IT 3800i — Hand-held barcode scanner

Part No. 501 06669

4,5 - 14 V DC

- Hand-held scanner for barcodes
- 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 -30 through 50°C
- Larger reading field through higher resolution and improved decoding

Accessories

- **RS 232 cable/ext IT 4xxx**
  Part No. 501 03413
- **RS 232 cable/PIN 9 IT 4xxx**
  Part No. 501 03412
- **PS/2 cable for IT 4xxx** Part No. 501 03409
- **USB cable for IT 4xxx** Part No. 501 03404
- **Power supply unit for IT 4xxx**
  Part No. 501 03403
- **Support for IT 4xxx** Part No. 501 03402

Dimensioned drawing

Electrical connection

for RS 232 cable / ext.

9-pin Sub-D	Signal	Connection for power supply unit	IT 3800i RJ41
SH	Shield	SH	2
2	TXD		6
3	RXD		5
5	GND	2	4
7	CTS		9
8	RTS		8
	5VDC	1	7

for RS 232 cable / PIN 9

9-pin Sub-D	Signal	IT 3800i 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 3800i 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 3800i 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

Specifications

Electrical data
Operating voltage U_B 4.5 … 14VDC
Power consumption max. 1.8W

Interfaces
Interface type RS 232, PS/2 and USB
Trigger via button or serial command

Code types
Bar codes 2/5 Interleaved, Code 39, Code 128, Code 93, Codabar, UPC/EAN, RSS, Codablock

Optical data
Optical system 3648 linear Imager
Contrast 20% (black/white)
Light source integrated diffuse LED 630nm
Read distance 64 … 710mm (UPC 100%)
Read angle various tilt and rotational angles up to 65°

Mechanical data
Housing UL94V0 grade
Weight 213g (without cable)
Dimensions 163x135x81mm
Shock resistance 50 falls from a height of 2m

Environmental data
Ambient temp. (operation) -30°C … +50°C
Ambient temp. (storage) -40°C … +60°C
Relative air humidity 0 … 95% (non-condensing)
Protection class IP 54

Reading field

IT 3800i SR	Module or cell	from	to
Bar codes	7.5mil / 0.19mm	16.5mm	380mm
	13mil / 0.33mm	64mm	710 mm
	15mil / 0.38mm	64mm	787mm
	20mil / 0.5mm	38mm	1070mm
	55mil / 1.4mm	102mm	2080mm

Order guide

Hand-held scanner for barcodes (standard range) for industrial application		Part No.
IT 3800i SR030E	IT 3800i SR with RS 232 interface	501 06238
IT 3800i SR050E	IT 3800i SR with KBW and USB interface	501 06240

Tables

Diagrams

Remarks

Ergonomically shaped hand-held scanner with integrated decoder for barcodes.

Data transmission via configurable RS 232 interface.

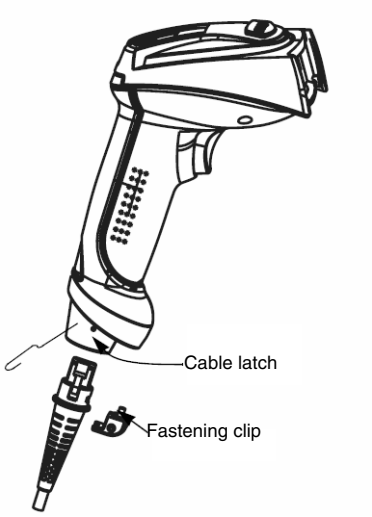
Or keyboard-wedge operation via PS/2 or USB interface.

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 3800

Shown in the adjacent figure are the individual steps for installing the cable on the scanner; these 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 hand-held scanner, now use a Phillips screwdriver to secure the supplied clip for locking the cable.
2. Connect the interface cable to the appropriate connection socket on the computer.
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 "Electrical connection" on page 1) 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. 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 red target line 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.

Further information on this can be found in the User's Guide for the IT 3800i.

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 3800i to factory settings

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

Attention!

All settings are lost!!!

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 3800i 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.

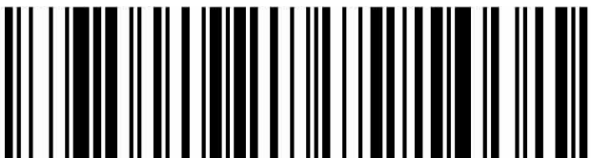
The IT 3800i is reset to factory settings.

