

**ID ISC.MR101-USB
ID ISC.PR101-USB**



Note

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FEIG ELECTRONIC GmbH
Lange Strasse 4
D-35781 Weilburg-Waldhausen
Tel.: +49 6471 3109-0
<http://www.feig.de>

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1. Safety Instructions / Warning - Read before start-up !

- 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 should only be carried out by qualified personnel.
- Use of the device and its installation must be in accordance with national legal requirements and local electrical codes .
- When working on devices the valid safety regulations must be observed.
- Special advice for carriers of cardiac pacemakers:
Although this device doesn't exceed the valid limits for electromagnetic fields you should keep a minimum distance of 25 cm between the device and your cardiac pacemaker and not stay in an immediate proximity of the device respective the antenna for some time.

2. Performance Features of the readers

2.1. Performance features

The Reader is designed for reading passive data carriers, so-called „Smart Labels“ at an operating frequency of 13.56 MHz.

The reader ID ISC.MR101 is suitable for all applications in which moderate reading distances are required. Also required is an external antenna connected to the Reader.

The ID ISC.PR101 is suitable for all applications which don't require wide reader ranges. The reader contains of an internal antenna, so that is no external antenna necessary.

An anti-collision function enables simultaneous reading of up to 30 transponders per second.

The Reader electronics is contained in a plastic housing having an IP30 enclosure rating.

Both readers comes with an USB-Interface.

The reader ID ISC.PR101-USB will be powered via the USB-Interface. An additional power supply is not necessary.

2.2. Available Reader-Types

Reader-Types	Description
ID ISC.MR101-A	asynchronous RS232 interface and external antenna
ID ISC.MR101-A-M	asynchronous RS232 interface and external antenna - Module
ID ISC.MR101-USB	USB-Interface and external antenna
ID ISC.PR101-A	asynchronous RS232 interface and internal antenna
ID ISC.PR101-A-M	asynchronous RS232 interface and internal antenna - Module
ID ISC.PR101-USB	USB-Interface and internal antenna

Table 1: Reader-Types

3. Assembly and Wiring

The Reader is designed for an office environment. It can be wall-mounted, in this case the wall-mount kit should be ordered separately.

(see Appendix: [7.1. Accessories](#) and [7.1.1. Wall mounting kit ID ISC.MS.MR/PR-A](#))

Notes:

- **The distance between two readers of the same type should not fall below 4m.**
- **Before any installation the intended position of the reader should be tested for its suitability.**
- **Only ID ISC.PR101:**
The reader must not be installed directly upon conductive materials as e.g. metal surfaces, metal grids (reinforcements) or metallized surfaces, as these surfaces reduce the detection range of the reader. The distance between the reader and such surfaces should be min. 10 cm.

3.1. Dimensions

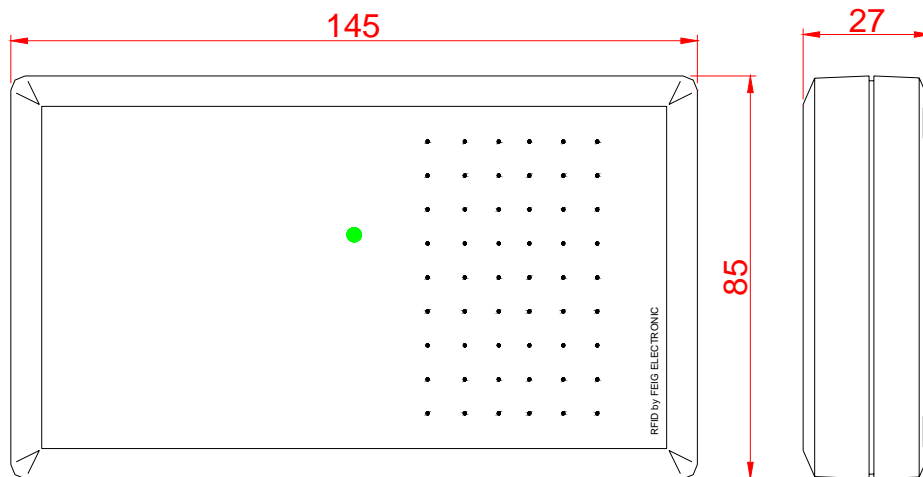


Fig. 1: Enclosure (all dimensions in mm)

