

Installation

## ID MRU400iX

UHF-Mid Range Reader  
with integrated Antenna



## NOTE

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**FEIG ELECTRONIC GmbH**

Industriestrasse 1a

35781 Weilburg, GERMANY

Phone: +49 6471 3109-0

Homepage: <https://www.feig.de/en/>

Email: [Identification-support@feig.de](mailto:Identification-support@feig.de)

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## Safety Instructions

- ▶ The device may only be used for the intended purpose designed by for the manufacturer.
- ▶ The operation manual should be conveniently kept available at all times for each user.
- ▶ Unauthorized changes and the use of spare parts and additional devices which have not been sold or recommended by the manufacturer may cause fire, electric shocks or injuries. Such unauthorized measures shall exclude any liability by the manufacturer.
- ▶ The liability-prescriptions of the manufacturer in the issue valid at the time of purchase are valid for the device. The manufacturer shall not be held legally responsible for inaccuracies, errors, or omissions in the manual or automatically set parameters for a device or for an incorrect application of a device.
- ▶ Repairs may only be executed by the manufacturer.
- ▶ Installation, operation, and maintenance procedures have to be carried out by professional and qualified personnel.
- ▶ Use of the device and its installation must be in accordance with national legal requirements and local electrical codes.
- ▶ The intended operation mode is fixed use.
- ▶ When working on devices the valid safety regulations must be observed.
- ▶ Before touching the device, the power supply must always be interrupted. Make sure that the device is without voltage by measuring. The fading of an operation control (LED) is no indicator for an interrupted power supply or the device being out of voltage!

**NOTE:****Wearers of pacemakers**

Although this device does not exceed the permissible limits for electromagnetic fields, you should keep a minimum distance of 25 cm between the device and your pacemaker and not stay in the immediate vicinity of the device or the antenna for long periods of time.

## History of documentation

| Revision | Date    | Description                                                                                                                                                                                                                                                                                                                                                                   |
|----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0e       | 2024-11 | Initial Version                                                                                                                                                                                                                                                                                                                                                               |
| 1e       | 2025-06 | <a href="#">1.2 Scope of delivery</a><br><a href="#">2 Cyber Security</a><br><br>Note Cable routing / shielded cables, ferrite core<br><a href="#">5.6 RS485 Interface</a><br><a href="#">5.7 Relay output</a><br><a href="#">5.8 Digital Input / Output</a><br><a href="#">5.9.1 Installing the cable gland for the USB cable</a>                                            |
| 2e       | 2025-11 | <a href="#">5.3 Pin assignment of the circular connectors</a> ; Power Supply coding rotated 180°<br><a href="#">5.8 Digital Input / Output</a> ; Resistor changed<br><a href="#">8 Technical Data</a> : Temperature range extended<br><a href="#">9 Accessories</a> ; Protective cap set added<br>Connection cable added (7031.000.00, 7032.000.00, 7034.000.00, 5948.000.00) |
| 3e       | 2026-02 | New naming ID MRU400iX<br><a href="#">8 Technical Data</a> : Scan Mode added                                                                                                                                                                                                                                                                                                  |
| 4e       | 2026-04 | <a href="#">4.2 Device Dimension</a> added                                                                                                                                                                                                                                                                                                                                    |
| 5e       | 2026-05 | <a href="#">8 Technical Data</a> : Extended temperature range adjusted to 70 °C                                                                                                                                                                                                                                                                                               |

## Supported Documents

| No. | Documents                                                                                     | Document No.    |
|-----|-----------------------------------------------------------------------------------------------|-----------------|
| [1] | More information<br><a href="https://www.feig.de/en/login/">https://www.feig.de/en/login/</a> |                 |
| [2] | Manual                                                                                        | H50223-0e-ID-B  |
| [3] | Quick Start                                                                                   | M50221-xde-ID-B |

## Content

|                                                                                   |           |
|-----------------------------------------------------------------------------------|-----------|
| <b>Safety Instructions .....</b>                                                  | <b>3</b>  |
| <b>History of documentation .....</b>                                             | <b>4</b>  |
| <b>Supported Documents .....</b>                                                  | <b>4</b>  |
| <b>1 Fields of application.....</b>                                               | <b>7</b>  |
| 1.1 Device versions .....                                                         | 7         |
| 1.2 Scope of delivery .....                                                       | 8         |
| <b>2 Cyber Security .....</b>                                                     | <b>9</b>  |
| 2.1 Commissioning of the Device .....                                             | 9         |
| 2.2 Cyber Security related Firmware Updates .....                                 | 9         |
| 2.3 Firmware Downgrade .....                                                      | 9         |
| <b>3 Device description .....</b>                                                 | <b>10</b> |
| <b>4 Installation .....</b>                                                       | <b>11</b> |
| 4.1 Mounting options .....                                                        | 11        |
| 4.2 Device Dimension.....                                                         | 12        |
| 4.3 Drilling template (reader) .....                                              | 13        |
| 4.4 Drilling template for mounting plate (plastic material, accessory part) ..... | 14        |
| <b>5 Electrical connections .....</b>                                             | <b>15</b> |
| 5.1 Description circular connectors.....                                          | 15        |
| 5.2 Antenna connection .....                                                      | 15        |
| 5.3 Pin assignment of the circular connectors .....                               | 16        |
| 5.4 Power Supply.....                                                             | 17        |
| 5.4.1 External Power Supply unit [X1] .....                                       | 17        |
| 5.4.2 Power supply via PoE (Power over Ethernet) .....                            | 17        |
| 5.5 Ethernet Interface .....                                                      | 18        |
| 5.6 RS485 Interface .....                                                         | 19        |
| 5.7 Relay output.....                                                             | 20        |
| 5.8 Digital Input / Output .....                                                  | 21        |
| 5.9 USB-OTG Service-Interface .....                                               | 22        |
| 5.9.1 Installing the cable gland for the USB cable .....                          | 23        |
| <b>6 Status- and Operating Elements .....</b>                                     | <b>24</b> |

|          |                                           |           |
|----------|-------------------------------------------|-----------|
| <b>7</b> | <b>Radio Approvals</b> .....              | <b>25</b> |
| 7.1      | Declaration of Conformity .....           | 25        |
| 7.2      | USA (FCC) and Canada (IC) .....           | 25        |
| 7.2.1    | Installation with FCC / IC Approval ..... | 26        |
| <b>8</b> | <b>Technical Data</b> .....               | <b>27</b> |
| <b>9</b> | <b>Accessories</b> .....                  | <b>28</b> |

## 1 Fields of application

The reader is designed for use in applications with low transponder density. An antenna output with an R-TNC socket (ANT1) and an internal antenna (ANT2) are available. Depending on the external antenna and transponder used, read ranges of up to 4 m can be achieved. The internal antenna is suitable for communication with near-field and far-field transponders. Reading ranges of 4-5 m are achieved.

The operating frequency in the UHF range is between 865 MHz and 930 MHz.