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

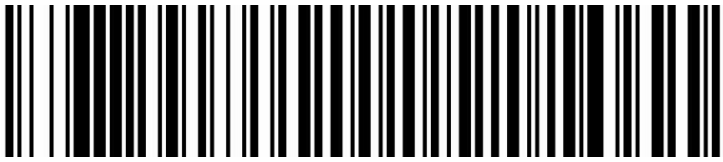
The IT 3800i is set to the following transmission parameters: RS 232 transmission with 9,600 baud, 8 data bits, 1 stop bit, no parity, prefix <STX>, terminators <CR><LF>.

9600 Bd

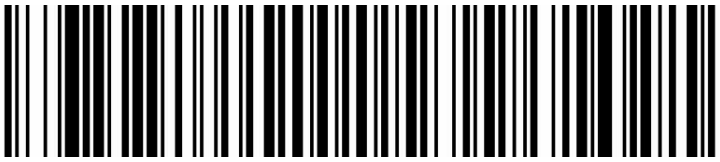
Terminal ID



Prefix STX



Postfix CR/LF



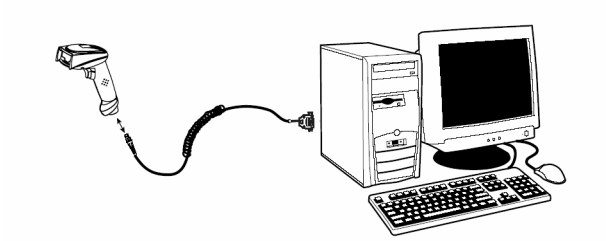
Connecting the IT 3800i to the serial PC interface

With voltage supply via PIN 9 with TTL-RS232-cable/PIN9 IT 4xxx Part No. 501 04586

required parts:

1x **501 06 238 IT 3800i SR 030E**

1x **501 03 412 Cable RS232/PIN9**



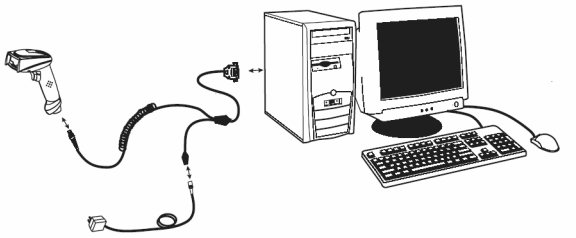
With voltage supply via power supply unit with cable RS232/ext IT 4xxx Part No. 501 04442

required parts:

1x **501 06 238 IT 3800i SR 030E**

1x **501 03 413 Cable RS232/ext**

1x **501 03 403 Power supply unit**



Procedure:

1. Switch off the PC.
2. Connect the interface cable to a free COM port (RS 232) on the computer, to the IT 3800i as well as to the power supply unit.
3. Switch the PC back on.
4. Scan the adjacent barcode.
   The IT 3800i is set to the following transmission parameters:
   RS 232 transmission with 38,400 baud, 8 data bits, 1 stop bit, no parity, terminators <CR><LF>.
5. If necessary, adjust the transmission parameters of the used COM port to those of the IT 3800i.

Attention!

We recommend connecting the IT 3800i 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 … +14V is maintained on the data lines!

Connecting the IT 3800i to the MA 41 DP-K or MA 41 IS

required parts:

1x **501 06 238** **IT 3800i SR 030E**

1x **501 03 412** **Cable RS232/ext**

1x **501 03 403** **Power supply unit**

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.

3. Scan the adjacent barcode.

The IT 3800i is reset to factory settings.

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

The IT 3800i 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

Connecting the IT 3800i to the MA 21

required parts:

1x **501 06 238** **IT 3800i SR 030E**

1x **501 03 412** **Cable RS232/PIN9**

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)	30
black	(GND)	31
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.

3. Scan the adjacent barcode.

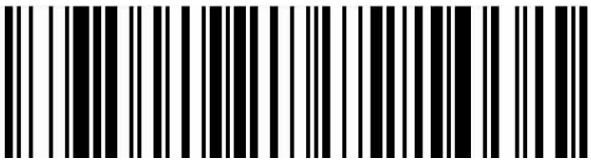
The IT 3800i is reset to factory settings.

