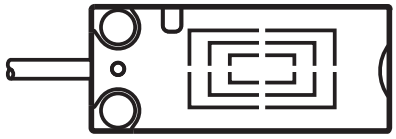
CE

Installation Instructions
RF identification system
Read/write head

UK

DTI515
DTI516

80270374 / 00 01 / 2018



Contents

UK

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.

3 Functions and features

In combination with the IO-Link master the read/write head DTI515/DTI516 is used for non-contact reading and writing of RFID tags that conform to the system.

The data is available as process data at the IO-Link interface.

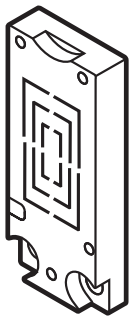
4 Functions

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.:	DTI515 / DTI516
Function:	Read/write head
Type designation:	DTRHF KQRWIOUS03
Operating frequency:	13,56 MHz
Type:	Rectangular
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.

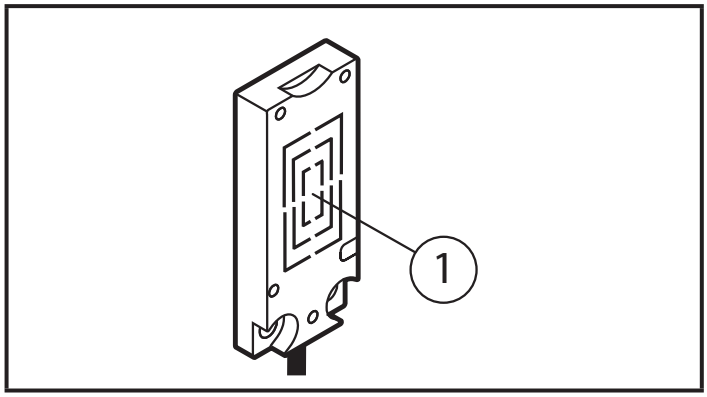
For positioning the ID tags the read/write heads are marked with an antenna symbol on the active face. It designates the middle of the integrated antenna coil and has to correspond with the middle of the ID tag.

The orientation of the read/write head antenna axis must correspond with the axis of the ID tag coil.

5.3 Avoiding interference

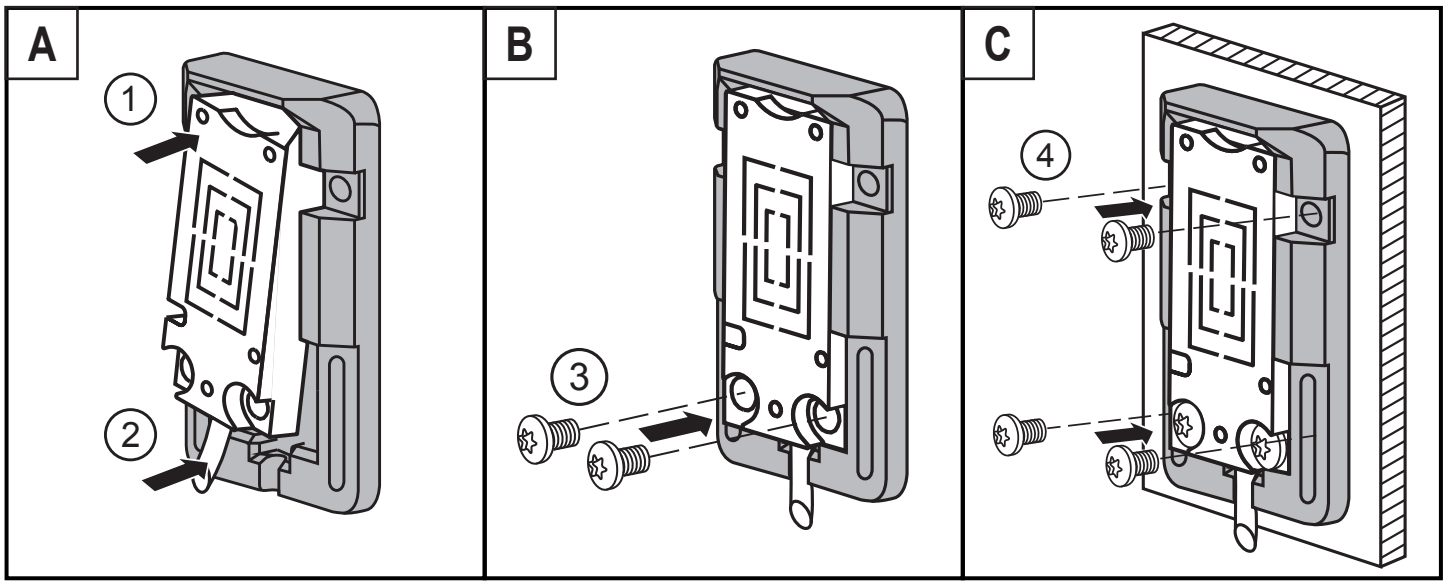
The device generates a modulated electrical field with a frequency of 13.56 MHz. To avoid interference of the data communication no other devices generating interference emission in this frequency band must be operated in the vicinity. Such devices are for example frequency converters and switched-mode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

