SIEB & MEYER

050201

USB>RS232/485 Converter

Description of the converter (USB to RS232 or RS485) for the SIEB & MEYER products CNC 61.00, SD2x, PS2, FC2 and FC7X

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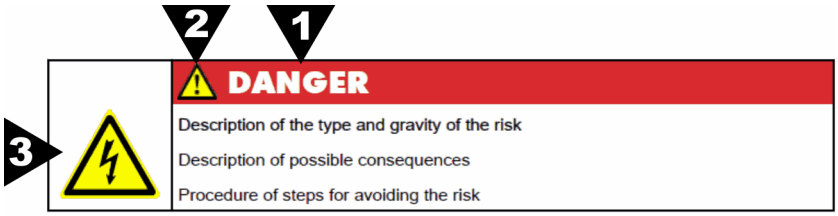
1 About this Manual

This chapter descirbes symbols, signal words and abbreviations used in this manual.

More documentation can be downloaded from the SIEB & MEYER website under http://www.sieb-meyer.de/downloads.html.

1.1 Illustration of Warnings

Depending on their degree of risk, warnings are classified into different levels. In the manual, the different levels and types of dangers are represented as follows:



[1] Risk level (signal word/warning color)
Classification of the risk

[2] Safety symbol
Risk of injury

[3] Risk symbol
Graphic representation of the source of risk

Risk levels

Risk Level	Description
DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.
NOTICE	Indicates a hazardous situation which, if not avoided, may result in property damage.

Risk symbols

Risk symbol	Description
	General hazardous situation
	Risk of injury due to electric shock
	Risk of injury due to hot surfaces

Risk symbol	Description
	Potentially risk of injury when working on machines with open covers/ doors
	Risk of injury due to flying objects
	Destruction risk of electrostatically sensitive components
	Risk of property damage

1.2 Illustration of General Notices

Symbol	Description
	Hint with additional, further information
	Tip with suggestions and useful information

2 USB>RS232/485 Converter 050201

The USB>RS232/485 Converter 050201 by SIEB & MEYER is designed for the connection of SIEB & MEYER drive components to a standard PC without serial interface.

Condition: The PC must be equipped with a Windows operating system (Windows 2000 or higher).

Fig. 1: Converter 050201 (device version 1.000)

Read the hardware documentation of the connected drive and PC and pay attention to the safety instructions.

Scope of Supply

A USB cable (length = 1 m) is included in the scope of supply of the converter. An adequate cable for the serial connection must be ordered separately.

Install the Windows software with the USB driver before you connect the converter to the USB port of the PC. You must be logged on the PC operating system with administrator rights to install the driver.

2.1 Possible Applications

The following table shows the SIEB & MEYER drive components that can be used with the converter. The corresponding drivers are included in the respective user interface:

Device	Article Numbers	Software/Version
SD2/PS2, SD2S, SD2M, SD2B	036 2X XX	*drivemaster2*: all versions
FC2	021 90 XX	
CNC 61.00	061 50 XX 061 05 XX	CNC 61.00 software: Windows software interface version 7.08 and higher
FC7X	021 7X	*Vector7x*: version 2.2 and higher

2.2 Type Plate

❶ Device name

❷ Article number

❸ Serial number

❹ Device version
Indicates the version of the hardware; if no version is existent, 0.000 is indicated here.

❺ QA label

3 Device Versions

3.1 Device Version 0.000

The converter is supplied with basic software. When the particular PC software (*drivemaster2*, CNC 61.00 software or *Vector7x*) is started, the protocol software for the corresponding SIEB & MEYER device is loaded into the converter. Then, the connection is established.

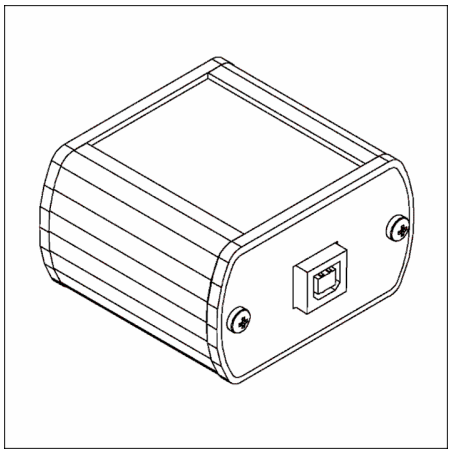


Fig. 2: Device Version 0.000

3.2 Device Version 1.000 with Selection Switch

The device is equipped with an additional selection switch next to the USB connector. By means of that switch the user can select the connected SIEB & MEYER device.

Before connecting the converter, the user must switch the selection switch to the desired position. When the converter software is started, only the program part related to the switch position is executed. As soon as the corresponding PC software is started, the connection will be established.

