FIS 6170
2D-Code Handheldscanner

Easy Start Guide

Preamble

Congratulations on your purchase of one of the most powerful hand-held scanner for decoding direct marked 2D-Codes. This document is intended for information about the handling and use of the FIS 6170 from Leuze electronic.

The most important information that is needed for operation is explained. Furthermore, even explains the main types of connections and presented the programming using the codes.

You can find more in the document Users Guide, which you can find on our home page www.leuze.com.

Content

Drawing

Sizes in inches

1 inch = 2.54 cm

Delivery

- ## FIS 6170 0102G

1. Handheldcanner FIS 6170 0102G
2. Quick Start Guide

Already mounted;

3. USB-cable

   (Length 3,65 m straight)

4. Clip for cable

An overview of the types can be found at page 26

For accessories see page 27

Note: Nominal dimensions shown. Typical tolerances apply.

2.46

1.40

Detail A

Front View

12.70   5.85

Use #2-56 hardware; do not exceed .115" depth.
Note: For training accessories only; not for mounting purposes.

Detail A

4.44

7.23

1.72

1.97

Side View
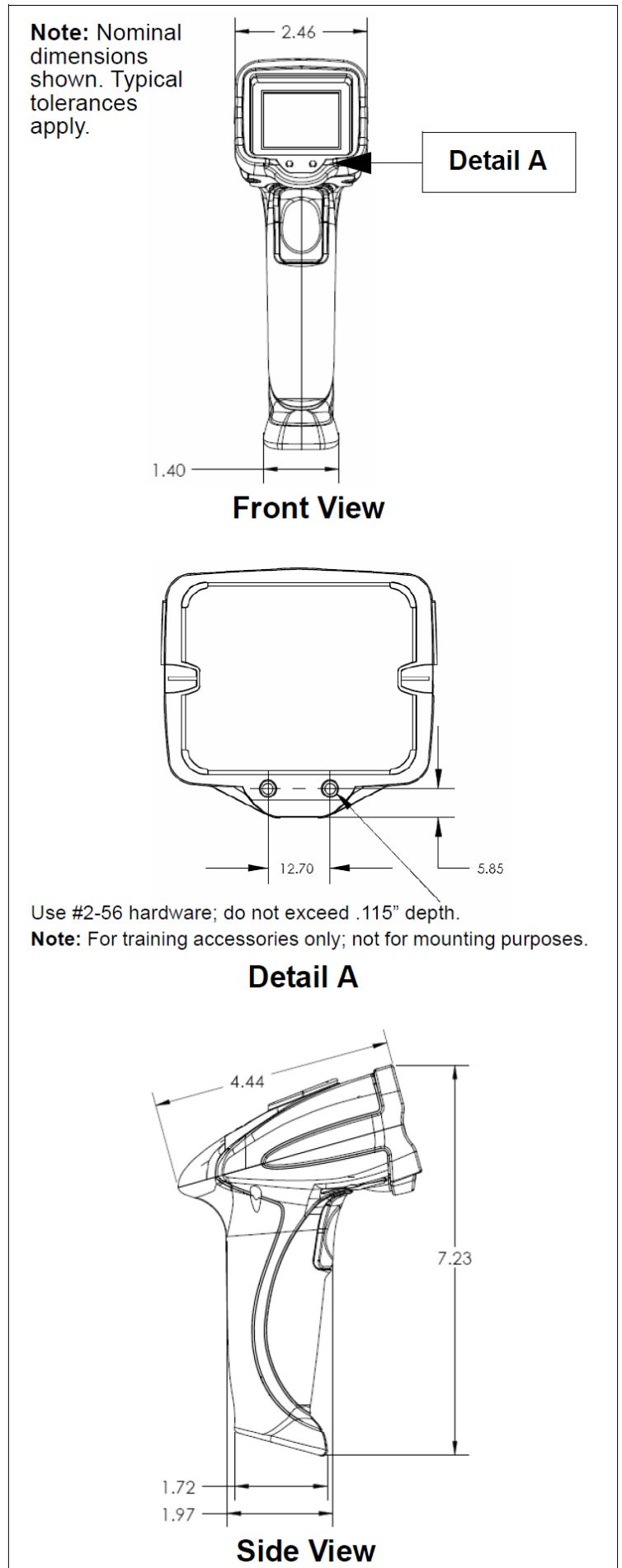
Installation

Connect the hand-held scanner

The USB cable is already installed. If the optional RS-232 cable is used, the cable must be replaced. You have to remove the pull relief for the cable, which is attached with 2 Allen screws.

Switching off the computer

Information on switching off and shut down the connected computer - what ever before to connect peripheral devices such as a scanner is - please refer to the instruction manual of your computer..

Connect the cable from FIS 6170

1. To fastening the interface cable to the scanner, proceed as follows: Plug the 8 pin connector into the socket on the underside of the hand scanner, you now attach the supplied cable strain relief with the help of an interior hexagonal key.

2. Connect the interface cable to the appropriate socket of the computer.

3. You may need a power supply to the power supply, or you can use a cable in which the tension of the computer system is used. Use the pin assignments (see page 7), you can select the appropriate cable for your application.

4. Plug the AC adapter into the power outlet (if available).

5. Check the operational readiness of the scanner by pointing the scanning surface against a flat surface and pulling the trigger. The lighting should be visible. Now scan a sample label. The scanner confirms with a beep that it is decoded if necessary, the data are transmitted to the computer.

How to scan?

Here are some notes on how to get the best scan performance.

- In the default lighting settings, used the FSI 6170 different setups, which are automatically changed. The 6170 FIS takes on different images with different lighting parameters on to find the optimum settings. If several times the same or the same type of part to be read, it is the last setting made in ascending order to achieve a faster reading
- Keep the FIS quiet 6170 - you do not move the unit. Press the trigger button and hold it until the green LED indicates the reading.
- Keep the FIS 6170 is marked parallel to the front surface, and the code at the center is located. The device is designed to detect without an angle (tilt) of the Code.