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

The IT 3800i 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>.

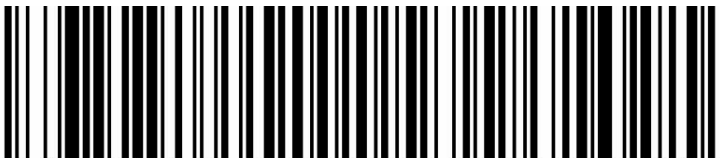
9600 Bd

Terminal ID



7 data bits, even parity, 1 stop bit

Postfix CR/LF



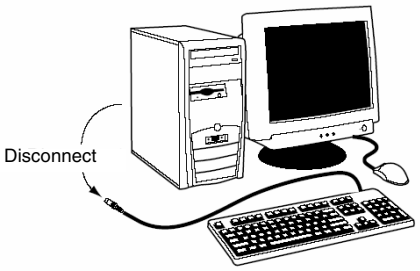
Connecting the IT 3800i to the PS/2 interface

The operation of the IT 3800i 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:

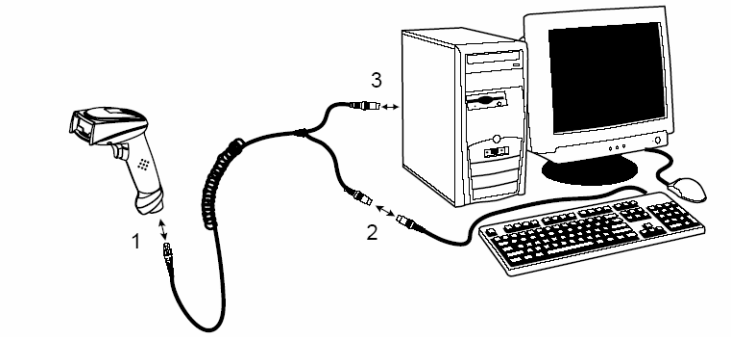
1x **501 06 240 IT 3800i SR050E**

1x **501 03 409 PS/2 cable**



Procedure:

1. Switch off the PC.
2. Disconnect the keyboard.
3. Plug in the IT 3800i hand-held scanner between the keyboard and the PC.
4. Switch the PC back on.
5. Scan the barcodes shown below.



IBM PCs and compatible PCs, postfix

Keyboard layout for Germany/Austria

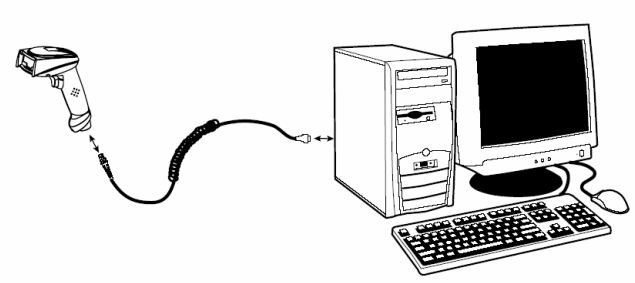
Connecting the IT 3800i to the USB interface (keyboard emulation)

The operation of the IT 3800i 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 06 240 IT 3800i SR050E**

1x **501 03 404 USB cable**



Procedure:

1. Plug the IT 3800i hand-held scanner into 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

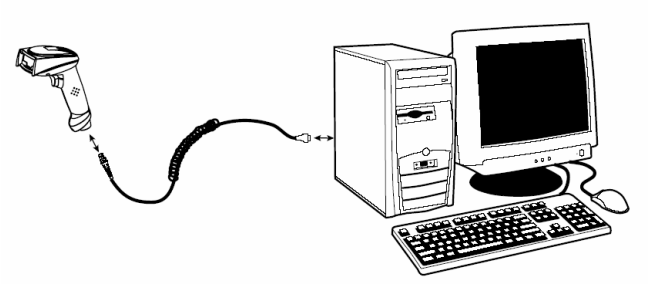
Connecting the IT 3800i to the USB interface (COM-port emulation)

The operation of the IT 3800i 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 06 240 IT 3800i SR050E**

1x **501 03 404 USB cable**



Procedure:

1. Plug the IT 3800i hand-held scanner into a free USB port.
2. The scanner acknowledges this connection with a beep.
3. Scan the barcode 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