OBID®
OBID i-scan® UHF

INSTALLATION

ID ISC.PRHD102
HF / UHF combined Handheld Reader

FEIG ELECTRONIC

Note

General information's regarding this document

- The sign "☞" indicates extensions or changes of this manual compared with the former issue.

- If bits within one byte are filled with "-", these bit spaces are reserved for future extensions or for internal testing- and manufacturing-functions. These bit spaces must not be changed, as this may cause faulty operation of the reader.

- The following figure formats are used:
  0...9:   for decimal figures
  0x00...0xFF: for hexadecimal figures,
  b0...1   for binary figures.

- The hexadecimal value in brackets "[ ]" marks a control byte (command).

Contents

ANNEX 23

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 ID ISC.PRHD102

2.1. Performance features

The ID ISC.PRHD102 has been developed for reading passive data carriers, so-called „Smart La-bels", using operating frequencies in the HF and UHF range. The readers have internal antennas and will be delivered ready for connection. The device is designed as a handheld.

An anti-collision function enables simultaneous reading of several transponders per second.

The Reader electronic is fitted in a plastic housing with a protection class IP30.

The Reader ID ISC.PRHD102-B has an Bluetooth interface and the ID ISC.PRHD102-USB has an USB interface.

Depending on if HF or UHF transponder should be detected the reader comes with the following different field areas as shown in the Figure 1.
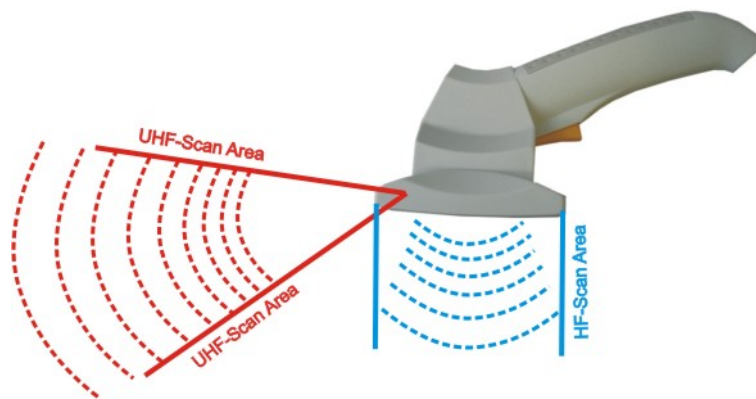
Figure 1: HF and UHF detection areas

2.2. Available reader types

The following module types are currently available:

Following Reader-Types are available:

Table 1: Available Reader Types

Reader-Types	Description
ID ISC.PRHD102-B-EU	Reader for Europe: Bluetooth interface with internal antennas and voltage supply by means of 4 rechargeable Mignon AA batteries
ID ISC.PRHD102-USB-EU	Reader for Europe: Reader with USB interface with internal antennas. Powered via a high powered USB port .
ID ISC.PRHD102-B-FCC	Reader for USA, Canada, etc.: Bluetooth interface with internal antennas and voltage supply by means of 4 rechargeable Mignon AA batteries
ID ISC.PRHD102-USB-FCC	Reader for USA, Canada, etc.: Reader with USB interface with internal antennas. Powered via a high powered USB port .

3. Control and Display Elements
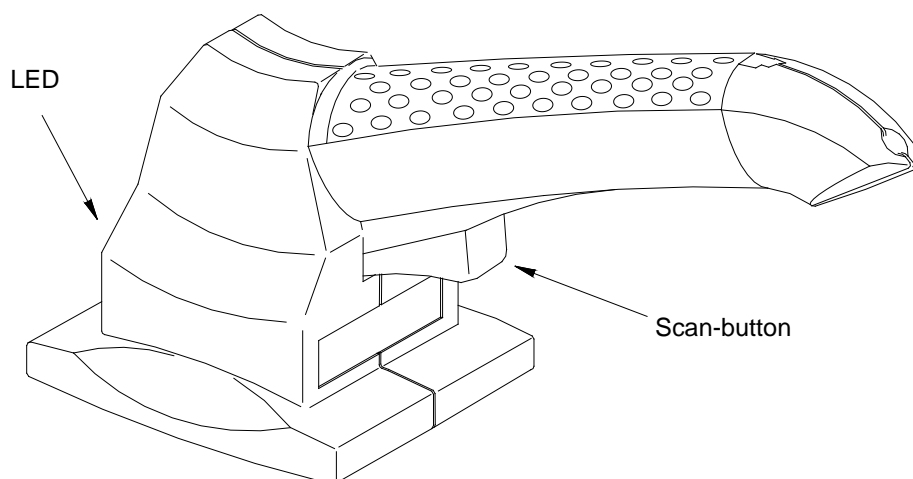
Figure 2: Control and Display Elements

3.1. Signal buzzer

The signal buzzer can be configured by the software.

