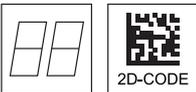


IT 1920i

2D-code hand-held scanner suitable for industrial use

en 01-2018/02 50138347



- Very sturdy hand-held scanner for directly marked Data Matrix codes and bar codes
- Large range with high resolution and improved decoding
- Robust trigger button
- Acoustic signal, LED and vibration alarm following successful reading
- RS 232, USB and PS/2 interface
- Operating temperature from -30°C through 50°C
- Degree of protection IP 65



Accessories

- **RS 232 cable**
Part no. 50115105
- **TTL-RS 232 cable**
Part no. 50114517
- **PS/2 cable**
Part no. 50114519
- **USB cable, 3m**
Part no. 50114521
- **USB helix cable, 5m**
Part no. 50114523
- **Power supply unit**
Part no. 50114525

We reserve the right to make changes • PAL_IT1920i_en_50138347.fm

Electrical connection

for RS 232 cable

9-pin Sub-D	Signal	Connection for power supply unit	IT 1920i RJ41
2	TXD		4
3	RXD		5
5	GND	external	3
7	CTS		6
8	RTS		8
9	5VDC	internal	7

for USB cable

USB type A	Signal	IT 1920i RJ41
1	5VDC	7
2	Data -	10
3	Data +	9
4	GND	3

for PS/2 cable

Mini DIN connector	Mini DIN socket	Signal	IT 1920i RJ41
1	-	PC Data	4
2	2	NC	
3	3	GND	3
4	4	5VDC	7
5	-	PC Clock	5
6	6	NC	
-	1	KB data	8
-	5	KB clock	6

Specifications

Electrical data

Operating voltage U_B 4 ... 5.5VDC
 Power consumption max. 2.35W

Interfaces

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

Types of codes

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, Codablock, GS1 Databar

Optical data

Optical system high-resolution pixel array
 Symbol contrast 25% minimum
 Light source integrated diffuse LED, wavelength 617nm ± 18nm
 Read direction omnidirectional, various tilt and rotational angles up to 45°
 Alignment aid laser pattern 630 ... 680nm;
 laser class 2 acc. to IEC 60825-1:2007 and IEC 60825-1:2014
 (see laser safety notices)

Mechanical data

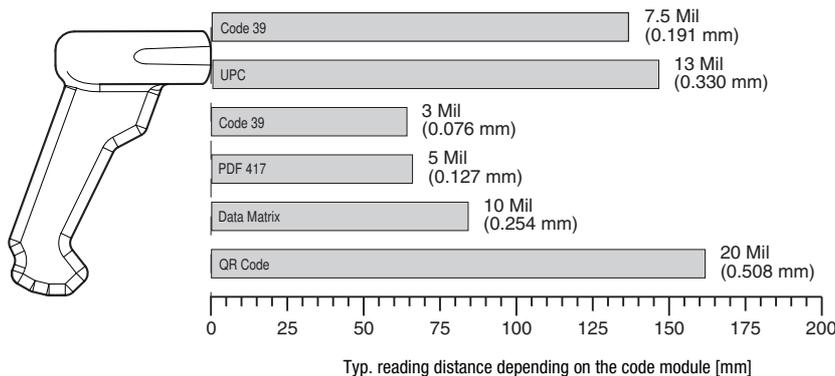
Weight (without cable) approx. 310g
 Dimensions 133 x 75 x 195mm
 Shock resistance 50 falls from a height of 2m at -30°C

Environmental data

Ambient temp. (operation/storage) -30°C ... +50°C/-40°C ... +70°C
 Relative humidity 0 ... 95% (non-condensing)
 Degree of protection IP 65

Reading field

IT 1920i DPM-3



Order guide

2D-code hand-held scanner for Direct Part Marking (DPM)
 IT 1920i DPM-3 with RS 232, PS/2 and USB interface

Part no.
 50138136

Tables

Diagrams

Remarks

Operate in accordance with intended use!

