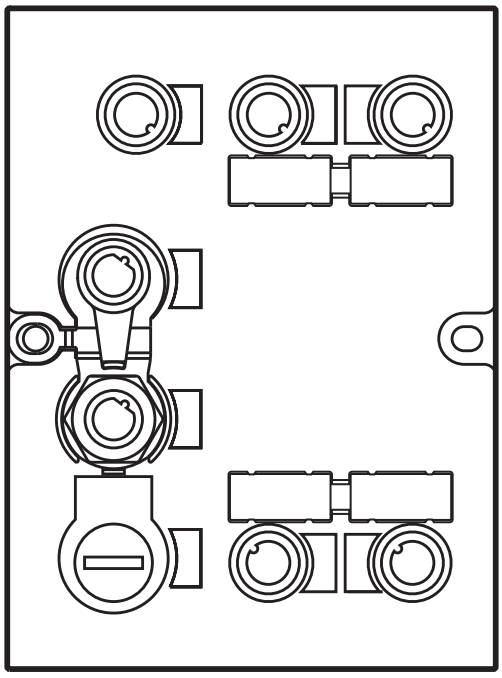
ifm electronic

Operating instructions
RFID evaluation unit
efector190

DTE104

UK



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Contents

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1 Preliminary note

1.1 Notes on this document

This document applies to the RFID evaluation unit DTE104.

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

This document is intended for qualified electricians. These specialists are people who are qualified by their training and their experience to recognise and to avoid possible hazards that may be caused during operation 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.

1.2 Symbols used

▶ Instructions
> Reaction, result
[…] Designation of keys, buttons or indications
→ Cross-reference


Important note
Non-compliance can result in malfunction or interference.


Information
Supplementary note

2 Safety instructions

2.1 General

▶ Observe these operating instructions.
▶ Adhere to the warning notes on the product.

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.

2.2 Installation and connection

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.

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

This is a class A product. The unit may cause radio interference in domestic areas. In this case it can be necessary for the user to take appropriate measures.

2.3 Tampering with the device

Tampering with the device is not allowed and will lead to an exclusion of liability and warranty. Tampering with the device can affect the safety of operators and machinery.

- ▶ Do not open the device.
- ▶ Do not insert any objects into the device.
- ▶ Prevent metal foreign bodies from penetrating.

3 Functions and features

The RFID evaluation unit DTE104 integrates an Ethernet TCP/IP interface and 4 channels for the connection of field devices. Each channel can be used either for the connection of an RFID antenna or as input/output to IEC 61131.

The device

- controls the data exchange to the RFID antennas or the sensor/actuator level.
- communicates with the higher control level via Ethernet TCP/IP.
- allows device configuration via a web server.

Application examples:

- Material flow control in production lines
- Warehouse management by the automatic detection of stored products
- Tank management, order picking or product tracking

3.1 Configuration via Ethernet interface

- 10 Mbps and 100 Mbps
- TCP/IP - Transport Control Protocol / Internet Protocol
- IT functionality: HTTP server
- M12, twisted pair

3.2 RFID antennas

The device supports up to four RFID read/write heads of type ANT41x / ANT51x from ifm electronic gmbh.

You can find information about the matching read/write heads on our website at:
www.ifm.com → Data sheet search → ANT41 or ANT51

