Leuze electronic

the sensor people

IT 1910i

Industrial 2D-code hand-held scanner

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We reserve the right to
make technical changes

TECHNICAL DESCRIPTION

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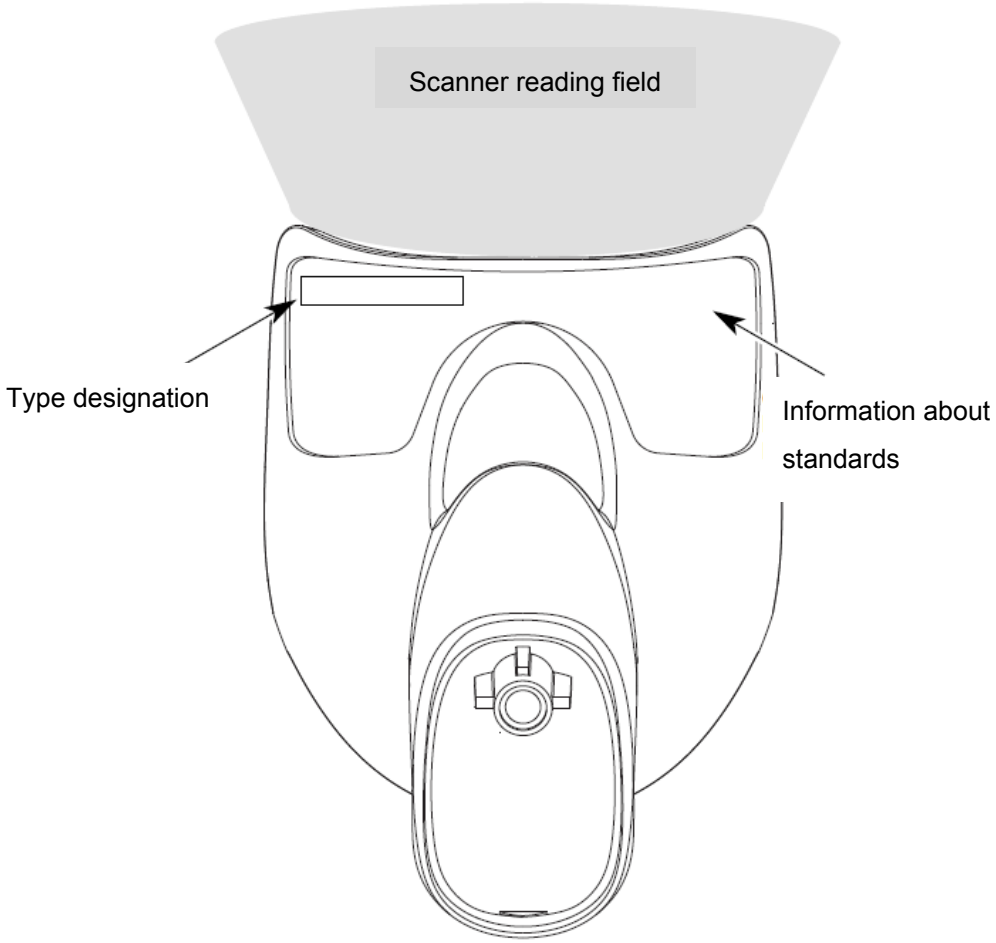
1 Scope of delivery



1.1 IT 1910i xx

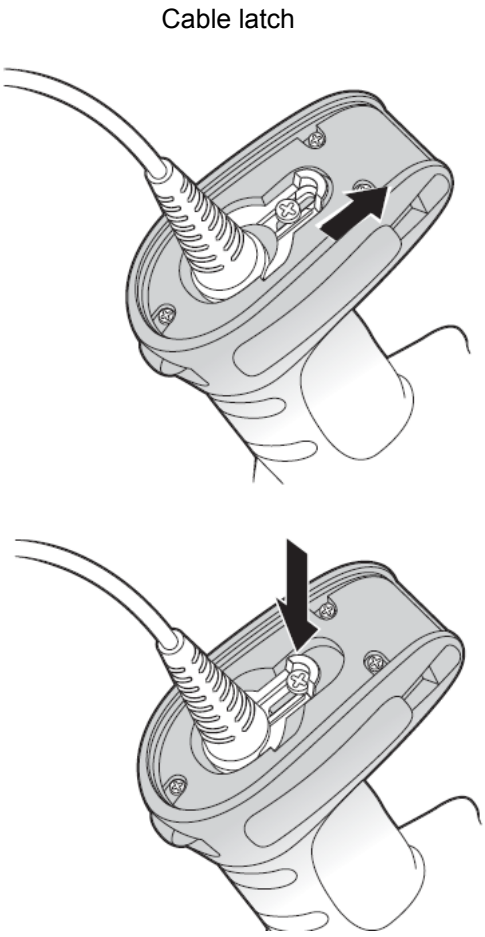
1. Hand-held scanner IT 1910i xx
2. Package insert

