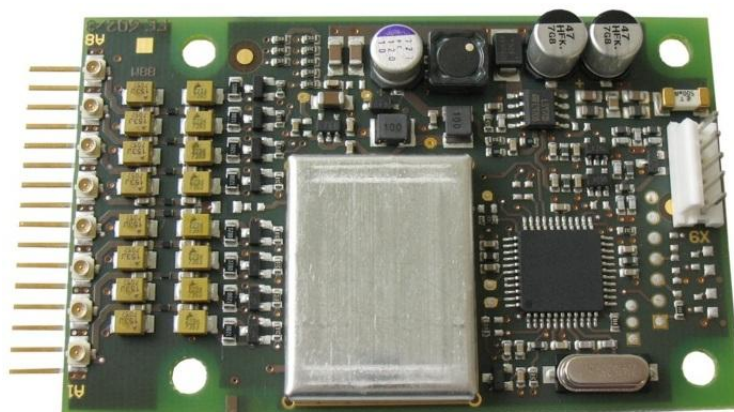


ID ISC.M02.M8-B



(English)

Note

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

- The device may only be used for the purpose intended by the manufacturer.
- The operation manual should be kept readily 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 the manufacturer from any liability.
- 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 undertaken 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.
- 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!
- Special advice for wearers 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 the immediate proximity of the device's antenna for any length of time.

2 Performance Characteristics of the ID ISC.M02.M8-B Reader Module

2.1 Performance Characteristics

The ID ISC.M02.M8-B reader module is designed for reading and writing passive transponders, so-called “Smart Labels”, with an operating frequency of 13.56 MHz according to the ISO15693 standard. It is suitable for any application in which short read ranges and small reader dimensions are required.

The module has an integrated antenna multiplexer. Up to 8 external antennas can be connected.

2.2 Available module

The following reader types are available:

Module type	Description
ID ISC.M02.M8-B	1 x Reader module ID ISC.M02.M8-B

Table 1: Available module version

3 Installation and wiring

3.1 Dimensions

Fig. 1 shows the dimensions of the ID ISC.M02.M8-B Reader Module in mm.