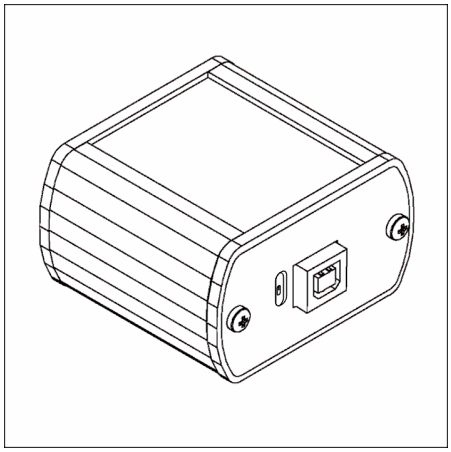


Fig. 3: Device version 1.000

Switch position	Device
Bottom (status of delivery)	SD2/PS2, SD2S, SD2M, SD2B and FC2
Top	CNC 61.00 and FC7X

From device version 1.000 onwards the converter is compatible to USB 3.0. For devices of the series SD2x(switch position: bottom), you must use *drivemaster2*- software version V1.17 build 140 or higher if the converter is connected to a USB 3.0 port.

In addition, you can connect two RS232 compatible devices to the serial interface of the converter from device version 1.000 onwards (see RS232/485 Connector, page 14).