- ☞ The product may only be put into operation by competent persons.
- ☞ Only use the product in accordance with the intended use.

Hand-held scanner with integrated decoder for directly marked codes suitable for industrial use.

Data transmission via configurable RS 232 interface.

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

Laser safety notices

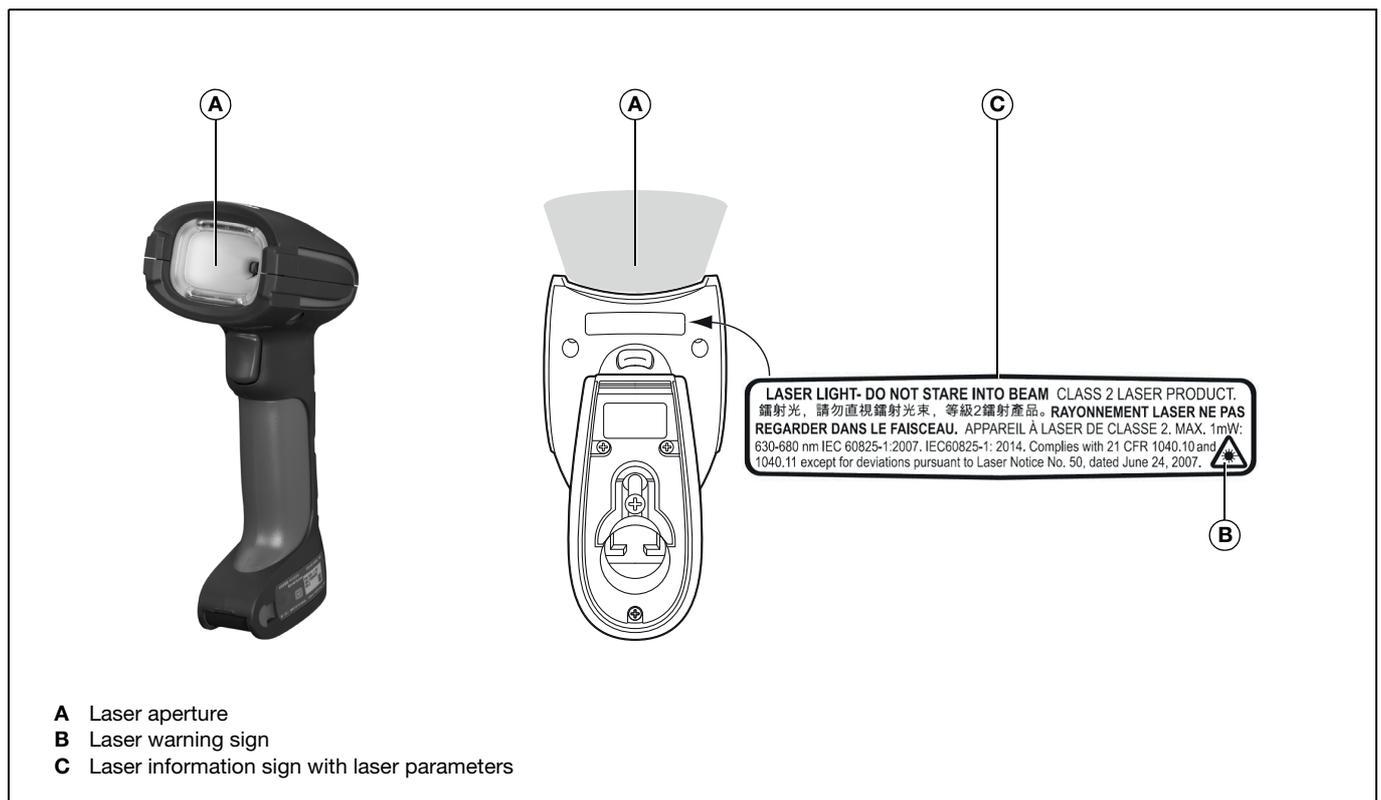
ATTENTION, LASER RADIATION – LASER CLASS 2
Never look directly into the beam!

