

IT 3820/3820i
Hand-held barcode scanner with Bluetooth data transmission
Dimensioned drawing

Part No. 501 06670



- Hand-held scanner for barcodes
- Transmission to ST 2020 base station via Bluetooth standard V1.2
- Large reading field for the detection of codes
- Robust trigger button
- Built-in decoder
- Read-display
- RS 232, USB and PS/2 interface
- Operating temperature from 0 through 50°C (-10 through 50°C)


Accessories

- **TTL-RS 232-cable/PIN 9 IT 4xxx**
Part No. 501 04586
- **PS/2-cable for IT 4xxx**
Part No. 501 03409
- **USB-cable for IT 4xxx**
Part No. 501 03404
- **Power supply unit for IT 4x2x**
Part No. 501 03989

Electrical connection

for TTL RS 232 cable / PIN 9

9-pin Sub-D	Signal	IT 3820 RJ41
SH	Shield	2
2	TXD	6
3	RXD	5
5	GND	4
7	CTS	9
8	RTS	8
9	5VDC	7

for USB cable

USB type A	Signal	IT 3820 RJ41
1	5VDC	7 + 3
2	Data -	10
3	Data +	2
4	GND	4

for PS/2 cable

Mini DIN connector	Mini DIN socket	Signal	IT 3820 RJ41
1	-	PC Data	6
2	2	NC	
3	3	GND	4
4	4	5VDC	7
5	-	PC Clock	5
6	6	NC	
-	1	KB Data	8
-	5	KB Clock	9

We reserve the right to make changes *BP_IT3820_gb.fm

Specifications

Electrical data	IT 3820	ST 2020
Operating voltage U_B	3.7VDC internal battery	9VDC
Power consumption		max. 8W @ 9VDC
Li-ion battery		
Capacity	2.000mAh	
Max. number of scans	57.000	
Max. operating time	16h at 1 scan/s	
Charging time at 9VDC	4h for complete charge following complete discharge	
RF data transmission		
Frequency	2.4 ... 2.4835GHz (ISM band) Frequency hopping, Bluetooth® V1.2, Class 2	
Typ. Range	10m	
Transmission speed	720kBit/s	
Interfaces	TTL-RS 232, PS/2 and USB via button or serial command	
Code types	2/5 Interleaved, Code 39, Code 128, Code 93, Codabar, UPC/EAN, RSS, Codablock	
Optical data	3648 linear imager 20% (black/white) integrated diffuse LED 630nm 25 ... 610mm (UPC 100%) omnidirectional, various tilt and rotational angles up to 65°	
Mechanical data	IT 3820	IT 3820i
Housing	UL94V0 grade	
Weight	261g	72g
Dimensions	157x135x81mm	157x135x81mm
Shock resistance	50 falls from a height of 1.8m	50 falls from a height of 2m
		ST 2020
		250g (without cable) 79x142x109mm 50 falls from a height of 1m
Environmental data		
Ambient temp. (operation)	0°C ... +50°C	-10°C ... +50°C
Ambient temp. (storage)	-40°C ... +60°C	-40°C ... +70°C
Relative air humidity	0 ... 95% (non-condensing)	0 ... 95% (non-condensing)
Protection class	IP 41	IP 54

Reading field

IT 3820 SR	Module or cell	from	to
Code 39	5mil / 0.127mm	105mm	230mm
Code 39	7.5mil / 0.19mm	95mm	360mm
Code 39	10mil / 0.25mm	55mm	465mm
Code 39	13mil / 0.33mm	25mm	610mm
UPC bar code	13mil / 0.33mm	25mm	610mm
Code 39	20mil / 0.50mm	25mm	940mm
Code 39	55mil / 1.40mm	102mm	1120mm

Order guide

Hand-held scanner for barcodes (standard range)

IT 3820 SR 0C0BE	IT 3820 SR with RS 232/USB/PS/2 interface	Part No. 501 06242
IT 3820i SR E	IT 3820i SR with RS 232/USB/PS/2 interface	501 10471

Base station for Bluetooth transmission

ST 2020-5BE	ST 2020 with RS 232/USB/PS/2 interface (without cable)	Part No. 501 10663
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Tables

Diagrams

Remarks

Ergonomically shaped hand-held scanner with integrated decoder for barcodes

Data transmission via configurable RS 232 interface.