An overview of the types can be found on page 22.
For accessories, see page 23.

2 Installation

2.1 Connecting the hand-held scanner

The individual steps for installing the cable on the scanner are shown in the adjacent figure.



2.1.1 Switching off the PC

NOTICE
Make sure that the PC is switched off before connecting the scanner.

2.1.2 Connecting the IT 1910i

1. To secure the connection cable to the scanner, proceed as follows: Insert the RJ 41 connector into the socket on the bottom of the hand-held scanner, close the cord grip and secure it using the screw.
2. Connect the other end of the connection cable to the appropriate connection socket on the PC.
3. You may need a power supply unit for supplying voltage; alternatively, you can use a cable which supplies voltage from the computer system. Use the pin assignments (see page 8) to select the appropriate cable for your application.
4. Connect the power supply unit to the power socket (not necessary if voltage is supplied from the computer).
5. Check the operational readiness of the scanner by pointing the scanning surface towards a flat surface and pulling the trigger. A red laser pattern as well as the red illumination should now be visible. Now scan a sample label. The scanner emits an audible signal to confirm that the label has been read; if necessary, the data are now passed on to the PC.

2.2 How do I scan codes?

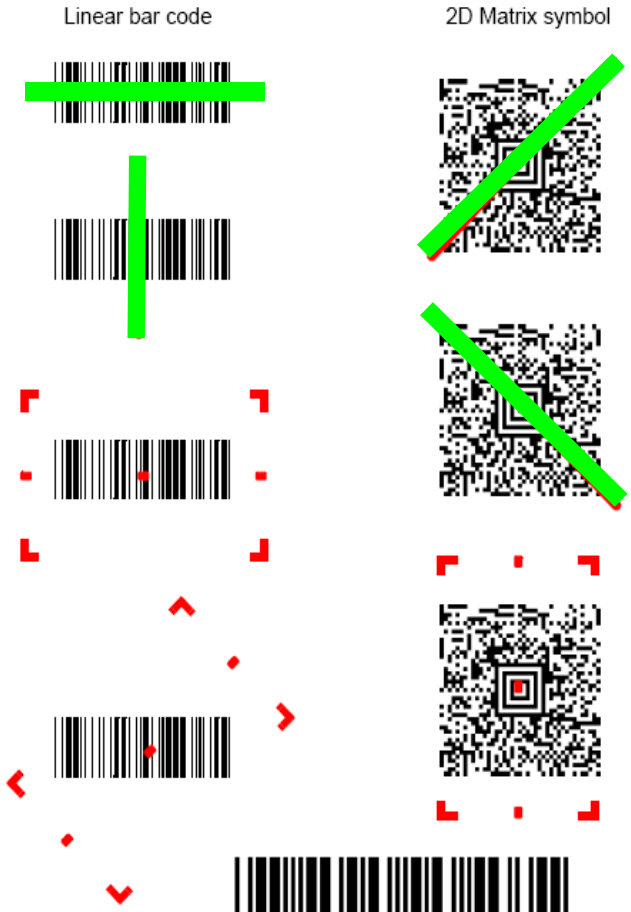
This section explains the best way to scan codes:

The scanner must be held at a slight angle to the bar code. (Do not hold the scanner at a right angle to the bar code.)

The red scanning pattern which serves as an alignment aid should be positioned at the center of the code. This ensures that the center point of the camera is aligned with the code.