In the standard configuration the signal buzzer will be active if a Transponder is recognized.

3.2. Scan - button

The switch of the reader can be configured by the software.

In the standard configuration the serial number of the Transponder is read and is sent to the host after pressing the scan - button.

3.3. LED

The Reader's LED can be configured through software.

Table 2: Standard configuration of the LEDs

Abbreviation	Description
LED green	"RUN " - Turns on when the Reader is ready. - Flashes during Bluetooth initialization and connection establishment. (only ID ISC.PRHD102-B)
LED blue	„TRANSPONDER" - Turns on when a Transponder is detected.
LED red	„WARNING" - Signals a warning - Turns on if battery voltage is flat (no more scanning possible - only ID ISC.PRHD102-B)
LED orange	„INITIALIZING " and „WARNING" - Flashes during Reader initialization after power-up. - Turns on if battery voltage is too low (rechargeable battery must be charged – only ID ISC.PRHD102-B)
LED violet (red & blue)	„INITIALIZING internal Bluetooth interface" - Turns on during writing Bluetooth parameters in internal Bluetooth interface.

4. Assembly and Wiring

4.1. Reader with Bluetooth™ interface ID ISC.PRHD102-B

The Reader has a Bluetooth port. The supply voltage is provided only by rechargeable batteries.

The Reader is activated using the Scan button. This opens a Bluetooth connection automatically within approx. 3 seconds. The Reader is now ready to use. After releasing the button, the Reader remains active for several minutes. During this time the Bluetooth connection remains open. Pressing the button again immediately starts a Scan.

4.1.1. Bluetooth™(BT) interface

Communication to the Reader is through a Bluetooth connection. Bluetooth is a short-distance wireless RF connection which enables permanent wireless communications connections between portable and desktop or peripheral devices. Each Bluetooth device has a unique address and can be optionally identified with a self-explanatory name. Password protection is used for security of a Bluetooth connection, with the Bluetooth partner being added to a confidential list. SPP (Serial Port Profile) is used.

Initial setup of a "paired connection" to the Reader is done by the host. After initial setup the establishment of the bluetooth connection happens automatically by pressing the Scan button. To establish a connection to another Bluetooth-Dongle you must first clear the existing "paired connection" entry in the bluetooth interface of the reader (see 4.1.4. Reset - button (ID ISC.PRHD102-B only)).

All Readers have a factory set name and a preset password. The name "OBID_PRHD102B" consists of a fixed (OBID_PRHD) and a user modifiable (102B) part.

Table 3: configuration of the Bluetooth Interface

Description	Default setting
Name variable	102B
Password	1234

NOTE:
Until FECOM.DLL version 2.8.8 the COM-Port setting "Char Timeout Multiplier" from PC or Notebook should be increased to 9-10 if a Bluetooth reader is used.

4.1.2. Supply voltage

The Reader is powered by rechargeable batteries. Four AA type rechargeable batteries are used. These are inserted into the handle of the Reader. To change the batteries, remove the battery cover. After unlatching the springs the cover can be removed. The rechargeable batteries are placed in the compartment according to the + and – symbols indicated (note polarity). Then replace the cover and listen for the spring to audibly latch.

Table 4: Designations for rechargeable Mignon-type batteries

General type	Europe	USA	Size (D*l)
Mignon	R6 / UM-3	AA	15mm * 51mm

NOTE:

Use only Nickel/Cadmium (NiCd) or Nickel/Metal Hydride (NiMH) batteries.

Do not use single-use batteries (e.g. zinc-carbon / alkaline) batteries.

Reversed polarity may destroy the device.

