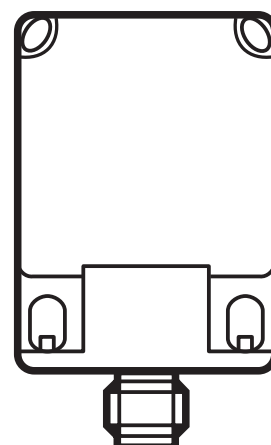




Installation Instructions
RF-identification system
Read/write head
DTC510

UK

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Contents

1	Preliminary note.....	4
1.1	Symbols used.....	4
2	Safety instructions	4
2.1	General.....	4
2.2	Radio equipment	5
2.3	Interference of electronic and medical devices	5
3	Functions and features	5
4	Functions	5
4.1	Operating principle	5
4.2	Overview.....	6
5	Installation.....	6
5.1	General installation instructions.....	6
5.2	Notes on ID tag mounting.....	6
5.3	Avoiding interference	7
5.4	Mechanical design.....	7
5.5	Alignment of the sensing face.....	7
5.6	Fixing	8
5.7	Mounting distances.....	8
5.8	Positioning of the ID tags.....	9
5.9	Orientation of the ID tags.....	9
5.10	ID tag distances.....	9
6	Electrical connection.....	10
6.1	Wiring	10
6.2	CAN bus interface	10
7	Display elements	11
8	Operation	12
9	Dimensions	12
10	Technical data.....	12
11	Maintenance, repair and disposal	13
12	Approvals/standards	13
12.1	Radio approvals.....	13

12.1.1 Overview.....	13
12.1.2 Europe	13
12.1.3 EC declaration of conformity	13



1 Preliminary note

This document is part of the device and contains information about the correct handling of the product.

This document is intended for specialists. These specialists are people who are qualified by their training and their experience to see risks and to avoid possible hazards that may be caused during operation or maintenance of the device.

Read this document before use to familiarise yourself with operating conditions, installation and operation. Keep this document during the entire duration of use of the device.

1.1 Symbols used

- Instructions
- Cross-reference
-  Important note
Non-compliance can result in malfunction or interference.
-  Information
Supplementary note

2 Safety instructions

2.1 General

Observe the operating instructions. Non-observance of the instructions, operation which is not in accordance with use as prescribed below, wrong installation or incorrect handling can affect the safety of operators and machinery.

The installation and connection must comply with the applicable national and international standards. Responsibility lies with the person installing the device.

The device must only be installed, connected and put into operation by a qualified electrician as the safe function of the device and machinery is only guaranteed when installation is correctly carried out.

Disconnect the unit externally before handling it.

In case of malfunction of the device or uncertainties please contact the manufacturer. Tampering with the device can seriously affect the safety of operators and machinery. This is not permitted and leads to an exclusion of liability and warranty.

2.2 Radio equipment

In general, radio equipment must not be used in the vicinity of petrol stations, fuel depots, chemical plants or blasting operations.

- ▶ Do not transport and store any flammable gases, liquids or explosive substances near the unit.

2.3 Interference of electronic and medical devices

Operation can affect the function of electronic devices that are not correctly shielded.

- ▶ Disconnect the device in the vicinity of medical equipment.
- ▶ Contact the manufacturer of the corresponding device in case of any interference.

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3 Functions and features

The device is suited for non-contact reading and writing of system-compliant RFID tags (ID tags).

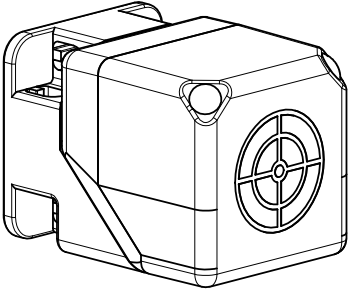
Data transmission is done via the CAN bus.