OK Hold the device parallel to the surface*.*	***Not OK*** Too far away and too much angle
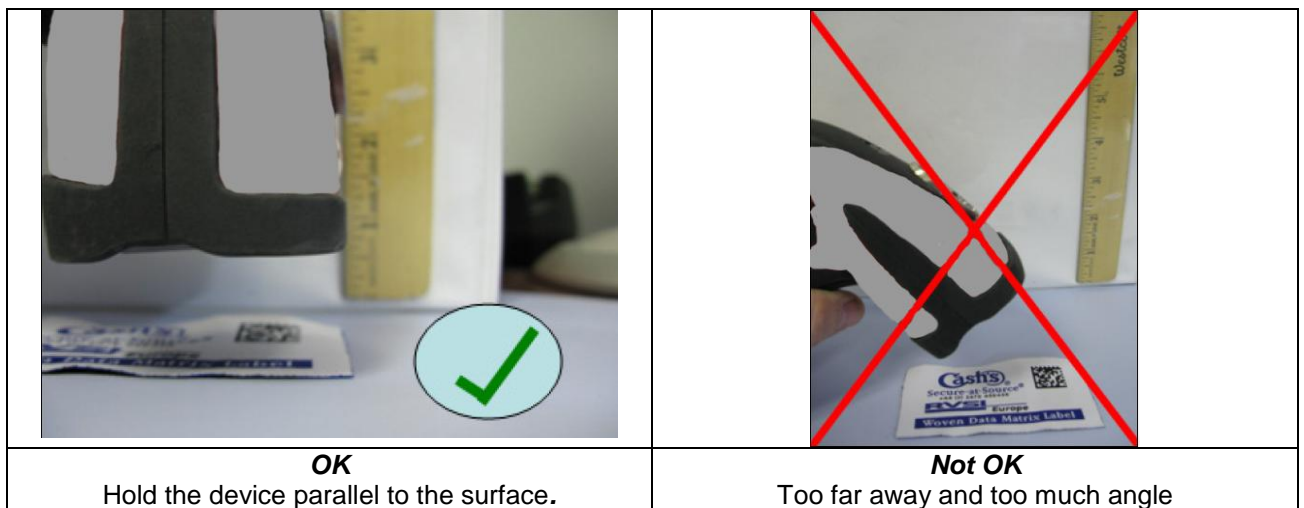
Testing the Scanner

The 2D code below is for testing the scanner.
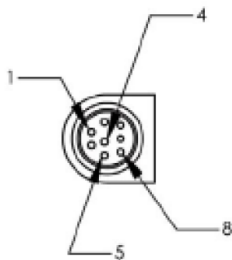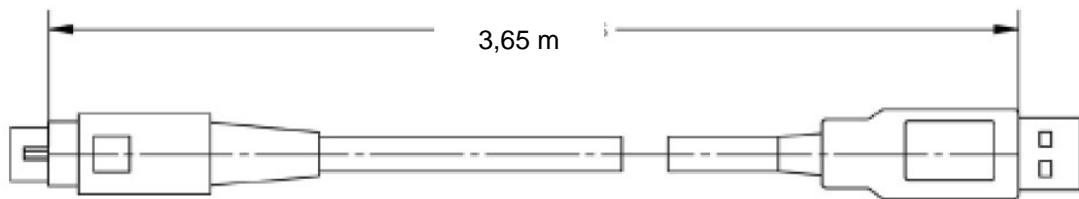

Codetype: Data Matrix Code ECC200

Symbol size: 18x18

Cell size: 0,7 mm

Content: Leuze electronic

Technical Data

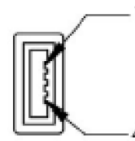For the technical Data please refer the data sheet of the FIS 6170.

Pinning of the cables

USB-cable (already in the box with Part-No. 50115068)

3,65 m

WIRING TABLE:

CONN A	NAME	WIRE	COLOR	CONN B
1	V+	24AWG	RED	1
2	NC			
3	NC			
4	D+	28AWG	GREEN (TWISTED)	3
5	D-	28AWG	WHITE (TWISTED)	2
6	NC			
7	NC			
8	GND	24AWG	BLACK	4
SHELL	—	DRAIN	BARE	SHELL

Pinning of the USB-cable (straight 3,65 Meter)

Connection Handheldscanner PIN	color	Signal	description	Connection to PC USB-Type A PIN
1	red	VCC IN	+5 Volt (Operation voltage)	1
2		nc	Not connected	
3		nc	Not connected	
4	Green	D+	Data +	3
5	White	D-	Data -	2
6		nc	Not connected	
7		nc	Not connected	
8	Black	GND	Signal Ground	4
shell	Shield			shell

Power is supplied via the USB cable from the USB port (5 Volt / 500 mA).

RS232-cable (option)

KB-232-2 KIT f. FIS 6170   Part-No. 50115070

The KIT (98-000074-05) includes an RS-232 coiled cable (60-000008-02) and a suitable mains adapter (20-000336-02) with Euro plug (100-240 VAC / 50-60Hz / 0.3 A).

Pinning of the RS232-cable (coiled, 2,43 Meter)

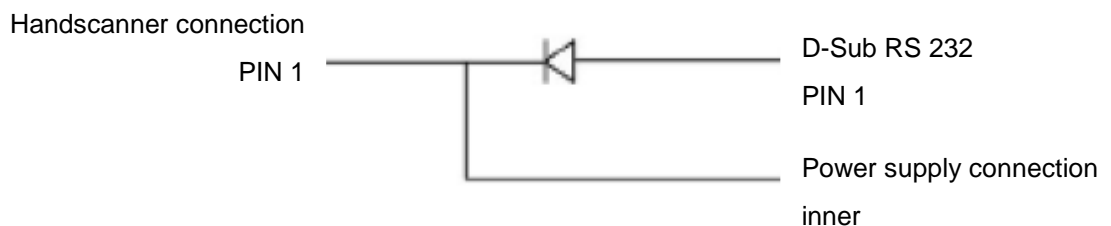| Connection Handheldscanner PIN	color	Signal	description	Connection to PC RS-232	Connection to power supply
1	Red	VCC IN	+5 Volt (Operating voltage)	1	Inner
2	Brown	TX	Transmit Data	2	
3	Orange	RX	Recieve Data	3	
		nc	Not connected	4	
		nc	Not connected	6	
		nc	Not connected	7	
		nc	Not connected	8	
8	Black	GND	Signal Ground	5	Outer
		nc	Not connected	9	
shell	shield			shell	

The voltage can be supplied over the PIN 1 on the D-sub connector or the adapter plug.