Rechargeable batteries should never be discarded with normal trash; please return them to a proper collection location !
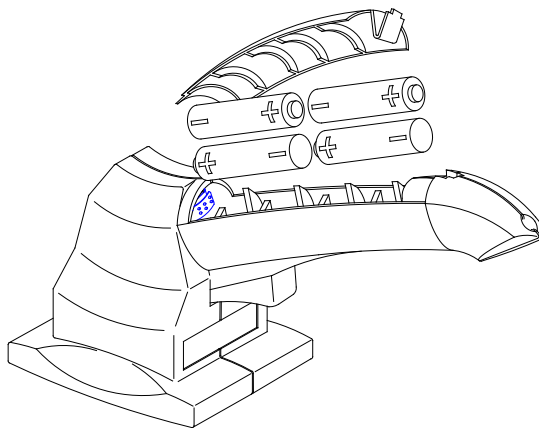
Figure 3: Inserting the rechargeable batteries

4.1.3. Charging the batteries
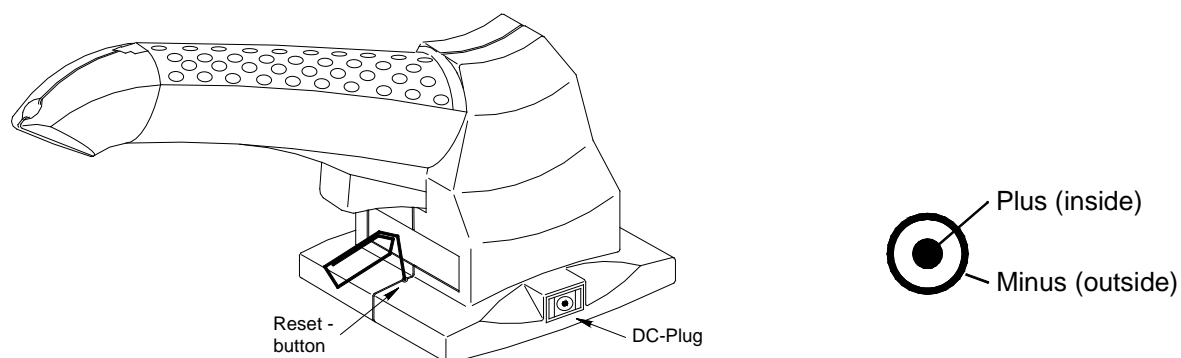
Figure 4 + Figure 5: ID ISC.PRHD102-B: Reset button and DC/‒‒‒ plug 2.1mm*5.5mm

The rechargeable batteries may remain in the Reader for charging. You will need an external charger connected to the DC/‒‒‒ jack.

Table 5: Charger connection

DC jack	Abbreviation	Description
Inside	+	Plus – charge voltage
Outside	-	Minus – charge voltage

NOTE:

Reversing the polarity of the charger can destroy the batteries.

The Reader is not functional while the batteries are charging.

Charger :

Use a charger suitable for the battery type specified (4-cell pack).

Table 6:Recommended charger

Feig Article No.	Name
2650.000.00	ID CHA.NiMH-A

The recommended charger is designed for nickel/cadmium (NiCd) type rechargeable batteries and nickel/metal hydride (NiMH) with a capacity range of 800mAh to 7200 mAh.

Alternately the batteries can be removed from the Reader and charged in a separate battery charger.

4.1.4. Reset - button (ID ISC.PRHD102-B only)

The Reader has a reset button. Below the yellow Scan button is a small hole in the housing. Below this is the Reset button. On the one hand you can restore the Bluetooth settings to their original configuration on the other hand you can clear a existing "paired connection" entry.

1. Reset Bluetooth parameters of the reader to its factory settings

After activating the Reader with the Scan button the Reader is reset to its factory settings by holding the Reset button and the Scan button down for longer than 4 seconds until the violet LED light up.