4 Functions

4.1 Operating principle




The ID tags are operated passively, i.e. without battery. The energy required for operation is supplied by the read/write head. The physical principle of the energy transfer is based on inductive coupling. The integrated antenna coil in the read/write head generates a magnetic field which partly penetrates the antenna coil of the ID tag. A voltage is generated by induction that supplies the data carrier with energy.

4.2 Overview

	Art. no.:	DTC510
	Function:	read/write head
	Type designation:	DTCHF MCRWCOUS03
	operating frequency:	13.56MHz
	H X W X D [mm]:	40 x 40 x 54
	Max. transmission power:	200 mW




5 Installation

5.1 General installation instructions

-  When mounting several read/write heads adhere to the minimum distances between the systems.
-  Flush mounting of a read/write head in metal reduces the read/write distance.
-  The immediate vicinity of powerful HF emission sources such as welding transformers or converters can affect operation of the read/write heads.

Information on the available mounting accessories is available on our website at www.ifm.com.

5.2 Notes on ID tag mounting

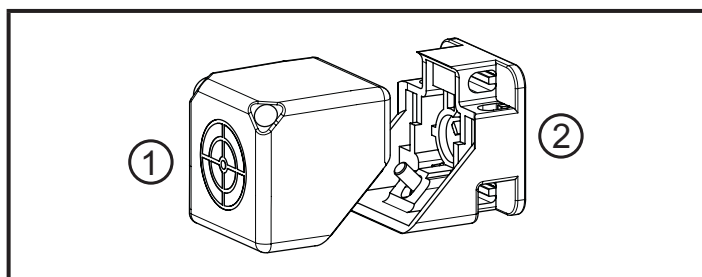
-  If the ID tags are mounted in/on metal, the read/write distance is reduced.
-  For positioning the ID tags the read/write heads are marked with an antenna symbol on the active face. It designates the middle of the integrated antenna coil and has to correspond with the middle of the ID tag.
-  The orientation of the read/write head antenna axis must correspond with the axis of the ID tag coil.

5.3 Avoiding interference

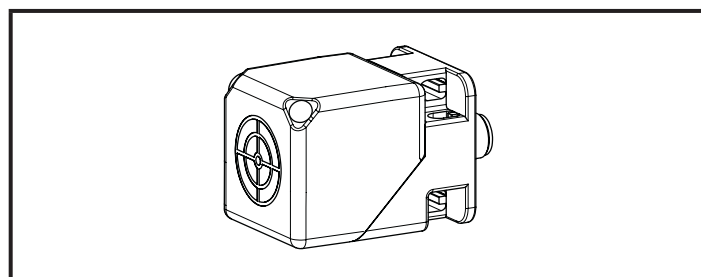
The device generated a modulated electrical field with a frequency of 13.56 kHz. To avoid interference of the data communication no other devices generating interference emission in this frequency band must be operated in the vicinity. Such devices are for example frequency converters and switched-mode power supplies.

5.4 Mechanical design

On delivery the sensing face is facing the front.