3.2. Connector sockets

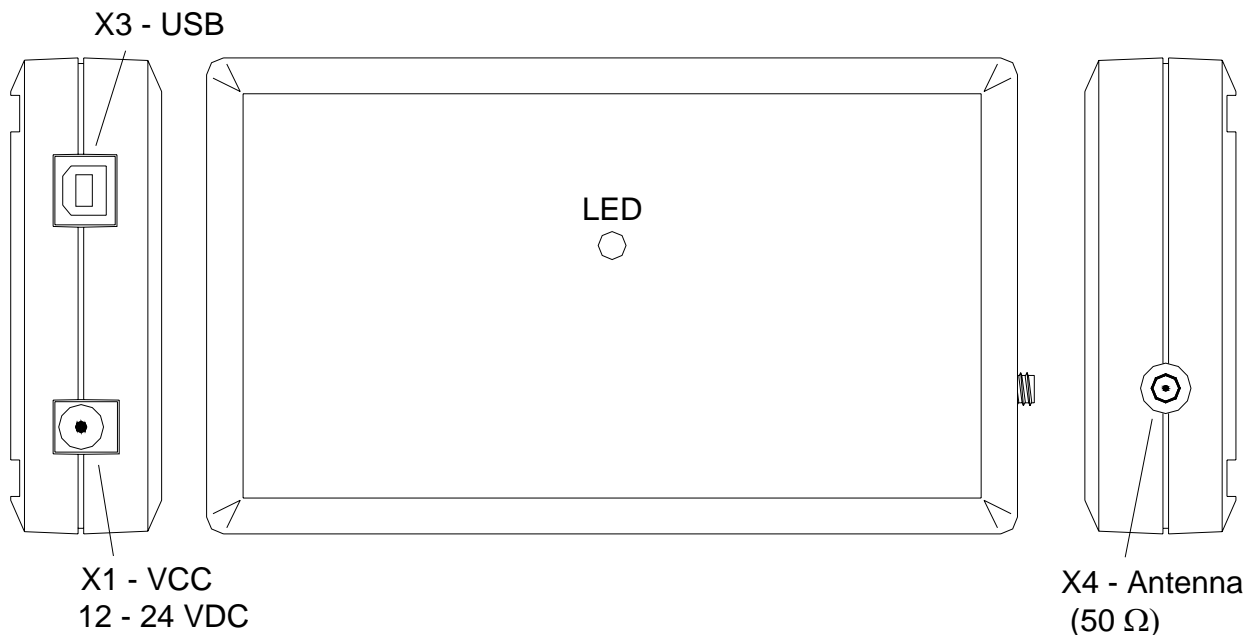


Fig. 2: Connection sockets

3.3. USB-Interface connection X3

There is a USB-socket on board for the connection of the USB-Interface. The pinout is standardized. The datarate is reduced to 12 Mbit (USB full speed). A standard USB-cable can be used.

A 2.5m USB-cable is available for the reader.. (see [7.1. Accessories](#)).

Feig Article No.	Part No.
1686.000.00	ID CAB.USB-A

Table 2: USB-cable 2,5m

Note:

The length of the USB-cable can be a max. of 3 meter. It isn't allowed to use longer cables!

The reader ID ISC.PR101-USB does not need an external power supply. The power supply takes place via the USB-Interface (Bus-powered). The USB-Interface must support a current of about 500mA (High Powered Interface).

3.4. Power supply (only ID ISC.MR101)

Connect the 12-24 V DC/⎓ supply voltage to socket X1 on the circuit board.

Terminal	Name	Description
X1 / inside	Vcc	Vcc – supply voltage (+)
X1 / outside	GND	Ground – supply voltage (-)

Table 3: Connecting the supply voltage

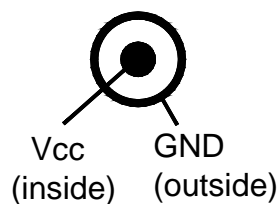


Fig. 3: DC/⎓ socket X1 configuration.

Note:

Reversing the polarity of the supply voltage may destroy the device.

Power supply recommendations :

To take full advantage of the Reader module performance, you must use a sufficiently regulated and low-noise power supply. When using a switching power supply, be sure that its internal switching frequency is less than 300 kHz. (see: [7.1. Accessories](#)).

Feig Article No	Part No.	Description.
1688.000.00	ID NET.12VDC-A	Input voltage 230V AC
1688.001.00	ID NET.12VDC-B	Input voltage 95 - 265V AC

Table 4: Recommended power supply

Note:

The power supply is supplied with a DC/⎓ plug 2.5mm x 5.5mm. This is compatible with the readers socket X1.