### 1.1 Device versions

| Feature                      | MRU400i                                                                           | MRU400iX                                                                           | MRMU400                                                                             |
|------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                              |  |  |  |
| Robust Housing               | ✓                                                                                 | ✓                                                                                  | -                                                                                   |
| Output Power<br>1 W TX Power | ✓                                                                                 | ✓                                                                                  | ✓                                                                                   |
| 1x Integrated Antenna        | ✓                                                                                 | ✓                                                                                  | -                                                                                   |
| 1x ANT OUT                   | ✓                                                                                 | ✓                                                                                  | -                                                                                   |
| 2x ANT OUT                   | -                                                                                 | -                                                                                  | ✓                                                                                   |
| 1x REL OUT                   | ✓                                                                                 | ✓                                                                                  | ✓                                                                                   |
| 1x Dig IN<br>1x Dig. OUT     | ✓                                                                                 | ✓                                                                                  | ✓                                                                                   |
| Circular connectors          | -                                                                                 | ✓                                                                                  | -                                                                                   |
| Cable glands                 | ✓                                                                                 | -                                                                                  | -                                                                                   |
| Ethernet / LAN, RS485, USB   | ✓                                                                                 | ✓                                                                                  | ✓                                                                                   |
| PoE (Power over Ethernet)    | ✓                                                                                 | ✓                                                                                  | ✓                                                                                   |
| LINUX Application Controller | ✓                                                                                 | ✓                                                                                  | ✓                                                                                   |
| Web Interface                | ✓                                                                                 | ✓                                                                                  | ✓                                                                                   |

Tab 1: Device versions

## 1.2 Scope of delivery

|                                                                                   |                                                                                    |                                                |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------|
|  |   | 1x EMC Ferrite Toroid (Ø 0,28mm x 20 mm)       |
|                                                                                   |   | 2x UHF-Transponder, 73mm x 12,5 mm             |
|                                                                                   |   | 1x Cable gland M20 (for USB-Service Interface) |
|                                                                                   |  | 1x Reducing insert M20 (Ø 4 - 8 mm)            |

Tab 2: Scope of delivery

## 2 Cyber Security

### 2.1 Commissioning of the Device

#### IMPORTANT NOTICE

In order to comply with the requirements of the European Radio Equipment Directive (RED) 2014/53/EU article 3 (3), points (d), the following points must be taken into account for the product ID MRU400iX:

- When using the network interface (Ethernet), it may be necessary to create at least one user to enable various functions such as changing the configuration. The user and the password **MUST** be set by the person who puts the device into operation on first use before it is logically connected to a network or by an authorized entity within a network where access is limited to authorized entities.
- When security and/or network assets (keys, certificates, ethernet configuration parameters) are transferred via network interface (Ethernet) TLS encryption must be used to secure the communication.

### 2.2 Cyber Security related Firmware Updates

#### IMPORTANT NOTICE

In order to comply with the requirements of the European Radio Equipment Directive (RED) 2014/53/EU article 3 (3), points (d), you are required to register in the FEIG download area under <https://www.feig.de/en/> and subscribe to notifications for cyber security-related firmware and software updates for the product ID MRU400iX.

### 2.3 Firmware Downgrade

#### IMPORTANT NOTICE

A firmware downgrade to older major release versions is not possible in order to prevent old major versions with known cyber security vulnerabilities from being executed on the device.

### 3 Device description

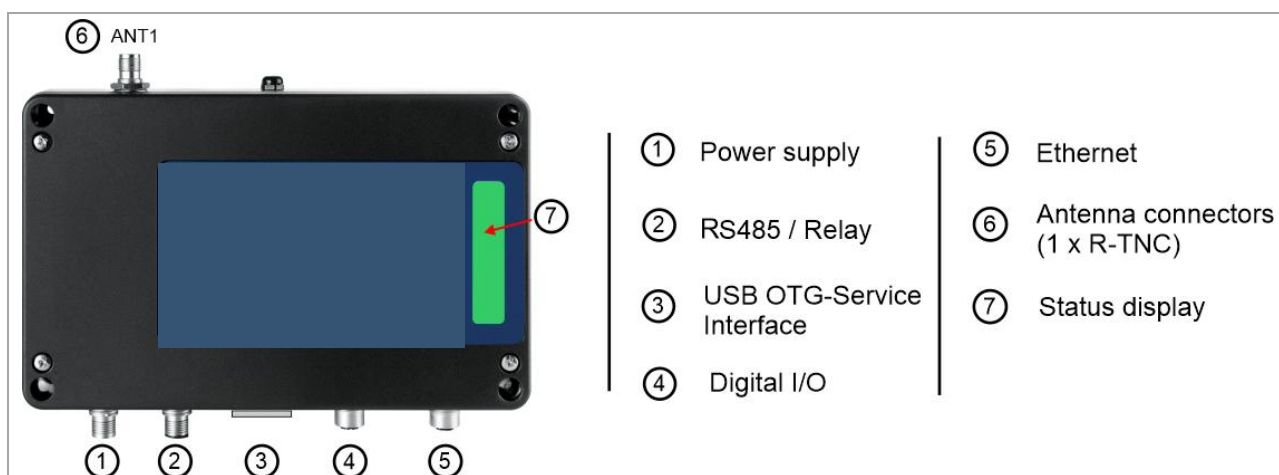


Fig 1: Top view



Fig 2: Antenna connection ANT1

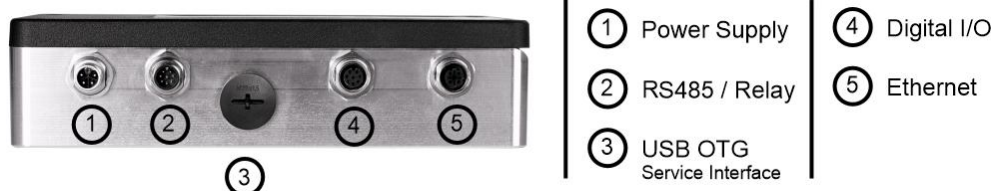


Fig 3 Circular connector

## 4 Installation

### 4.1 Mounting options

The reader is suitable for mounting on various indoor and outdoor surfaces.

The following mounting options are available:

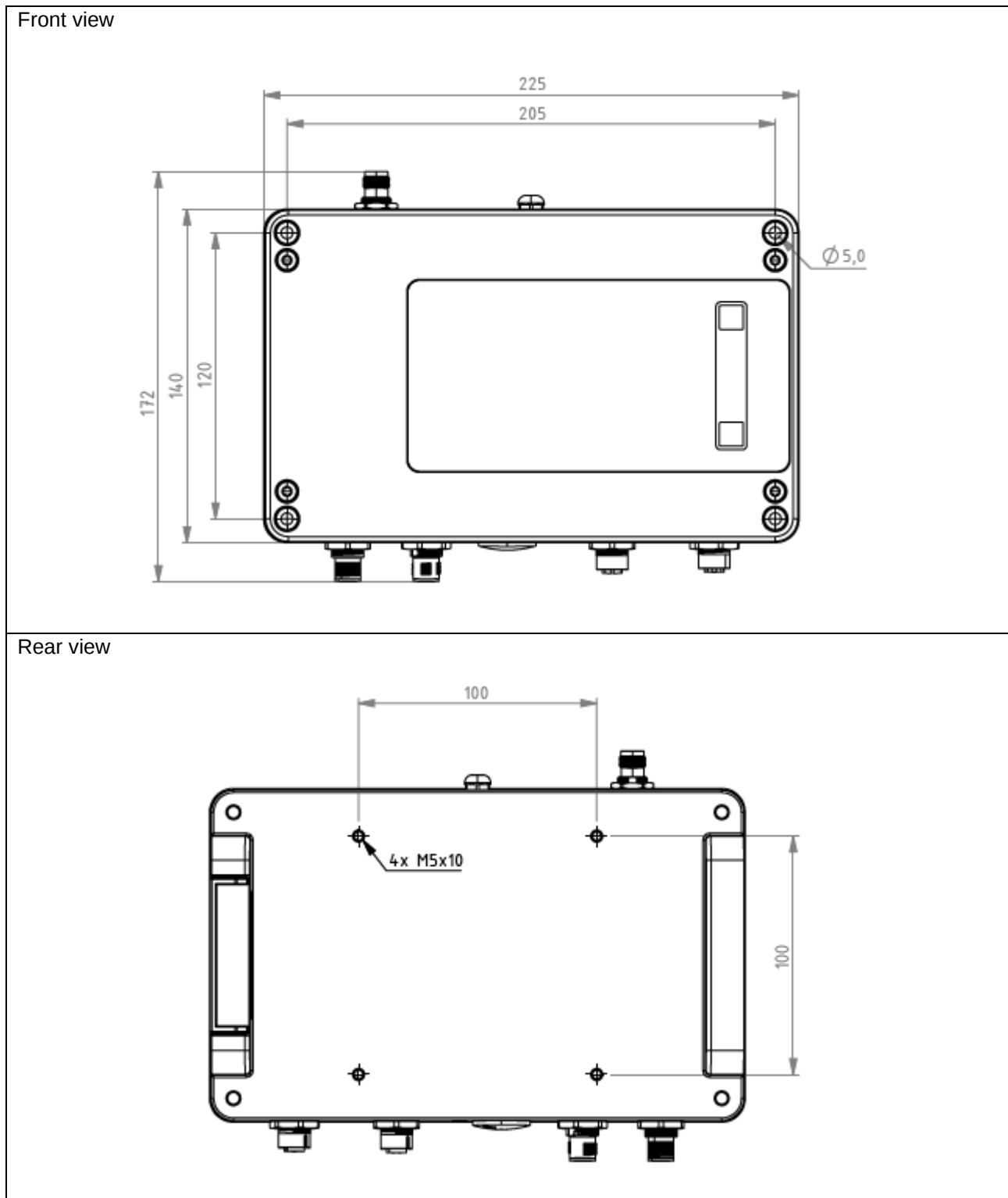
- Wall mounting on a flat surface.  
Four holes are provided in the housing for wall mounting (M5)
- Mounting on a cylinder (pole) using a VESA 100 mount  
(not included in the scope of delivery).  
Four threaded holes (M5) are provided in the housing for mounting with a VESA 100.
- Mounting on a top-hat rail (top-hat rail adapter required; not included in the scope of delivery)
- Insulated mounting; M5x12 thread (Plastic mounting plate with plastic screws M5x12 required; not included in the scope of delivery).

## 4.2 Device Dimension

The dimensional drawing shown contains all dimensions relevant to the installation.

**NOTE:**

All dimensions are given in millimeters [mm], unless otherwise specified.



Side view

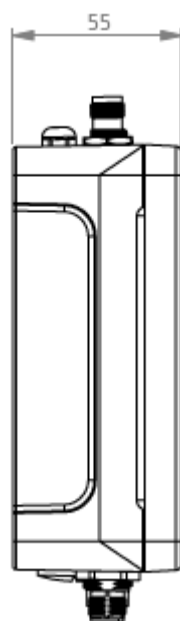


Fig 4: Device Dimension

### 4.3 Drilling template (reader)

The four outer holes are intended for wall mounting.

The four inner holes allow mounting with a VESA100 mount with corresponding thread.

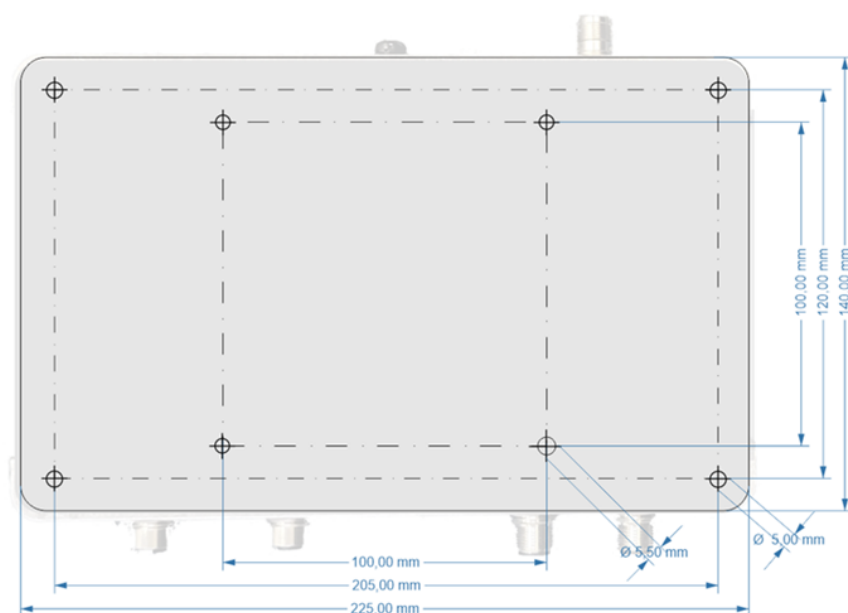


Fig 5: Drilling template reader

#### 4.4 Drilling template for mounting plate (plastic material, accessory part)

##### Insulated mounting

A separate plastic mounting plate is available for “isolated mounting” of the device, e.g. on a vehicle frame. The mounting plate is screwed to the VESA100 mount using the enclosed screws (M5).