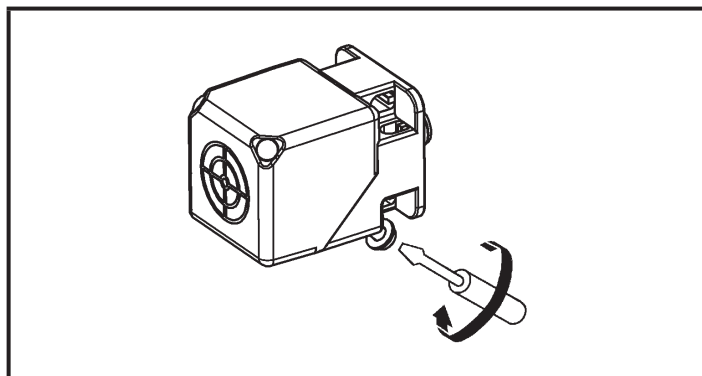


- 1: Antenna head (can be aligned)
- 2: Fixing element

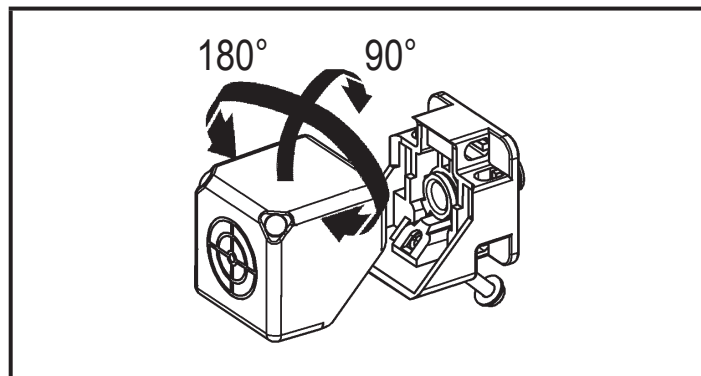


Factory setting

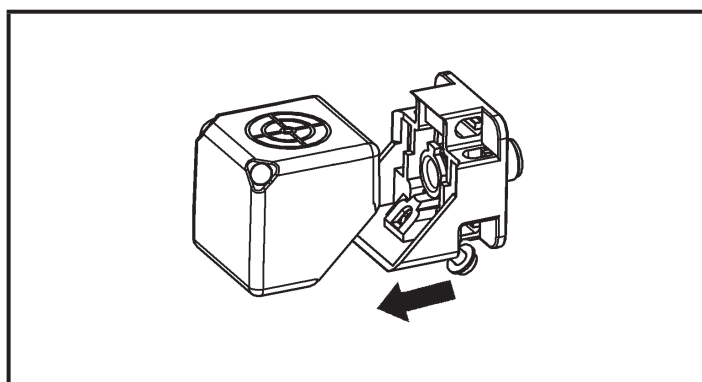
5.5 Alignment of the sensing face



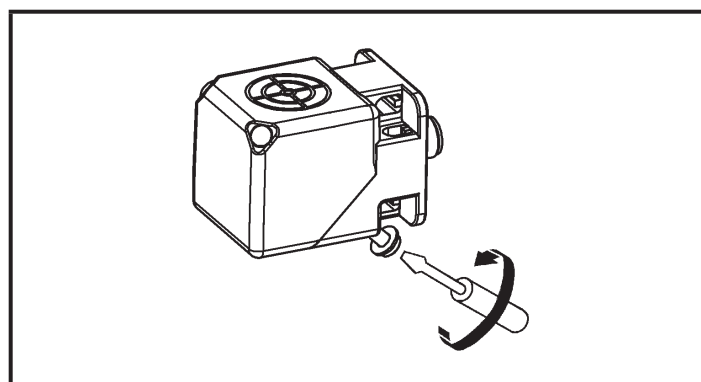
- 1. Loosen the screw.



- 2. Remove the antenna head from the fixing element and turn it.



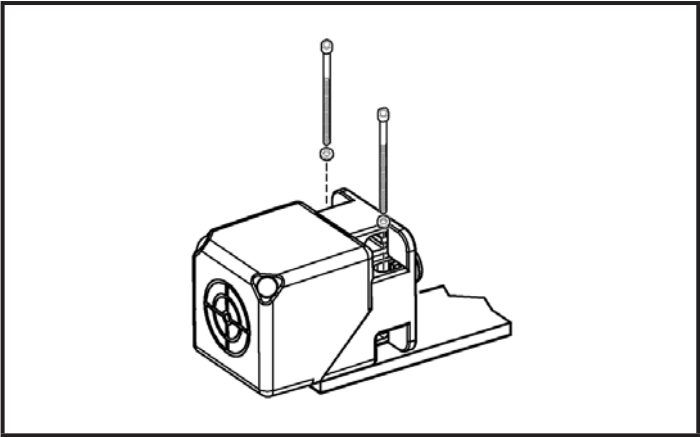
- 3. Attach the fixing element to the antenna head.