3.5. Antenna terminal X4 (only ID ISC.MR101)

An SMA socket is provided on the circuit board for connecting the external antenna.

The maximum tightening torque for the SMA socket is 0.45 Nm.

Caution:

Higher tightening torque will damage the connector.

Terminal	Description
X4	Connecting the external antenna (input impedance 50Ω)

Table 5: Connecting the external antenna

Note:

- **The input impedance for the antenna must be calibrated to a value of $50 \Omega \pm (15 \Omega \angle 15^\circ)$.**
- **If the antenna ID ISC.ANT240340 is used a minimum distance of 20cm to any metal parts are necessary. Otherwise there is a danger that the reader will be destroyed.**
- **The optimum operating Q factor of the antenna should be in a range of $QB = 10...20$. To determine the operating Q the antenna must be supplied with a 50 Ohm source such as a network analyzer or frequency generator.**
- **When connecting an antenna, ensure that it does not exceed the permissible limits prescribed by the national regulations for radio frequency devices.**

3.6. Starting

The reader must be registered to the operating system by the first use. To do this you should read the manual "Installation OBID USB-driver".

3.6.1. ID ISC.MR101

For registering the reader to the operating system, the reader must be connected to the power supply and the USB-cable. In which order the cables are connected will remain left to the user. The reader should not be used without connected antenna. Due to the reader uses an external power supply a "Low Powered Interface" is sufficient. The maximum current through the USB-Interface amounts to 100mA.

3.6.2. ID ISC.PR101

If the reader is connected with the USB-Interface of the computer by using an USB-cable, it registers in the operating system automatically. The power requirement of the reader amounts to more than 100mA. The USB-Interface must be a High Powered Interface. A High Powered Interface supports the reader up to 500mA.

Note:

The function of the reader is only guaranteed if it is connected to a High Powered Interface.

4. Control and display elements

4.1. LED

The Reader's LED can be configured through software.

Abbreviation	Description
LED green	"RUN " - Turns on when the Reader is ready
LED red	„LABEL“ - Turns on when a transponder is detected.
LED orange	„INITIALIZING“ - Flashes during Reader initialization after power-up.

Table 6: Standard configuration of the LEDs

5. Technical Data

Mechanical Data

- **Housing** ABS plastic
Enclosed
- **Dimensions (W x H x D)** 85 x 145 x 31 mm / 3,35 x 4,72 x 1,77 in.
- **Weight** 200 g / 0,44 lbs
- **Degree of Protection** IP 30
- **Color** similar RAL 9018 (papyrus white)

Electrical Data

- **Supply voltage**
ID ISC.MR101-USB typical. 12 V DC/---
max. 12 – 24 V --- ± 15 %
ID ISC.PR101-USB 5V DC/--- (via USB)
- **Current draw** max. 0.5A
- **Power consumption** ID ISC.MR101: max. 8 VA
ID ISC.PR101: max. 2,5 VA
- **Operating frequency** 13,56 MHz
- **Transmitting power** ID ISC.MR101: 1,0 W ± 2dB
ID ISC.PR101: 0,5 W ± 2dB
- **Antenna connection**
(only ID ISC.MR101) SMA female (50Ω)
- **Interfaces** USB (12 Mbit)

Functional Properties

- **Protocol Modes**
 - FEIG ISO HOST
 - Scan Mode
- **Supported transponders**
 - ISO15693, ISO18000-3-Mode1
(EM HF ISO Chips, Fujitsu HF ISO Chips, KSW Sensor Chips, Infineon my-d, NXP I-Code, STM LRI ISO Chips, TI Tag-it)
 - NXP I Code 1, I Code UID, I Code EPC
- **Address setting for interface** Device ID of the reader
- **Visual indicators** 1 LED (multicolor – red / green)

Ambient Conditions

- **Temperature range**
 - Operation -25°C to +60°C / -13°F to +140°F
 - Storage -25°C to +85°C / -13°F to +185°F
- **Humidity** 5 – 95% non condensing

Applicable Norms

- **Radio approval**
 - Europe EN 300 330
 - USA FCC 47 CFR Part 15
 - Canada RSS-Gen Issue 1, RSS-210 Issue 6
- **EMC** EN 300 489
- **Safety**
 - Low-Voltage UL 60950-1
 - Human Exposure EN 50364

6. Approvals

6.1. Europe (CE)

Declaration of Conformity

in accordance with the
**Radio and Telecommunication Terminal
 Equipment Act (FTEG)**
 and
Directive 1999/5/EC (R&TTE Directive)

