circuit when supply voltage is switched on!). Wires must be appropriately insulated from each other.
- Wire cross-sections in the supply cable from the user's power system must be selected in accordance with the applicable standards. When this is done in Germany, observe the following standards: DIN VDE 0100 (Part 430) and DIN VDE 0298 (Part 4) or DIN VDE 0891 (Part 1).
- All circuits connected to the device must be designed as SELV circuits (EN 60950-1) or ES1 circuits (EN 62368-1).
- Protect the device with a separate fuse of max. 2 A at the start of the supply circuit.



##### 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.

##### Enclosure rating

The specified enclosure rating IP69K is achieved for the device only under the following conditions:

- The protective housing is assembled as described in these instructions.

- The Ethernet connection of the device is used: [see "Assembly with use of the Ethernet connection", page 22](#)
- The Ethernet connection of the device is not used: [see "Assembly without use of the Ethernet connection", page 25](#)
- Use of the specified cables, [see "Cables", page 39](#)

## 6.2 Prerequisites for safe operation of the device in a system

See operating instructions of the relevant fixed mount bar code scanner.

## 6.3 Pin assignment of the connections

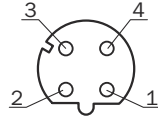


Figure 19: M12 female connector, 4-pin, D-coded

Table 7: Ethernet version: Pin assignment of the female connector

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

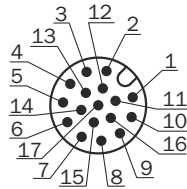


Figure 20: Male connector, M12, 17-pin, A-coded

Table 8: Ethernet version: Pin assignment of the male connector

Pin	Signal	Function
1	GND	Ground
2	CLV62x: 10 V DC ... 30 V DC CLV63x, CLV64x: 18 V DC ... 30 V DC	Supply voltage
3	CAN L	CAN bus (IN/OUT)
4	CAN H	CAN bus (IN/OUT)
5	TD+ (RS-422/485)	Host interface (sender+)
6	TD- (RS-422/485); TxD (RS-232)	Host interface (sender-)
7	TxD (AUX)	AUX interface (sender)
8	RxD (AUX)	AUX interface (receiver)
9	SensGND	Digital input ground
10	Sensor 1	Digital input (external reading cycle)
11	RD+ (RS-422/485)	Host interface (receiver+)

Pin	Signal	Function
12	RD- (RS-422/485); RxD (RS-232)	Host interface (receiver-)
13	Result 1	Digital output, function adjustable
14	Result 2	Digital output, function adjustable
15	Sensor 2	Digital input (external reading cycle)
16	-	-
17	-	-

## 7 Technical data

### 7.1 CLV62x bar code scanner in the IP69K protective housing



#### NOTE

The relevant online data sheet for your product including technical data and dimensions can be downloaded from the Internet: [www.sick.com/CLV62x](http://www.sick.com/CLV62x)

#### Features

	CLV620
Working range	Mid range
Scanning methods	Line scan or raster scan, type-dependent
Sensor type	Line scanner or raster scanner <sup>1)</sup> , type-dependent, for identifier see type code in the operating instructions
Orientation of viewing window	On the front
Aperture angle	≤ 50°
Optical focus	Fixed focus
Code resolution	0.2 mm ... 1.0 mm
Reading fields	see "Reading fields", page 17 as well as the "Reading field diagrams (working ranges)" section in the operating instructions
Scanning frequency	400 Hz ... 1200 Hz
Light source	Laser diode, visible red light (λ = 655 nm)
Light spot	Circular
MTTF (laser diode)	40000 hours at 25 °C
MTBF	100,000 hours
Laser class	Class 2 according to EN 60825-1:2014 +A11:2021 / IEC 60825-1:2014. Identical laser class for issue EN/IEC 60825-1:2007. Complies with 21 CFR 1040.10/11 except for conformance with IEC 60825-1 Ed. 3., see Laser Notice No. 56, 8 May 2019.
Laser power (maximum/average)	1.5 mW / < 1.0 mW
Laser pulse duration	< 300 μs

<sup>1)</sup> Raster height approx. 15 mm at a reading distance of 200 mm.