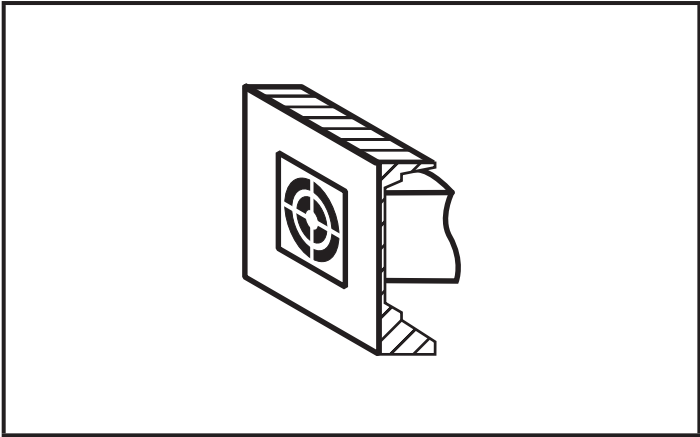
- 4. Tighten the screw.

5.6 Fixing

► The device is fixed with 2 M5 screws and nuts. Order non flush or flush.

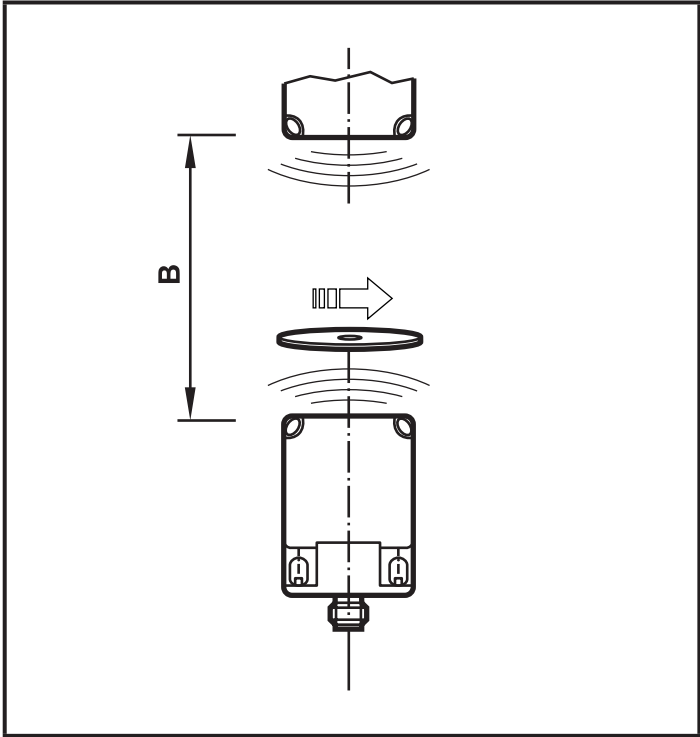
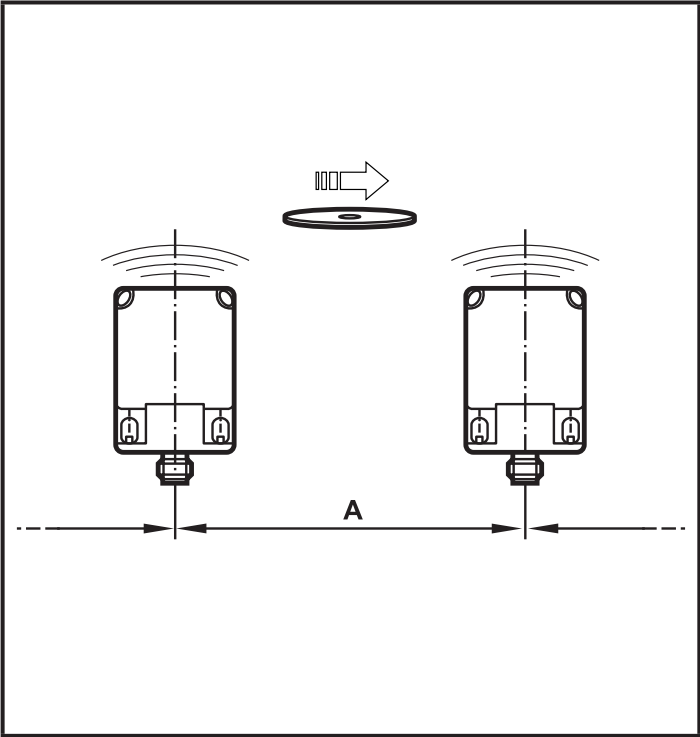