2. Clear "paired connection" entry in internal bluetooth interface

After activating the Reader with the Scan button the "paired connection" entry in Bluetooth interface is cleared by holding the Reset button down for longer than 4 seconds until the violet LED light up. See also Fig. 6: Reset Time diagram.
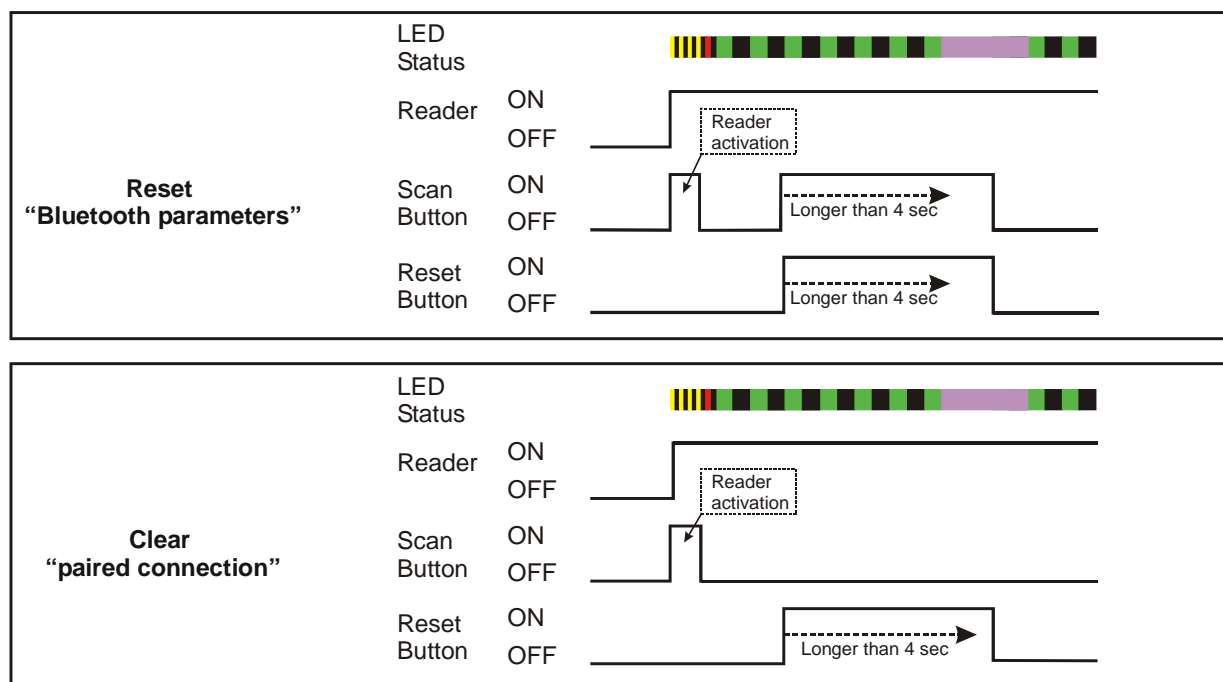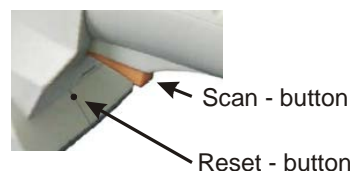
Figure 6:: Reset Time diagram

4.1.5. Switching over → "HID-Mode" and "Standard Mode" (ID ISC.PRHD102-B only)

Up from firmware version v01.06.00 the reader firmware supports additionally the "HID Mode" (Keyboard Mode). Its behavior is like the output of the USB variant of this reader. It is similar like a keyboard wedge. Default the reader has configured the "Standard Mode" for the output of the data.

For switching the reader over between the two output modes you must press the "Reset-button" before using the "Scan-button" to power on the device. This is shown in figure 7.

After the device was powered up release the "Reset-button". Now the reader will toggle the output mode to "HID-Mode". If you want to switch back the "Standard Mode" you must switch off the reader by double click on the "Scan-button" and repeat the above described procedure again. The reader will remain in the output mode you've configured last till you start the procedure again to change the output mode.

NOTE:

The pairing of PRHD102-B reader and a Bluetooth dongle should be done in "Standard Mode"!