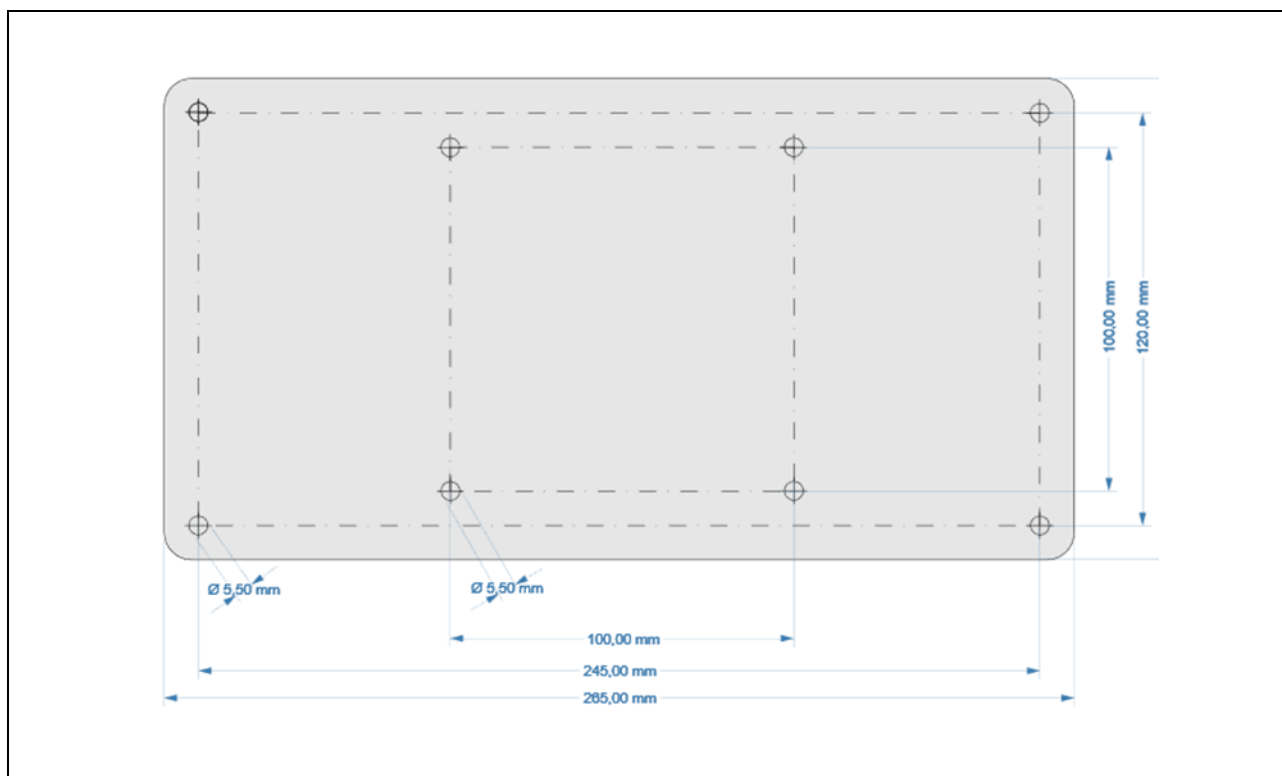


Fig 6: Drilling template for mounting plate

## 5 Electrical connections

### 5.1 Description circular connectors

|                                                                                   | No. | Description   |                                 |
|-----------------------------------------------------------------------------------|-----|---------------|---------------------------------|
|  | ①   | Power Supply  | M12, 4 pol, (A-coded), Male     |
|                                                                                   | ②   | RS485 / Relay | M12, 8 pol, (A-coded), Male     |
|                                                                                   | ③   | USB-OTG       | M20, (mini-USB)                 |
|                                                                                   | ④   | Digital I/O   | M12, 8 polig, (A-coded), Female |
|                                                                                   | ⑤   | Ethernet      | M12, 4 pol, (D-coded), Female   |

Fig 7: Circular connectors

### 5.2 Antenna connection

An ANT1 antenna output is available.

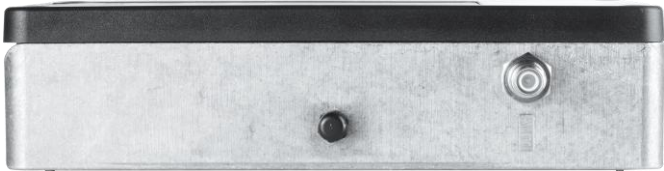
|                                                                                     |                                                                                                                                                                          |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"> <li>• R-TNC socket "ANT1"<br/>Impedance input 50 Ω</li> <li>• The maximum tightening torque of the R-TNC socket is 0.69 Nm</li> </ul> |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

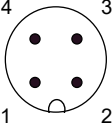
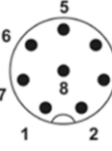
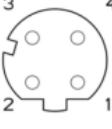
Fig 8: Antenna connection ANT1

#### **NOTE:**

Standing wave ratio VSWR of the antenna  $\leq 1.3$

When connecting the antenna, the limit values of the national regulations regarding radio equipment must be observed see [7 Radio Approvals](#)

### 5.3 Pin assignment of the circular connectors

|   |                |                 |                                                                                                                |     |             |
|---|----------------|-----------------|----------------------------------------------------------------------------------------------------------------|-----|-------------|
| ① | Power Supply   | M12, 4 pol      | <b>Male, A-codet</b><br>      | PIN | Signal      |
|   |                |                 |                                                                                                                | 1   | VCC (+)     |
|   |                |                 |                                                                                                                | 2   | VCC (+)     |
|   |                |                 |                                                                                                                | 3   | GND (-)     |
|   |                |                 |                                                                                                                | 4   | GND (-)     |
| ② | RS485 / Relais | M12, 8 pol      | <b>Male, A- codet</b><br>     | PIN | Signal      |
|   |                |                 |                                                                                                                | 1   | RS485 A (-) |
|   |                |                 |                                                                                                                | 2   | RS485 B (+) |
|   |                |                 |                                                                                                                | 3   | GND         |
|   |                |                 |                                                                                                                | 4   | N.C.        |
|   |                |                 |                                                                                                                | 5   | REL1-NO     |
|   |                |                 |                                                                                                                | 6   | REL1-COM    |
|   |                |                 |                                                                                                                | 7   | REL2-NO     |
|   |                |                 |                                                                                                                | 8   | REL2-COM    |
| ③ | USB-OTG        | M20, (mini-USB) |                              | PIN | Signal      |
|   |                |                 |                                                                                                                | 1   | (+) 5V      |
|   |                |                 |                                                                                                                | 2   | Data (-)    |
|   |                |                 |                                                                                                                | 3   | Data (+)    |
|   |                |                 |                                                                                                                | 4   | -           |
|   |                |                 |                                                                                                                | 5   | GND         |
| ④ | Digital I/Os   | M12, 8 pol      | <b>Female, A- codet</b><br> | PIN | Signal      |
|   |                |                 |                                                                                                                | 1   | OUT1-E      |
|   |                |                 |                                                                                                                | 2   | OUT1-C      |
|   |                |                 |                                                                                                                | 3   | OUT2-E      |
|   |                |                 |                                                                                                                | 4   | OUT2-C      |
|   |                |                 |                                                                                                                | 5   | IN1 (-)     |
|   |                |                 |                                                                                                                | 6   | IN1 (+)     |
|   |                |                 |                                                                                                                | 7   | IN2 (-)     |
|   |                |                 |                                                                                                                | 8   | IN2 (+)     |
| ⑤ | Ethernet (PoE) | M12, 4 pol      | <b>Female, D- codet</b><br> | PIN | Signal      |
|   |                |                 |                                                                                                                | 1   | TX (+)      |
|   |                |                 |                                                                                                                | 2   | RX (+)      |
|   |                |                 |                                                                                                                | 3   | TX (-)      |
|   |                |                 |                                                                                                                | 4   | RX (-)      |

See Fig 7: Circular connectors

Tab 3: Pin assignment of the circular connectors

## 5.4 Power Supply

### 5.4.1 External Power Supply unit [X1]

The device may only be supplied by a power source in accordance with EN 62368-1 Chapter Q.1 Power sources of limited power or with a power supply unit certified in accordance with NEC Class 2/LPS.

The supply voltage is supplied via the circular connection ①

See Fig 7: Circular connectors

| Cross-section cable                      | Test method                     |
|------------------------------------------|---------------------------------|
| from 0.5 mm <sup>2</sup> or larger       | IEC 60332-1-2 und IEC 60332-1-3 |
| less than 0.5 mm <sup>2</sup>            | IEC 60332-2-1 und IEC 60332-2-2 |
| Supply voltage 12 V...24 V DC $\pm$ 10 % |                                 |

Tab 4: Test procedure for the external wiring of the power supply

#### NOTE:

- The reader may only be supplied by a power supply in accordance with EN 62368-1 Chapter Q.1 Limited Power Sources (LPS) or with a power supply unit certified to NEC Class 2/LPS.
- Each reader must always be supplied with power via its own external power supply unit.
- Reverse polarity can destroy the device.
- Simultaneous operation via an external power supply unit and PoE is not permitted.

### 5.4.2 Power supply via PoE (Power over Ethernet)

When using the PoE functions, the reader is powered via the Ethernet interface and a "Power over Ethernet" power supply unit in accordance with IEEE802.3at\*, Class 4 (30/25 watts). The transmission parameters can be configured as required.

| Cable cross section(CAT5...7) | Max. Cable length for PoE |
|-------------------------------|---------------------------|
| 0,4 mm <sup>2</sup>           | ~ 30 m                    |
| 0,6 mm <sup>2</sup>           | ~ 70 m                    |

Tab 5: Maximum cable length depending on the cable cross-section

#### NOTE:

- Maximum cable length depending on the cable cross-section
- A "Power over Ethernet" power supply unit with phantom power must be used.
- If the reader is supplied via PoE, no DC voltage can be provided at the antenna connections (e.g. for the external antenna multiplexer).
- Detailed technical information on the 802.3at standard can be found in the current version of the corresponding IEEE specification. operation via an external power supply unit and PoE is not permitted.