Handscanner connection

PIN 1

D-Sub RS 232

PIN 1

Power supply connection

inner

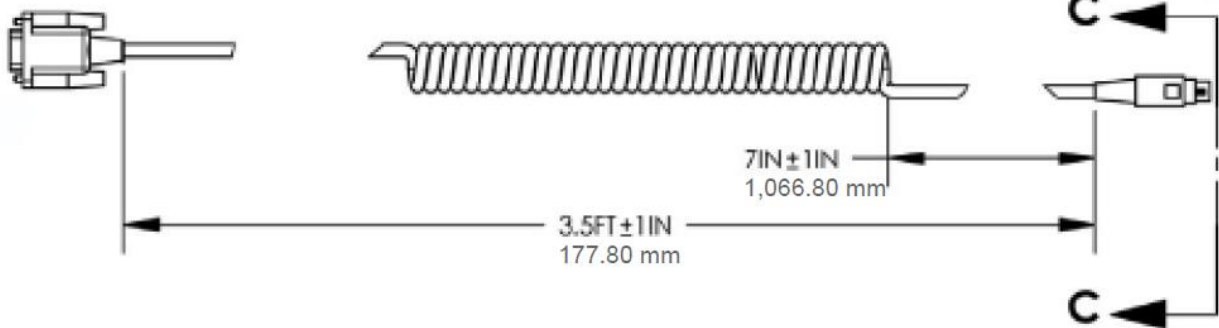## KB-232-1 f. FIS 6170   Part-No. 50115069

The RS 232-coiled cable can be powered over the PIN 9.

**Connector B**   **Connector A**

7IN±1IN
1,066.80 mm

3.5FT±1IN
177.80 mm

Pinning of the RS232-cable (coiled, 2,43 Meter)

Connection Handheldscanner PIN	color	Signal	description	Connection to PC RS-232
1	Red	VCC IN	+5 Volt (operation voltage)	9
2	Brown	TX	Transmit Data	2
3	Orange	RX	Recieve Data	3
		nc	Not connected	4
		nc	Not connected	6
		nc	Not connected	7
		nc	Not connected	8
8	black	GND	Signal Ground	5
		nc	Not connected	1
shell	Shield			shell

Reading field

FIS 6170

Typical Reading field at 25°C (77°F) with 'Grade A' Labels. The reading distance can be different with other temperatures and other external influences.
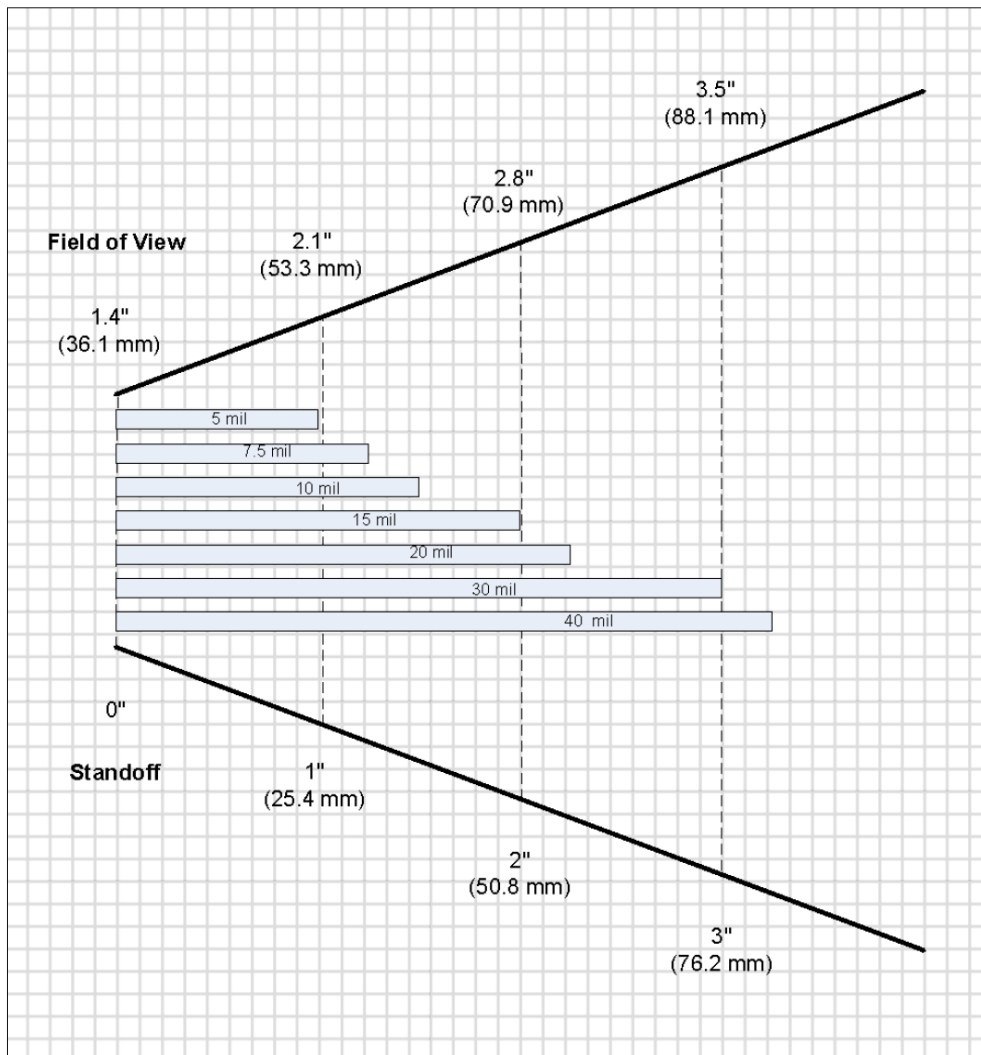
The module width and cell size is to specify in mil. 1 mil is equal to 0.0254 mm.

Reset the FIS 6170 to factory settings

To reset all parameters to the factory setting you have to scan the code below..

Attention all settings will lose!

Factory default RS 232-Interface

M418_02

Factory default USB-Interface

M049_03

To delete all prefixes and suffixes please scan the following code:

Erase Preamble and Postamble Data

M406_02

Parameterization

Basically, the hand-held scanner is configured via barcodes. This, first select the bar code is in the manual, and

then press the trigger button to read the code. The configuration is then immediately active.

