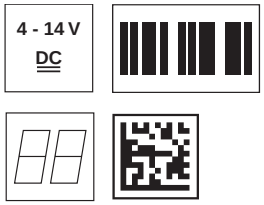
IT 4600/4800 — 2D-code hand-held scanner

Part No. 501 06667



- Hand-held scanner for Data-Matrix Codes and Bar Codes
- Large reading field for the detection of high-contrast codes
- Robust trigger button
- Built-in decoder
- Read-display
- RS 232, USB and PS/2 interface
- Operating temperature from 0 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 4600/4800 RJ41
SH	Shield	SH	2
2	TXD		6
3	RXD		5
5	GND	1	4
7	CTS		9
8	RTS		8
	5VDC	2	7

for RS 232 cable / PIN 9

9-pin Sub-D	Signal	IT 4600/4800 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 4600/4800 RJ41
1	5VDC	9
2	Data -	10
3	Data +	2
4	GND	4

for PS/2 cable

Mini DIN connector	Mini DIN socket	Signal	IT 4600/4800 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 … 14VDC
Power consumption	max. 1.8W

Interfaces

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

Code types

2D codes	Data Matrix ECC 200, MaxiCode, PDF417, MicroPDF, QR Code, Aztec, Aztec Mesas, Code 49, EAN/UCC Composite
Bar codes	2/5 Interleaved, Code 39, Code 128, Code 93, Codabar, UPC/EAN, RSS, Codablock
OCR	OCR-A, OCR-B

Optical data

Optical system	high-resolution pixel array 752x480
Contrast	45% (black/white)
Light source	integrated diffuse LED 626nm
Read distance	53 … 333mm (UPC 100%)
Read direction	omnidirectional, various tilt and rotational angles up to 45°

Mechanical data	**IT 4600**	**IT 4800**
Housing	UL94V0 grade	UL94V0 grade
Weight	184g (without cable)	213g (without cable)
Dimensions	157x135x81mm	163x135x81mm
Shock resistance	50 falls from a height of 1.8m	50 falls from a height of 2m

Environmental data

Ambient temp. (operation)	0°C … +50°C	
Relative air humidity	0 … 95% (non-condensing)	
Protection class	IP 41	IP 54

Reading field

IT 4600/4800 SR	**Module or cell**	**from**	**to**
Bar codes	8.3mil / 0.21mm	89mm	191mm
UPC bar code	13mil / 0.33mm	53mm	333mm
PDF 417 Code	6.6mil / 0.17mm	112mm	155mm
	10mil / 0.25mm	76mm	226mm
Data Matrix Code	15mil / 0.38mm	58mm	257mm
Maxi Code	35mil / 0.89mm	51mm	328mm

IT 4600/4800 SF	**Module or cell**	**from**	**to**
Bar codes	7.5mil / 0.19mm	64mm	163mm
UPC bar code	13mil / 0.33mm	51mm	224mm
PDF 417 Code	6.6mil / 0.17mm	71mm	150mm
	10mil / 0.25mm	50mm	191mm
Data Matrix Code	15mil / 0.38mm	40mm	188mm
QR Code	15mil / 0.38mm	56mm	180mm

Order guide

2D-code hand-held scanner (standard range)		**Part No.**
IT 4600 SR031C	IT 4600 SR with RS 232 interface	501 03410
IT 4600 SR051C	IT 4600 SR with PS/2 and USB interface	501 03408
IT 4800 SR031C	IT 4800 SR with RS 232 interface	501 03405
IT 4800 SR051C	IT 4800 SR with PS/2 and USB interface	501 03416

2D code hand-held scanner (special focus for small codes)		**Part No.**
IT 4600 SF031C	IT 4600 SF with RS 232 interface	501 03407
IT 4600 SF051C	IT 4600 SF with PS/2 and USB interface	501 03406
IT 4800 SF031C	IT 4800 SF with RS 232 interface	501 03415
IT 4800 SF051C	IT 4800 SF with PS/2 and USB interface	501 03414

Tables

Diagrams

Remarks

Ergonomically shaped hand-held scanner with integrated decoder for high-contrast codes.

