



ELS35/ELM35



OPERATING INSTRUCTIONS

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1 About this document

1.1 Information on the operating instructions

Read these operating instructions carefully before starting any work in order to familiarize yourself with the product and its functions.

The operating instructions are an integral part of the product and should remain accessible to the personnel at all times. When handing this product over to a third party, include these operating instructions.

These operating instructions do not provide information on the handling and safe operation of the machine or system in which the product is integrated. Information on this can be found in the operating instructions for the machine or system.

1.2 Scope

This document applies to the following products:

- ELS35/ELM35

1.3 Target group

This document is intended for persons who commission, install, operate and maintain the product.

1.4 Further information

You can find the product page with further information via the SICK Product ID: pid.sick.com/{P/N}/{S/N} (see [Product identification via the SICK product ID](#)).

The following information is available depending on the product:

- This document in all available language versions
- Data sheets
- Other publications
- CAD files and dimensional drawings
- Certificates (e.g., declaration of conformity)
- Software
- Accessories

1.5 Related applicable documents

Technical Information for BiSS-C: 8028999 (www.sick.com)

1.6 Symbols and document conventions

Warnings and other notes

DANGER

Indicates a situation presenting imminent danger, which will lead to death or serious injuries if not prevented.

WARNING

Indicates a situation presenting possible danger, which may lead to death or serious injuries if not prevented.

CAUTION

Indicates a situation presenting possible danger, which may lead to moderate or minor injuries if not prevented.

NOTICE

Indicates a situation presenting possible danger, which may lead to property damage if not prevented.

NOTE

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

Instructions to action

- ▶ The arrow denotes instructions to action.
- 1. The sequence of instructions is numbered.
- 2. Follow the order in which the numbered instructions are given.
- ✓ The tick denotes the results of an action.

2 Safety information

2.1 Basic safety notes

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

CAUTION

Failure to observe the relevant work safety regulations may lead to physical injury or cause damage to the system.

Mounting and electrical installation

DANGER

Death or severe injury due to electrical voltage and/or an unexpected startup of the machine

- ▶ Make sure that the machine is (and remains) disconnected from the voltage supply during mounting and electrical installation.
- ▶ Make sure that the dangerous state of the machine is and remains switched off.

Integrating the product

DANGER

The product can not offer the expected protection if it is integrated incorrectly.

- ▶ Plan the integration of the product in accordance with the machine requirements (project planning).
- ▶ Implement the integration of the product in accordance with the project planning.

Repairs and modifications

DANGER

Improper work on the product

A modified product may not offer the expected protection if it is integrated incorrectly.

- ▶ Apart from the procedures described in this document, do not repair, open, manipulate or otherwise modify the product.

The motor feedback system housing is to be connected to the customer's flange arrangement with fixing screws so that it cannot rotate. The more precise the centering of the motor feedback system, the less the angle and shaft offset during mounting.

From an EMC perspective, it is essential to connect the housing or encoder to ground. In the case of the ELS35-0 / ELM35-0, the direct contact with the motor flange ensures that the encoder housing is at the same potential as the motor housing.

WARNING

To ensure fault-free operation, the motor shielding must be connected properly.

2.2 Qualification of personnel

Any work on the product may only be carried out by personnel qualified and authorized to do so.

Qualified personnel are able to perform tasks assigned to them and can independently recognize and avoid any potential hazards. This requires, for example:

- technical training
- experience
- knowledge of the applicable regulations and standards

3 Product description

3.1 Product description

Encoders of type ELS35 / ELM35 are motor feedback systems that are designed for the dynamic and precise operation of servo-control circuits due to their equipment. The overall system, which consists of a motor feedback system, evaluation system, servo controller, and motor forms a control circuit. Actual values for commutation, rotational speed, direction of rotation, and position are derived from the encoder signals. The sensor signals are transmitted to the evaluation system via a BiSS-C interface.

WARNING

The ELS35 / ELM35 motor feedback system is not a safety component.

4 Mounting

4.1 Mounting instruction

WARNING

The product must be mounted in an ESD protected area.