A second option is to configure the hand scanner with USB and RS232 interface using the PC program ESP. This program lets you download and install from our website www.leuze.de. With the program settings can be made and transmitted to the hand-held scanner. The configuration can also be stored, so that later it can be reused.
For more information see also in the User's Guide to FIS 6170.

In the following are some of the most important configurations.
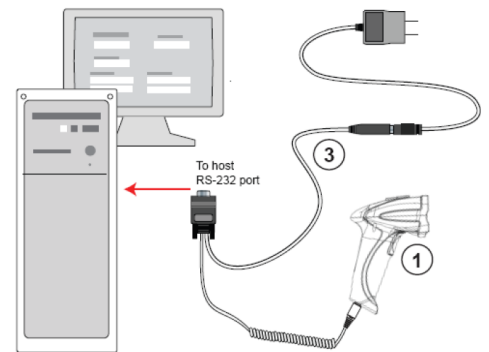
FIS 6170 on the PC serial port

With power over the power supply
KB-232-2 KIT f. FIS 6170   Part-No. 50115070

Please close the FIS 6170 according to the illustration.

Required Parts:

1x	50115068	FIS 6170
1x	50115070	KB-232-2 KIT f. FIS 6170

The KIT (98-000074-05) includes an RS-232 coiled cable (60-000008-02) and a suitable mains adapter (20-000336-02) with Euro plug (100-240 VAC / 50-60Hz / 0.3 A).

Pinning of the RS232-cable (coiled, 2,43 Meter)

Connection Handheldscanner PIN	color	Signal	description	Connection to PC RS-232	Connection to power supply
1	Red	VCC IN	+5 Volt (Operating voltage)	1	Inner
2	Brown	TX	Transmit Data	2	
3	Orange	RX	Recieve Data	3	
8	Black	GND	Signal Ground	5	Outer
shell	shield			Shell	

Initial Operation at RS-232

1. Power down the (Host Computer).

2. Connect the cable to the 8-pin mini-DIN connector to the handheld scanner

3. Connect the power supply to the cable

4. Plug the AC adapter into the power outlet and start the PC

5. Start a terminal program on the PC (such as ESP terminal window or HyperTerminal) and set the parameters 57600 baud, 8 data bit, no parity, and 2 stop bits

6. Read the 2D code **Reset to RS-232 Factory Defaults**

7. Read the 2D code ![M188_02] to store the parameters permanently.

FIS 6170 at MA 200*i*

Required parts:

1x	50115068	FIS 6170
1x	50115069	KB 232-1 f. FIS 6170
1x	50113397	KB JST-HS-300
1x	50112893	MA 204i Profibus Gateway
or	50112892	MA 208i Ethernet Gateway
or	50112891	MA 248i Profinet Gateway

Initial Operation

1. Open the MA 200i
2. Install the KB JST-HS 300 with the high strength cable gland through the threaded hole and connect the 12-pin JST connector plug.
3. Connect the cable to the 8-pin mini-DIN connector to the handheld scanner
4. Connect the 9-pin D-sub connector on the KB JST-HS-300
5. Set on the address selection switch the address
6. Plug in the fieldbus connection cables
7. Connect the Power to the MA 200i
8. Close the MA 200i
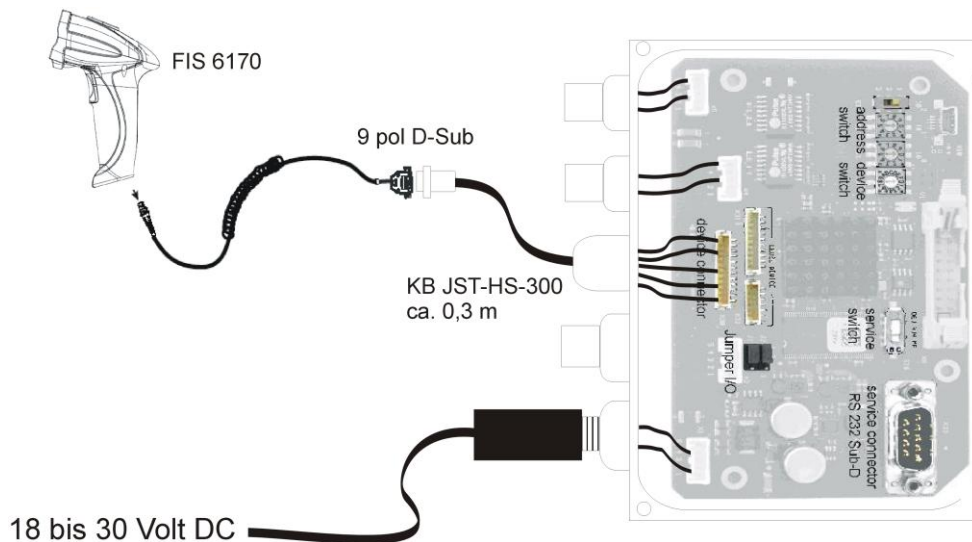
Please refer for details on connecting the MA 200i from the technical description MA 200i.

Parameterization

The parameterization RS232 transmission at 9600 baud, 8 data bits, 1 stop bit, no parity, fixes CR / LF can be found on page 15
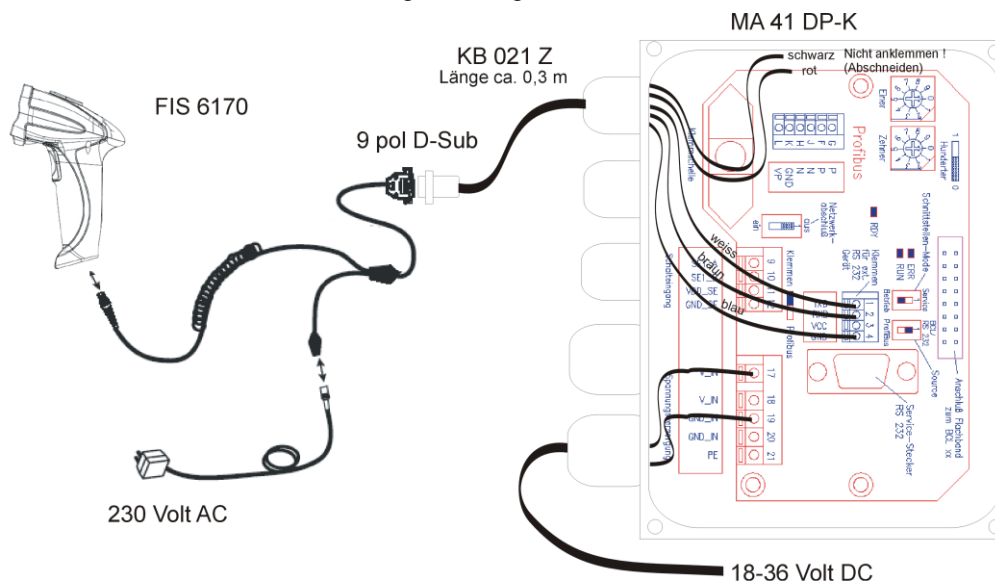
FIS 6170 at MA 41 DP-K or MA 41 IS