The device fulfills the IEC 60825-1:2007 and IEC 60825-1:2014 (EN 60825-1:2007 and EN 60825-1:2014) safety regulations for a product in **laser class 2** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24th, 2007.

- ↘ Never look directly into the laser beam or in the direction of reflecting laser beams!
If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- ↘ Do not point the laser beam of the device at persons!
- ↘ Interrupt the laser beam using a non-transparent, non-reflective object if the laser beam is accidentally directed towards a person.
- ↘ When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- ↘ **CAUTION!** Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
- ↘ Observe the applicable statutory and local laser protection regulations.
- ↘ The device must not be tampered with and must not be changed in any way.
There are no user-serviceable parts inside the device.
Repairs must only be performed by Leuze electronic GmbH + Co. KG.

NOTICE

Laser information and warning signs firmly attached to the device.



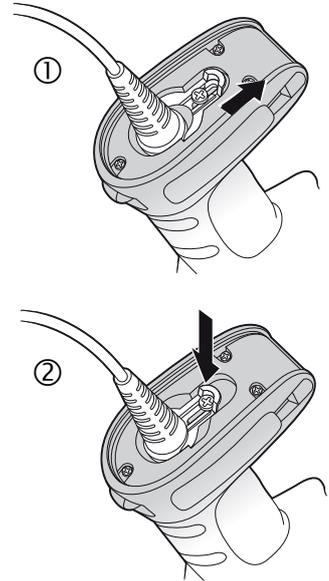
Switching off the computer

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 1920i

The adjacent figure shows the position of the cable connection on the scanner. The individual steps for installing the cable on the scanner are described in the following.

1. To secure the interface cable to the scanner, proceed as follows:
Loosen the Phillips screw on the cable interlock on the bottom of the hand-held scanner and, to open, push the cable interlock in the direction of the arrow to the end position (①). Insert the RJ 41 connector into the socket on the bottom of the hand-held scanner until the connector engages.
2. To close, push the cable interlock back and secure the cable interlock by tightening the Phillips screw (②).
3. Connect the interface cable to the appropriate connection socket on the computer.
4. 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.
5. Connect the power supply unit to the power socket (not necessary if voltage is supplied from the computer).
6. Check the operational readiness of the scanner by pointing the scanning surface towards a flat surface and pulling the trigger. A red target 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 computer.



Parameterization

The hand-held scanner can always be configured using bar codes. To do this, the bar code 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 **EZ Config** 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.

More information can also be found in the user's guide.

The standard applications are described and summarized below.



Notice!

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

Resetting the IT 1920i to factory settings

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



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 hand-held scanner 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 hand-held scanner is set to the following transmission parameters:

RS 232 transmission with 9,600 baud, 8 data bits, 1 stop bit, no parity, prefix <STX>, postfixes <CR><LF>.



Connecting the IT 1920i to the serial PC interface

Voltage supply via power supply unit with RS232 cable (part no. 50114517)

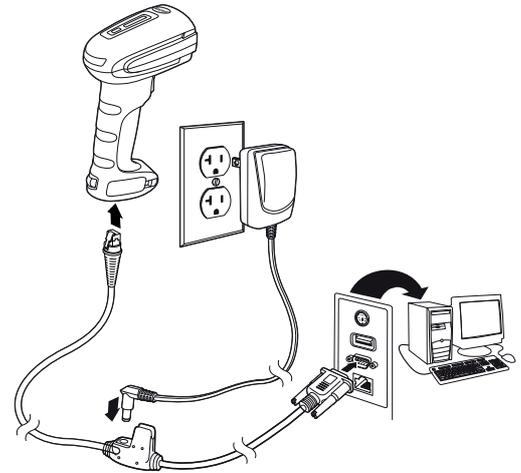
Required parts:

- 1x IT 1920i DPM-3
- 1x 50114517 KB 232-1 IT190x
- 1x 50114525 Power supply unit



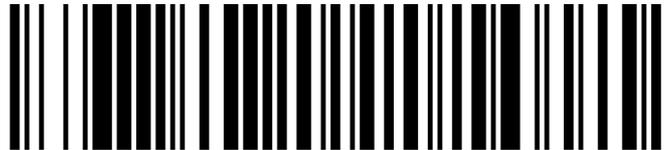
Notice!