#### Performance

	CLV620
Readable code structures	1D codes
Bar code types	Code 39, Code 128, Code 93, Codabar, GS1-128 / EAN 128, UPC / GTIN / EAN, 2/5 Interleaved, Pharmacode, GS1 DataBar, Telepen, MSI/Plessey
Print ratio	2:1 ... 3:1
No. of codes per scan	1 ... 20 (standard decoder) 1 ... 6 (SMART620)
No. of codes per reading interval <sup>1)</sup>	1 ... 50 (auto-discriminating)
No. of characters per code/reading interval	Max. 50 characters Maximum 5,000 characters across all bar codes per reading interval, 500 characters for multiplexer function (CAN)

	CLV620
Number of multiple readings	1 ... 99

1) Reading interval: The time window generated internally by the reading cycle for code detection and evaluation.



#### NOTE


The bar codes being read must conform to at least quality level C in accordance with ISO/IEC 15416.

#### Interfaces

	CLV620
Serial (RS-232, RS-422/-485)	<b>Function:</b> Host, AUX (RS-232 only) <b>Data transmission rate:</b> 2.4 kBd ... 115.2 kBd, AUX: 57.6 kBd (RS-232)
Ethernet	<b>Function:</b> Host, AUX <b>Data transmission rate:</b> 10/100 Mbit/s, half/full duplex <b>Protocol:</b> TCP/IP, EtherNet/IP, PROFINET Single Port
CAN	<b>Function:</b> SICK CAN sensor network (master/slave, multiplexer/server) <b>Data transmission rate:</b> 20 kbit/s ... 1 Mbit/s <b>Protocol:</b> CSN (SICK CAN sensor network), CANopen
PROFINET	PROFINET Dual Port optional over external fieldbus module CDF600-2
EtherCAT®	Optional via external fieldbus module CDF600
PROFIBUS DP	Optional via external fieldbus module CDF600-2
DeviceNet	Optional over external connection module CDM420 and CMF fieldbus module
Digital inputs	2 inputs ("Sensor 1", "Sensor 2"), optional 2 additional inputs via CMC600 parameter cloning module in the CDB650 or CDM420 connection module Opto-decoupled, $V_{in} = \max. 32 \text{ V}$ , reverse polarity protected, can be wired via PNP output, adjustable debounce time 0 ms ... 10000 ms
Digital outputs	2 outputs ("Result 1", "Result 2"), optional 2 additional outputs via CMC600 parameter cloning module in the CDB650 or CDM420 connection module PNP, $I_{out} = \max. 100 \text{ mA}$ , short-circuit protected, adjustable pulse duration (static, 10 ms ... 10000 ms)
Reading pulse	<b>Pulse sources for start:</b> Digital inputs "Sensor 1" and/or "Sensor 2"; Command (data interface), Auto pulse, CAN <b>Pulse sources for stop:</b> Pulse sources for stop: Reading cycle source, digital inputs "Sensor 1", "Sensor 2" Command, Timer, Condition (e.g., Good Read)
Optical indicators	Not accessible
Acoustic indicator	None
Control elements	Configuration software
Service function	Backup of parameterization data (parameter cloning) outside the device memory: External, optional CMC600 parameter cloning module in CDB or CDM connection module
Configuration	SOPAS ET configuration software, profile programming with bar codes (can be deactivated), command language, GSD parameterization

#### Mechanics/Electronics

	CLV620
Connection type	2 x round connections (1 x male connector, M12, 17-pin, A-coded, 1 x female connector, M12, 4-pin, D-coded)
Supply voltage	10 V DC ... 30 V DC, LPS or NEC Class 2, reverse polarity protected
Power consumption <sup>1)</sup>	Max. 4.5 W
Housing	Stainless steel
Housing color	Unpainted

	CLV620
Window material of the viewing window	Plastic
Mounting elements	2 tapped blind holes M5 Alternative: 4 fixing holes, Ø 5.5 mm
Laserwarnschild	Lasered on
Safety	EN 62368-1: 2014-08
Enclosure rating	IP69K (DIN 40050, Part 9)  Test conditions: <ul style="list-style-type: none"> <li>• Water spray volume: 14 l/min ... 16 l/min</li> <li>• Water pressure/temperature: 10000 KPa (100 bar) / 80 °C</li> <li>• Flat jet nozzle distance: 100 mm ... 150 mm</li> <li>• Spray angle: 0°, 30°, 60°, 90°</li> <li>• Cycle: 30 seconds per position</li> <li>• Rotational speed of test specimen: 5 rpm</li> </ul>
Protection class	 (Class 3, EN 61140) For operation in SELV systems (EN 60950-1) or ES1 systems (EN 62368-1)
Weight <sup>2)</sup>	854 g, with double protective bushing
Dimensions (L x W x H) <sup>1)</sup>	85 mm x 84 mm x 154 mm
Conformity	CE. For further conformities and certificates, see the product page on the Internet at: <a href="http://www.sick.com/CLV62x">www.sick.com/CLV62x</a>