## 5.5 Ethernet Interface

The Ethernet interface has automatic crossover detection in accordance with the 1000BASE-T standard.

- At least STP CAT5 category cables must be used.  
This guarantees problem-free operation at 10 Mbps or 100 Mbps.
- For the use of a TCP/IP protocol, each device integrated in the network has a factory-set IP address (IPv4).
- The reader has an IPv6-capable Ethernet interface. IPv6 is switched off in the factory setting.

### IPv4

| Network        | Address                                               |
|----------------|-------------------------------------------------------|
| Enable_DHCP    | true                                                  |
| IPAddress      | 192.168.10.10                                         |
| Subnet-Mask    | 255.255.255.0                                         |
| GatewayAddress | 10001                                                 |
| Hostname       | See "HostInterface.Hostname" in Manual H50223-0e-ID-B |

Tab 6: Default setting of the Ethernet interface IPv4

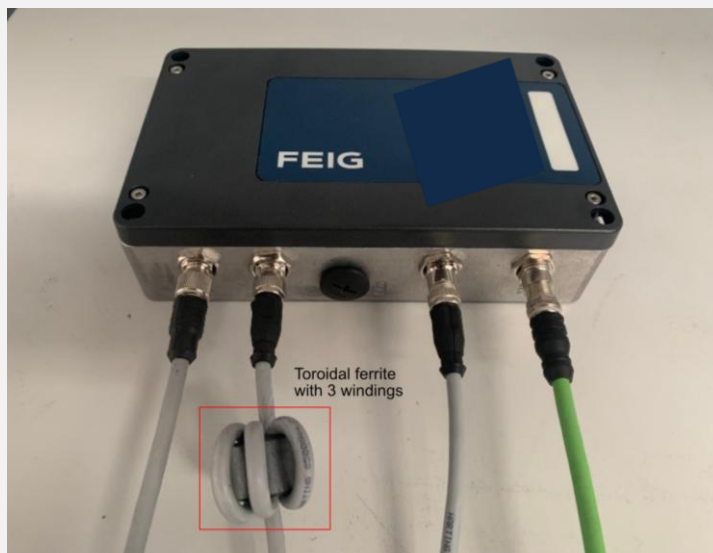
#### NOTE:

- The reader has a DHCP capable TCP/IP interface.
- The DHCP function is activated in the factory setting.
- Recommended cable type: STP CAT5 (for operation at 10 Mbps or 100 Mbps)..

## 5.6 RS485 Interface

**NOTE:**

- A shielded cable must be used for the RS485 Interface.
- The EMC toroidal ferrite included in the scope of delivery must be used for the "RS485" connection cable.
- The cable must be routed through the toroidal core with 3 windings in order to rule out any possible interference.



### Address settings RS485 (Periphery device)

- The transmission parameters can be configured via software protocol.
- The bus address is set via the software in the host.  
The RS485 bus is also terminated via the software.
- Address range: 0-254

**NOTE:**

- All readers are set to address 0 at the factory.
- The readers must be connected and configured one after the other.

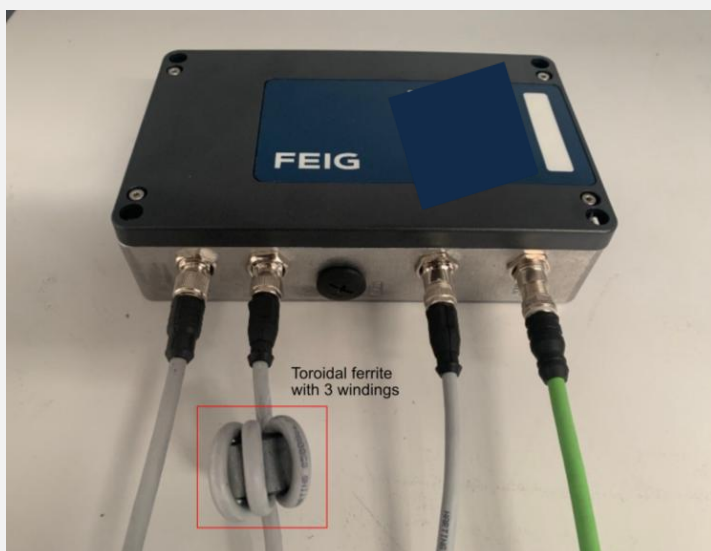
## 5.7 Relay output

A normally open contact (NO) is available as a relay output.

The outputs are galvanically isolated from the reader electronics and must therefore be supplied with an external voltage.

### NOTE:

- A shielded cable must be used for the Relay outputs.
- The EMC toroidal ferrite included in the scope of delivery must be used for the "relay outputs" connection cable.
- The cable must be routed through the toroidal core with 3 windings in order to exclude any possible interference.



| Output                                         | Description           |
|------------------------------------------------|-----------------------|
| COM                                            | Normally open contact |
| NO                                             |                       |
| U <sub>max</sub> = 24 VDC                      |                       |
| I <sub>switch max</sub> = 1 A (Switch current) |                       |
| I <sub>Rated max</sub> = 2 A (Rated current)   |                       |

The diagram illustrates a relay circuit. On the left, a switch mechanism is shown with a common terminal (COM) and two other terminals: NO (Normally Open) and NC (Normally Closed). The NO terminal is connected to a load, represented by a circle with an 'X' inside. The other end of the load is connected to the COM terminal. This load is connected to an external voltage source U<sub>ext</sub>, which is represented by a battery symbol with '+' and '-' signs. The NC terminal is shown but is not connected to anything in this circuit. The entire switch assembly is labeled 'REL' (Relay).

Tab 7: Relay output

### NOTE:

- The relay output is only intended for switching inductive loads.
- If an inductive load is connected, the relay contacts must be protected by an external protective circuit.

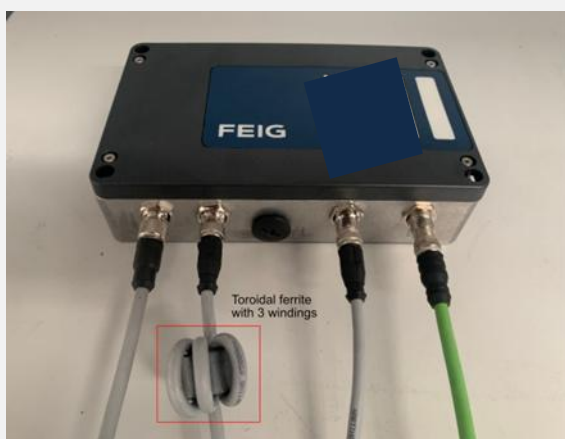
## 5.8 Digital Input / Output

The digital input and output (optocouplers) are electrically isolated from the reader electronics and must therefore be supplied with an external voltage.

The input and output can be configured individually.