Cable **KB 232-1 IT190x** (part no. 50114517) uses TTL-level (0V...5V) for data transmission. As an alternative to this, cable **KB 232-2 IT190x** (part no. 50115105) can be used. This cable works with the regular RS232 level (-12V...+12V) and therefore features a higher interference rejection. Both cables are connection compatible.



Procedure:

1. Switch off the PC.
2. Connect the interface cable to a free COM port (RS 232) on the computer, to the hand-held scanner as well as to the power supply unit (if present).
3. Switch the PC back on.
4. Scan the adjacent bar code. The hand-held scanner is set to the following transmission parameters:
RS 232 transmission with 115,200 baud, 8 data bits, 1 stop bit, no parity, postfixes <CR><LF>.
5. If necessary, adjust the transmission parameters of the used COM port to those of the hand-held scanner.



Attention!

We recommend connecting the hand-held scanner directly to a PC or to the MA 21 or MA 41... connection units. If connecting to other components, please note that a voltage level range is maintained on the data lines!

IT 1920i

2D-code hand-held scanner suitable for industrial use

Connecting the IT 1920i to the MA 21

Required parts:

1x	IT 1920i DPM-3
1x 50114517	KB 232-1 IT190x
1x 50035421	KB 021 Z
1x 50030481	MA 21 100

Pin assignments KB021 Z:

Core color:	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 hand-held scanner is set to the following transmission parameters:
RS 232 transmission with 9,600 baud, 7 data bits, 1 stop bit, even parity, postfixes
<CR><LF>.



Connecting the IT 1920i to the MA 2xxi

Required parts:

1x	IT 1920i DPM-3
1x 50114517	KB 232-1 IT190x
1x 50113397	KB JST-HS-300
1x	MA 2xxi for the respective fieldbus system

Procedure:

1. Connect cable KB JST-HS-300 to the system connector on the MA 2xxi.
2. Connect the interface cable to cable KB JST-HS-300.
3. Scan the adjacent 2D code.
The hand-held scanner is set to the following transmission parameters:
RS 232 transmission with 9,600 baud, 8 data bits, 1 stop bit, no parity, postfixes
<CR><LF>.



Connecting the IT 1920i to the PS/2 interface

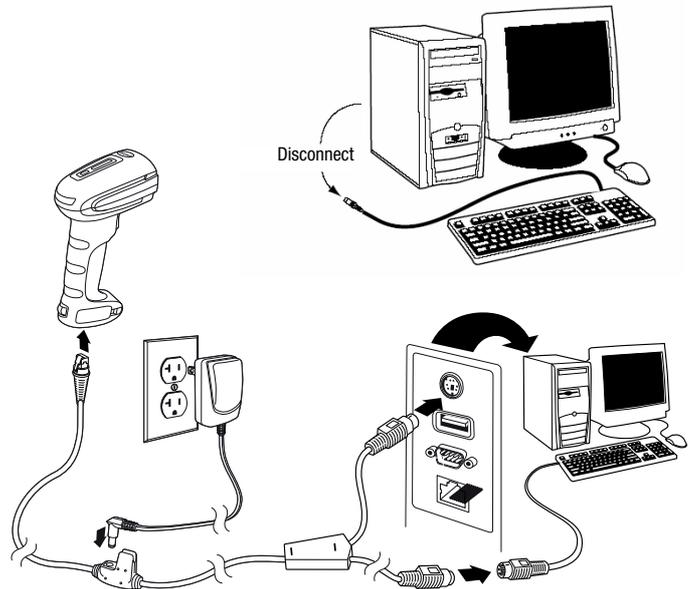
The operation of the hand-held scanner in keyboard emulation mode is described in this section. With this operating mode, a PC keyboard is emulated. The read data are written directly into the currently activated program. The data can thereby be further processed in all standard programs.