5.4 Mechanical design



1: Sensing face

5.5 Installation on tanks with mounting adapter



The mounting adapter is available as accessory (order no. E12153).

Figure A

- ▶ Insert the device with the upper side (1) into the mounting adapter.
- ▶ Press the lower side of the device (2) against the adapter.

Figure B

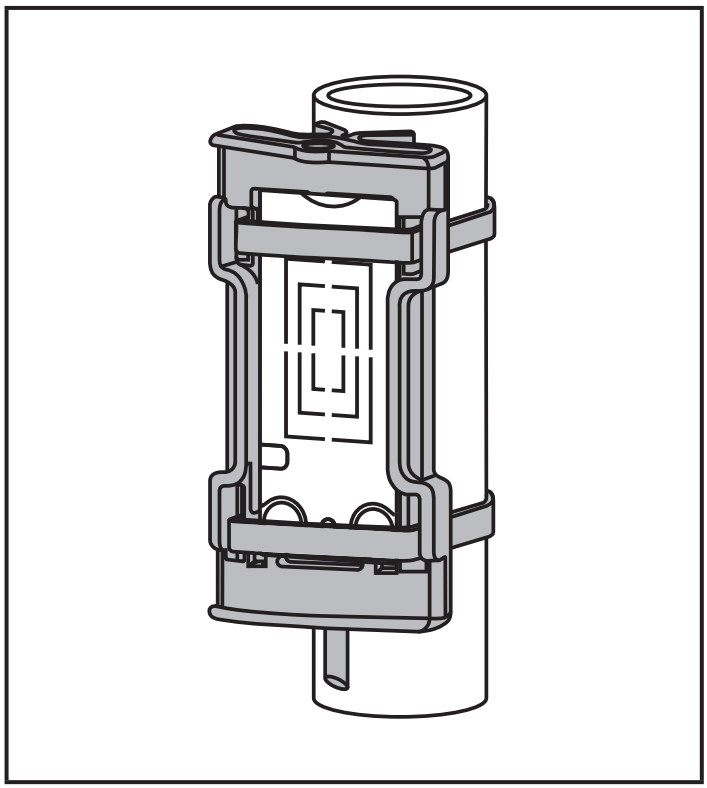
▶ Fasten the device to the adapter using the supplied screws (3).