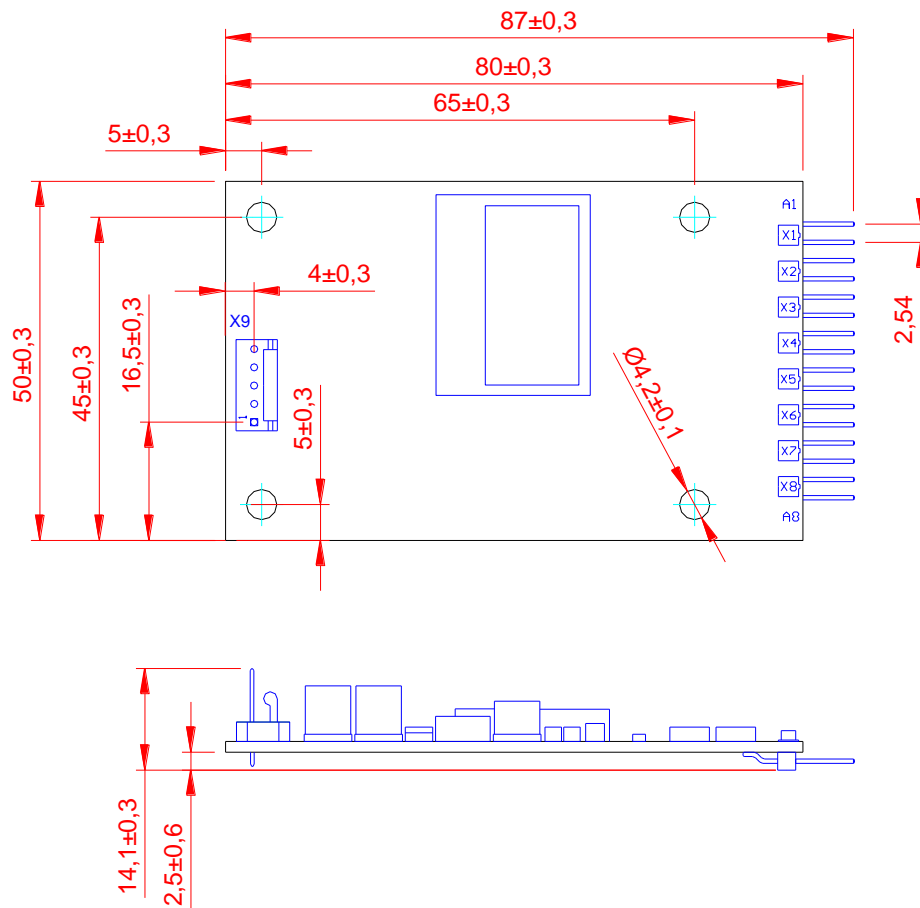


Fig. 1: Dimension of the Readermodul ID ISC.M02.M8-B

3.2 Wiring

[Figure 1](#) and [Table 2](#) show the pin assignments for Terminal X9. The pin connector is designed for flat cable connection using a 5 pin multipoint socket connector type MTA 100 company AMP.

X9 Pin-No.	Function	Description
1	GND **	GND
2	TxD	RS232-LVTTL – Send data
3	Vin *	+ 24VDC
4	RxD	RS232-LVTTL – Receive data
5	GND **	GND
* Use only regulated DC power supplies !		

Table 2: Pin Assignment of the multipoint connector X9

Note:

- ***A wrong polarity of the DC voltage will destroy the reader***

3.2.1 Supply voltage

The reader ID ISC.M02.M8-B has to be supplied by a limited power supply (e.g. NEC Class 2/LPS power supply) according to IEC EN 60950, only.

If switching power supplies are used with the module, be sure that there is adequate filtering.

Noise from the power supply can result in a reduction of the read/write range of the module.

The cable length from the power supply should be as short as possible, and should in any case not exceed 1 m.

Note:

- ***A wrong polarity of the DC voltage will destroy the reader***
- ***Supply voltages outside the specifications may destroy the device.***

3.2.2 RS232-LVTTL-Interface (3,3V)

The length of the cable to the RS232 LVTTL interface should be kept as short as possible, and must in any case not exceed 1 m.

The transmission parameters for the interface can be software-configured.

Table 3 shows the standard parameters for the RS232 interface.

Parameter	Default Setting
Baudrate	38400 bit/s
Number of Data bits	8
Parity	Even
Number of Stop bits	1

Table 3 Default parameter of the RS232 LVTTL

3.2.3 Connection of the external antennas

Up to 8 external antennas can be connected.

For the connection of the external antennas 8 antenna connectors (X1..X8 respectively A1..A8) are available.

The connector type is U.FL-R-SMT from the company Hirose. .

Alternatively a 16pin connector can be used for the connection of the antennas.

Figure 1 shows the pin assignment.

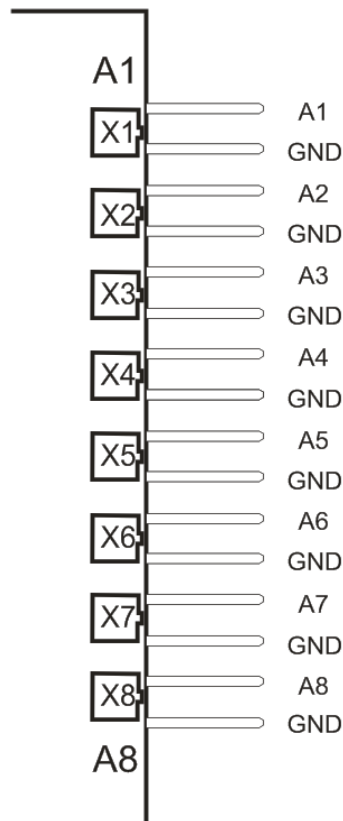


Figure 1: Antenna connector's

Note:

- **The maximum antenna cable length should not increase a maximum length of 50cm (24inch)**
- **The input impedance for the antenna must be calibrated to a value of $50 \Omega \pm (3 \Omega \angle 3^\circ)$.**
- **A not correct tuned antenna can destroy the reader.**
- **The optimum working quality of the antenna should be in a range of $QB = 10...20$. For measuring the working quality the antenna must be connected with a 50Ω -source, e.g. a network analyzer or a frequency generator**
- **When connecting an antenna, ensure that it does not exceed the permissible limits prescribed by the national regulations for radio frequency devices.**
- **The ultraminiatur coax connector can be used for up to about 20 connection cycles. For the disconnection the „Extraction Tool“ must be use according to the recommendation from the manufacturer.**

3.3 Installation notes

The reader module has been designed for the installation in a device.

3.3.1 Mounting

- The reader module can be mounted by using 4mm (M4) screws.
- Component side: the maximum head diameter should not increase more than 8mm.
- Preferred no metallic screws should be used (DIN7985).
- Alternatively internal hexagon screws can be used (DIN 912).
- Component underside: conductive materials can have a diameter of 6mm. Non-conductive materials can have a diameter of up to 10mm.
- The mounting orientation of the reader module is arbitrary. The component side on the top is the preferred orientation.
- Check the planed mounting place first for suitability.

3.3.2 Influence

Be aware of the following possible environmental factors when installing the module into another device :

- Effects from nearby metal objects
 - ⇒ Detuning of the integrated antenna
 - ⇒ Impaired propagation of the antenna's magnetic field
- EMC effects on cables
 - ⇒ Impaired communication between reader and transponder
- EMC effects from magnetic fields
 - ⇒ Impaired communication between reader and transponder

3.3.3 EMC effects on cables

In spite of the internal EMC filters inside the reader, high levels of noise on the supply voltage can result in impairment of the communication between the reader and transponder.

When installing an reader module into another device, be sure therefore that a clean, noise-free power supply is used.

3.3.4 EMC effects from magnetic fields

Since in this type of RFID-Technology the communication between the reader and transponder takes place by modulation of a magnetic field, alternating magnetic fields in the vicinity of the antenna can have a negative impact on its function.

Sources of such magnetic interference fields include coils within a primary or secondary switching power supply.

When determining the position of the reader and antenna within a device, check the device for any possible sources of interference as described above. If necessary, use shielding to suppress such interference.

4 Technical Data

Mechanical Data

- **Housing** without housing
- **Dimensions (W x H x D)** 87 x 50 x 14,1 mm (3.43 x 1.97 x 0.56 inch)
- **Weight** 24 g
- **Connector** 5 Pin multipin connector Type MTA 100 AMP

Electrical Data

- **Supply voltage** 24V DC \pm 10%
- **Current draw** max. 100mA
- **Power consumption** max. 2 Watt
- **Operating frequency** 13,56 MHz
- **Transmitting power** 200mW \pm 1dB
- **Antenna connection** up to 8 external Antennas (50Ohm)
(Connection: U.FL-R-SMT or multipin)
- **Interface** RS232 – Level LVTTTL (3,3V)

Functional Properties

- **Protocol Modes** - FEIG ISO HOST
- **Supported transponders**
 - ISO15693
- **EEPROM (for parameters)** 1kB (10.000 write cycles)
- **FLASH** 64 kB (Firmware Update via interface possible)

Ambient Conditions

- **Temperature range**
 - Operation -20°C to +70°C (-4°F to 158°F)
 - Storage -40°C to +85°C (-40°F to 185°F)
- **Humidity** 5 – 95% non condensing

Applicable Norms

- **Radio approval**
 - Europe EN 300 330
- **EMC** EN 301 489
- **Safety** EN 60950

5 Radio Approvals

5.1 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**
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 Germany
 Phone +49 6471 3109 0

Product Designation : **ID ISC.M02.M8**

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 60950-1:2006 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	V1.3.1	(04-2006)

Weilburg-Waldhausen, 09.06.2009
 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 used according to regulation, this radio equipment conforms with the basic requirements of Article 3 and the other relevant provisions of the R&TTE Guideline 1999/E6 dated March 99.



Equipment Classification gemäß ETSI EN 300 330: Class 2