Data transmission via configurable RS 232 interface.

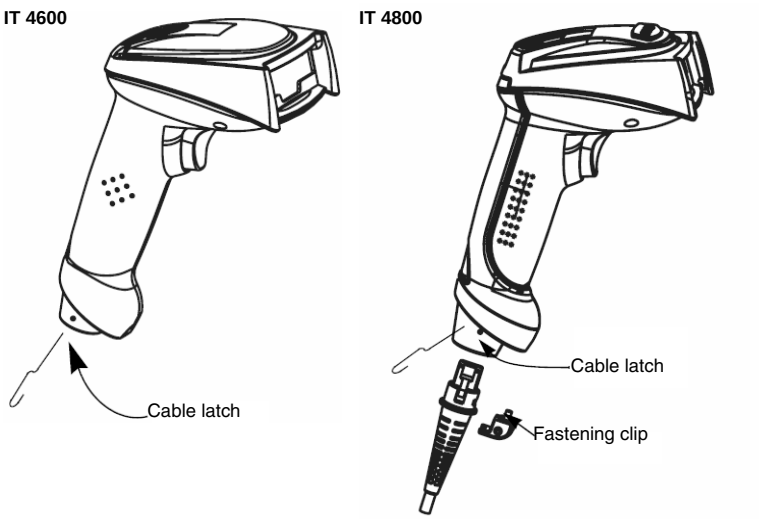
Or keyboard-wedge operation via PS/2 or USB interface.

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 4600/4800

Shown in the adjacent figure is the location of the cable connection and trigger button of the scanner. The individual steps for installing the cable on the scanner are described below.



1. To secure the interface cable to the scanner, proceed as follows:
   IT 4600: Insert the RJ 41 connector into the socket on the bottom of the hand-held scanner until the connector engages.
   IT 4800: Insert 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. 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.

Further information on this can be found in the User's Guide for the IT 4600/4800.

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 4600/4800 to factory settings

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

Attention!

All settings are lost!!!

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 4600/4800 deactivates itself.

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

Configuration for the Leuze standard protocol

Scan the adjacent 2D code.
The IT 4600/4800 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>.

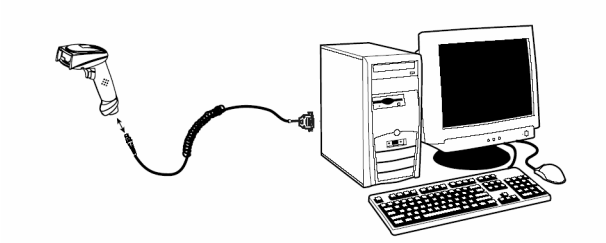
Connecting the IT 4600/4800 to the serial PC interface

With voltage supply via PIN 9 with TTL-RS232-cable/PIN9 IT 4xxx Part No. 501 04412

required parts:

1x **IT 4600/4800 XX 031C**

1x **501 04 412** **Cable RS232/PIN9**



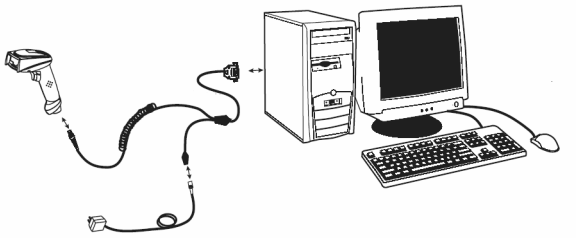
With voltage supply via power supply unit with cable RS232/ext IT 4xxx Part No. 501 03413

required parts:

1x **IT 4600/4800 XX 031C**

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 4600/4800 as well as to the power supply unit (if present).
3. Switch the PC back on.
4. Scan the adjacent barcode.
   The IT 4600/4800 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 4600/4800.

Attention!