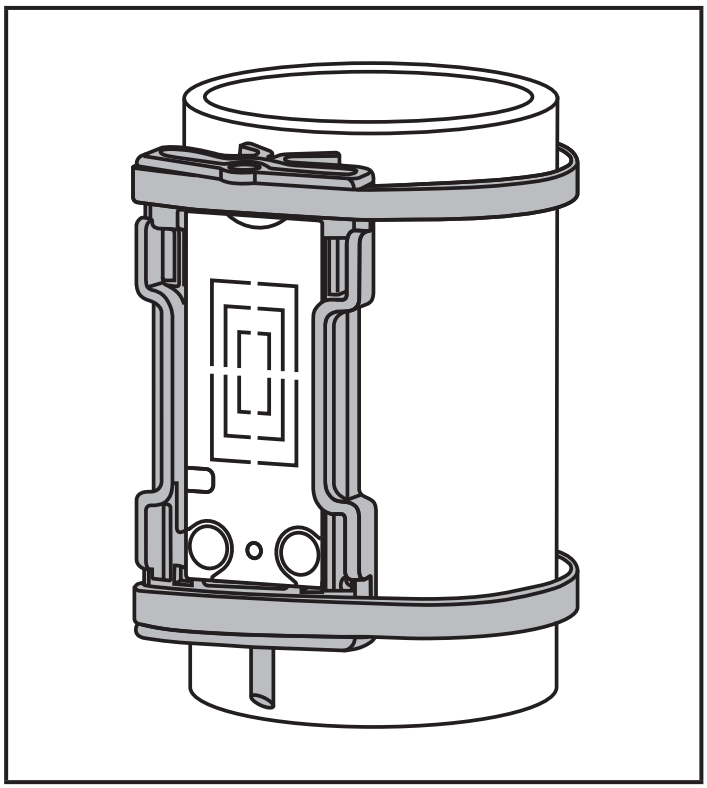
Figure C

▶ Fasten the mounting adapter including the inserted device to the tank at the desired height using suitable screws (4).

The device can be inserted into the mounting adapter E12153 in both directions.

5.6 Installation on bypass pipes with mounting adapter



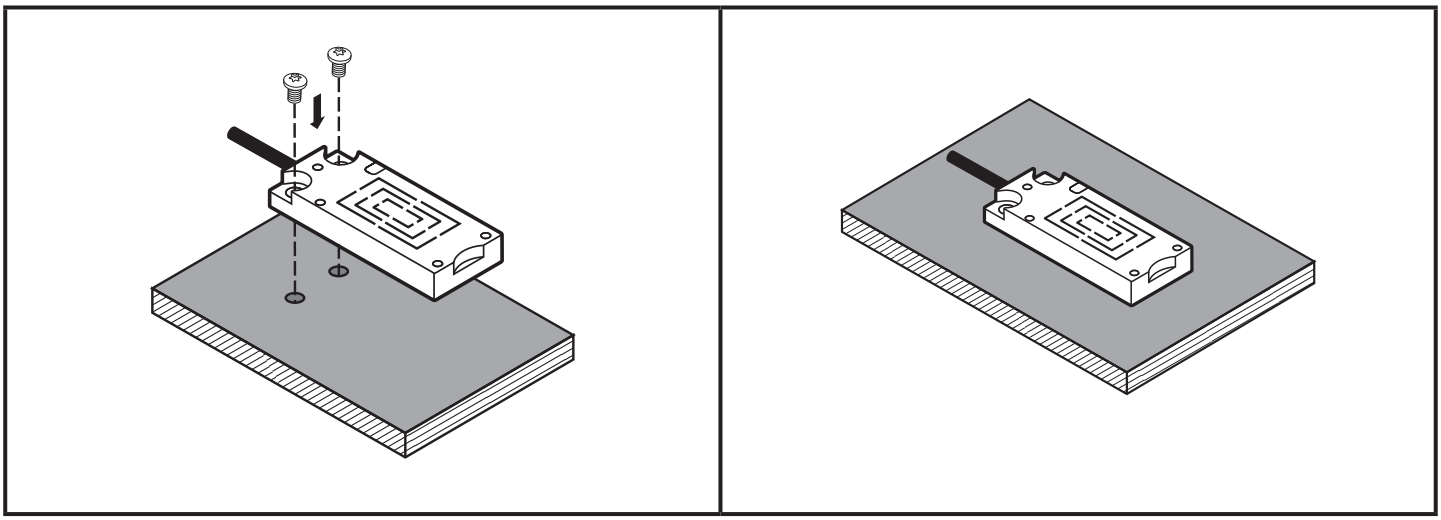


The mounting adapter is available as accessory (order no. E12163).

▶ Fasten the device to the bypass at the desired height using common plastic cable ties. Insert the cable ties through the openings of the mounting adapter and tighten firmly.

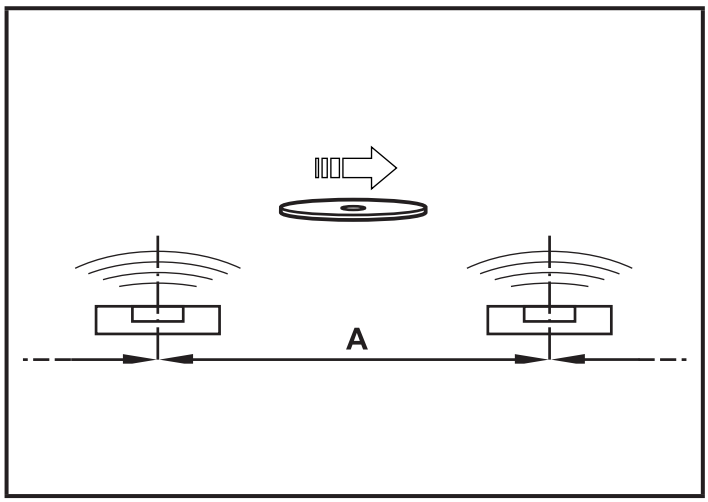
Metal cable ties may influence the degree of efficiency of the device. Use plastic cable ties.