non flush



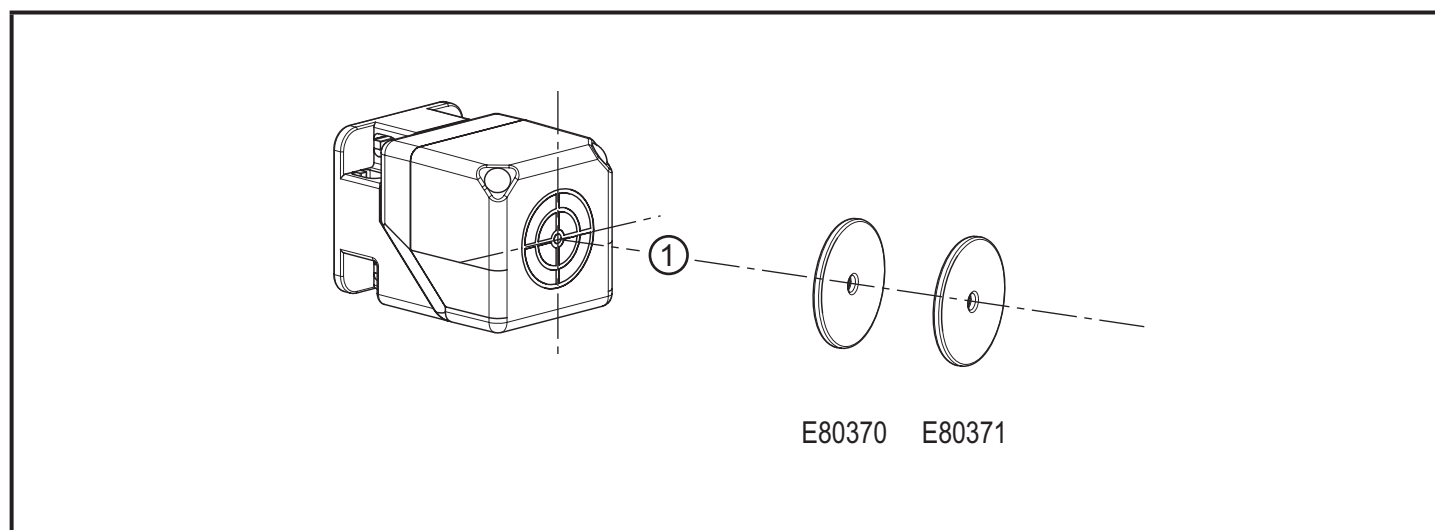
flush

5.7 Mounting distances



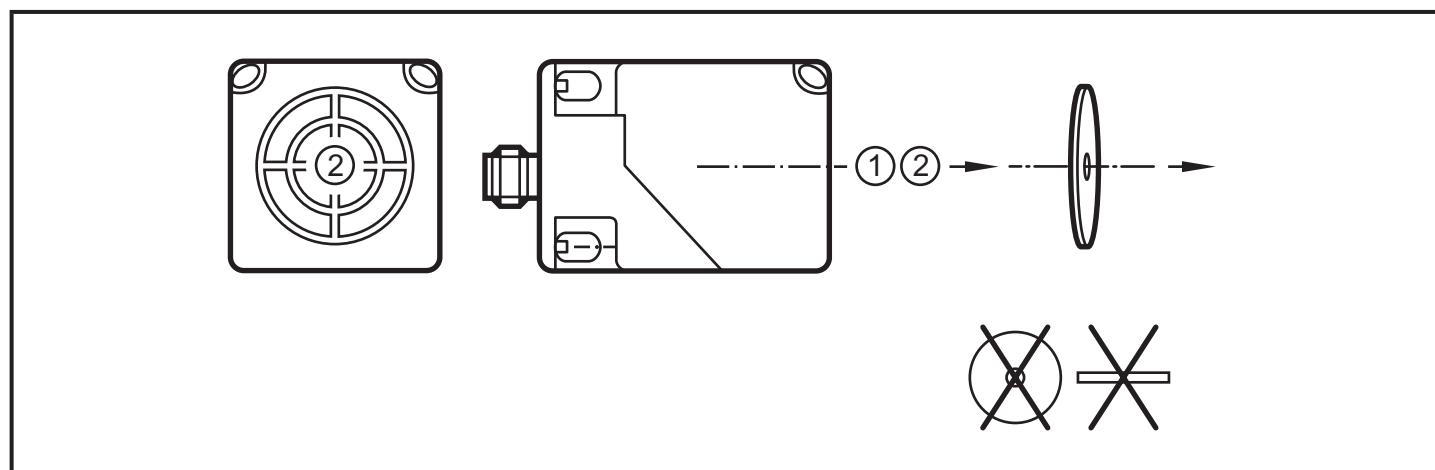
Operating mode	Distance side (A)	Distance front (B)
For reading and writing	≥ 300 mm	≥ 250 mm

5.8 Positioning of the ID tags



1: front side

5.9 Orientation of the ID tags



1: antenna axis DTC510 = ID tag axis

2: middle of the antenna ATN513x = middle of the ID tag

5.10 ID tag distances

The distance to the E80371 reference ID tag is indicated in the data sheet. A selection of ID tags is available on our website at www.ifm.com.

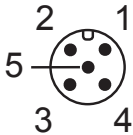
6 Electrical connection

ATTENTION