1) With digital outputs loaded.

2) Without connecting cables.

3) See also see "Design", page 12.

### Ambient data

	CLV620
EMC test	Radiated emission: According to EN 61000-6-3: 2007-01 Shock resistance: According to EN 61000-6-2: 2005-08
Vibration resistance	EN 60068-2-6: 2008-02
Shock resistance	EN 60068-2-27: 2009-05
Ambient operating temperature	0° C ... +40 °C
Storage temperature	-20° C ... +70 °C
Permissible relative humidity	0% ... 90%, non-condensing
Ambient light immunity	2,000 lx, on bar code
Bar code print contrast (PCS)	≥ 60 %

## 7.2 CLV63x bar code scanner in the IP69K protective housing



### NOTE

The relevant online data sheet for your product including technical data and dimensions can be downloaded from the Internet: [www.sick.com/CLV63x](http://www.sick.com/CLV63x)

### Features

	CLV630	CLV631	CLV632
Working range	Long range	Mid range	Short range



	CLV630	CLV631	CLV632
<b>Scanning methods</b>	Line scan or raster scan, type-dependent		
<b>Sensor type</b>	Line scanner, raster scanner <sup>1)</sup> , or line scanner with oscillating mirror. For identifier, see the type code in the operating instructions		
<b>Oscillating mirror functions</b>	<ul style="list-style-type: none"> <li>• Fixed (adjustable position), oscillating (variable or fixed amplitude), one-shot</li> <li>• Oscillation frequency / period: 0.5 Hz ... 6.25 Hz / 2000 ms ... 160 ms</li> <li>• Angle of deflection: -20° ... +20° (adjustable using software)</li> </ul>		
<b>Orientation of viewing window</b>	Front or side, for identifier see type code in operating instructions		
<b>Aperture angle</b>	Front viewing window: ≤ 50°, side viewing window: ≤ 51.5°		
<b>Optical focus</b>	Fixed focus		
<b>Code resolution</b>	0.2 mm ... 1.0 mm (type-dependent)		
<b>Scanning frequency</b>	400 Hz ... 1200 Hz		
<b>Light source</b>	Laser diode, visible red light (λ = 655 nm)		
<b>Light spot</b>	Oval		
<b>MTTF (laser diode)</b>	40000 hours at 25 °C		
<b>MTBF</b>	100,000 hours		
<b>Laser class</b>	Class 2 according to EN 60825-1:2014 +A11:2021 / IEC 60825-1:2014. Identical laser class for issue EN/IEC 60825-1:2007. Complies with 21 CFR 1040.10/11 except for conformance with IEC 60825-1 Ed. 3., see Laser Notice No. 56, 8 May 2019.		
<b>Laser power (maximum/average)</b>	3.2 mW/ <1.0 mW		
<b>Laser pulse duration</b>	<300 μs		

1) Raster height approx. 15 mm at a reading distance of 200 mm.

## Performance

	CLV630	CLV631	CLV632
<b>Readable code structures</b>	1D codes		
<b>Bar code types</b>	Code 39, Code 128, Code 93, Codabar, EAN, EAN 128, UPC, 2/5 Interleaved, Pharmacode		
<b>Print ratio</b>	2:1 ... 3:1		
<b>No. of codes per scan</b>	1 ... 20 (standard decoder) 1 ... 6 (SMART decoder)		
<b>No. of codes per reading interval <sup>1)</sup></b>	1 ... 50 (auto-discriminating)		
<b>No. of characters per code/reading interval</b>	Max. 50 characters Maximum 5,000 characters across all bar codes per reading interval, 500 characters for multiplexer function (CAN)		
<b>Number of multiple readings</b>	1 ... 99		

1) Reading interval: The time window generated internally by the reading cycle for code detection and evaluation.