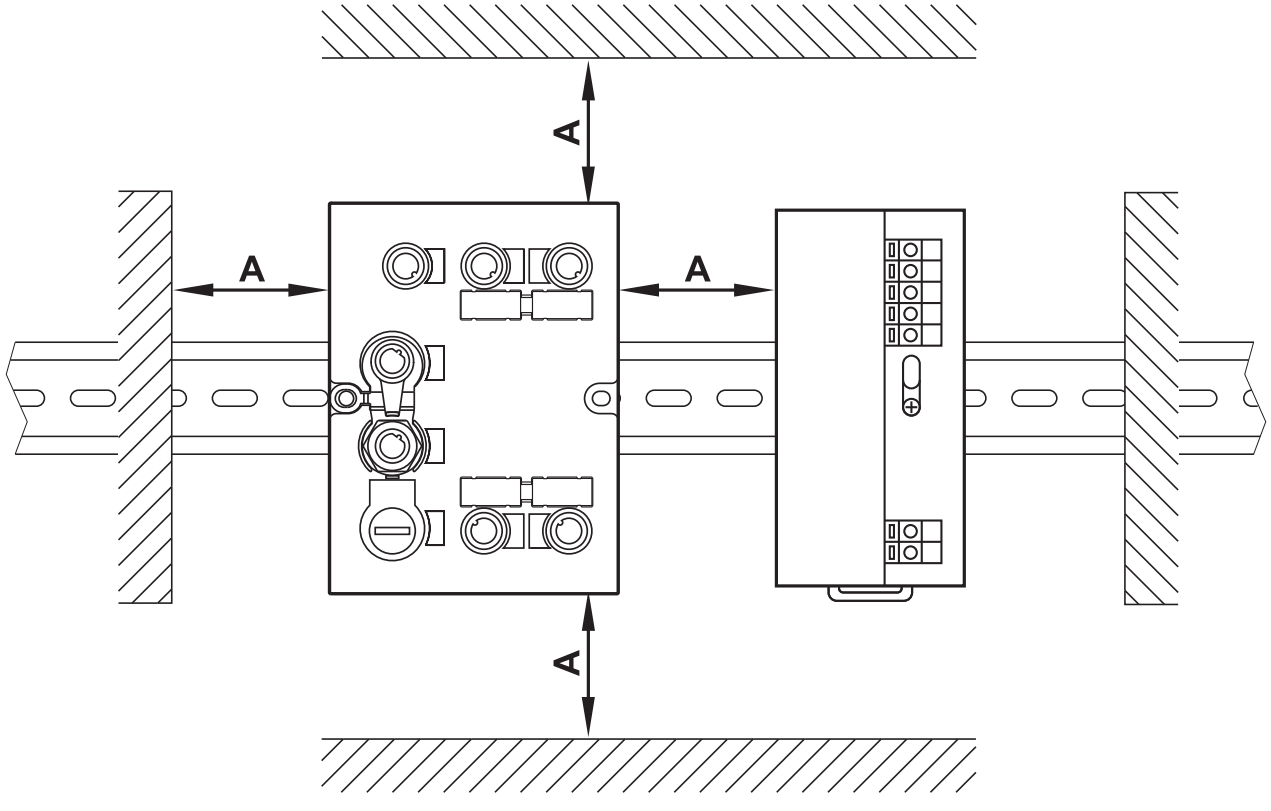
4 Function

You can find detailed information about the function of the system in the device manual at:
www.ifm.com → Data sheet search → DTE104 → Operating instructions

5 Installation

5.1 Installation distance

Due to the internal heating of the device a minimum distance to other objects of 10 mm is to be taken into account during installation.



A = 10 mm

5.2 Installation position

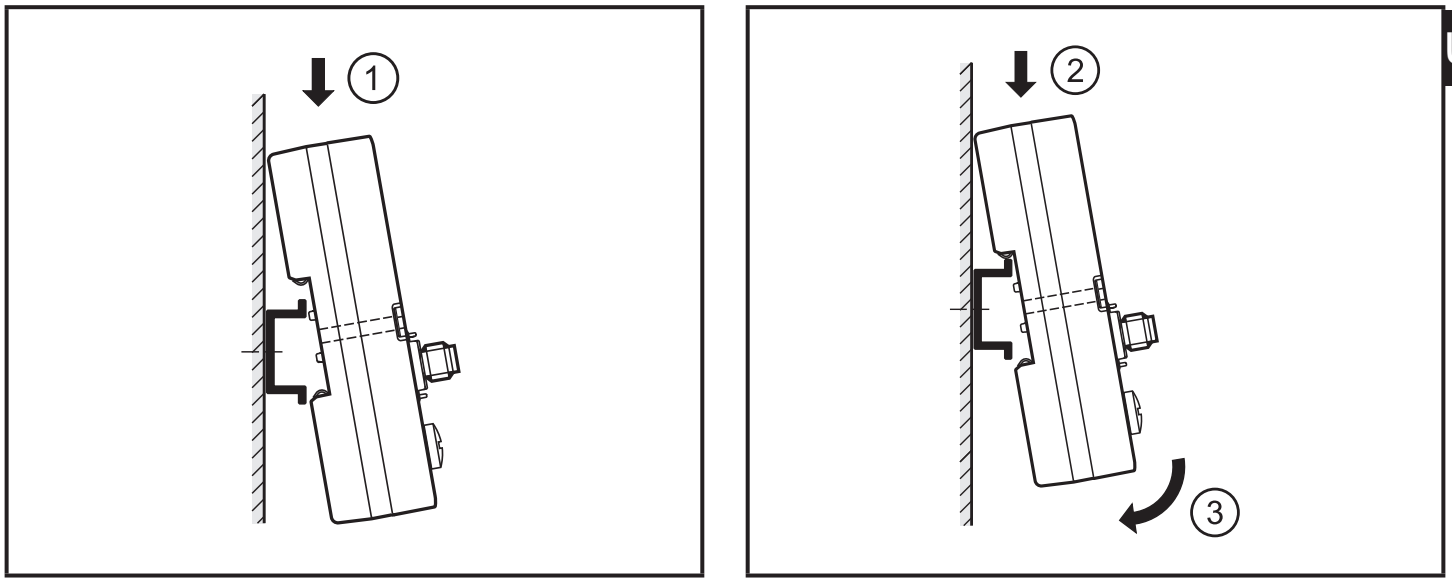
The installation position can be freely selected.