3

4 Device View / Dimensions

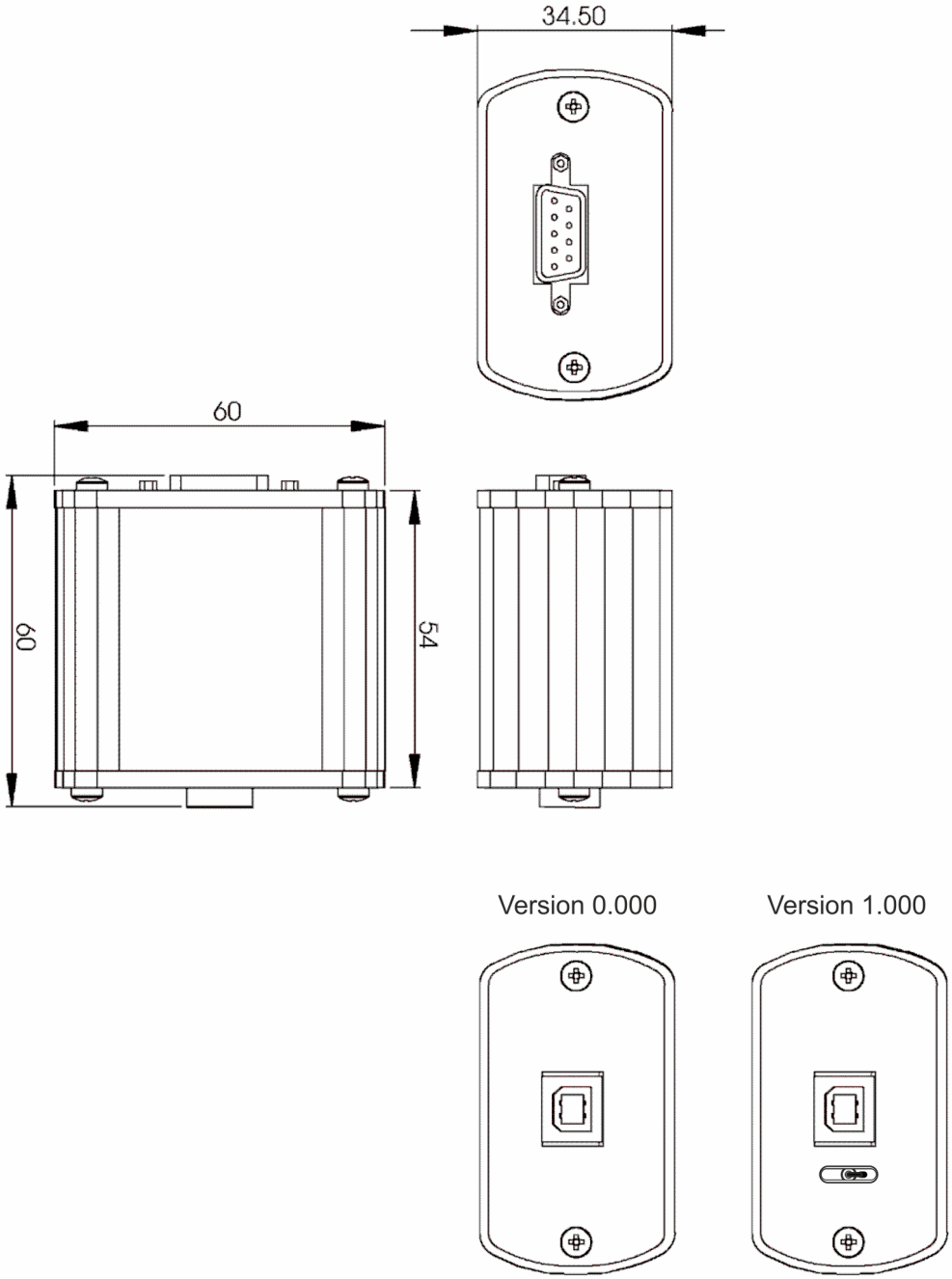


Fig. 4: Dimensions of the converter 050201 in mm

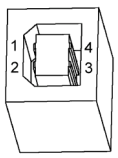
4

5 Connector Pin Assignment

5.1 USB Connector

Communication interface to the connected PC

4-pole female USB connector, type B

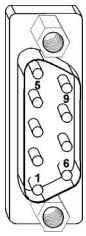
	Pin	I/O	Name	Description
	1	-	VCC	5 V voltage supply for USB
	2	I/O	DM	Data−
	3	I/O	DP	Data+
	4	I/O	GND	Ground

5.2 RS232/485 Connector

Serial interface to the connected drive component

5.2.1 Device Version 0.000

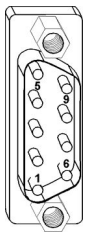
9-pole male submin D connector

	Pin	I/O	Name	Description
	1	I/O	D−	Data− (RS485)
	2	I	RX	Receive data (RS232)
	3	O	TX	Transmit data (RS232)
	4		n.c.	
	5	I/O	GND	Ground
	6	I/O	D+	Data+ (RS485)
	7		n.c.	
	8		n.c.	
	9		n.c.	

Locking bolts flange: max. tightening torque = 0.7 Nm

5.2.2 Device Version 1.000

9-pole male submin D connector

	Pin	I/O	Name	Description
	1	I/O	D−	Data− (RS485)
	2	I	RX1	Receive data (RS232)
	3	O	TX1	Transmit data (RS232)
	4		n.c.	
	5	I/O	GND	Ground
	6	I/O	D+	Data+ (RS485)
	7	I	RX2	Receive data 2 (RS232)
	8	O	TX2	Transmit data 2 (RS232)
	9	I/O	GND	Ground

Locking bolts flange: max. tightening torque = 0.7 Nm

6 Cable Connections

- After successful software installation, connect the converter with the supplied USB cable to an available USB port of the PC. This triggers the initialization of the USB driver. When you start the first operation, the driver is installed.
- Connect the other converter side (9-pole male submin D connector) with a suitable cable (optionally available) to the corresponding connector of the SIEB & MEYER drive component (RS232 or RS485).

You can order the following cables at SIEB & MEYER:

SIEB & MEYER drive	Type of connection	Suitable cable	SIEB & MEYER article numbers[1]
CNC 61.00: 06150XX	RS232	Serial connecting cable PC ↔ CNC, 9-pole female SUB-D ↔ 9-pole male SUB-D	K6104xxx
	RS485	Upon request	Upon request
CNC 61.00: 06105XX	RS232	Serial connecting cable PC ↔ CNC, 9-pole female SUB-D ↔ male RJ45 connector	K6117xxxR01
	RS485	Upon request	Upon request
SD2: 036213X PS2: 036219X	RS485	RS485 connecting cable PC ↔ drive amplifier, 9-pole female SUB-D ↔ male RJ45 connector	K362101xxxR01
SD2S: 036212X, 0362X4X SD2M: 0362X8X SD2B: 036217X	RS232	Serial connecting cable PC ↔ drive amplifier, 9-pole female SUB-D ↔ 9-pole female SUB-D	K362103xxxR01
FC2: 02190XX	RS232	Serial connecting cable PC ↔ frequency converter, 9-pole female SUB-D ↔ male RJ45 connector (only on X3)	K362102xxxR01
	RS485	RS485 connecting cable PC ↔ frequency converter, 9-pole female SUB-D ↔ male RJ45 connector	K362101xxxR01
FC7X: 0217X	RS232	Serial connecting cable PC ↔ frequency converter, 9-pole female SUB-D ↔ 9-pole male SUB-D	K217007xxxR01
Other SIEB & MEYER drive components		Upon request	Upon request

[1] xxx = cable length in dm

For the pin assignment of the RS232 or RS485 connector of your drive component, refer to the according hardware description.