We recommend connecting the IT 4600/4800 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 4600/4800 to the MA 41 DP-K or MA 41 IS

required parts:

1x	**IT 4600/4800 XX 031C**	
1x **501 03 413**	**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)	3
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 2D code.
The IT 4600/4800 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>.

Connecting the IT 4600/4800 to the MA 21

required parts:

1x	**IT 4600/4800 XX 031C**
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:

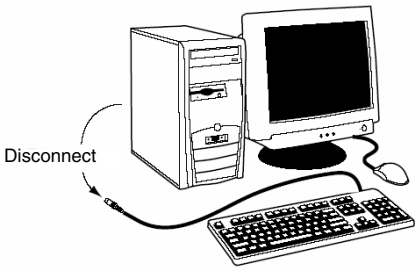
1. Connect cable KB 021 Z to the MA 21… acc. to the above pin assignments.
2. Connect the interface cable to cable KB 021 Z.
3. Scan the adjacent 2D code.
The IT 4600/4800 is set to the following transmission parameters:
RS 232 transmission with 9,600 baud, 7 data bits, 1 stop bit, even parity, terminators <CR><LF>.

Connecting the IT 4600/4800 to the PS/2 interface

The operation of the IT 4600/4800 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.

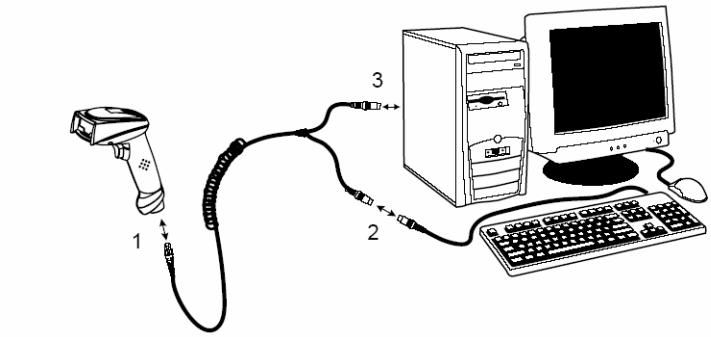
required parts:

1x		**IT 4600/4800 XX 051C**
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 2D code shown below.

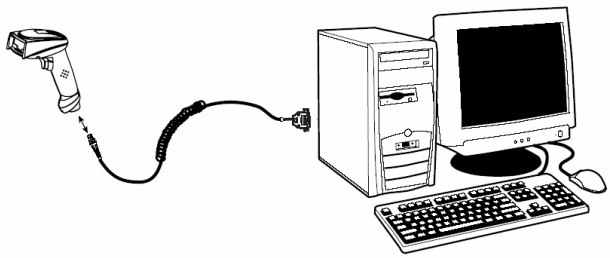


Connecting the IT 4600/4800 to the USB interface (keyboard emulation)

The operation of the IT 4600/4800 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		**IT 4600/4800 XX 051C**
1x	**501 03 404**	**USB cable**



Procedure:

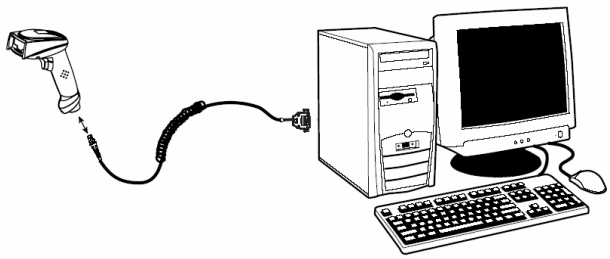
1. Plug the IT 4600/4800 hand-held scanner into a free USB port.
2. The scanner acknowledges this connection with a beep.
3. Scan the adjacent 2D code.

Connecting the IT 4600/4800 to the USB interface (COM-port emulation)

The operation of the IT 4600/4800 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		**IT 4600/4800 XX 051C**
1x	**501 03 404**	**USB cable**



Procedure:

1. Plug the IT 4600/4800 hand-held scanner into a free USB port.
2. The scanner acknowledges this connection with a beep.
3. Scan the adjacent 2D code.
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>.