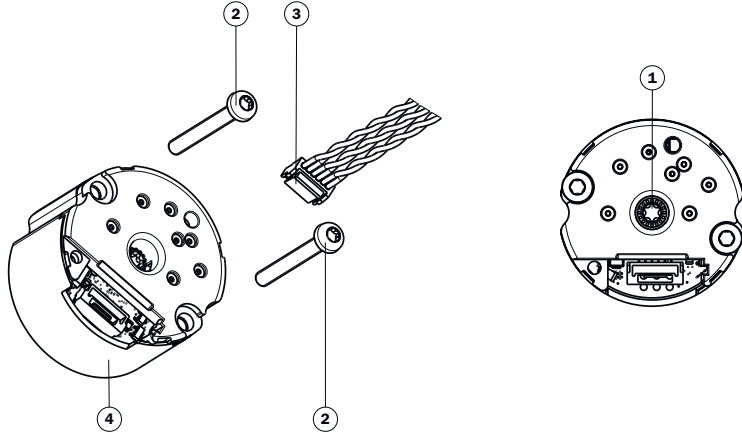
WARNING

Please observe the following safety instructions for the lateral fixing screws ② and central fixing screw ① used during mounting:

- ▶ Minimum strength class 8.8
- ▶ The screw-in depth must be at least 5 thread turns; select screw lengths appropriate for the installation conditions.
- ▶ The tightening torque applies if a thread is already present in the end plate of the motor. If no thread is present, the additional roll moment, which depends on the material of the motor end plate and on the hole diameter for the fixing screw ②, must be taken into account.
- ▶ Use screw-locking measures for all screws
- ▶ Use spring washers for the M3x25 fixing screws ②

4.2 Mounting procedure

1. Block the customer's drive shaft.
2. Carefully slide the encoder ④ onto the motor shaft. Ensure that the encoder housing is seated neatly in the centering part of the motor and the shaft is straight when installing the encoder in the motor shaft.
3. Turn the encoder ④ until the holes in the housing are positioned over the mounting holes of the motor.
4. Fasten the encoder housing to the motor end plate by alternately tightening the two M3x25 screws ②. Tightening torque: 1.2 Nm ± 10%.
5. Pre-mount and tighten the screw ①. Tightening torque: 1.2 Nm ± 10%.



- ① Shaft fixing screw (M3, hex key: width across flats 2.5 mm), included with the encoder
- ② M3x25 fixing screw (not included with delivery)
- ③ BiSS-C male connector with stranded cables (not included with delivery)
- ④ Encoder

5 Electrical installation

⚠ WARNING

Observe the following points during electrical installation of the ELS35/ELM35 motor feedback system:

- To connect the sensors, refer to the corresponding mounting instructions for the external drive system or for the higher-order control system.
- Never establish or remove electrical connections to the motor feedback system with the voltage switched on as that could lead to a defect in the device.

5.1 Connecting the interfaces



Figure 1: JST BM06B-GHS-GB-TBT (gold plated)

Pin	Signal	Explanation
1	U _s +	Supply voltage range for the encoder (is between +4.5 V DC and +5.5 V DC)
2	GND	Ground connection of the encoder
3	Tx- / SL-	Slave data output, minus
4	Tx+ / SL+	Slave data output, plus
5	Rx- / MA-	Master clock input, minus
6	Rx+ / MA+	Master clock input, plus

⚠ WARNING

The supply voltage must be generated from PELV systems (EN 50178). The motor feedback system conforms to protection class III according to EN 61140. If the supply voltage is not generated from PELV systems, the user must take other measures to ensure a safe isolation from live parts.

5.2 Recommended components

Cable connection

Connection	Type
BiSS-C	JST GHR-06V-S (housing), SSHL-002T-P0.2 (gold-plated contacts)

5.3 Electrical installation

Push the male connector of the BiSS-C strand set ③ into the BiSS-C female connector of the encoder until it engages. Make sure that this step is performed without mechanical stress.

6 Maintenance

The EDS35/EDM35 motor feedback system is maintenance-free. No repair option is provided in the event of a defect. Please contact us for warranty claims.