## NOTE

The bar codes being read must conform to at least quality level C in accordance with ISO/IEC 15416.


## Interfaces

	CLV630	CLV631	CLV632
<b>Serial (RS-232, RS-422/-485)</b>	<b>Function:</b> Host, AUX (RS-232 only) <b>Data transmission rate:</b> 2.4 kBd ... 115.2 kBd, AUX: 57.6 kBd (RS-232)		

	CLV630	CLV631	CLV632
<b>Ethernet</b>	<b>Function:</b> Host, AUX <b>Data transmission rate:</b> 10/100 Mbit/s, half/full duplex <b>Protocol:</b> TCP/IP, EtherNet/IP, PROFINET Single Port		
<b>CAN</b>	<b>Function:</b> SICK CAN sensor network (master/slave, multiplexer/server) <b>Data transmission rate:</b> 20 kbit/s ... 1 Mbit/s <b>Protocol:</b> CSN (SICK CAN sensor network), CANopen		
<b>PROFINET</b>	PROFINET Dual Port optional over external fieldbus module CDF600-2		
<b>EtherCAT®</b>	Optional via external fieldbus module CDF600		
<b>PROFIBUS</b>	Optional via external fieldbus module CDF600-2		
<b>DeviceNet</b>	Optional over external connection module CDM420 and CMF fieldbus module		
<b>Digital inputs</b>	2 ("Sensor 1", "Sensor 2"), optional 2 additional inputs via CMC600 parameter cloning module in the CDB650 or CDM420 connection module Opto-decoupled, $V_{in} = \text{max. } 32 \text{ V}$ , reverse polarity protected, can be wired via PNP output, adjustable debounce time 0 ms ... 10000 ms		
<b>Digital outputs</b>	2 ("Result 1", "Result 2"), optional 2 additional outputs via CMC600 parameter cloning module in the CDB650 or CDM420 connection module PNP, $I_{out} = \text{max. } 100 \text{ mA}$ , short-circuit protected, adjustable pulse duration (static, 10 ms ... 10000 ms)		
<b>Reading pulse</b>	<b>Pulse sources for start:</b> Digital inputs "Sensor 1" and/or "Sensor 2"; Command (data interface), Auto pulse, CAN <b>Pulse sources for stop:</b> Pulse sources for stop: Reading cycle source, digital inputs "Sensor 1", "Sensor 2" Command, Timer, Condition (e.g., Good Read)		
<b>Optical indicators</b>	Not accessible		
<b>Acoustic indicator</b>	None		
<b>Configuration</b>	SOPAS ET configuration software, profile programming with bar codes (can be deactivated), command language, GSD parameterization		

### Mechanics/Electronics

	CLV630	CLV631	CLV632
<b>Connection type</b>	Ethernet variant: 2 x round connections (1 x male connector, M12, 17-pin, A-coded, 1 x female connector, M12, 4-pin, D-coded)		
<b>Supply voltage</b>	18 V DC ... 30 V DC, LPS or NEC Class 2, reverse polarity protected		
<b>Power consumption <sup>1)</sup></b>	Typically 5 W		
<b>Housing</b>	Stainless steel		
<b>Housing color</b>	Unpainted		
<b>Window material of the viewing window</b>	Plastic		
<b>Mounting elements</b>	2 tapped blind holes M5 Alternative: 4 fixing holes, $\varnothing 5.5 \text{ mm}$		
<b>Laserwarnschild</b>	Lasered on		
<b>Safety</b>	EN 62368-1: 2014-08		
<b>Enclosure rating</b>	IP69K (DIN 40050, Part 9)  <b>Test conditions:</b> <ul style="list-style-type: none"> <li>• Water spray volume: 14 l/min ... 16 l/min</li> <li>• Water pressure/temperature: 10000 KPa (100 bar) / 80 °C</li> <li>• Flat jet nozzle distance: 100 mm ... 150 mm</li> <li>• Spray angle: 0°, 30°, 60°, 90°</li> <li>• Cycle: 30 seconds per position</li> <li>• Rotational speed of test specimen: 5 rpm</li> </ul>		