Or keyboard-wedge operation via PS/2 or USB interface.

For a functional unit, an IT 3820 hand-held scanner and a ST 2020 base station as well as a power supply unit and corresponding cable must be ordered.



Bluetooth is a trademark owned by Bluetooth SIG, Inc., U.S.A. and licensed to Hand-Held Products

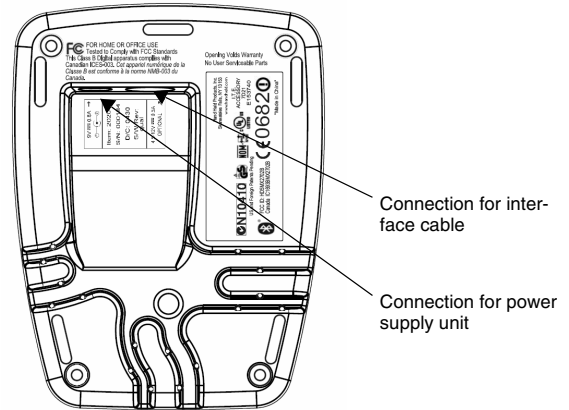
Switching off the computer

Information on switching off and shutting down the connected computer - which must always be performed before connecting peripheral devices, such as a scanner - can be found in the appropriate operating instructions for your computer.

Connecting the IT 3820

Shown in the figure to the right are the locations for installing the cable on the base station. The individual installation steps are described in the following.

1. To secure the interface cable to the scanner, proceed as follows:
plug the RJ 41 connector into the socket on the bottom of the base station until the cable clicks into place.
2. Connect the interface cable to the appropriate connection socket on the computer.
3. You may need a power supply unit for voltage supply if you would like to charge the hand-held scanner at the base station or if you use an RS 232 interface. Use the pin assignments (see "Electrical connection" on page 1) to select the appropriate cable for your application.
4. Connect the power supply unit to the power socket.
5. Use the code for the respective application to configure the hand-held scanner, see chapter "Configuration".
6. Check the operational readiness of the scanner by pointing the scanning surface towards a flat surface and pulling the trigger. A green target line 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 computer.



Configuration

The hand-held scanner can always be configured using bar codes. To do this, the barcode must first be selected on the package insert and then the trigger actuated in order to read the code. The configuration is then immediately accepted and executed.

Several of the most important configurations are listed in the following.

A second option is to configure the hand-held scanner with the USB and RS 232 interfaces with the aid of the **VisualMenu** PC program. You can download and install this program from our homepage at www.leuze.de. 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 summarised below.



Notice!

Additional information on the device and short instructions can be found on the Internet at www.leuze.de.

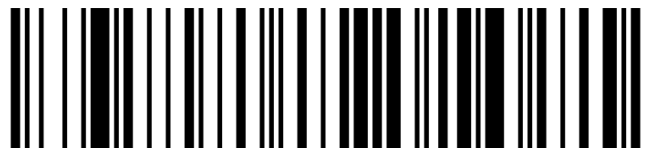
Resetting the IT 3820 to factory settings

To reset all parameters to factory settings, scan the adjacent barcode.



Attention!

All settings are lost!!!



Return the IT 3820 to the base station to apply the settings. This procedure is concluded with audible confirmation signals.

You may then continue making settings or operation of the device.

Trigger

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

To cancel read readiness, send a deactivation.

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

Following a successful read operation, the IT 3820 deactivates itself.

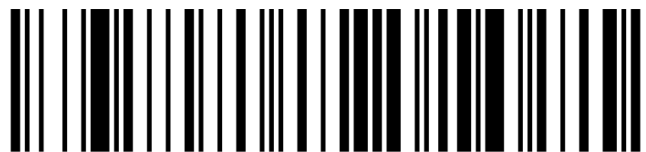
The second option is activation via the built-in trigger button.

Configuration for the Leuze standard protocol

To set the Leuze standard protocol, you must first reset the scanner to factory settings and then individually define each of the transmission parameters using a barcode

Procedure:

1. Scan the adjacent barcode.



The IT 3820 is reset to factory settings.

2. Return the IT 3820 to the base station to apply the settings.

This procedure is concluded with audible confirmation signals.