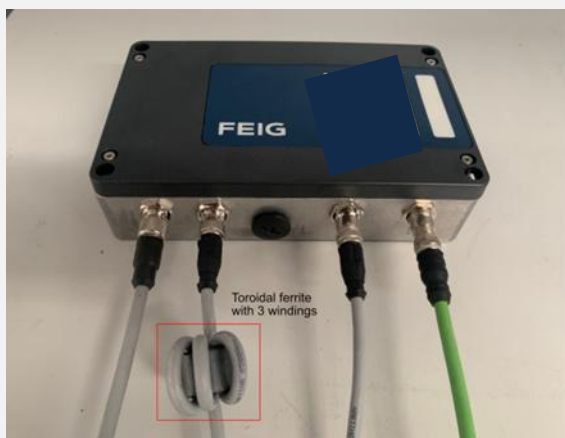
### NOTE:

- A shielded cable must be used for the digital inputs / outputs.
- The EMC toroidal ferrite included in the scope of delivery must be used for the "Digital inputs / outputs" connection cable.
- The cable must be routed through the toroidal core with 3 windings in order to eliminate any possible interference.



### NOTE:

- A shielded cable must be used for the digital inputs / outputs.
- The EMC toroidal ferrite included in the scope of delivery must be used for the "Digital inputs / outputs" connection cable.
- The cable must be routed through the toroidal core with 3 windings in order to eliminate any possible interference.



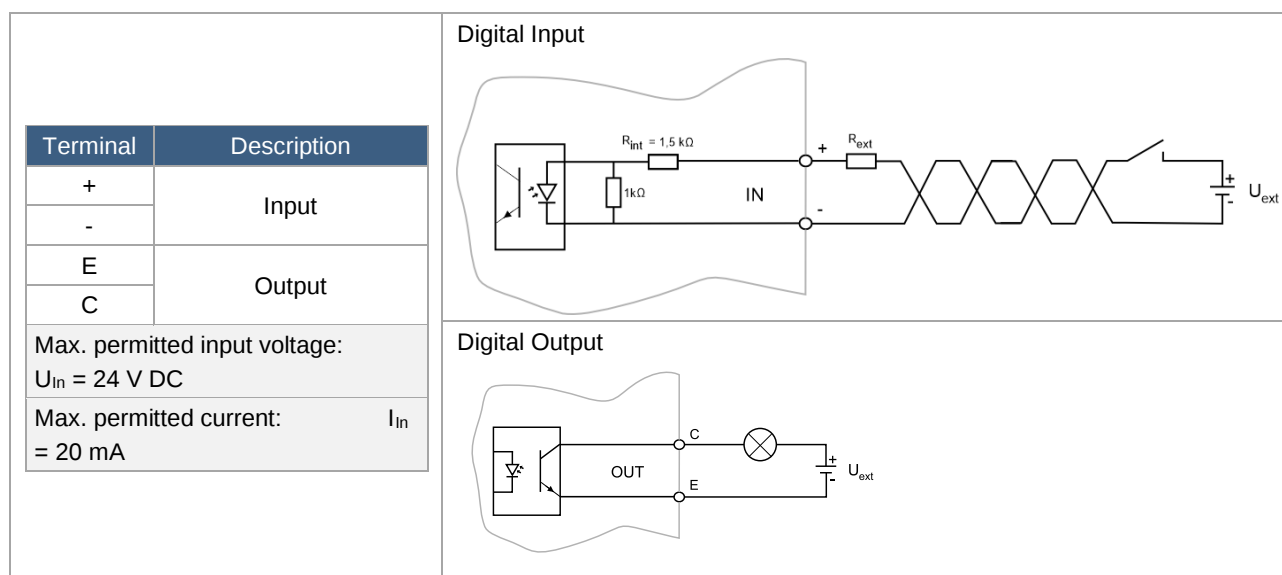


Fig 9: Digital In- / Output

**NOTE:**

- Reverse polarity or overloading of the inputs/outputs must be avoided (risk of destruction)
- The input and output are only intended for switching resistive loads.

**5.9 USB-OTG Service-Interface**

- The reader has a USB OTG service interface (On The Go) to connect the reader to a host system.
- The connection is made via a shielded standard USB cable.
- The data rate of the reader is limited to 12 Mbit (USB Full Speed).
- Length of the USB cable  $\leq 5 \text{ m}$
- Remove the dummy plug (slotted screwdriver / torque value 4 Nm) and plug in the USB cable.
- The dummy plug can be permanently replaced with an M20 cable gland (included in the scope of delivery / torque value 1,1 Nm).

X6

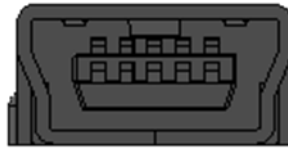


Fig 10 USB-OTG Service Interface for host communication

### 5.9.1 Installing the cable gland for the USB cable

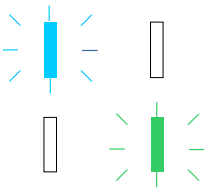


Installing USB cable

## 6 Status- and Operating Elements

### NOTE:

The LED color of the green and blue LEDs can be configured according to the device status.

| Display                                                                             | LED Color                                                                                                                                                                                  | Description                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |  LED Red                                                                                                  | 1. <b>Warning</b><br>permanent lit<br>2. <b>Boot process active</b><br>irregular flashing<br>duration approx. 40 s                                                                                                                            |
|                                                                                     |  LED Green<br>(default)                                                                                   | <b>RUN</b><br>In the default setting (green LED), the idle state of the reader is displayed.<br>The device is switched on and no transponders are being read.                                                                                 |
|                                                                                     |  LED Blue<br>(default)                                                                                   | <b>Transponder-Kommunikation</b><br><b>Transponder Communication</b><br>In the default setting (blue LED) the LED flashes each time a transponder is read.<br>If several transponders are read in succession, the LED lights up continuously. |
| <b>„Find Reader Mode“</b>                                                           |                                                                                                                                                                                            |                                                                                                                                                                                                                                               |
| The reader is in the<br><b>„Find Reader Mode“</b><br>LED Green / Blue are flashing: |                                                                                                         | <b>Quitt „Find Reader Mode“:</b><br>Simultaneous pressing of the two buttons T1 + T2 for 1s                                                                                                                                                   |
| <b>„Power On Reset“</b>                                                             |                                                                                                                                                                                            |                                                                                                                                                                                                                                               |
|  | <b>„Power On Reset“:</b> <ul style="list-style-type: none"> <li>• Simultaneous pressing of the two buttons T1 + T2 for 5s</li> <li>• The reader configuration remain unchanged.</li> </ul> |                                                                                                                                                                                                                                               |

Tab 8: Status- and Operating Elements

## 7 Radio Approvals

### 7.1 Declaration of Conformity



Hereby, FEIG ELECTRONIC GmbH declares that the radio equipment type ID MRU400iX is in compliance with Directive 2014/53/EU.

The full text of the EU Declaration of Conformity is available at the following internet address:

<https://www.feig.de/en/service/>

[https://www.feig.de/wp-content/uploads/ID\\_MRU400\\_Declaration\\_of\\_Conformity\\_RED.pdf](https://www.feig.de/wp-content/uploads/ID_MRU400_Declaration_of_Conformity_RED.pdf)

### 7.2 USA (FCC) and Canada (IC)

**NOTE:**

The RFID reader ID MRU400iX contains the RFID module ID MRMU400.