	CLV630	CLV631	CLV632
<b>Protection class</b>	 (Class 3, EN 61140) For operation in SELV systems (EN 60950-1) or ES1 systems (EN 62368-1)		
<b>Weight <sup>2)</sup></b>	Front viewing window: 890 g, incl. double protective bushing Side viewing window: 1230 g, incl. double protective bushing		
<b>Dimensions (L x W x H) <sup>3)</sup></b>	Side viewing window: 85 mm x 84 mm x 154 mm Side viewing window (oscillating mirror): 121 mm x 84 mm x 164 mm		
<b>Conformities</b>	CE. For further conformities and certificates, see the product page on the Internet at: <a href="http://www.sick.com/CLV63x">www.sick.com/CLV63x</a>		

1) For digital outputs without load.

2) Without connecting cables.

3) See also see "Design", page 12.

### Ambient data

	CLV630	CLV631	CLV632
<b>EMC test</b>	Radiated emission: According to EN 61000-6-3: 2007-01 Shock resistance: According to EN 61000-6-2: 2005-08		
<b>Vibration resistance</b>	EN 60068-2-6: 2008-02		
<b>Shock resistance</b>	EN 60068-2-27: 2009-05		
<b>Ambient operating temperature</b>	0 °C ... +40 °C		
<b>Storage temperature</b>	-20 °C ... +70 °C		
<b>Permissible relative humidity</b>	0% ... 90%, non-condensing		
<b>Ambient light immunity</b>	2000 lx, on bar code		
<b>Bar code print contrast (PCS)</b>	≥ 60 %		

## 7.3 CLV64x bar code scanner in the IP69K protective housing



### NOTE

The relevant online data sheet for your product including technical data and dimensions can be downloaded from the Internet: [www.sick.com/CLV64x](http://www.sick.com/CLV64x)

### Features

	CLV640
<b>Working range</b>	Standard density
<b>Scanning methods</b>	Line scan or raster scan, type-dependent
<b>Sensor type</b>	Line scanner, raster scanner <sup>1)</sup> , or line scanner with oscillating mirror. For identifier, see the type code in the operating instructions
<b>Oscillating mirror functions</b>	<ul style="list-style-type: none"> <li>Fixed (adjustable position), oscillating (variable or fixed amplitude), one-shot</li> <li>Oscillation frequency / period: 0.5 Hz ... 6.25 Hz / 2000 ms ... 160 ms</li> <li>Angle of deflection: -20° ... +20° (adjustable using software)</li> </ul>
<b>Orientation of viewing window</b>	Front or side, for identifier see type code in operating instructions
<b>Aperture angle</b>	≤ 50°
<b>Optical focus</b>	Dynamic focus adjustment
<b>Code resolution</b>	0.2 mm ... 1.0 mm (type-dependent)
<b>Scanning frequency</b>	400 Hz ... 1200 Hz

	CLV640
Light source	Laser diode, visible red light ( $\lambda = 655 \text{ nm}$ )
Light spot	Oval
MTTF (laser diode)	40,000 hours at 25 °C
MTBF	100,000 hours
Laser class	Class 2 according to EN 60825-1:2014 +A11:2021 / IEC 60825-1:2014. Identical laser class for issue EN/IEC 60825-1:2007. Complies with 21 CFR 1040.10/11 except for conformance with IEC 60825-1 Ed. 3., see Laser Notice No. 56, 8 May 2019.
Laser power (maximum/average)	3.2 mW / < 1.0 mW
Laser pulse duration	< 300 $\mu\text{s}$

1) Raster height approx. 15 mm at a reading distance of 200 mm

### Performance

	CLV640
Readable code structures	1D codes
Bar code types	Code 39, Code 128, Code 93, Codabar, EAN, EAN 128, UPC, 2/5 Interleaved, Pharmacode
Print ratio	2:1 ... 3:1
No. of codes per scan	1 ... 20 (standard decoder) 1 ... 6 (SMART decoder)
No. of codes per reading interval <sup>1)</sup>	1 ... 50 (auto-discriminating)
No. of characters per code/reading interval	Max. 50 characters Maximum 5,000 characters across all bar codes per reading interval, 500 characters for multiplexer function (CAN)
Number of multiple readings	1 ... 99

1) Reading interval: The time window generated internally by the reading cycle for code detection and evaluation



### NOTE


The bar codes being read must conform to at least quality level C in accordance with ISO/IEC 15416.