If the reader is in "HID Mode" and the reader already has established a connection to a Bluetooth dongle an orange LED, flashing once every 10sec. signs that the reader firmware is currently configured in "HID Mode"!
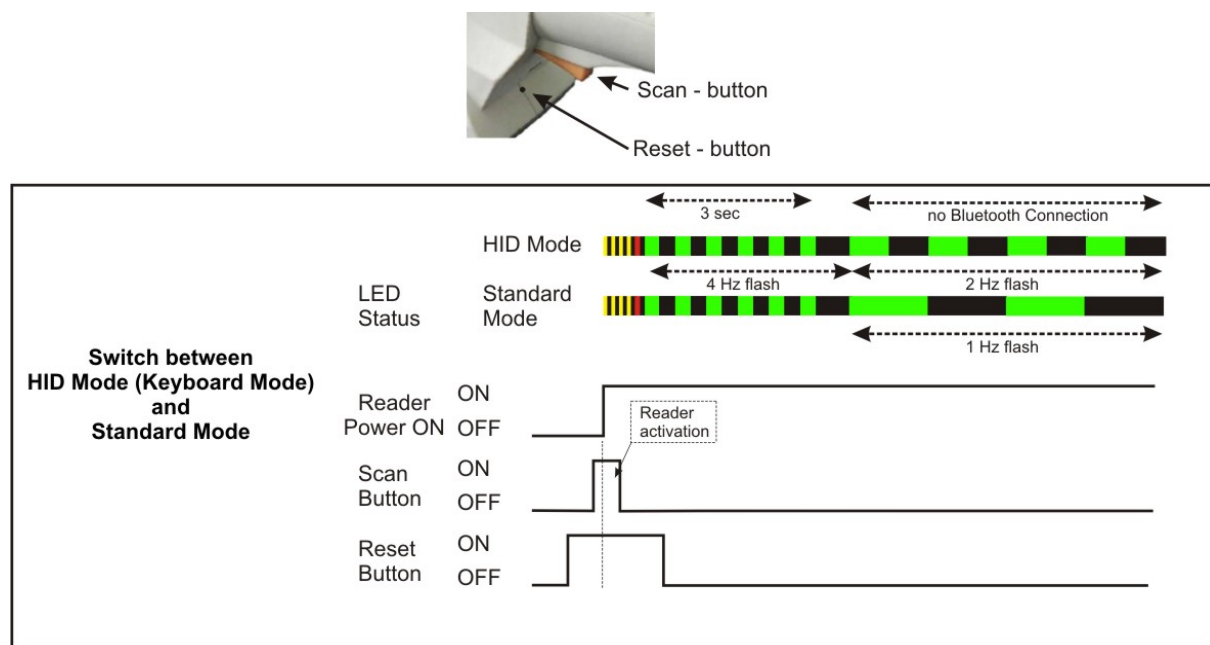
Figure 7: Switching over – HID Mode / Standard Mode

4.2. Reader with USB-interface ID ISC.PRHD102-USB

The power supply follows though the USB-interface (Bus-powered)

The USB-interface must support a current of 500mA (High Powered Interface)

The data rate of the reader is reduced to 12 Mbit (USB high speed).

The reader dispose of a fixed connected interfaces cable with standardized USB-connector. The Reader must only be connected to the USB-port of the PC.

If the reader is used for the first time, it must be registered in the operating system of the computer. For this the instruction "M30100-xde-ID-B: Installation of the OBID USB driver" can be used

5. Technical Data

MECHANICAL DATA

Housing	Plastic ABS (enclosed)
Dimension (W x H x D)	230 mm x 110 mm x 80 mm
	(9.06 inch x 3.94 inch x 3.15 inch)
Weight	320 g (0.7 lb)
Protection Class	IP30
Cable Length	
• ID ISC.PRHD102-B	no cable
• ID ISC.PRHD102-USB	2.5 m / 8.2 ft. USB cable
Color	similar RAL 9002

ELECTRICAL DATA

Power Supply	
• ID ISC.PRHD102-B	4 Mignon AA rechargeable batteries
• ID ISC.PRHD102-USB	USB – High Powered Interface
Power Consumption	max. 2.5 W
Operating Frequency	
• HF	13,56 MHz
• UHF	EU: 865 MHz to 868 MHz
	FCC: 902 MHz to 928 MHz
RF-Power	
• HF	max. 200 mW ± 2 dB
• UHF	max. 100 mW ± 2 dB
Antenna Connection	2 x integrated antenna
Interfaces	
• ID ISC.PRHD102-B	Bluetooth (Serial Port Profile)
• ID ISC.PRHD102-USB	USB (12 MBit)