(The scanner will not be able to detect the label correctly if it is not fully captured by the camera.)

The red scanning pattern is smaller when the scanner is held closer to the code. Small codes should be read at a smaller reading distance. With larger codes, the reading distance must be large enough so that the camera can capture the complete code.



2.2.1 Testing the scanner

The adjacent bar code can be used for testing the scanner, the module size is 0.5 mm (20 mil)

Code 39 bar code sample

3 Technical Data

The technical data can be found in the data sheet for the IT 1910i.

3.1 Pin assignments of the connection cable

3.1.1 KB 232-1 IT 190x Part no. 50114517

Helix cable, maximum length 3 m. Signal level 0 and +5 volts →TTL

Pin assignments of the 9-pin D-sub socket (female) for cable CBL-020-300-C00

Pin number	**Signal**	**Designation**
1	nc	Not used
2	TX	Transmit data
3	RX	Receiving line / Receive Data
4	nc	Not used
5	GND	Ground connection
6	DTR	Data set ready (+5 volt connected to output)
7	CTS	Clear to send
8	RTS	Request to send
9	VCC IN	4.5 – 5.5 V DC (if no power supply unit is connected to the power supply unit connection)
Pin at power supply unit connection	**Signal**	**Designation**
Inside	VCC IN	4.5 - 5.5 V DC
Outside	GND	Ground connection

For the suitable power supply unit for IT 190x (100 - 230 V/50 – 60 Hz), see chapter 7.

3.1.2 KB 232-1 IT 190x Part no. 50115105

As with part number 50114517, but True RS 232 variant available with -12 to +12 volt signal level. Cable designation: CBL-120-300-C00.

3.1.3 KB PS2-1 IT190x Part no. 50114519

Helix cable, maximum length 3 m.

Pin assignments of the Mini DIN socket or connector for cable CBL-720-300-C00

Pin connector	**Pin socket**	**Signal**	**Designation**
1	-	PC Data	PC data line
2	2	NC	Not used
3	3	GND	Ground connection
4	4	VCC IN	5 Volts DC
5	-	PC Clock	PC clock line
6	6	NC	Not used
-	1	KB data	Keyboard data line
-	2	KB clock	Keyboard clock line

3.1.4 KB USB-1 IT 190x Part no. 50114521

Straight cable, maximum length 3 m.

Pin assignments of USB type A connector for cable CBL-500-300-S00

USB type A connector	Signal	Designation
1	VCC IN	5 Volts DC
2	Data -	Data line -
3	Data -	Data line +
4	GND	Ground connection

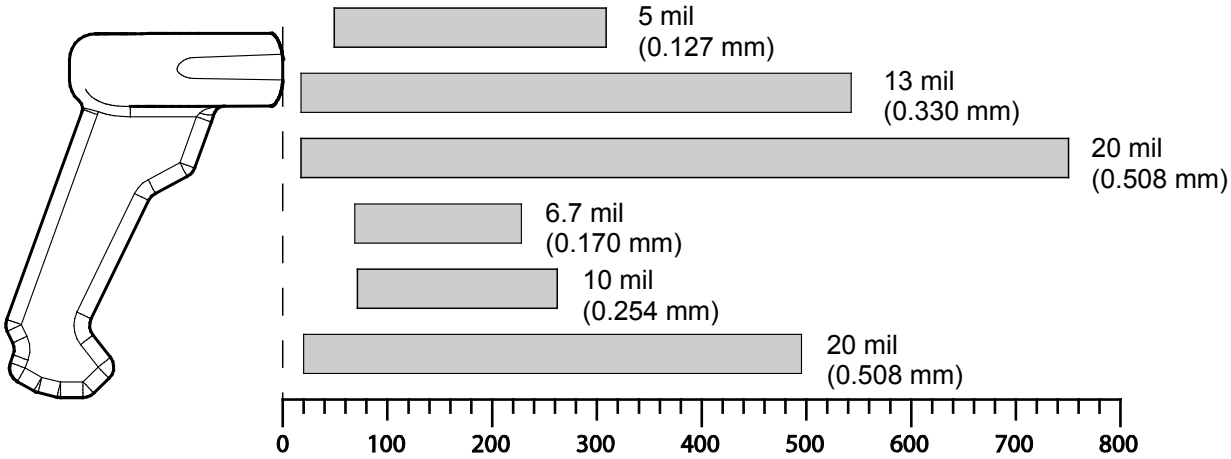
3.1.5 KB USB-2 IT 190x Part no. 50114523

Pin assignments of USB type A connector for cable CBL-500-500-C00:

as with part no. 50114521, but helix cable, maximum length 5 m.