The unit must be connected by a qualified electrician.
Device of protection class III (PC III)
The electric supply must only be made via PELV/SELV circuits.
► Disconnect power before connecting the unit.

6.1 Wiring


The device has a 5-pole round M12 connector (A-coded). The pin connection corresponds to CiA DR-303-1.

 M12 connector CAN	1: CAN shield 2: + UB 3: CAN_GND 4: CAN_H 5: CAN_L	Not connected Supply voltage GND H bus cable L bus cable
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A selection of sockets is available on our website at www.ifm.com.

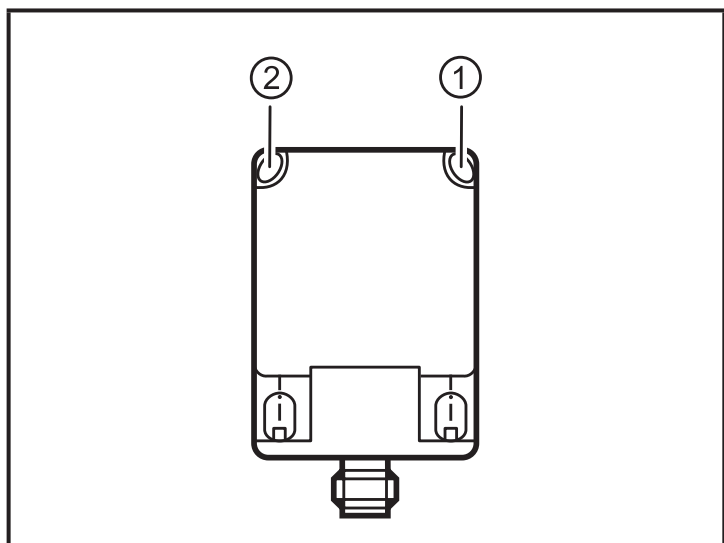
6.2 CAN bus interface

The device has a CAN interface.