Required Parts:

1x	50115068	FIS 6170
1x	50115070	KB-232-2 KIT f. FIS 6170
1x	50035421	KB 021 Z
1x	50033638	MA 41 DP-K for Profibus
		(for Interbus: 50028994 MA 41 IS or 50030085 MA 41 IS PDP)

<u>Connection KB021 Z</u>

color:	Signal	Terminal in MA 41:
Brown	(RXD)	2
White	(TXD)	1
Blue	(GND)	4
red	(VCC)	✂
Black	(GND)	✂
bare (shield)	(PE)	21

Please connect the FIS 6170 according to the figure below.

Please refer for details on connecting the MA 41 from the technical description MA 41.

Parameterization

The parameterization RS232 transmission at 9600 baud, 8 data bits, 1 stop bit, no parity, fixes CR / LF can be found on page 15

FIS 6170 at MA 41 DP-K HS

Required Parts:

1x	50115068	FIS 6170		
1x	50115069	KB-232-1 f. FIS 6170		
1x	50107512	MA 41 DP-K HS	for	Profibus

The KB021 Z is already clamped!

Please connect the FIS 6170 to the 9-pin D-sub connector.
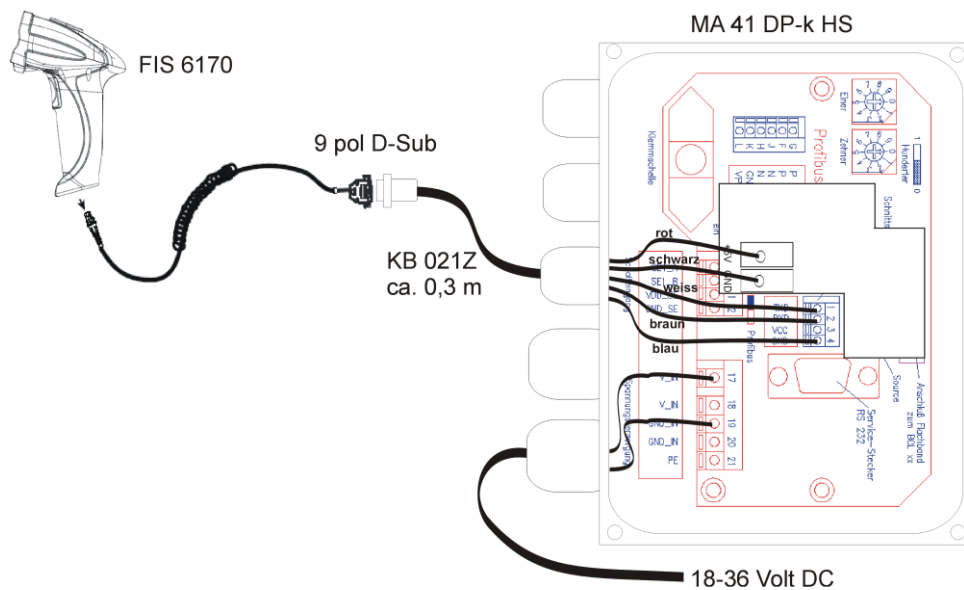
Please refer for details on connecting the MA 41 from the technical description MA 41.

Parameterization for 9600 Bd, 1 Stopbit, 8 Data, No Parity

1. M418_02   2. M095_01 *9600*   3. M105_01 *1 Stop Bit*   4. M188_02 **Save Settings**

5. M170_04 ***Carriage Return Line Feed***   Please note the ascending order!

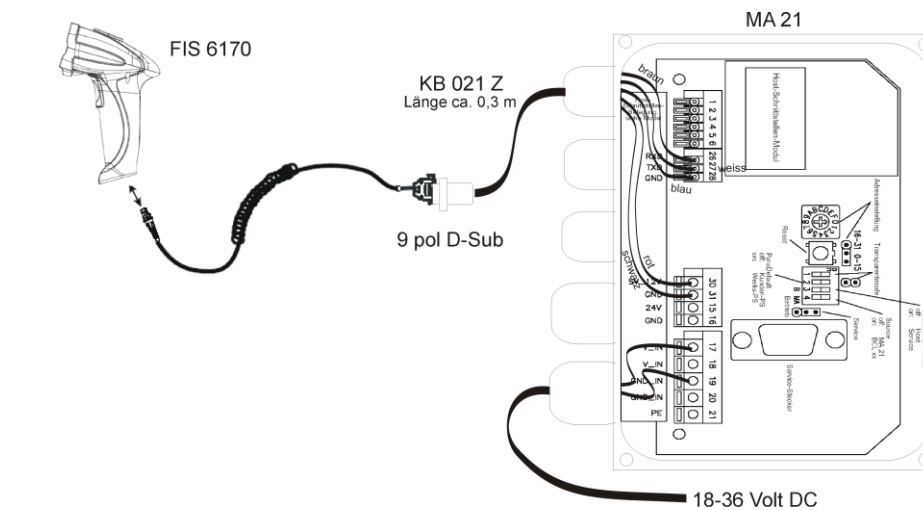# FIS 6170 at MA 21

Required Parts:

1x   50115 068   FIS 6170

1x   50115069   KB 232-1 f. FIS 6170

1x   50035421   KB 021 Z
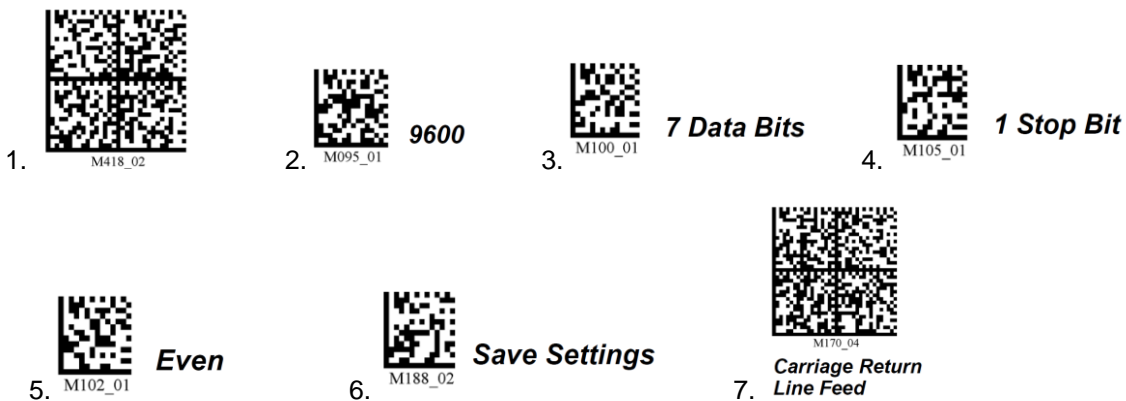
1x   50030481   MA 21 100

Connection KB021 Z

color:	Signal	Terminal in MA 21:
Brown	(RXD)	26
White	(TXD)	27
Blue	(GND)	28
red	(VCC)	30
Black	(GND)	31
blank (shield)	(PE)	21

Please connect the FIS 6170 according to the figure below.

Parameterization for 9600 Bd, 1 Stopbit, 7 Data, Parity Even

For connection to MA21 in default, but STX must be disabled in the MA 21!

1. (M418_02)

2. (M095_01) **9600**

3. (M100_01) **7 Data Bits**

4. (M105_01) **1 Stop Bit**

5. (M102_01) **Even**

6. (M188_02) **Save Settings**

7. (M170_04) **Carriage Return Line Feed**

Please note the ascending order!

FIS 6170 at USB-Interface (Keyboard-Emulation)

In this chapter, the operation of the FIS 6170 in USB keyboard wedge mode is described. In this mode, a PC keyboard is emulated. The downloaded data is written directly to the currently active program. Thus, the data can be processed in all standard programs.
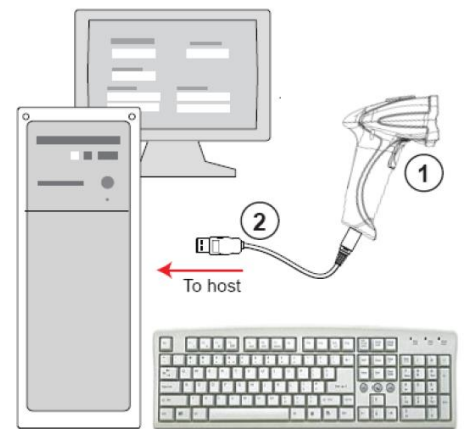
Required parts:

1x   50115068   FIS 6170   the USB-cable is included

Please connect the FIS 6170 according to the figure below.

Initial Operation

Please do the following:

1. Connect the Handheldscanner FIS 6170 to a free USB-Port.
2. The Scanner send a Beep as acknowledge.
3. Open a Program on the PC (Notepad, Editor, or another Word processing program ..)
4. Scan the codes below
5. Scan for testing a Barcode or 2D-Code, e.g. Test Symbol

Parameterization

1. Reset to USB Factory Defaults
M049_03

2. Erase Preamble and Postamble Data
M406_02

3. **Enter**
M161_04

4. **German**
M604_01

5.
M134_02

6. Save Settings
M188_02

Please note the ascending order!

Remark: When you want to use the US-Keyboard, please don't scan the Code 4. 'German'

Test Symbol with the content Leuze electronic

FIS 6170 at USB-Interface (COM-Port-Emulation)

In this chapter, the operation of the FIS 6170 is described as a serial interface to USB. In this mode, a COM port is emulated. The scanned data is sent to a new COM port. The driver allows you to emulate this COM interface, you can download on our website www.leuze.de. Thus, the data in the data programs via COM interfaces expected to be further processed.

Required Parts:

1x   50115068   FIS 6170   The USB cable is included

Please connect the FIS 6170 according to the figure below.

Please do the following:

1. Install the Driver MH_VCPD.zip, start the Setup.exe and follow the instructions. You can find Information's in the file Readme.pdf
2. Connect the Handheldscanner FIS 6170 to a free USB-Port.
3. The Scanner send a Beep as acknowledge.
4. Scan the codes below
5. Open a Terminal Program on the PC (Hyperterminal…)
6. Scan for testing a Barcode or 2D-Code, e.g. Test Symbol

Parameterization

1. M049_03

2. M406_02   *Erase Preamble and Postamble Data*

3. M668_01

4. M188_02   Save Settings

5. M170_04   *Carriage Return Line Feed*

Please note the ascending order!

Test Symbol with the content Leuze electronic

Reparameterization of the unit

If the device was already in use and is to be used in a different application, the information described below and considered the parameterizations are used.

USB-Keyboard → RS 232 (Leuze Standard-Protocol / MA 200i / MA 41 DP-K)

If the device was used in a USB keyboard emulation, and will now have to be used in an RS-232 interface, the following code must be read.

1. **Erase Preamble and Postamble Data**   2.   3. **9600**   4. **1 Stop Bit**

5. **Save Settings**   6. **Carriage Return Line Feed**   Please note the ascending order!

RS 232 → USB-Keyboard

If the device was used in a USB keyboard emulation, and will now have to be used in an RS-232 interface, the following code must be read.

1. **Reset to USB Factory Defaults**   2. **Erase Preamble and Postamble Data**   3. **USB Keyboard Mode**

4. **Enter**   5. **German**   6. **Save Settings**   7.

Please note the ascending order!

Frequently used settings

With the following data matrix codes different configuration of the Handheldscanner are selected quickly and easily.