3.2 Reading fields

IT 1910i ER-3



Typ. reading distance [1] [mm]

1) Dependent on code module

4 Resetting the IT 1910i to factory settings

To reset all parameters to factory settings, scan the bar code shown below.

⚠ **Attention!**
All settings are lost!

Standard Product Default Settings

5 Configuration

Usually, bar codes are used to configure the hand-held scanner. Select the desired bar code and scan it (see chapter 2.2). The configuration is then immediately accepted and executed.

A second option is to configure the hand-held scanner with the USB and RS 232 interfaces with the aid of the VisualXpress PC program. You can download and install this program from our homepage at www.leuze.com. The program can be used to make settings and transfer them to the hand-held scanner. The configuration can also be stored so that it can be reused at a later time.

The standard applications are described and summarized below.

5.1 IT 1910i to the serial PC interface

5.1.1 With KB 232-1 IT190x Part no. 50114517

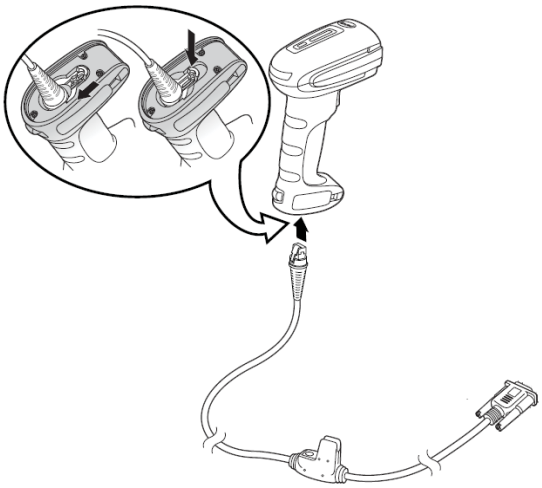
For pin assignments, see chapter 3.1.1.

5.1.2 With voltage supply via PIN 9

Please connect the IT 1910i acc. to the adjacent figure.

Required parts:

1x	50122436	IT 1910i ER-3
1x	50114517	KB 232-1 IT190x



RS-232 Interface

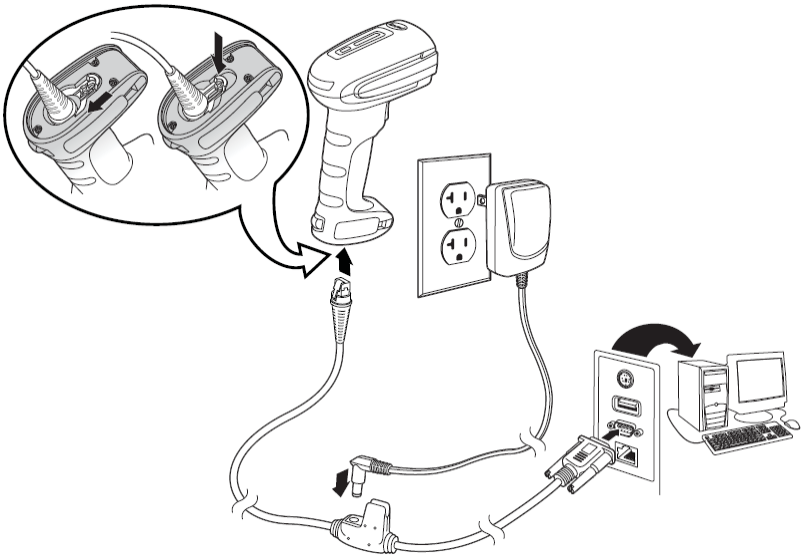
RS 232 transmission with 115200 baud, 8 data bits, 1 stop bit, no parity, no prefix and suffix.