### Interfaces

	CLV640
Serial (RS-232, RS-422/-485)	Function: Host, AUX Data transmission rate: 2.4 kBd ... 115.2 kBd, AUX: 57.6 kBd (RS-232)
Ethernet	Function: Host, AUX Data transmission rate: 10/100 Mbit/s, half/full duplex Protocol: TCP/IP, EtherNet/IP, PROFINET Single Port
CAN	Function: SICK CAN sensor network (master/slave, multiplexer/server) Data transmission rate: 20 kbit/s ... 1 Mbit/s Protocol: CSN (SICK CAN sensor network), CANopen
PROFINET	PROFINET Dual Port optional over external fieldbus module CDF600-2
EtherCAT®	Optional via external fieldbus module CDF600
PROFIBUS	Optional via external fieldbus module CDF600-2
DeviceNet	Optional over external connection module CDM420 and CMF fieldbus module
Digital inputs	2 ("Sensor 1", "Sensor 2"), 2 additional inputs via CMC600 parameter cloning module in the CDB650 or CDM420 connection module Opto-decoupled, $V_{in} = \text{max. } 32 \text{ V}$ , reverse polarity protected, can be wired via PNP output, adjustable debouncing 0 ms ... 10,000 ms

	CLV640
<b>Digital outputs</b>	2 ("Result 1", "Result 2"), 2 additional outputs via CMC600 parameter cloning module in the CDB650 or CDM420 connection module PNP, $I_{out} = \max. 100 \text{ mA}$ , short-circuit protected, adjustable pulse duration (static, 10 ms ... 10,000 ms)
<b>Reading pulse</b>	Pulse sources for start: Digital inputs "Sensor 1" and/or "Sensor 2"; Command (data interface), Auto pulse, CAN Pulse sources for stop: Reading cycle source, digital inputs "Sensor 1", "Sensor 2" Command, Timer, Condition (e.g., Good Read)
<b>Optical indicators</b>	Not accessible
<b>Acoustic indicator</b>	None
<b>Configuration</b>	SOPAS ET configuration software, profile programming with bar codes, command language, GSD parameterization

### Mechanics/Electronics

	CLV640
<b>Electrical connection</b>	Ethernet variant: 2 x round connections (1 x male connector, M12, 17-pin, A-coded, 1 x female connector, M12, 4-pin, D-coded)
<b>Supply voltage</b>	18 V DC ... 30 V DC, LPS or NEC Class 2, reverse polarity protected
<b>Power consumption</b>	Typical 5 W, with unloaded digital outputs
<b>Housing</b>	Stainless steel
<b>Housing color</b>	Unpainted
<b>Window material of the viewing window</b>	Plastic
<b>Laserwarnschild</b>	Lasered on
<b>Safety</b>	EN 62368-1: 2014-08
<b>Enclosure rating</b>	IP69K (DIN 40050, Part 9)  Test conditions: <ul style="list-style-type: none"> <li>• Water spray volume: 14 l/min ... 16 l/min</li> <li>• Water pressure/temperature: 10,000 kPa (100 bar) / 80 °C</li> <li>• Flat jet nozzle distance: 100 mm ... 150 mm</li> <li>• Spray angle: 0°, 30°, 60°, 90°</li> <li>• Cycle: 30 seconds per position</li> <li>• Rotational speed of test specimen: 5 rpm</li> </ul>
<b>Protection class</b>	 (Class 3, EN 61140) For operation in SELV systems (EN 60950-1) or ES1 systems (EN 62368-1)
<b>Weight <sup>1)</sup></b>	Front viewing window: 890 g, incl. double protective bushing Side viewing window: 1,230 g, incl. double protective bushing
<b>Device dimensions (L x W x H) <sup>1)</sup></b>	Side viewing window: 85 mm x 84 mm x 154 mm Side viewing window (oscillating mirror): 121 mm x 84 mm x 164 mm
<b>Conformities</b>	CE. For further conformities and certificates, see the product page on the Internet at: <a href="http://www.sick.com/CLV64x">www.sick.com/CLV64x</a>

1) Without connecting cables

2) See also see "Design", page 12.