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product name:</b>                 | ID MRU400iX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>FCC ID:</b>                       | PJMMRMU400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>IC:</b>                           | 6633A-MRMU400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Notice for<br/>USA and Canada</b> | <p>This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.</p> <p>Operation is subject to the following two conditions.</p> <p>(1) this device may not cause harmful interference, and</p> <p>(2) this device must accept any interference received, including interference that may cause undesired operation.</p> <p>Unauthorized modifications may void the authority granted under Federal communications Commission Rules permitting the operation of this device.</p> <p>This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.</p> <p>Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :</p> <p>(1) l'appareil ne doit pas produire de brouillage, et</p> <p>(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.</p> |

|                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Radiofrequency<br/>radiation exposure<br/>Information:</b> | <p>This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.</p> <p>This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.</p> <p>Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de</p> <p>20 cm de distance entre la source de rayonnement et votre corps.</p> <p>Ce transmetteur ne doit pas être placé au même endroit ou utilisé simultanément avec un autre transmetteur ou antenne.</p> |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**NOTE:**

Changes or modification made to this equipment not expressly approved by FEIG ELECTRONIC GmbH may void the FCC authorization to operate this equipment.

### 7.2.1 Installation with FCC / IC Approval

**NOTE:**

To comply with FCC Part 15 Rules in the United States / with IC Radio Standards in Canada, the system must be professionally installed to ensure compliance with the Part 15 certification / IC certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States / Canada.

## 8 Technical Data

| Mechanical data                           |                                                                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Dimension (w x h x d)                     |                                                                                                                                               |
| Without Connectors                        | Approx. 225 mm x 140 mm x 55 mm                                                                                                               |
| With Connectors                           | Approx. 225 mm x 190 mm x 55 mm                                                                                                               |
| Weight                                    | Approx. 1200 g                                                                                                                                |
| Housing                                   | Aluminum housing, plastic cover                                                                                                               |
| Color                                     | Aluminum, anthracite (cover)                                                                                                                  |
| Protection class                          | IP65, IP67                                                                                                                                    |
| Electrical data                           |                                                                                                                                               |
| Power supply                              | 12 V...24 V DC $\pm$ 10 %, Power over Ethernet (PoE+)                                                                                         |
| Power consumption                         | max. 12 W                                                                                                                                     |
| Output Power                              | 100 mW to max. 1 W, adjustable in steps of 100 mW                                                                                             |
| 1x Antenna Connector                      | 1x R-TNC socket (50 Ohm)                                                                                                                      |
| 1x Internal Antenna                       | 1x Internal Antenna in the housing cover                                                                                                      |
| RF-Diagnosis                              | RF-channel monitoring, Antenna SWR control, internal overheating control                                                                      |
| Connections                               | I/O (M12, A-coded, 8-pin), RS485 / relay (M12, A-coded, 8-pin), Ethernet (M12, D-coded), power supply (M12, A-coded, 4-pin)                   |
| Output                                    |                                                                                                                                               |
| 1 Optocoupler                             | max. 24 V DC / 20 mA                                                                                                                          |
| 1 Relay                                   | 1 Relay max. 24 V DC / 1 A switching current, 2 A permanent current                                                                           |
| Input                                     |                                                                                                                                               |
| 1 Optocoupler                             | max. 24 V DC / 20 mA                                                                                                                          |
| EU Frequency                              | 865 MHz – 868 MHz                                                                                                                             |
| FCC Frequency                             | 902 MHz – 928 MHz                                                                                                                             |
| Interface                                 | <ul style="list-style-type: none"> <li>• RS485</li> <li>• Ethernet (IPv4/IPv6)</li> <li>• USB (On-The-Go)</li> </ul>                          |
| Processor & Memory<br>(Linux OS V 5.15)   | ARM single Cortex-A7 (Linux) + Cortex-M4 (RFID)<br>1 GB Flash, 512 MB RAM                                                                     |
| Reader Modes                              | <ul style="list-style-type: none"> <li>• Host Mode</li> <li>• Scan Mode</li> <li>• Buffered Read Mode</li> <li>• Notification Mode</li> </ul> |
| Transponder                               | <ul style="list-style-type: none"> <li>• EPC Class1 Gen2</li> <li>• ISO 18000-63</li> <li>• ISO/IEC 29167</li> </ul>                          |
| Indicator                                 | Highly visible status display (green/red/blue; customizable indication)                                                                       |
| Environmental conditions                  |                                                                                                                                               |
| Temperature range<br>Operation            | <ul style="list-style-type: none"> <li>• -40 °C to +55 °C</li> </ul>                                                                          |
| Extended temperature range for operation* | <ul style="list-style-type: none"> <li>• -40 °C to +70 °C</li> </ul>                                                                          |
| Temperature range<br>Storage              | <ul style="list-style-type: none"> <li>• -40 °C to +85 °C</li> </ul>                                                                          |

|                                                                  |                                                                                                                                          |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Relative Air Humidity                                            | 5 % up to 95 % (non-condensing)                                                                                                          |
| Vibration                                                        | EN 60068-2-6<br>10 Hz bis 150 Hz<br>0,075 mm / 1 g                                                                                       |
| <b>Radio approvals</b>                                           |                                                                                                                                          |
| Europe<br>UK<br>USA<br>Canada                                    | <ul style="list-style-type: none"> <li>• EN 302 208</li> <li>• EN 302 208</li> <li>• FCC 47 CFR Part 15</li> <li>• IC RSS-247</li> </ul> |
| EMV                                                              | EN 301 489                                                                                                                               |
| <b>Safety</b><br>Electrical safety<br>Human Exposure             | EN 62368-1<br>EN 50364                                                                                                                   |
| Cyber Security                                                   | EN 18031-1                                                                                                                               |
| <b>* Transmission power max. 1.0 W; PoE supply not permitted</b> |                                                                                                                                          |

Tab 9: Technical data

## 9 Accessories

| Order No.                     | Article                                                    | Description                                                                                                                           |
|-------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>UHF Antennas</b>           |                                                            |                                                                                                                                       |
| EU: 5238.000.00               | ID ANT.U580/290<br>UHF wide-range antenna 30 °<br>circular | Robust UHF antenna for connection to stationary UHF readers<br>Optimized beam angle, increased antenna gain<br>Connection: TNC socket |
| FCC: 5238.000.10              |                                                            |                                                                                                                                       |
| EU: 5236.000.00               | ID ANT.U290/290<br>UHF wide-range antenna 65 °<br>circular | Robust UHF antenna for connection to stationary UHF readers<br>Connection: TNC socket                                                 |
| FCC: 5236.000.10              |                                                            |                                                                                                                                       |
| EU: 3199.000.00               | ID ISC.ANT.U270/270<br>UHF Antenna                         | Powerful UHF Antenna with 3dB beamwidth of 65 ° x 65 °                                                                                |
| FCC: 3686.000.00              |                                                            |                                                                                                                                       |
| EU: 6602.000.00               | ID ANT.U150/150<br>UHF Antenna                             | Compact, robust UHF Antenna with SMA Connector,<br>3dB beamwidth 105 ° x 105 °                                                        |
| FCC: 6602.000.10              |                                                            |                                                                                                                                       |
| EU: 6603.000.00               | ID ISC.ANT.U280/210<br>UHF Antenna                         | Very flat UHF Antenna with SMA Connector via 30 cm<br>coaxial cable, 3dB beamwidth 60 ° x 80 °                                        |
| FCC: 6603.000.00              |                                                            |                                                                                                                                       |
| 6601.000.00                   | ID ANT.U82/82<br>UHF Antenna                               | Small, very compact UHF Antenna with SMA Connector<br>Frequency Range: 864 - 929 MHz (ETSI & FCC)                                     |
| <b>LOCFIELD® UHF Antennas</b> |                                                            |                                                                                                                                       |
| EU: 6236.000.00               | ID ANT.U LOCFIELD®<br>Typ: 037-080-28                      | LOCFIELD® UHF Antenna; active length: 0.37 m; total<br>length: 0.80 m; cable diameter: 2.8 mm                                         |
| FCC: 6236.000.10              |                                                            |                                                                                                                                       |
| EU: 6236.001.00               | ID ANT.U LOCFIELD®<br>Typ: 100-150-28                      | LOCFIELD® UHF Antenna; active length: 1.0 m; total<br>length: 2.0 m; cable diameter: 2.8 mm                                           |
| FCC: 6236.001.10              |                                                            |                                                                                                                                       |
| EU: 6236.002.00               | ID ANT.U LOCFIELD®<br>Typ: 200-250-28                      | LOCFIELD® UHF Antenna; active length: 2.0 m; total<br>length: 2.5 m; cable diameter: 2.8 mm                                           |
| FCC: 6236.002.10              |                                                            |                                                                                                                                       |