Required parts:

- 1x IT 1920i DPM-3
- 1x 50114519 KB PS2-1 IT190x

Procedure:

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



IT 1920i

2D-code hand-held scanner suitable for industrial use

Connecting the IT 1920i to the USB interface (keyboard emulation)

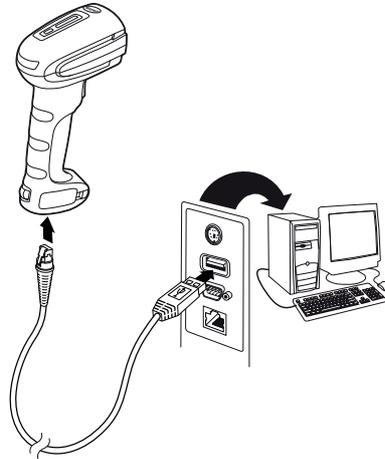
Operating the hand-held scanner in keyboard emulation mode on a USB port is described in this section. With this operating mode, a PC keyboard is emulated. The read data is written directly into the currently activated program. The data can therefore be further processed in all standard programs.

Required parts:

- 1x IT 1920i DPM-3
- 1x 50114521 KB USB-1 IT190x (3m, straight)
- or
- 1x 50114523 KB USB-2 IT190x (5m, spiral)

Procedure:

1. Plug the 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 1920i to the USB interface (COM port emulation)

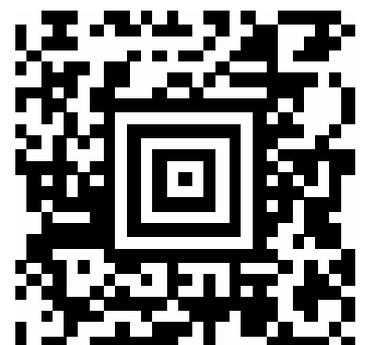
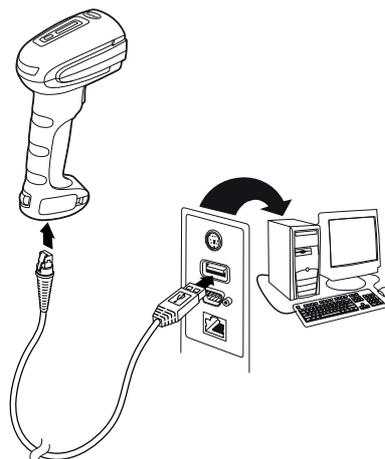
The operation of the hand-held scanner as a serial interface on a USB port is described in this chapter. With this operating mode, a COM interface is emulated. The read data are sent to a new COM interface. The drivers with which this COM interface is emulated can be downloaded from our homepage at www.leuze.com. Thus, the data can be processed further in programs which expect data via COM interfaces.

Required parts:

- 1x IT 1920i DPM-3
- 1x 50114521 KB USB-1 IT190x (3m, straight)
- or
- 1x 50114523 KB USB-2 IT190x (5m, spiral)

Procedure:

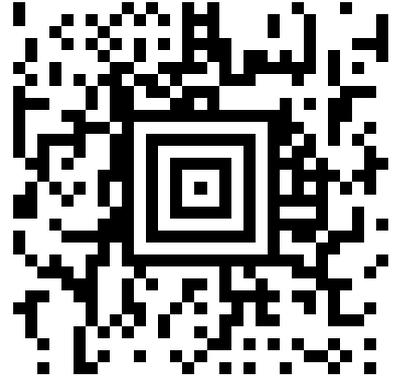
1. Install the USB serial driver (current version available at www.leuze.com).
2. Plug the hand-held scanner into a free USB port.
3. The scanner acknowledges this connection with a beep.
4. Scan the adjacent 2D code.
5. Open a terminal program or your program for the serial interface, select the new COM port, and make the following settings: baud rate 115,200, 8 data bits, 1 stop bit, no parity, postfix <CR>.