3. Successively scan the 4 barcodes shown below. Each read operation is confirmed by a beep.

The IT 3820 is set to the following transmission parameters: RS 232 transmission with 9,600 baud, 8 data bits, 1 stop bit, no parity, prefix <STX>, terminators <CR><LF>.

9600 Bd



Terminal ID



Prefix STX



Postfix CR/LF

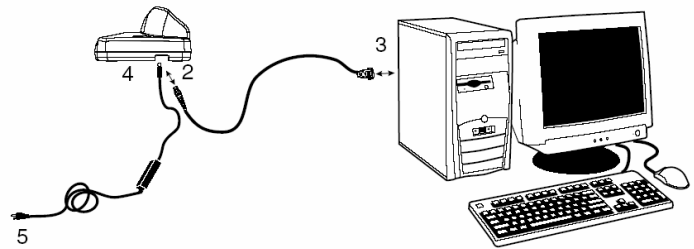


Connecting the IT 3820 to the serial PC interface

With TTL-RS232 cable/PIN9 IT 4xxx Part No. 501 04586

required parts:

- 1x 501 06 242 IT 3820 SR 0C0BE
- 1x 501 03 990 Base station ST 2020
- 1x 501 04 586 Cable TTL-RS232/PIN9
- 1x 501 03 989 Power supply unit ST 2020



Procedure:

1. Switch off the PC.
2. Connect the interface cable to a free COM port (RS 232) on the computer (3) and to the base station (2).
3. Plug one end of the power supply unit cable into the base station (4) and the other end into a free power socket (5).
4. Switch the PC back on.

5. Scan the adjacent barcode.

The IT 3820 is set to the following transmission parameters:

RS 232 transmission with 115,200 baud, 8 data bits, 1 stop bit, no parity, terminators <CR><LF>.

6. Return the IT 3820 to the base station to apply the settings. This procedure is concluded with optical confirmation signals (green LED on the ST 2020).
7. If necessary, adjust the transmission parameters of the used COM port to those of the IT 3820.



Attention!

We recommend connecting the IT 3820 directly to a PC or to the MA 21 or MA 41... connector units. If connecting to other components, please note that a voltage level range of -14 ... +14 V is maintained on the data lines!

Connecting the IT 3820 to the MA 41 DP-K or MA 41 IS

required parts:

- 1x **501 06 242** IT 3820 SR 0C0BE
- 1x **501 03 990** Base station ST 2020
- 1x **501 04 586** Cable TTL-RS232/PIN9
- 1x **501 03 989** Power supply unit ST 2020
- 1x **500 35 421** KB 021 Z
- 1x **500 33 638** MA 41 DP-K for Profibus (for Interbus: **500 28 994 MA 41 IS**
or **500 30 085 MA 41 IS PDP**)

Pin assignments KB 021 Z:

Core colour:	signal	terminal in the MA 41:
brown	(RXD)	2
white	(TXD)	1
blue	(GND)	4
red	(VCC)	⊗
black	(GND)	⊗
bare (shield)	(PE)	21

Procedure:

1. Connect cable KB 021 Z to the MA 41... acc. to the above pin assignments.
2. Connect the interface cable to cable KB 021 Z. Connect the interface cable and the power supply unit to the base station (see "Connecting the IT 3820 to the serial PC interface").
3. Scan the adjacent barcode.



The IT 3820 is reset to factory settings.

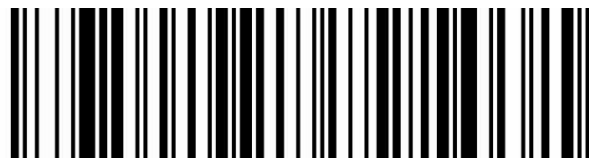
4. Return the IT 3820 to the base station to apply the settings. This procedure is concluded with audible confirmation signals.
5. Successively scan the 3 barcodes shown below. Each read operation is confirmed by a beep.

The IT 3820 is set to the following transmission parameters: RS 232 transmission with 9,600 baud, 8 data bits, 1 stop bit, no parity, terminators <CR><LF>.