USB Keyboard Mode

M134_02

Blue Aimer

Targeting LED On (Default)

M734_01

Targeting LED Off

M735_01

Transmitter at Good Read (Beeper and Vibration)

M107_01

Vibrate On / Beep On (Default)

M109_01

Vibrate On / Beep Off

M108_01

Vibrate Off / Beep On

Lighting settings

Q044_01

Illumination Default Mode

Q045_01

Dot Peen Enhanced Illumination Mode - Large Mark

Q046_01

Dot Peen Enhanced Illumination Mode - Medium Mark

Q047_01

Dot Peen Enhanced Illumination Mode - Small Mark

Other settings can be found on the next page.

To save the setting permanently, please scan the code below, Save Settings'.

Save Settings

M188_02

Frequently used Lighting settings

With the subsequent data matrix codes can quickly and simply selects a different setting for the lighting of the Handheldscanner.

Dark field

Low Angle

Dome Lighting

White Dome

White

Blue Dome

Blue

Red Dome

Red

Dome Lighting and Dark field

Blue Dome+Low Angle

Blue

Red Dome+Low Angle

Red

Settings with 2 different Lightings

Blue Dome or Blue Dome+Low Angle

Alternating Blue and Blue Dome Lights Dome Lights + dark field

Red Dome or Red Dome+Low Angle

Alternating Red and red Dome Lights Dome Lights + dark field

To save the setting permanently, please scan the code below, Save Settings'.

Save Settings

M188_02

Setup-Program ESP

Installation of ESP

The configuration software for the FIS 6170 is on the Leuze electronic software CD.

1. Install the Program ESP.

2. Click on the Icon to start the Program.

Note: The configuration program ESP, you can also see the Internet at www.leuze.com download.

ESP System requirement:
- • 166 MHz Pentium processor (Pentium II processor required)
- • Windows Vista, XP, or 2000 Operating system
- • Internet Explorer 5.0 or higher
- • 64 MB minimum RAM (128+ MB RAM required)
- • 80 MB free Harddisk
- • 800 x 600 minimum 256 color display (1024 x 768 32-bit Color required

Important: Your device must either USB connect mode or RS-232 connect mode to be able to communicate with ESP.
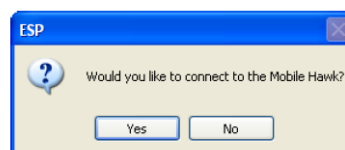

Start of ESP

1. After starting the program ESP, a selection menu for the device model. Select the handheld scanner, FIS 6170'.
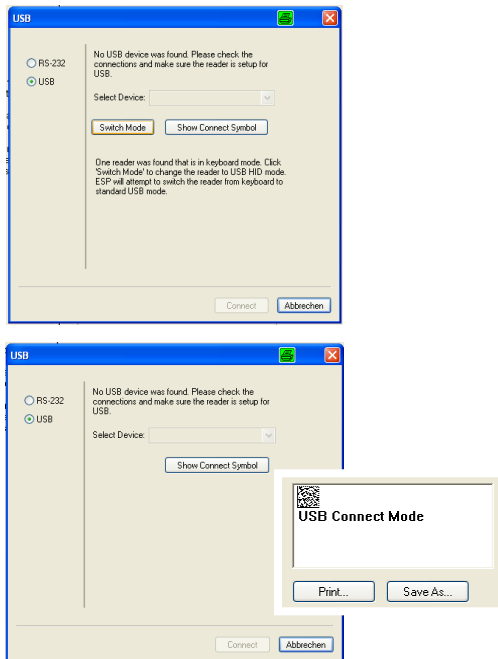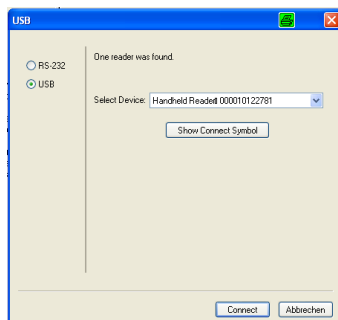

2. Click on ‚Yes' in the window

3. Select the type of connection, scan to one when you first connect the default codes for appropriate interface. (See page 11).

USB (Standard)   or   **RS-232**

4. If you want to use in the FIS-6170 USB default setting, you need to, click Switch Mode '(top figure). When using the USB com port emulation you the figure below shows, then at first, show Connect icon '. And then read the code shown with the hand scanner.
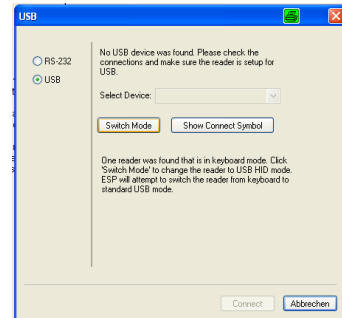

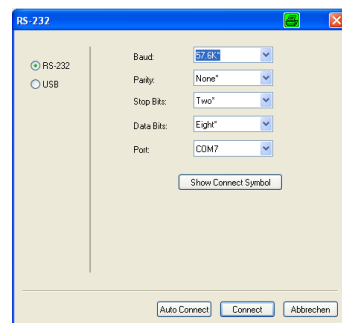5. If the following window appears, click on ‚Connect' and the connection will be established.

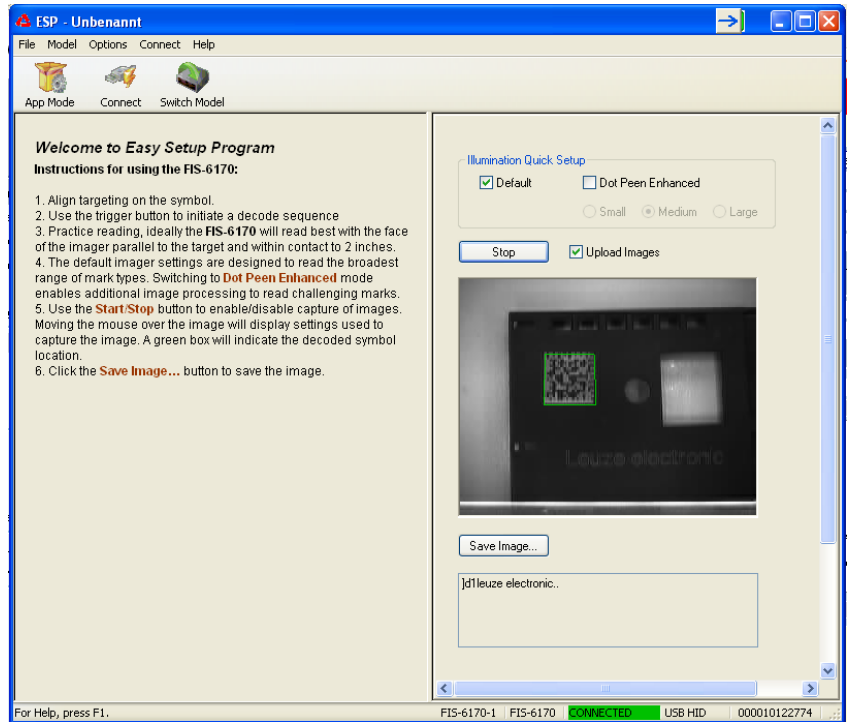4. If you want to use the FIS 6170 with an RS-232 connection, select RS-232.