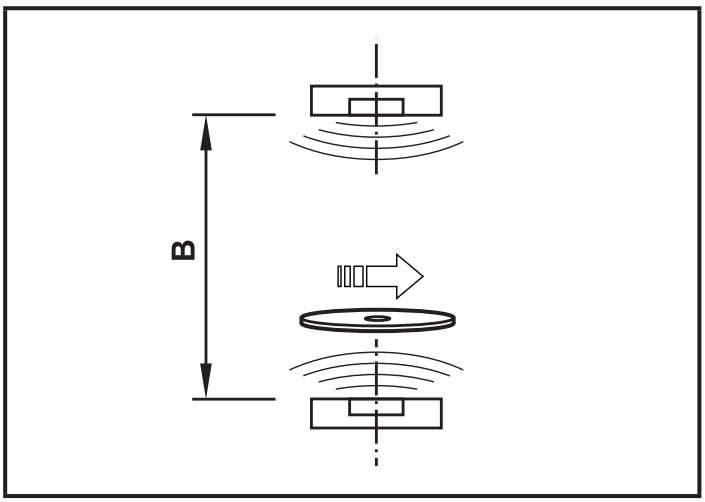
5.7 Installation without mounting adapter



- ▶ Fasten the device at the intended installation location using suitable screws or suitable glue.
- ▶ Align the cut-outs as shown.

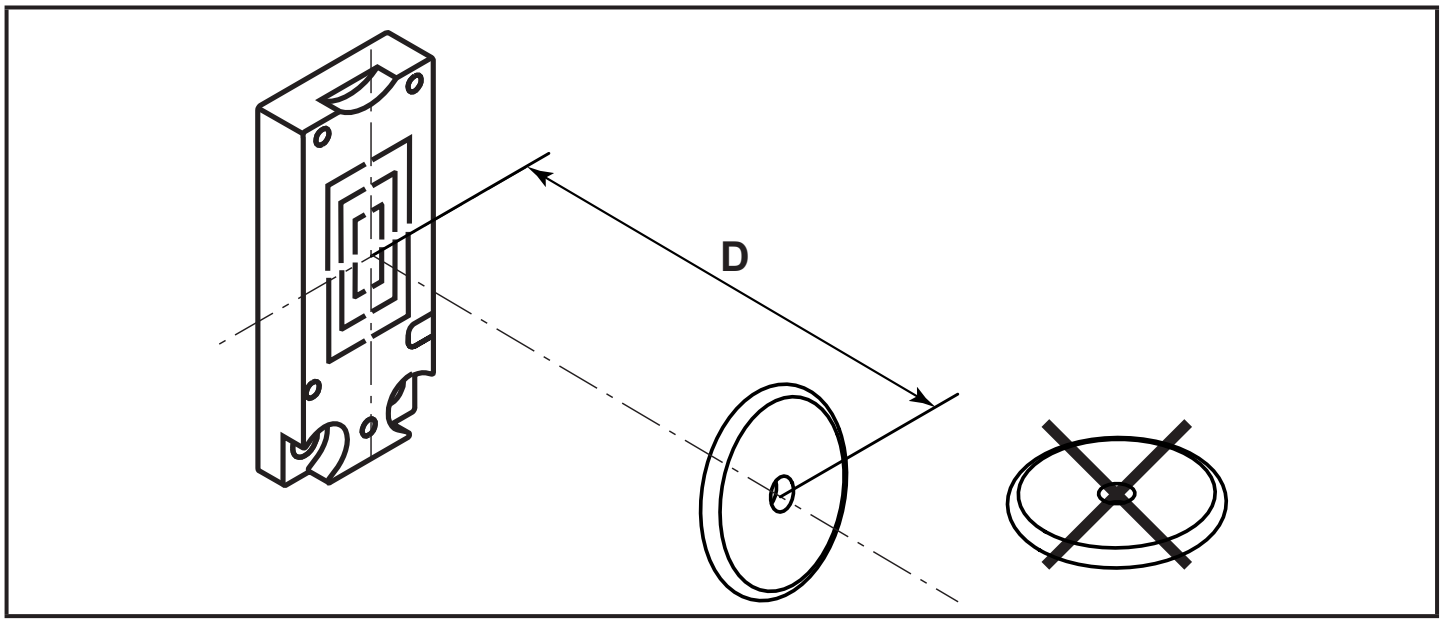
5.8 Mounting distances





Operating mode	Distance side (A)	Distance front (B)
For reading and writing	≥ 100 mm	≥ 120 mm