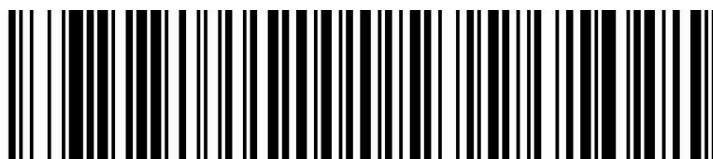
9600 Bd



Terminal ID



Postfix CR/LF



IT 3820/3820i Hand-held barcode scanner with Bluetooth data transmission

Connecting the IT 3820 to the MA 21

required parts:

1x 501 06 242	IT 3820 SR 0C0BE
1x 501 03 990	Base station ST 2020
1x 501 04 586	Cable TTL-RS232/PIN9
1x 501 03 989	Power supply unit ST 2020
1x 500 35 421	KB 021 Z
1x 500 30 481	MA 21 100

Pin assignments KB021 Z:

Core colour:	signal	terminal in the MA 21:
brown	(RXD)	26
white	(TXD)	27
blue	(GND)	28
red	(VCC)	⊗
black	(GND)	⊗
bare (shield)	(PE)	21

Procedure:

1. Connect cable KB 021 Z to the MA 21... acc. to the above pin assignments.
2. Connect the interface cable to cable KB 021 Z. Connect the interface cable and the power supply unit to the base station (see "Connecting the IT 3820 to the serial PC interface").
3. Scan the adjacent barcode.

The IT 3820 is reset to factory settings.

4. Return the IT 3820 to the base station to apply the settings. This procedure is concluded with audible confirmation signals.
5. Successively scan the 4 barcodes shown below. Each read operation is confirmed by a beep.

The IT 3820 is set to the following transmission parameters: RS 232 transmission with 9,600 baud, 7 data bits, 1 stop bit, even parity, terminators <CR><LF>.

9600 Bd



Terminal ID



7 data bits, even parity, 1 stop bit



Postfix CR/LF

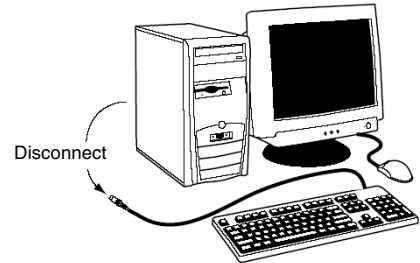


Connecting the IT 3820 to the PS/2 interface

The operation of the IT 3820 in keyboard emulation mode is described in this section. 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.

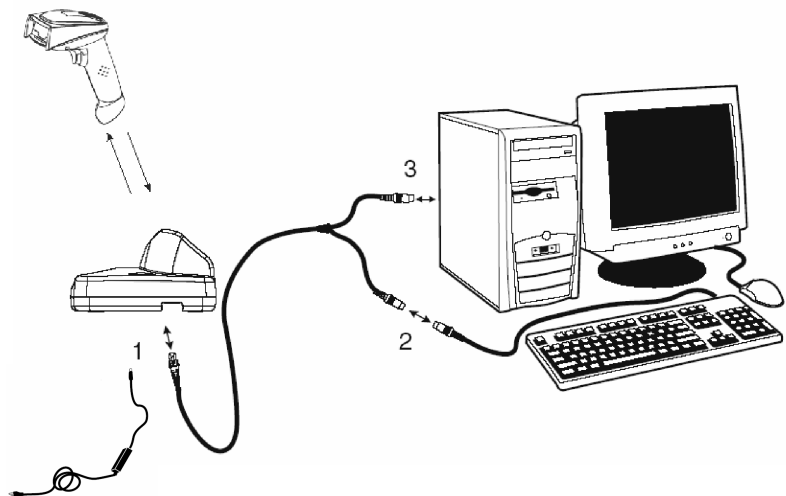
required parts:

- 1x 501 06 242 IT 3820 SR 0C0BE
- 1x 501 03 990 Base station ST 2020
- 1x 501 03 989 Power supply unit ST 2020
- 1x 501 03 409 PS/2 cable



Procedure:

1. Switch off the PC.
2. Disconnect the keyboard.
3. Connect the cable for the ST 2020 base station between the keyboard and the PC.
4. Switch the PC back on.
5. Scan the barcodes shown below.
6. Return the IT 3820 to the base station to apply the settings. This procedure is concluded with audible confirmation signals.