5.1.3 With voltage supply via power supply unit

Please connect the IT 1910i acc. to the figure below.

Required parts:

1x	50122436	IT 1910i ER-3
1x	50114517	KB 232-1 IT 190x
1x	50114525	Power supply unit



RS-232 Interface

RS 232 transmission with 115200 baud, 8 data bits, 1 stop bit, no parity, no prefix and suffix.

5.1.4 Configuration for the Leuze standard protocol

Leuze standard protocol:

RS 232 with 9600 baud, 8 data bits, 1 stop bit, no parity, prefix STX and suffix CR/LF

Leuze standard protocol

5.2 IT 1910i to MA 200i

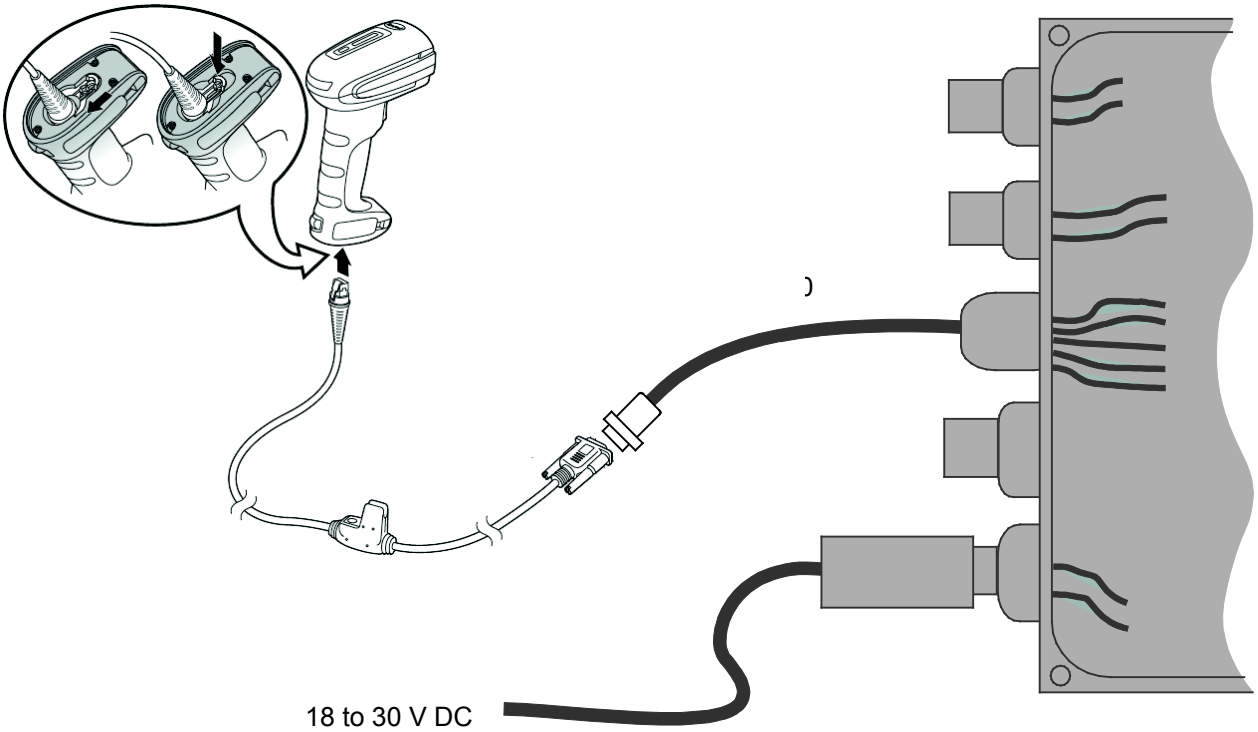
RS 232 transmission with 9600 baud, 8 data bits, 1 stop bit, no parity, suffix CR/LF.

Required parts:

1x	50122436	IT 1910i ER-3	
1x	50114517	KB 232-1 IT 190x	
1x	50113397	KB JST-HS-300	
1x	50112893	MA 204i	Profibus gateway
or	50112892	MA 208i	Ethernet gateway
or	50112891	MA 248i	Profinet gateway

5.2.1 Commissioning

- Open the MA 200i
- Guide KB JST-HS-300 with the PG cable gland through the threaded hole and insert the 12-pin JST connector
- Connect the IT 1910i with the RS 232 cable
- Connect the cable to the 9-pin D-sub connector
- Set the address using the address switch
- Insert the field bus connection cable
- Apply the voltage supply.