5.9 Positioning of the ID tags



▶ Align the ID tag on the antenna central axis

		Distance read/write head (D)	
ID tag	Type	metal	plastics
E80371		32 mm	34 mm

All indications apply to static read/write operations.

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.

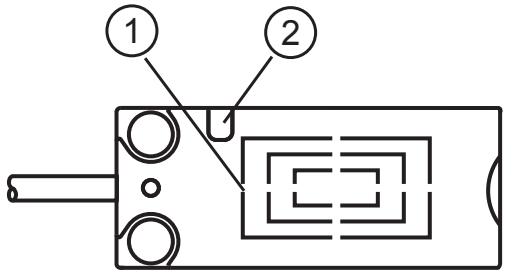
6.1 Wiring

▶ Connect the unit to the IO-Link master via the M12 connector.

> Voltage is supplied via the IO-Link master.

A selection of sockets is available on our website at: www.ifm.com

7 Display elements



1: Sensing face
2: LED

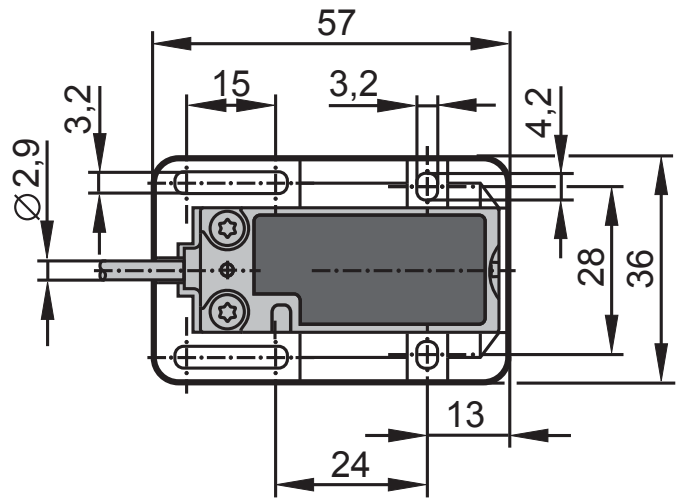
LED	Status	Description
Green	ON	Operating voltage OK
	OFF	Operating voltage missing
	FLASHING SLOWLY	Deactivated
Yellow	ON (permanently)	ID tag detected
	ON (pulse)	ID tag read/written successfully
	FLASHING QUICKLY	Error when reading/writing on ID tag
	OFF	No ID tag in the field or faulty ID tag in the field or invalid ID tag in the field
Green + yellow	FLASHING ALTERNATELY	Device fault

8 Operation

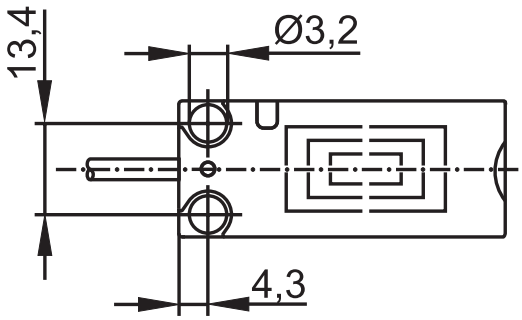
The read/write head is configured via the IO-Link master. You can find more information about the operation in the manual: www.ifm.com

9 Dimensions

9.1 Bore hole dimensions of the mounting adapter



9.2 Bore hole dimensions of the device



10 Technical data

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

11 Maintenance, repair, disposal

The operation of the unit is maintenance-free. For perfect functioning: Keep the sensing face and a clear space, if any, free from deposits and foreign bodies.

When replacing the device ensure that installation is done in the same way and that the same type of unit is used. It is not possible to repair the unit. After use dispose of the unit in an environmentally friendly way in accordance with the applicable national 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 DTI515 / DTI516 radio system corresponds to the directive 2014/53/EU.

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