FEIG ELECTRONIC

Product Manufacturer : **FEIG ELECTRONIC GmbH**
 Lange Strasse 4
 D-35781 Weilburg
 Germany
 Phone +49 6471 3109 0

Product Designation : **ID ISC.MR101 / ID ISC.PR101**

Product Description : Induktive Loop System

Radio equipment, Equipment class (R&TTE) : Class 2

FEIG ELECTRONIC GmbH declares that the radio equipment complies with the essential requirements of §3 and the other relevant provisions of the FTEG (Article 3 of the R&TTE Directive), when used for its intended purpose.

Standards applied :

Health and safety requirements pursuant to § 3 (1) 1. (Article 3(1) a))	EN 60950-1:2001 EN 50364:2001
Protection requirements concerning electromagnetic compatibility § 3 (1) 2. (Article 3(1) b))	ETSI EN 301489-3 V1.4.1 (08-2002)
Measures for the efficient use of the radio frequency spectrum pursuant to § 3 (2) (Article 3(2))	ETSI EN 300 330-2 V1.1.1 (06-2001)

Weilburg-Waldhausen, 12.04.2005

Place & date of issue

Eldor Walk 

Name and signature

This declaration attests to conformity with the named Directives but does not represent assurance of properties. The safety guidelines in the accompanying product documentation must be observed.

When properly used this radio equipment conforms to the essential requirements of Article 3 and the other relevant provisions of the R&TTE Directive 1999/5/EC of March 99.



Equipment Classification according to ETSI EN 300 330 and ETSI EN 301 489: Class 2

6.2. Canada (IC)

IC Certification Number: 6633A-MR101

This Class B digital apparatus complies with Canadian ICES-003.

Installation with IC Approval:

IC-NOTICE: To comply with IC Radio Standards in Canada, the system must be professionally installed to ensure compliance with the IC certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in Canada. The use of the system in any other combination (such as colocated antennas transmitting the same information) is expressly forbidden. This device has been designed to operate with the antennas listed below. Antennas not included in this list are strictly prohibited for use with this device. The required antenna impedance is 50 ohms. An SMA socket is provided on the circuit board for connecting the external antenna.

Article No.	Part No.
1663.000.00	ID ISC.ANT340/240-A
2396.000.00	ID ISC.ANT340/240-B

Table 7: Antennas with IC Approval

6.3. USA

6.3.1. FCC

FCC ID PJMMR101-PR101

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.











Installation with FCC Approval:

FCC -NOTICE: To comply with FCC Part 15 Rules in the United States, the system must be professionally installed to ensure compliance with the Part 15 certification. It is the responsibility of the operator and professional installer to ensure that only certified systems are deployed in the United States. The use of the system in any other combination (such as colocated antennas transmitting the same information) is expressly forbidden. This device has been designed to operate with the antennas listed below. Antennas not included in this list are strictly prohibited for use with this device. The required antenna impedance is 50 ohms. An SMA socket is provided on the circuit board for connecting the external antenna.

Article No.	Part No.
1663.000.00	ID ISC.ANT340/240-A
2396.000.00	ID ISC.ANT340/240-B

Table 8: Antennas with FCC Approval

6.3.2. UL

<p>ID ISC.MR101-USB FCC ID: PJMMR101-PR101 IC: 6633A-MR101 Input 12-24V  max. 0.5A This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation. This unit has to be supplied by a Listed NEC Class 2/LPS Supply only. For use with connections to Listed ITE equipment and accessories only.</p>     <p>LISTED Accessory I.T.E E304312</p>	<p>ID ISC.PR101-USB FCC ID: PJMMR101-PR101 IC: 6633A-MR101 Input 5V  max. 0.5A This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation. This unit has to be supplied by a Listed NEC Class 2/LPS Supply only. For use with connections to Listed ITE equipment and accessories only.</p>     <p>LISTED Accessory I.T.E E304312</p>
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7. Appendix

7.1. Accessories

The following accessories are available for the Reader.