|                             |                                                                  |                                                                                                                                                               |
|-----------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU: 6236.003.00             | ID ANT.U LOCFIELD®                                               | LOCFIELD® UHF Antenna; active length: 2.0 m; total                                                                                                            |
| FCC: 6236.003.10            | Typ: 200-300-50                                                  | length: 3.0 m; cable diameter: 5.0 mm                                                                                                                         |
| UHF Antenna cable (coaxial) |                                                                  |                                                                                                                                                               |
| 7029.001.00                 | ID ANT.C2-D UHF-Antenna<br>Cable R-TNC/SMA 2 m                   | H155 Coaxial cable for UHF-antennas with SMA socket<br>and UHF-Reader with R-TNC Connector<br>Connection type: R-TNC female / SMA male<br>Length: 2 m         |
| 7029.002.00                 | ID ANT.C2-D UHF-Antenna<br>Cable R-TNC/SMA 6 m                   | H155 Coaxial cable for UHF-antennas with SMA socket<br>and UHF-Reader with R-TNC Connector<br>Connection type: R-TNC female / SMA male<br>Length: 6 m         |
| 5243.001.00                 | ID ANT.C2-C UHF Antenna<br>Cable R-TNC/TNC 2 m                   | H155 Coaxial cable for UHF antennas with TNC socket<br>and UHF reader with R-TNC connector<br>Connection type: Connector R-TNC / Connector TNC<br>Length: 2 m |
| 5243.002.00                 | ID ANT.C6-C UHF Antenna<br>Cable R-TNC/TNC 6 m                   | H155 Coaxial cable for UHF antennas with TNC socket<br>and UHF reader with R-TNC connector<br>Connection type: Connector R-TNC / Connector TNC<br>Length: 6 m |
| UHF Antenna cable (coaxial) |                                                                  |                                                                                                                                                               |
| 5335.000.00                 | ID ANT.C6-x UHF<br>Antenna Extension Cable<br>TNC/TNC 6 m        | H155 Coaxial Extension Cable for UHF antennas with<br>TNC socket<br>Connection Type: TNC female / TNC male<br>Length: ca. 6 m                                 |
| 1654.002.00                 | ID ISC.ANT.C2-A UHF<br>Antenna Cable 2m                          | H155 Coaxial Cable for UHF Reader, Connection Plug<br>SMA - male/male, Length: approx. 2 m                                                                    |
| 1654.003.00                 | ID ISC.ANT.C6-A UHF<br>Antenna Cable 6m                          | H155 Coaxial Cable for UHF Reader, Connection Plug<br>SMA - male/male, Length: approx. 6 m                                                                    |
| Copper cable                |                                                                  |                                                                                                                                                               |
| 7031.000.00                 | ID CAB.RS-M12 Connection<br>Cable A-Coding (8-poles,<br>female)  | Copper cable (round), Pre-assembled on one side, Cable<br>length: 2 m<br>Suitable for LRU4000X and MRU400X                                                    |
| 7032.000.00                 | ID CAB.IO-M12 Connection<br>Cable A-Coding (8-poles, male)       | Copper cable (round), Pre-assembled on one side, Cable<br>length: 2 m<br>Suitable for LRU4000X and MRU400X                                                    |
| 7034.000.00                 | ID CAB.VCC-M12 Connection<br>Cable A-Coding (4-poles,<br>female) | Copper cable (round), Pre-assembled on one side, Cable<br>length: 3 m<br>Suitable for LRU4000X and MRU400X                                                    |
| 5948.000.00                 | ID CAB.E-M12 Ethernet Cable<br>D-Coding                          | Copper cable (round), Pre-assembled on both sides, Cable<br>length: 3 m<br>Suitable for: ID LRU4000X and ID MRU400X                                           |
| Mounting Kits               |                                                                  |                                                                                                                                                               |
| 5255.000.00                 | ID MS.VESA100-A<br>Mounting Set                                  | Mast and wall mounting set with VESA100 receptacle for<br>pipe diameters of 1" - 3" (approx. 2.5 cm to 7.6 cm)                                                |
| 3309.000.00                 | ID ISC.ANT.U270/270-MS<br>Mounting Kit                           | Mast and wall mounting set for antenna<br>ID ISC.ANT.U270/270, cylindrical profile bis 60 mm                                                                  |
| 6832.000.00                 | ID ANT.U150/150 Antenna<br>connection shield                     | Antenna connection shield for ID ANT.U150/150<br>Material: 1.4301 (V2A)                                                                                       |
| 7033.000.00                 | Insulated mounting plate                                         | ID LRU4000 Mounting plate, electrically insulated                                                                                                             |

|                        |                                                                                                                                             |                                                                                                                                 |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 7035.000.00            | Top hat rail adapter                                                                                                                        | ID LRU4000 Top hat rail adapter                                                                                                 |
| Power Supply and Cable |                                                                                                                                             |                                                                                                                                 |
| 2557.000.00            | ID NET.24V-B<br>Power Supply Unit                                                                                                           | Power Supply Unit for ID ISC.LR/LRM2500/1002, ID ISC.LRU/LRU3x00/1002. Versatile outlets available (EU, GB, US - not included). |
| 2558.000.00            | ID CAB.NET.24V-B-EU<br>Cable with European Plug                                                                                             | Cable with Continental European Plug for Power Supply Unit ID NET.24V-B                                                         |
| 2559.000.00            | ID CAB.NET.24V-B-GB<br>Cable with GB/UK Plug                                                                                                | Cable with GB Plug for Power Supply Unit ID NET.24V-B                                                                           |
| 2560.000.00            | ID CAB.NET.24V-B-US<br>Cable with US Plug                                                                                                   | Cable with US Plug for Power Supply Unit ID NET.24V-B                                                                           |
| Protective Cap         |                                                                                                                                             |                                                                                                                                 |
| 7404.000.00            | 3 x Coaxial Connector Cap TNC<br>2 x Blind plug for M12 sockets<br>(internal thread)<br>2 x Blind plug for M12 sockets<br>(external thread) | ID LRU4000X/MRU400X Protective Cap Set suitable for LRU4000X and MRU400X                                                        |

Tab 10: Accessories

Document:

ID-Nr. Document-Version

Date:

Installation ID MRU400iX

M50221-5e-ID-B

2026-05

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**FEIG ELECTRONIC GmbH**

Industriestrasse 1a

35781 Weilburg, GERMANY

Phone:

Homepage

Email:

+49 6471 3109 0

[https://www.feig.de/en/  
identification-support@feig.de](https://www.feig.de/en/identification-support@feig.de)