In a wet environment upside-down mounting is not permitted.

5.3 Mounting options

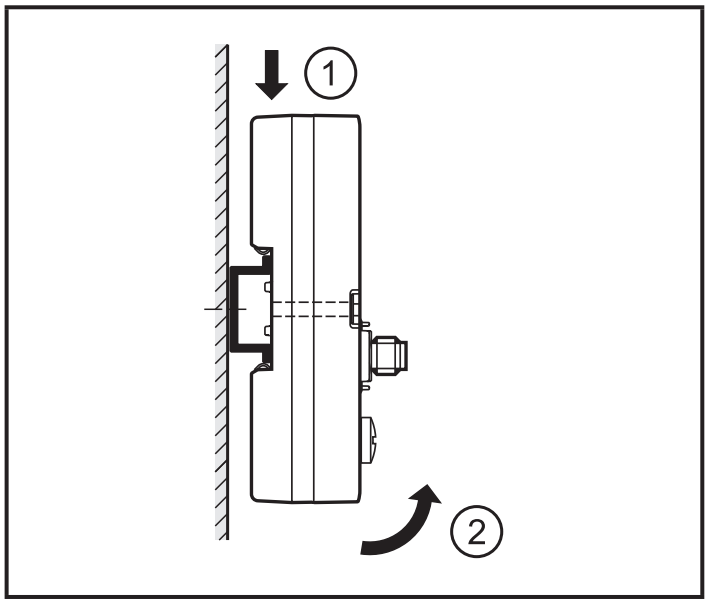
5.3.1 Mounting on DIN rail

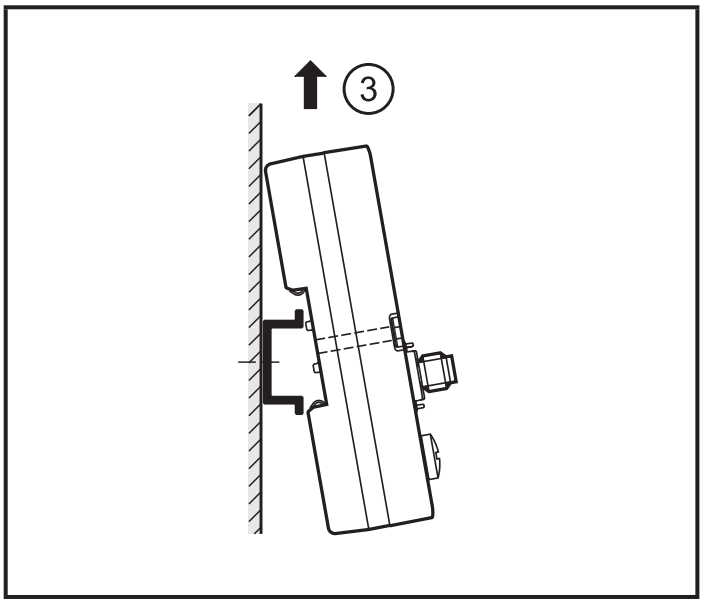
The device can be installed on a DIN rail of type NS35/15 or NS35/7.5.



1. Angle the device and place the fixing clamp onto the upper edge of the DIN rail.
2. Press the device down.
3. Simultaneously rotate the device in the direction of the DIN rail.