FUNCTIONAL PROPERTIES

Protocol Modes	FEIG ISO HOST Mode (Advanced Protocol Frame)
	Scan Mode

Supported Transponder Types

• HF	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)
• UHF	EPC Class 1 Generation 2
	ISO 18000-6-C (Upgrade Code required)

Signaler

• optical	1 x LED multi-color (red, green, blue)
• acoustical	1 x Buzzer

AMBIENT CONDITIONS

Temperature Range

• Operation	0 °C to +50 °C (32°F to 122 °F)
• Storage	-20 °C to +70 °C (-4°F to 158 °F)
Humidity	5 % to 95 % non-condensing
Fall	withstands multiple 1,5 m / 5 ft. drops to concrete

APPLICABLE STANDARDS

Radio Regulation

• Europe	EN 300 330, EN 302 208
• USA	FCC 47 CFR Part 15
• Canada	IC RSS-Gen, RSS-210
EMC	EN 301 489

Safety

• Low Voltage	EN 60950
• Human Exposure	EN 50364

6. Radio Approvals

6.1. Europe (CE)

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.

$$C \, \epsilon$$

Performance Classification according to ETSI EN 301 489: Class 2

6.2. Declaration of Conformity (Directive 1999/5/EC - R&TTE)

Declaration of Conformity

FEIG ELECTRONIC

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

Product Manufacturer	:	**FEIG ELECTRONIC GmbH** Lange Strasse 4 D-35781 Weilburg Germany Phone: +49 6471 3109 0
Product Designation	:	**ID ISC.PRHD102**
Product Description	:	RFID Reader
Radio equipment, Equipment class (R&TTE)	:	Class 1

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 FTEG § 3 (1) 1 and R&TTE 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 301 489-1 V1.6.1 ETSI EN 301 489-3 V1.4.1
Measures for the efficient use of the radio frequency spectrum pursuant to § 3 (2) (Article 3(2))	ETSI EN 302 208-2 V1.2.1 ETSI EN 300 330-1 V1.5.1

Weilburg 20.04.10
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.

Figure 8: Declaration of Conformity

6.3. USA (FCC) and Canada (IC)

6.3.1. USA (FCC) and Canada (IC) warning notices

Product name:	**ID ISC.PRHD102-B** **ID ISC.PRHD102-USB**
Reader name:	**ID ISC.PRHD102-B** **ID ISC.PRHD102-USB**
FCC ID: **IC:**	**PJMPRHD102** **6633A-PRHD102**
Notice for USA and Canada	This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. 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. Unauthorized modifications may void the authority granted under Federal communications Commission Rules permitting the operation of this device. 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. 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 : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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

6.3.2. Label Information

The following information must be placed at the outer side of the housing in which the reader is mounted.

> # Contains FCC ID PJMPRHD102
> # Contains IC: 6633A-PRHD102

6.3.3. Installation with FCC / IC Approval

FCC-/IC-NOTICE: 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.

6.3.4. USA (FCC) and Canada (IC) approved antennas

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with maximum permission gain and required antenna impedance for each antenna type indicated. Antenna types, not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne 'énoncé ci-dessus et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur

Following antennas are approved by FCC according FCC Part 15 and IC Canada according RS210

- Internal antennas

ANNEX

ANNEX A - Accessories

The following accessories are available for the Reader.

Table 7: Accessories

Feig Article No.	Name	Description
2650.000.00	ID CHA.NiMH-A	Battery charger with suitable connector for ID ISC.PRHD102-B

ANNEX B – Skope of Delivery

Table 8: Scope of delivery

Reader	Scope of delivery
ID ISC.PRHD102-B	- Reader ID ISC.PRHD102-B - Quick user guide - Configuration Software and Documentation download from "FEIG Public Download Area"
ID ISC.PRHD102-USB	- Reader ID ISC.PRHD102-USB - Quick user guide - USB driver, Configuration Software and Documentation download from "FEIG Public Download Area"

NOTE:

Rechargeable batteries and battery charger are not included in delivery

FEIG Public Download Area: http://www.feig.de/downloads-support.html
Username: LRU_MRU_PRHD
Password: uhf_reader