Details on connecting the MA 200i can be found in "Technical description MA 200i".

5.2.1.1 Configuration

Data transmission to MA 200i

5.3 IT 1910i to MA 21

RS 232 transmission with 9600 baud, 7 data bits, 1 stop bit, even parity, suffix CR/LF.

Required parts:

1x	50122436	IT 1910i ER-3
1x	50114517	KB 232-1 IT190x
1x	50035421	KB 021 Z
1x	50030481	MA 21 100

5.3.1.1 Pin assignments KB021 Z

Core color	Signal	Terminal assignments MA 21
brown	(RXD)	26
white	(TXD)	27
blue	(GND)	28
red	(VCC)	30
black	(GND)	31
bare (shield)	(PE)	21

5.3.1.2 Configuration

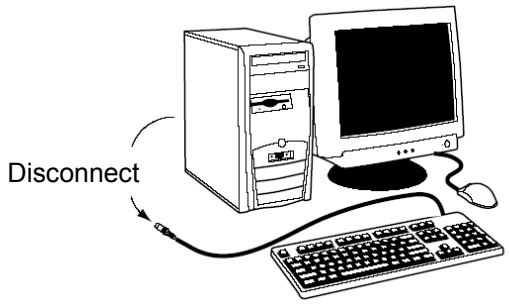
Connection to MA 21 with standard setting

5.4 IT 1910i to PS2 interface

The operation of the IT 1910i in keyboard-wedge mode is described in this chapter. A PC keyboard is emulated in this operating mode. The data which are read in are written directly to the currently activated program. Thus, the data can be processed further in all standard programs.

Required parts:

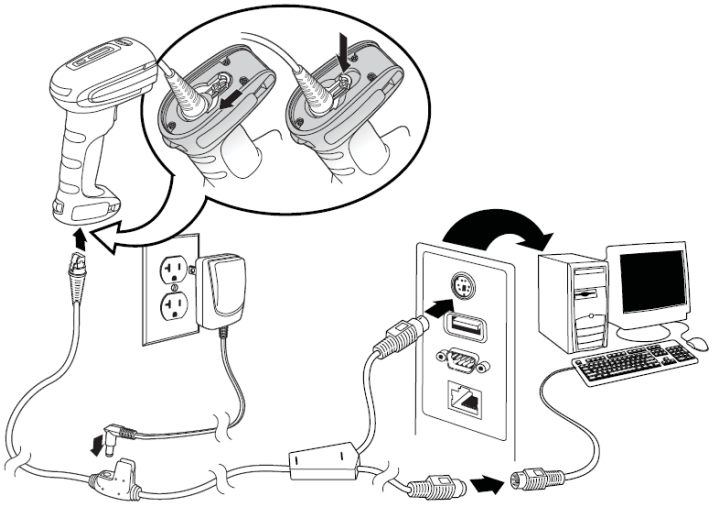
1x	50122436	IT 1910i ER-3
1x	50114519	KB PS2-1 IT190x



Please connect the IT 1910i acc. to the adjacent figures.

To do this, proceed as follows:

1. Switch off the PC.
2. Unplug the keyboard.
3. Plug in the IT 1910i hand-held scanner between the keyboard and the PC.
4. Switch the PC back on.
5. Scan the code shown below.