5.3.2 Removal

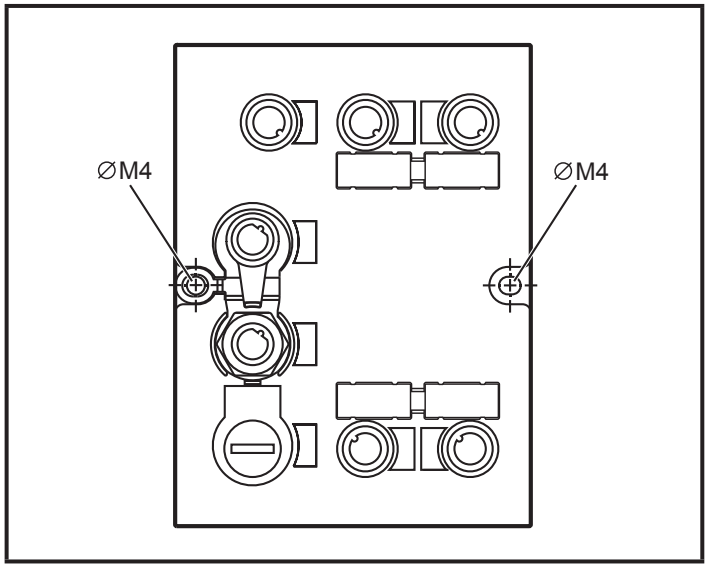


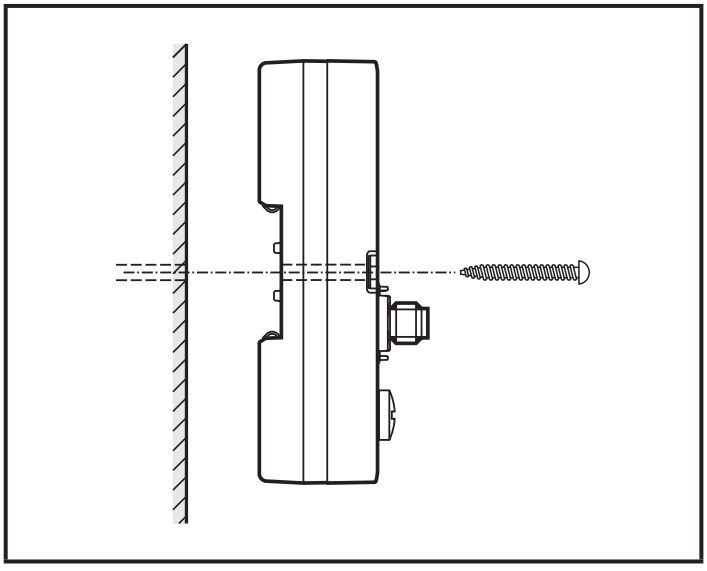


1. Press the device down.
2. Simultaneously rotate the device away from the DIN rail.
3. Remove the device from the top.

5.3.3 Mounting plate

The device can be fixed to the mounting plate using 2 screws (M4 x 35 or longer).





This installation mode is recommended for vibration and shock requirements.

6 Electrical connection

The unit must be connected by a qualified electrician.

- ▶ Disconnect power before connecting the device.
- ▶ Observe the national and international regulations for the installation of electrical equipment.
- ▶ Ensure voltage supply to EN 50178, SELV, PELV.
- ▶ Connect the device according to the indicated pin connection.
- ▶ A total current consumption of the device of 3 A must not be exceeded.

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Please note the following points to ensure protection rating IP 67:

▶ Cover the unused sockets with protective caps.

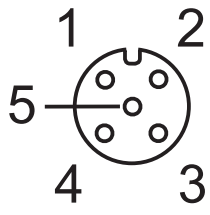
▶ Tighten all protective caps and connectors with a tightening torque of 1 Nm.

You will find matching accessories at www.ifm.com.

Accessories	ifm article number
Protective cap	E73004
Torque wrench	E70390

6.1 AUX voltage supply

▶ Connect the device to the voltage supply using an M12 connection cable.