7 Deinstallation

1. Block the customer's drive shaft
2. Disconnect the BiSS-C cable ③
3. Remove the central screw ①
4. Remove both M3 screws ②
5. Remove the encoder ④.

8 Disposal

The motor feedback system has been designed to minimize its impact on the environment. It consumes only a minimum of energy and natural resources.

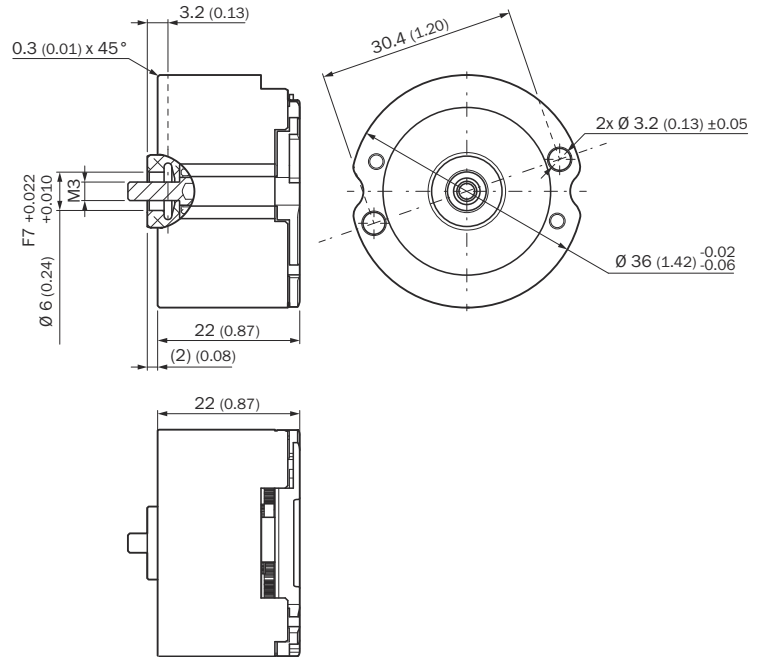
We request that you always act in an environmentally-aware manner. For this reason, please observe the following instructions on disposal:

ⓘ NOTE

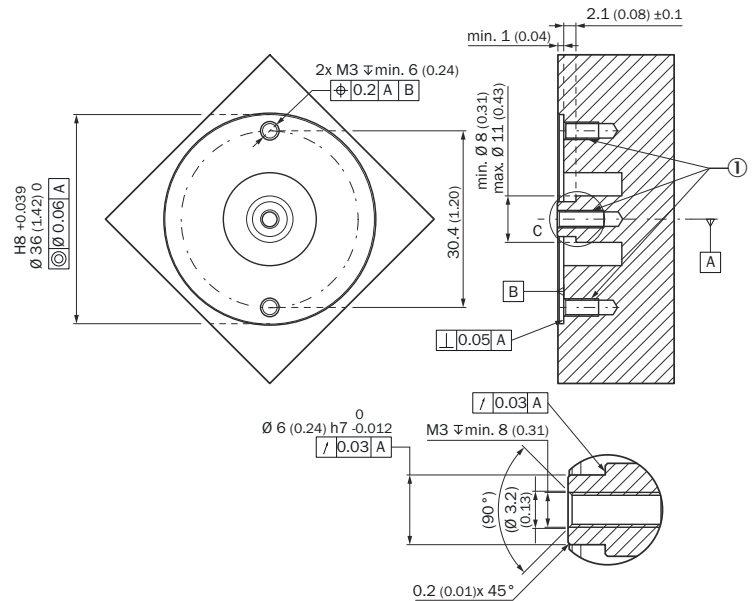
A device that can no longer be used must be disposed of in an environmentally friendly manner in line with the applicable country-specific waste disposal regulations. Because the device is classified as electronic waste, it must not be disposed of with the household trash.

9 Technical data

9.1 Dimension drawings



9.1.1 Attachment specifications



10 Annex

10.1 Conformities and certificates

You can obtain declarations of conformity, certificates, and the current operating instructions for the product at www.sick.com. To do so, enter the product part number in the search field (part number: see the entry in the "P/N" or "Ident. no." field on the type label).