5. If the following window appears, choose the right Port of your serial Interface. Then Click on ‚Auto Connect'

6. It then appears to the window, which you see right:

   Start the image transfer by clicking on Start, then a code is scanned to see this is after the upload window.

7. When you click on App Mode the program change to the Application mode, in this you can setup all Parameters, transfer images and you see the code result in a terminal window.
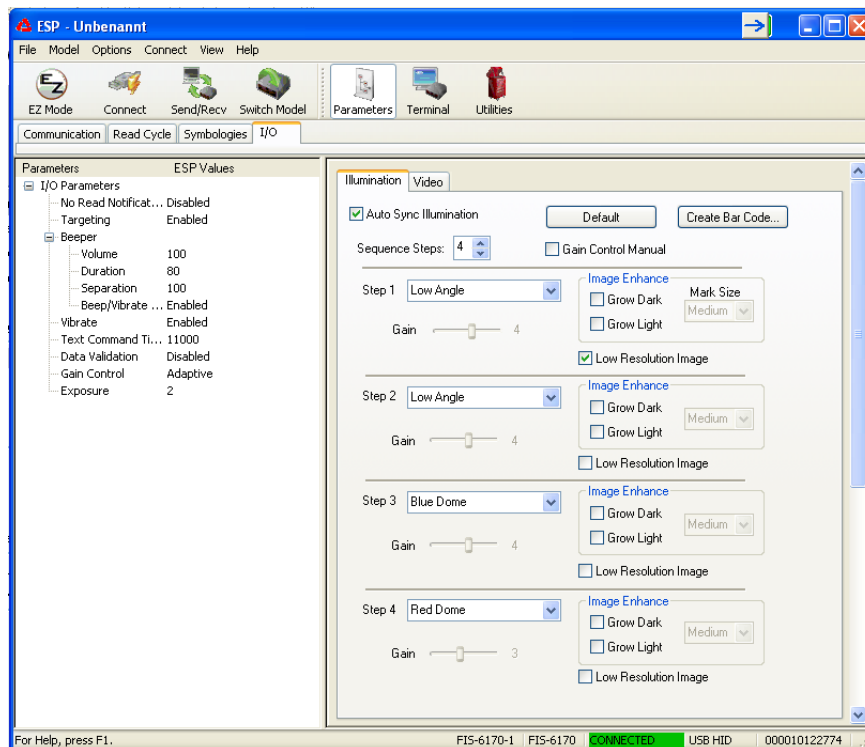
For further information please refer to the online help in the program or at the user manual.

Troubleshooting

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

1. When the scanner is powered through the interface cable. To do this, scanners and computer be connected before using the scanner with each other, must come up with the computer with a power supply of 5 volts DC for the scanner. Check the manual for your computer, that the power supply to hook up your scanner is sufficient.

2. Make sure that the interface cable is securely attached to the computer. In the manual of the computer for information on proper port on the scanner. Support is also available from your technical staff...

3. If your system operates with an external power supply, make sure that the power adapter is securely connected to the scanner and power supply.

4. Verify that the interface cable is securely attached to the handle of the scanner. To do this, loosen the screws (at FIS 6170) to the end cap of the handle with an appropriate tool. Remove the wire tie and pull out the cable. Run the cable back on again and make sure that it is properly seated in the cradle. Insert the wire tie back and fix everything with screws.

5. If the scanner does not, despite all the measures taken to be ready, replace the power supply with another recommended power supply device from which you know for sure that it is fully functional.

6. Make sure that the interface of your scanner is compatible with the computer. See the manual for your computer. Also check that the scanner is configured for the desired application. This information is described in the User's Guide of the FIS 6170.

7. Verify that the bar code labels that you want to scan are of satisfactory quality and that the used bar code symbology is recognized by your scanner. Sample label for review, contact your dealer, you need accurate information to the label details. (Wrinkled, torn or soiled) Damaged bar code labels can cause the scanner only poorly or not the label recognizes. If you suspect the problem is the quality of the label, check the reading readiness in terms of quality with a good label.

8. If the problems are not now be resolved, please contact Leuze electronic.

Type overview

FIS Reihe für DPM (direktmarkierte Teile) /				
Series FIS for DPM (Direct Marked Parts)				
Part-No.	Bezeichnung/Discription	P/N-Nr.	Schnittstelle/ Interface	Bild/Picture
Industrie-Handleser für DPM (direktmarkierte Teile)				
Industry-Handscanner for DPM (Direct Marked Parts)				
50115068	**FIS 6170** DPM Version Incl. USB cable 3,65 m / 12 ft	FIS-6170-0 101G	USB TTL RS232	

	Kabel und Netzteile für / cable and power supply for FIS			FIS 6170			
Part-No.	Bezeichnung/Discription	P/N-Nr.	Bild/Picture				
50115069	**KB 232-1 f. FIS 6170** RS232-Kabel an Spannung über PIN9 (spiral 2,43m) RS232-cable with power over PIN9 (coiled 2,43m)	61-000205 -01		**X**			
50115070	**KB 232-2 KIT f. FIS 6170** RS232-Kabel/ext (spiral 2,43m) Incl. Netzteil RS232-cable (coiled 2,43m) Incl. Power supply	98-000074 -05		**X**			

Accessories

Connection to Leuze multinet Plus

- MA 21 100   Interface converter / Multinet Slave   Part-No. 50030481
- KB 021 Z   Connection cable MA 21 to the RS232-Connector   Part-No. 50035421

Connection to Fieldbuses with 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 2xx to the RS232-Connector   Part-No. 50113397
- KB 021 Z   Connection cable MA 41 to the RS 232-Connector   Part-No. 50035421