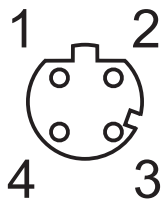


Pin	Connection
1	24 V DC
2	not used
3	0 V
4	not used
5	not used

You can find matching connection cables at:
www.ifm.com → Data sheet search → DTE104 → Accessories

6.2 Network connection Ethernet port 1 / port 2

▶ Connect the device to an Ethernet 10BASE-T or 100BASE-TX capable device using a suitable M12 Ethernet connection cable.



Note: Screened connection cable required

Pin	Connection
1	TD+
2	RD+
3	TD-
4	RD-

6.2.1 Factory setting of the Ethernet parameters

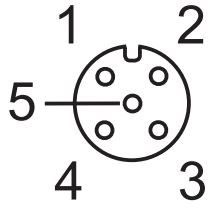
The following values are preset on delivery of the device:

Parameter	Factory setting
IP address	192.168.0.79
Gateway address	192.168.0.100
Subnet mask	255.255.255.0
Auto-negotiation	On
DHCP	Off

The settings can be changed via the webserver of the device.

6.3 Process connections IO-1 ... IO-4

Each process connection can be used as input/output to IEC 61131 or for connection of an RFID read/write head. The setting of the connections is made via the command interface of the Ethernet TCP/IP connection of the Ethernet host.



Pin	Connection
1	L+
2	switching input (I/Q)
3	L-
4	switching output (C/Qo) or input (C/Qi)
5	not used

The evaluation unit has to be disconnected before field units are connected.

Please note that the total current consumption of the device must not exceed the value of 3 A.

You can find detailed information about the available operating modes in the device manual at:

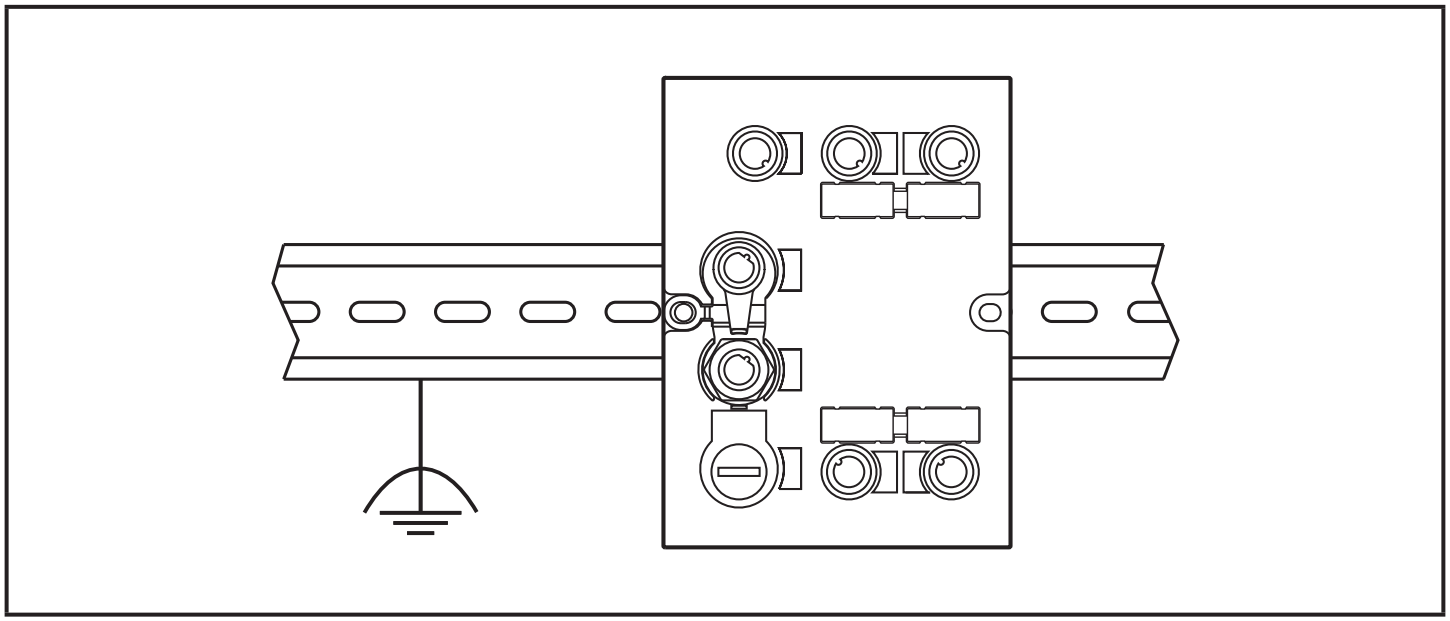
www.ifm.com → Data sheet search → DTE104 → Operating instructions

6.4 Functional earth connection

To ensure trouble-free operation the device must be connected to an earth potential free from external voltage.