5.4.1.1 Configuration

PS2 keyboard emulation with CR LF

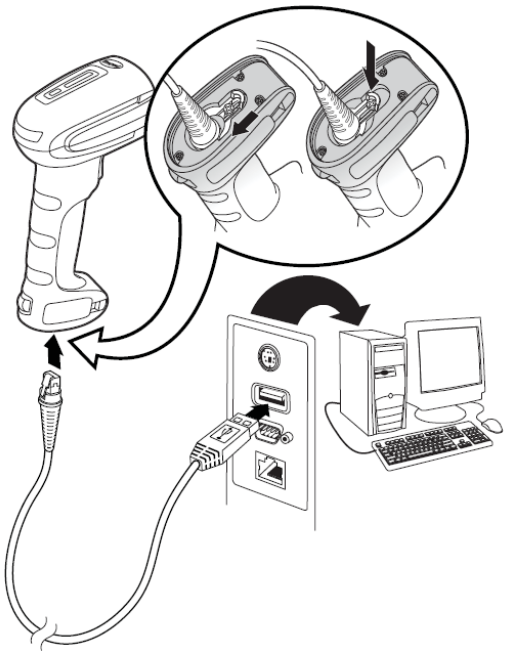
5.5 IT 1910i to USB interface (keyboard emulation)

The operation of the IT 1910i in keyboard-wedge mode on a USB port is described in this chapter. A PC keyboard is emulated in this operating mode. The data which are read in are written directly to the currently activated program. Thus, the data can be processed further in all standard programs.

Required parts:

1x	50122436	IT 1910i ER-3
1x	50114521	KB USB-1 IT190x
or	50114523	KB USB-2 IT190x

Please connect the IT 1910i acc. to the adjacent figure.
To do this, proceed as follows:



1. Plug the IT 1910i hand-held scanner into a free USB port.
2. The scanner acknowledges this connection with an acoustic signal.
3. Scan the code shown below.
4. The standard keyboard driver is then installed.

5.5.1.1 Configuration

USB keyboard emulation with CR LF

5.6 IT 1910i to USB interface (COM port emulation)

The operation of the IT 1910i as a serial interface on a USB port is described in this chapter. A COM interface is emulated in this operating mode. The data which are read in are sent to a new COM interface. The driver with which you emulate this COM interface can be downloaded from our homepage at www.leuze.com. Thus, the data can be processed further in programs which expect data via COM interfaces.

Required parts:

1x	50122436	IT 1910i ER-3
1x	50114521	KB USB-1 IT190x
or	50114523	KB USB-2 IT190x

Please connect the IT 1910i acc. to the figures shown below.

To do this, proceed as follows:

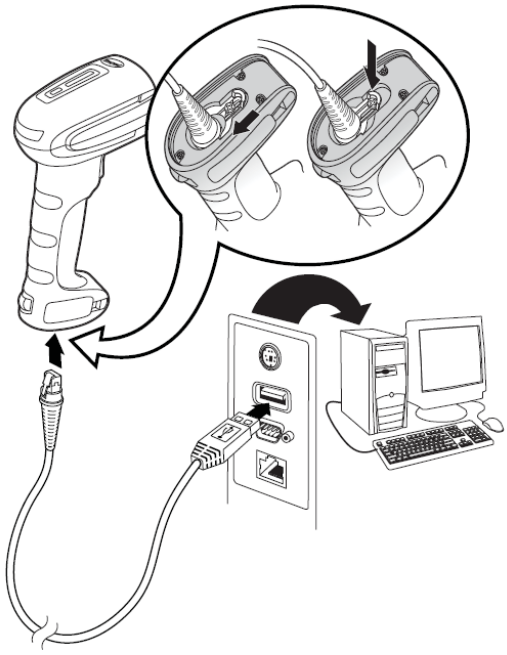
1. Install the USB serial driver for the 1910i. To do so, copy the driver from the CD-ROM or from our homepage to the PC. Unpack the file and start INSTALL.BAT. This requires administrator privileges on the PC!

2. Plug the IT 1910i hand-held scanner into a free USB port.

3. The scanner acknowledges this connection with an acoustic signal.

4. Scan the code shown below.

5. Open a terminal program or your program for the serial interface, select the new COM port, and make the following settings: baud rate 115200, 8 data bits, 1 stop bit and no parity. A CR is transmitted as suffix (or terminator).



5.6.1.1 Configuration

COM port emulation on the next free COM address with 38400 baud, 8 data bits, 1 stop bit, no parity and a CR as suffix.

5.7 Activating the read process

To activate the read process, a trigger signal is to be sent via the serial RS 232 interface or USB interface (COM port emulation only). The command is to be sent at the set baud rate, parity, and data and stop bits.