Use cables that are approved for CAN bus. Terminate the cables using terminating resistors (120 Ω). Use ifm's EVC492 cable with integrated terminating resistor as an alternative.

7 Display elements



1: green (operating status) / red (Error)
2: yellow (ID-tag)

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Operating status	LED red	LED green	LED yellow
Preoperational	off	on	off; on if a tag has been detected in the reading field
Operational	off	flashes (2.5 Hz)	off; on if a tag has been detected in the reading field
Configuration error	flashes alternately with green LED (2.5 Hz)	flashes alternately with red LED (2.5 Hz)	off; on if a tag has been detected in the reading field
Error in the CAN network	flashes alternately with green LED (0.8 Hz)	flashes alternately with red LED (0.8 Hz)	off; on if a tag has been detected in the reading field
CAN bus off	on	off	off; on if a tag has been detected in the reading field
LSS service active	flickers irregularly	off	off; on if a tag has been detected in the reading field
Hardware error detected in the device	off	off	flickers irregularly

8 Operation

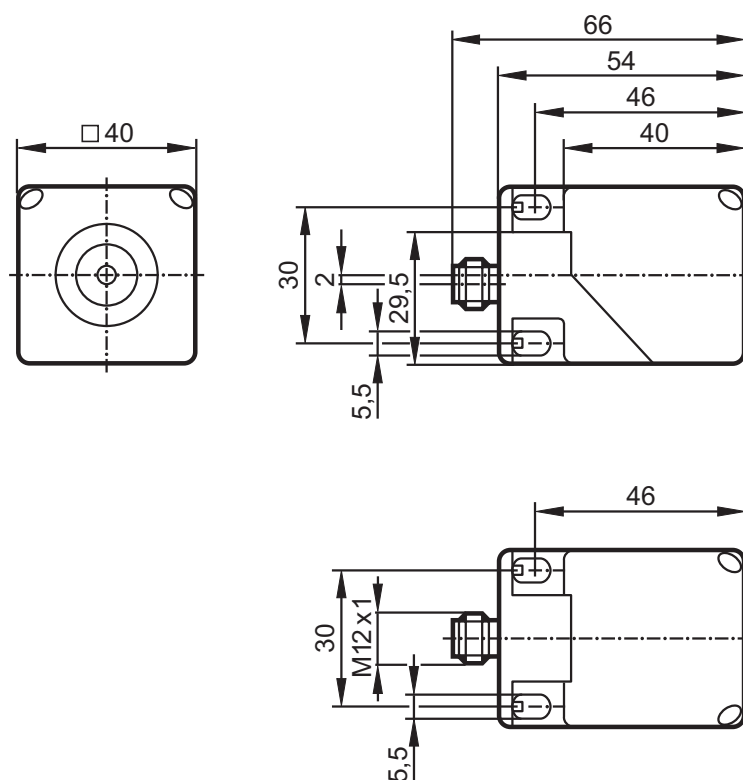
The device is operated in a CANopen network.



The CAN network must be correctly configured so that the device functions reliably.

Depending on the configuration of the CAN network the factory settings (Note ID: 32 and bit rate: 125 kBit/s) have to be adapted.

9 Dimensions



10 Technical data

The data sheets are available on our website at www.ifm.com.

11 Maintenance, repair and disposal

- ▶ Do not open the housing as the device does not contain any components which must be maintained by the user. The device must only be repaired by the manufacturer.
- ▶ Dispose of the device in accordance with the national environmental regulations.

12 Approvals/standards

12.1 Radio approvals

12.1.1 Overview

The overview of the approval status of a unit is available on our website at: www.ifm.com

12.1.2 Europe

Use in all EU countries.

12.1.3 EC declaration of conformity

ifm electronic gmbh hereby declares that the DTC510 radio system corresponds to the directive 2014/53/EU.

You can find the EC declaration of conformity on our website at: www.ifm.com.