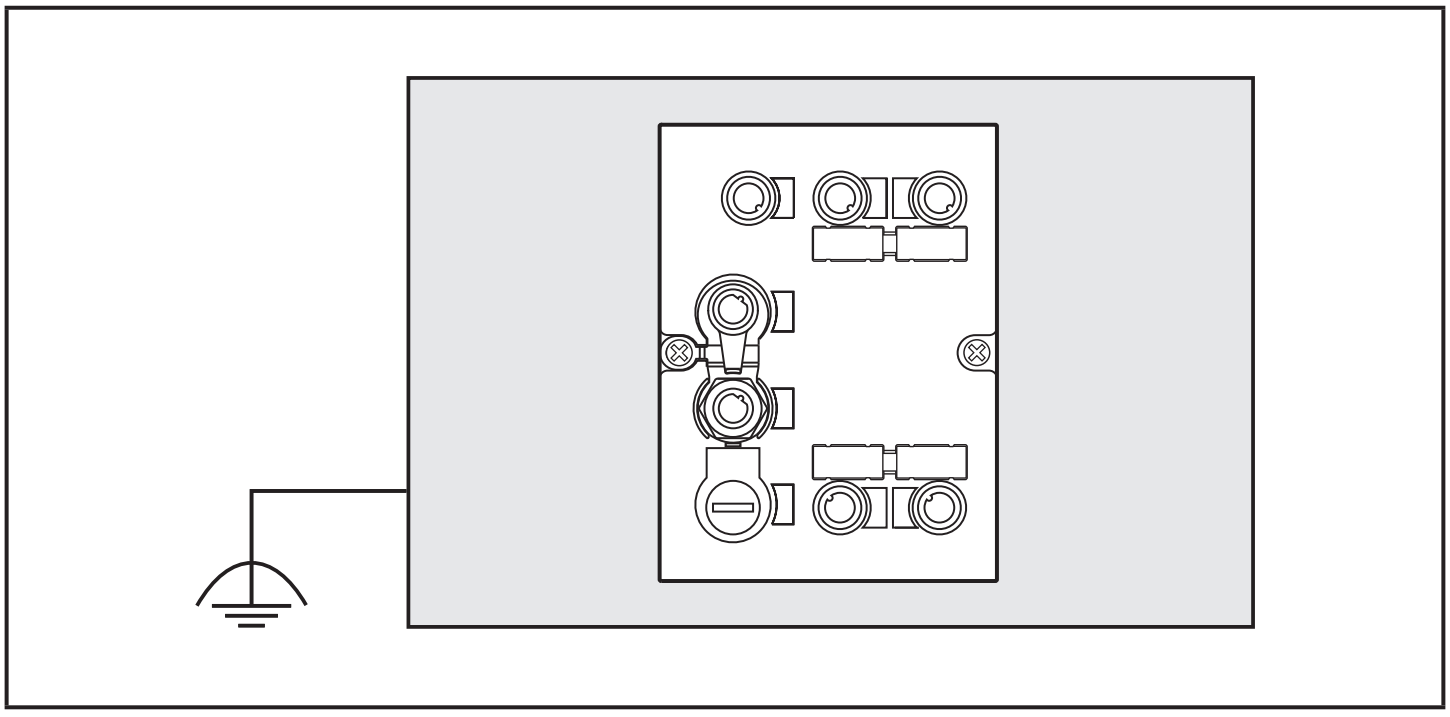
6.4.1 Mounting on DIN rail

The connection is made automatically via the DIN rail. Note that the DIN rail must be connected with the earth potential.



6.4.2 Mounting plate

When the device is fixed on a mounting plate, connection is made via the left fixing screw. Note that the plate must be connected with the earth potential.



7 Operating and display elements

7.1 Reset to factory settings

The Ethernet parameters can be reset to factory setting. Take the following steps:

- ▶ Remove all cable connections from the device.
- ▶ Insert an electrically conductive bridge between pin 1 and pin 3 on the process connection IO-3.
- ▶ Connect the device with the voltage supply and wait until the yellow LED indication on AUX and IO-3 flashes at approx. 8 Hz.
- ▶ Disconnect the device from the voltage supply and connect it again.