Article No.	Part No.	Description
1688.000.00	ID NET.12V-A	12 V DC/⎓ power supply with suitable connector. Input voltage 230V AC
1688.001.00	ID NET.12V-B	12 V DC/⎓ power supply with suitable connector. Input voltage 95 - 265V AC
1691.000.01	ID ISC.MS.MR/PR-A	Wall mounting kit for ID ISC.MR101 and ID ISC.PR101.
1686.000.00	ID CAB.USB-A	USB-cable 2,5m
1663.000.00	ID ISC.ANT340/240-A	External antenna Dimensions: 340mm x 240mm x 9mm Degree of Protection: IP30
2396.000.00	ID ISC.ANT340/240-B	Externe Antenne ohne Gehäuse
1451.000.00	ID ISC.ANT300/300	External antenna Dimensions: 300mm x 300mm x 30mm Degree of Protection: IP65

Table 9: Accessories

7.1.1. Wall mounting kit ID ISC.MS.MR/PR-A

The wall mounting kit can be used to attach the reader to a flat surface.

- Remove the screws from the back side of the reader.
- Attach the individual wall hangers using the screws supplied with the mounting kit.

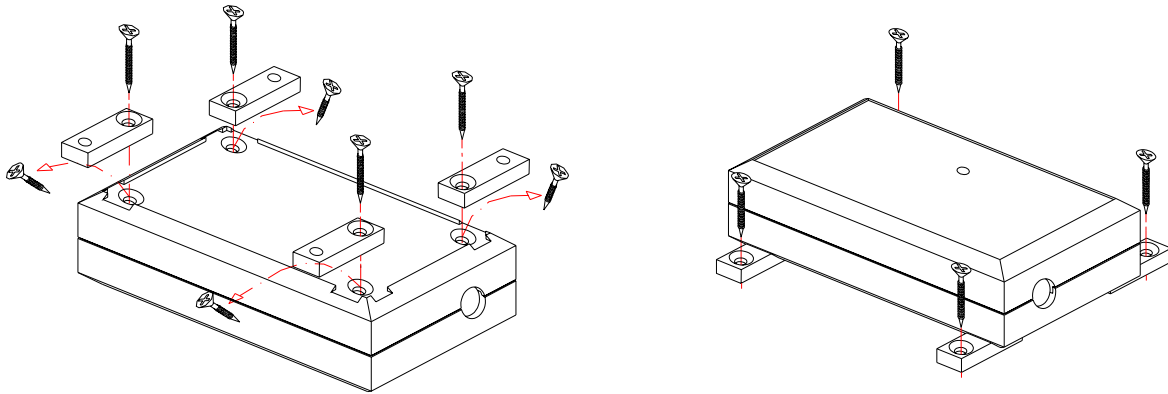


Fig. 4 + 5: Mounting wall hangers

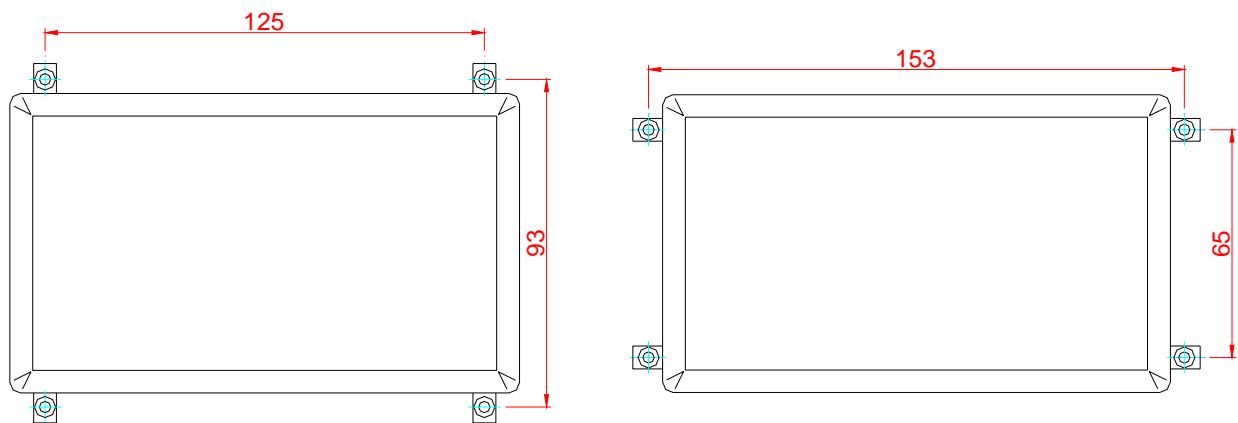


Fig. 6 + 7: Mounting drill dimensioning (all dimensions in mm)

7.1.2. Antennas



Fig. 8: ID ISC.ANT340/240



Fig. 9: ID ISC.ANT300/300