Settings for reading directly marked Codes (DPM)

Automatic cycle illumination

This is the factory default setting for the IT 1920i DPM device. This setting cycles automatically through the direct illumination modes Top and Bottom and the indirect illumination mode. It is best used when there is a mix of codes to be scanned.



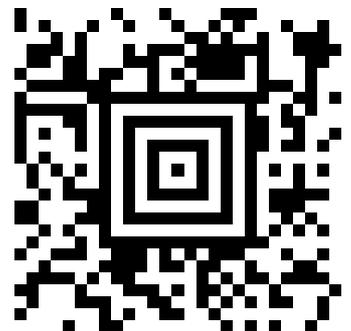
Low contrast codes



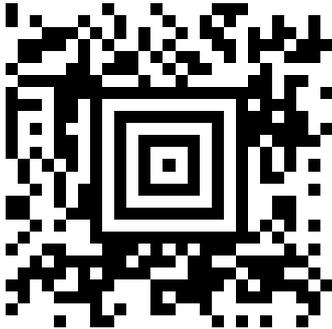
This setting is recommended when reading low contrast codes. This setting cycles automatically through the illumination modes with multiple exposure settings.

Direct illumination - Top and Bottom

This setting enables the direct illumination with the upper and lower LED bar (Top and Bottom). It is recommend when reading printed label codes and DPMs on highly reflective surfaces.



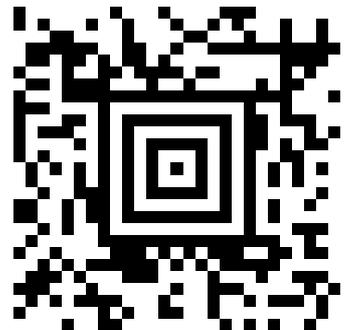
Direct illumination - Bottom



This setting enables just the direct illumination with the lower LED bar (Bottom). The setting is optimized for reading dot peen codes when the scanner is held at an angle to the surface.

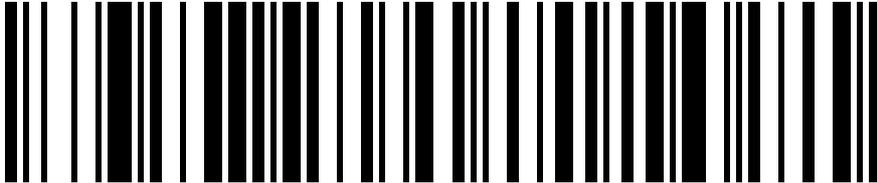
Indirect illumination

This setting enables just the indirect illumination. The setting is optimized for reading bar codes on curved or rough surfaces.



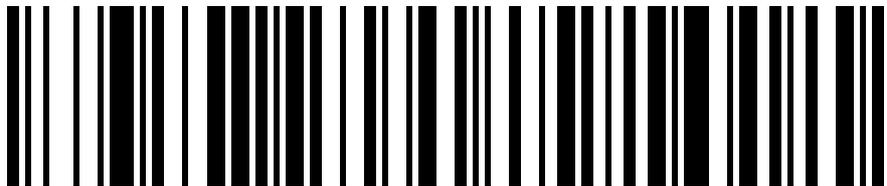
Enhancements for low contrast codes

Reading the following setting codes may improve reading of low contrast codes. Factory default setting is **ON**. If you are having trouble reading non-dot peen data matrix codes, try setting **Low contrast codes enhancements OFF**.



DPMENA1.

Low contrast codes enhancements ON



DPMENA0.

Low contrast codes enhancements OFF