> The settings are reset.

7.2 LED indicators

The device indicates the current status of the interface via the status LEDs.

7.2.1 LED AUX

LED green	LED yellow	Status	Note
Off	Off	No voltage supply	$U_{AUX} < 5$ V
On	Flashing at 2 Hz	Voltage supply too low	$5 V \leq U_{AUX} \leq 18 V$
On	Off	Voltage supply OK	$18 V \leq U_{AUX} \leq 36 V$
On	Flashing at 8 Hz	Firmware update running	Do not switch off the device during the firmware update

7.2.2 LED Ethernet port 1 / port 2

LED green	LED yellow	Status	Note
Off	Off	No connection to another Ethernet counterpart	Link status "no link"“
On	Off	Connection to Ethernet counterpart exists, no data exchange	Link status "link", "no traffic"
On	Flashes sporadically	Connection to Ethernet counterpart exists, data exchange running	Link status "link", "traffic"

7.2.3 LED SF

LED red	LED green	Status	Note
Off	Off	No voltage supply	Check the voltage supply
Off	On	Normal operation	-
Flashing	Off	Error on channel level	- Overload - Temperature - Internal fault
On	Off	Error on device level	- Undervoltage - Temperature
Flashing	Flashing	Self-test	Starting phase of the device

7.2.4 LED BF

LED red	LED green	Status	Note
Off	Off	No voltage supply	Check the voltage supply
Off	Flashing	Connection to the host controller is established, there is no data exchange	-
Off	On	Connection to the host controller is established, there is data exchange	-

LED red	LED green	Status	Note
Flashing	Off	Connection to the host controller is established, no valid configuration	Check configuration
On	Off	No connection to the host controller	Check connection
Flashing	Flashing	Self-test	Starting phase of the device

7.2.5 LEDs IO1 ... IO4

The LED indications of the process connections differ with each connection configuration.

Use as input to IEC 61131

LED green	LED yellow	Status	Note
Off	Off	Interface deactivated	Interface was not configured via the host controller
On	Off	Interface activated, input on low level (0 V)	-
On	On	Interface activated, input on high level (24 V)	-
Flashing at 8 Hz	Flashing at 8 Hz	Overload or short circuit	-

Use as output to IEC 61131

LED green	LED yellow	Status	Note
Off	Off	Interface deactivated	Interface was not configured via the host controller
On	Off	Interface activated, output low-active (0 V)	-
On	On	Interface activated, output high-active (24 V)	-
Flashing at 8 Hz	Flashing at 8 Hz	Overload or short circuit	-

Use with RFID read/write heads

LED green	LED yellow	Status	Note
Off	Off	Interface deactivated	Interface was not configured via the host controller
Flashing at 2 Hz	Off	Interface activated, antenna off	-
On	Off	Interface activated, tag not in the field	-
On	On	Interface activated, tag in the field	-
Flashing at 8 Hz	Flashing at 8 Hz	Overload, short-circuit or communication error	-

7.2.6 Special device LED indications

LED	Status	Note
Green AUX LED on Yellow AUX LED flashing at 8 Hz IO1...IO4 yellow LEDs flashing at 8 HZ	Device is in the service mode "emergency system started".	A firmware update is necessary and can be executed via the web server.
Green AUX LED on Yellow AUX LED flashing at 8 Hz IO1...IO4 green LEDs flashing at 8 HZ IO1...IO4 yellow LEDs flashing at 8 HZ	Major error, device has to be returned.	Hardware fault or permanent data in the device are corrupt.
Green AUX LED on Yellow AUX LED flashing at 8 Hz IO3 yellow LED flashing at 8 Hz	Reset to factory settings	-

8 Technical data

8.1 Data sheets

Data sheets can be found at:
www.ifm.com → Data sheet search → DTE104

8.2 Device manual

The device manual can be found at:
www.ifm.com → Data sheet search → DTE104 → Operating instructions

9 Maintenance, repair and disposal

▶ Dispose of the device in accordance with the national environmental regulations.

10 Approvals/standards

The EC declaration of conformity and approvals can be found at:

www.ifm.com → Data sheet search → DTE104 → More information → Certificates

11 Scale drawing