Ambient data

	CLV640
<b>EMC test</b>	Radiated emission: According to EN 61000-6-3: 2007-01 Shock resistance: According to EN 61000-6-2: 2005-08
<b>Vibration resistance</b>	EN 60068-2-6: 2008-02
<b>Shock resistance</b>	EN 60068-2-27: 2009-05
<b>Ambient operating temperature</b>	0 °C ... +40 °C
<b>Storage temperature</b>	-20 °C ... +70 °C
<b>Permissible relative humidity</b>	0 % ... 90 %, non-condensing
<b>Ambient light immunity</b>	2000 lx, on bar code
<b>Bar code print contrast (PCS)</b>	≥ 60 %

## 8 Accessories

### 8.1 Brackets

SICK offers prefabricated brackets which are optimally suited for mounting the device in a wide range of applications. Also see on Internet at:

- [www.sick.com/CLV62x](http://www.sick.com/CLV62x)
- [www.sick.com/CLV63x](http://www.sick.com/CLV63x)
- [www.sick.com/CLV64x](http://www.sick.com/CLV64x)

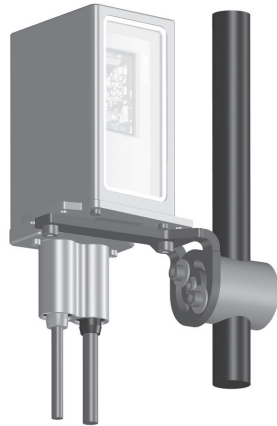


Figure 21: Example: Optional bracket for CLV62x, CLV63x and CLV64x fixed mount bar code scanners with front viewing window in IP69K protective housing, here round pole bracket with mounting bracket, part no. 2068599

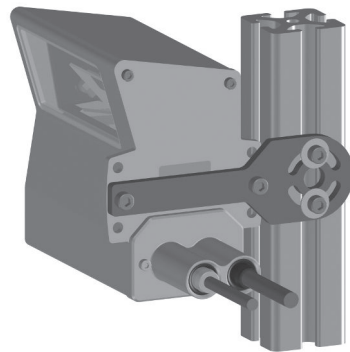


Figure 22: Example: Optional bracket for CLV62x, CLV63x and CLV64x fixed mount bar code scanners with oscillating mirror and side viewing window, in IP69K protective housing, here mounting plate, part no. 2068602

### 8.2 Cables



#### NOTICE

The following requirements must be met in order to achieve the IP69K enclosure rating:

- Use only the connection cables specified by SICK.
- Seal the two cable outlets at the protective double bushing with the corresponding O-rings.
- The recessed flat seal on the side facing the protective housing is undamaged.

The O-rings are included in the device scope of delivery and are matched to the outer diameters of the plug connectors.

The following connection cables are available as accessories for the devices.

**Connection cables for “Power/Serial data/CAN/I/O” connection**

Table 9: Connection cables for “Power/Serial data/CAN/I/O” connection

Part number	Description
6051194	Connection cable with female and male connector, 17-wire, shielded Head A: female connector, M12, 17-pin, straight, A-coded Head B: male connector, M12, 17-pin, straight, A-coded Length: 3 m
6051195	Like 6051194, except 5 m length
2070425	Connection cable with female connector and cable, 17-wire, shielded Head A: female connector, M12, 17-pin, straight, A-coded Head B: open cable end, wires stripped Length: 3 m
2070426	Like 2070425, except 5 m length
2070427	Like 2070425, except 10 m length

**NOTE**

For cables with an open end at one end, the signal-neutral assignment of contacts of the female or male connector to the wire colors can be viewed on the Internet at: [www.sick.com](http://www.sick.com)

- For this purpose, enter the 7-digit part number of the cable in the search field.

For the device-specific signal assignment of the contacts, see this document, see "Pin assignment of the connections", page 28.

**Connection cables for “Ethernet” connection**

Table 10: Connection cables for “Ethernet” connection

Part number	Description
6050198	Connection cable with male and male connector, 4-wire, AWG26, shielded Head A: male connector, M12, 4-pin, straight Head B: male connector, RJ45, 8-pin, straight Length: 2 m
6050199	Like 6050198, except 3 m length
6050200	Like 6050198, except 5 m length
6050201	Like 6050198, except 10 m length
6050596	Like 6050198, except 20 m length





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