IBM PCs and compatible PCs, postfix



Keyboard layout for Germany/Austria



Notice!

To charge the IT 3820, the power supply unit must be plugged in and the hand-held scanner placed in the ST 2020 base station.

IT 3820/3820i Hand-held barcode scanner with Bluetooth data transmission

Connecting the IT 3820 to the USB interface (keyboard emulation)

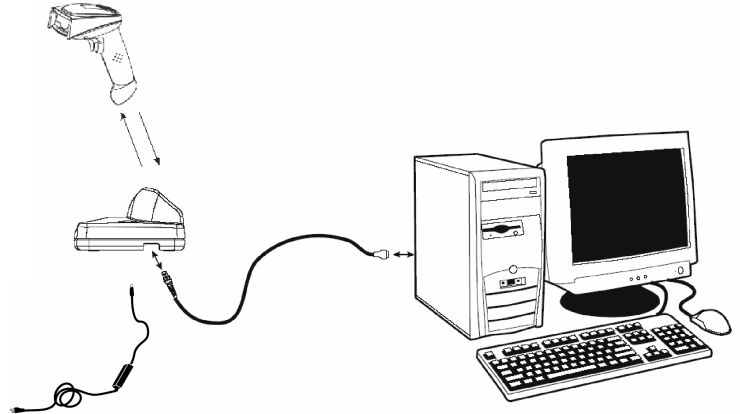
The operation of the IT 3820 in keyboard-emulation mode on a USB port is described in this section. A PC keyboard is emulated in this operating mode. The data which are read in are written directly to the currently activated program. Thus, the data can be processed further in all standard programs.

required parts:

- 1x 501 06 242 IT 3820 SR 0C0BE
- 1x 501 03 990 Base station ST 2020
- 1x 501 03 989 Power supply unit ST 2020
- 1x 501 03 404 USB cable

Procedure:

1. Connect the cable for the ST 2020 base station to a free USB port.
2. The scanner acknowledges this connection with a beep.
3. Scan the barcodes shown below.



USB keyboard emulation with CR LF



Keyboard layout for Germany/Austria



Notice!

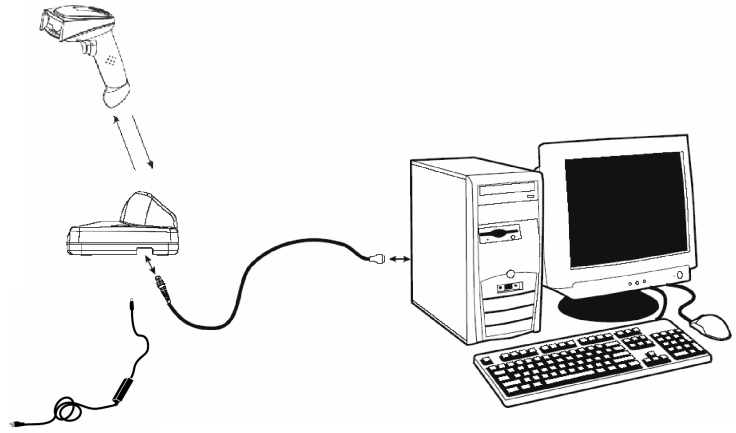
To charge the IT 3820, the power supply unit must be plugged in and the hand-held scanner placed in the ST 2020 base station.

Connecting the IT 3820 to the USB interface (COM-port emulation)

The operation of the IT 3820 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.de. Thus, the data can be processed further in programs which expect data via COM interfaces.

required parts:

- 1x 501 06 242 IT 3820 SR 0C0BE
- 1x 501 03 990 Base station ST 2020
- 1x 501 03 989 Power supply unit ST 2020
- 1x 501 03 404 USB cable



Procedure:

1. Connect the cable for the ST 2020 base station to a free USB port.
2. The scanner acknowledges this connection with a beep.
3. Scan the barcodes shown below.
4. Install the USB serial driver when you are prompted to do so by Windows.
5. Open a terminal program or your program for the serial interface, select the new COM port, and make the following settings: baud rate 38,400, 8 data bits, 1 stop bit, no parity, terminator <CR>.

USB COM-port emulation



Add CR Suffix



Notice!

To charge the IT 3820, the power supply unit must be plugged in and the hand-held scanner placed in the ST 2020 base station.