The activation command is: **SYN T CR** ASCII decimal values: 022; 084; 013

To cancel read readiness, send a deactivation.

The deactivation command is: **SYN U CR** ASCII decimal values: 022; 085; 013

Following a successful read operation, the IT 1910i deactivates itself.

The second option is to use the trigger button to establish read readiness.

5.8 Configuration

Further details on configuration, such as parameters for code type release, number of digits, etc., can be found in the User's Guide IT 1910i/1911i.

5.9 Troubleshooting

For problem detection and troubleshooting, examine your scanner as follows:

1. If the scanner is supplied with power via the connection cable, the scanner and PC must be connected to each other before the scanner is commissioned. The PC must supply the scanner with 5 V DC. Check the manual for your PC to ensure that the power supply is adequate for connecting your scanner.
2. Make certain that the connection cable is securely connected to the PC. You can find information on properly connecting the scanner in the manual for your PC. Support is also available from your technical staff.
3. If your system operates with an external voltage supply, make certain that the power supply unit is properly connected to the scanner.
4. Check that the connection cable is securely connected to the handle of the scanner. Remove the fastening clip and pull out the cable. Now guide the cable back in and make certain that it is properly seated in the bracket.
5. If, even after performing all of these measures, the scanner is not ready for operation, replace the power supply unit with a different recommended power supply unit which you are certain functions properly.
6. Make certain that your scanner's interface is compatible with the PC. Further information on this topic can be found in the manual for your PC. Also check whether the scanner has been configured for the desired application. This information is given in the User’s Guide IT 1910i/1911i.
7. Check whether the bar code labels which you would like to scan are of suitable quality and that the used bar code type is recognized by your scanner. Damaged bar code labels (crinkled, torn or soiled) may be recognized poorly or not at all by the scanner. If you suspect that the problem lies with the quality of the label, check the read readiness with a label of relatively good quality.
8. If the problems are still not corrected, please contact the Leuze electronic hotline (see chapter 8).

6 Type overview

IT series			
Part no.	Designation	Interface	Figure
Hand-held reader for bar codes and 2D-codes (extended range)			
50122436	IT 1910i ER-3	PS2 / USB / TTL RS 232	

All devices are supplied without cable. Cables must be ordered separately; see chapter "7 Accessories/Spare parts".

7 Accessories/Spare parts

Accessories for IT series

Part no.	Designation	Length, type	P/N no.	Figure
50114519	KB PS2-1 IT 190x PS2 cable for IT 190x	3 m spiral	CBL-720-300-C00	
50114521	KB USB-1 IT 190x USB cable for IT 190x	3 m straight	CBL-500-300-S00	
50114523	KB USB-2 IT 190x USB cable for IT 190x	5 m spiral	CBL-500-500-C00	
50114517	KB 232-1 IT 1910i RS 232 cable for IT 190x	3 m spiral	CBL-020-300-C00	
50115105	KB 232-2 IT 1910i RS 232 cable for IT 190x	3 m spiral	CBL-120-300-C00	
50114525	NT f. IT 190x+Base-EU Voltage supply for IT 190x (5 V DC), RS 232 cable and base station	1.8 m straight	46-00526	
50120444	BT Wallholder HS65x8	wall mount; plastic	11-66553-06R	
50107034	Rope for IT3800i/4800/6300	steel rope; plastic	ToolBalE	

7.1 Connecting to Leuze multiNet Plus

- MA 21 100 Interface converter / multiNet plus Part no. 50030481
- KB 021 Z Connection cable MA xx to IT 1910i Part no. 50035421

7.2 Connection to various fieldbuses using MA 200i

- MA 204i **Profibus** gateway Part no. 50112893

or

- MA 208i **Ethernet** gateway Part no. 50112892

or

- MA 248i **Profinet** gateway Part no. 50112891
- KB JST-HS-300 Connection cable MA xx to IT 1910i Part no. 50113397

8 Service and support

24-hour on-call service at:

+49 (0) 7021 573-0

Service hotline:

+49 (0) 7021 573-123

Monday to Thursday 8.00 a.m. to 5.00 p.m. (UTC+1)

Friday 8.00 a.m. to 4.00 p.m. (UTC+1)

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service.identify@leuze.de

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