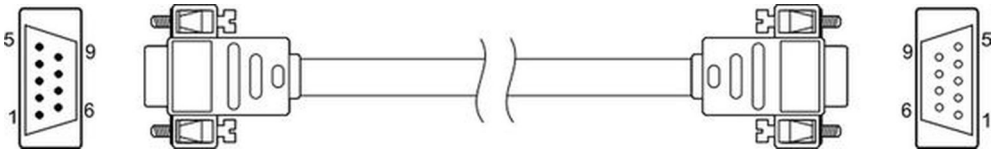
6.1 Cable Description

The following sections describe the individual cables to be connected between the converter 050201 and the different SIEB & MEYER devices.

Use always shielded cables of high quality with twisted-pair signal lines.

6.1.1 06150XX and 0217X (RS232)

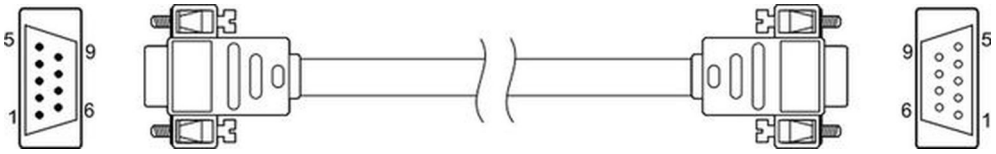
- cable type: 3 × 0.14 mm²
- 9-pole male submin D connector ↔ 9-pole female submin D connector
- cable shield is connected to the connector shell



06150XX / 0217X 9-pole male submin D connector		Meaning	Converter 050201 9-pole female submin D connector	
Pin	Name		Name	Pin
2	TX	Transmit data / receive data	RX	2
3	RX	Receive data / transmit data	TX	3
5	GND	Ground	GND	5

6.1.2 06150XX (RS485)

- cable type: 3 × 0.14 mm²
- 9-pole male submin D connector ↔ 9-pole female submin D connector
- cable shield is connected to the connector shell

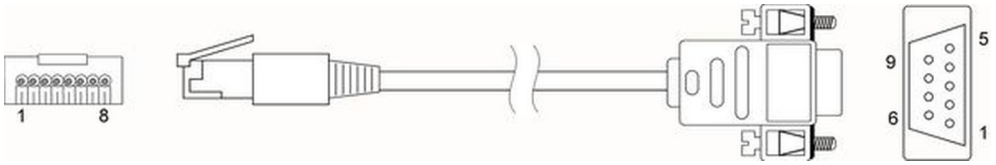


06150XX 9-pole male submin D connector		Meaning	Converter 050201 9-pole female submin D connector	
Pin	Name		Name	Pin
1	D−	Data−	D−	1
5	GND	Masse	GND	5
6	D+	Data+	D+	6

With 06150XX the RS485 connection is only available via the connector X2 of the back panel and not via the COM interface of the front panel.

6.1.3 06105XX (RS232)

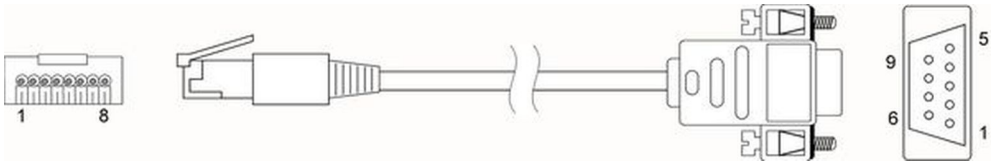
- cable type: 3 × 0.14 mm²
- 8-pole male RJ45 connector ↔ 9-pole female submin D connector
- cable shield is connected to the connector shell



06105XX 8-pole male RJ45 connector		Meaning	Converter 050201 9-pole female submin D connector	
Pin	Name		Name	Pin
1	TX	Transmit data / receive data	RX	2
2	RX	Receive data / transmit data	TX	3
8	GND	Ground	GND	5

6.1.4 06105XX (RS485)

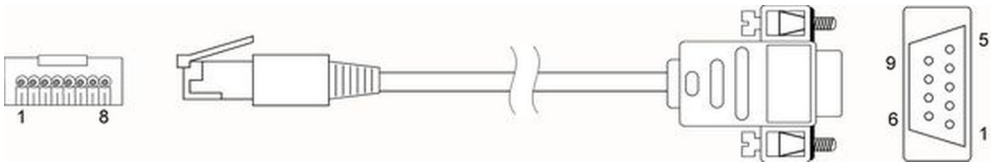
- cable type: 3 × 0.14 mm²
- 8-pole male RJ45 connector ↔ 9-pole female submin D connector
- cable shield is connected to the connector shell



06105XX 8-pole male RJ45 connector		Meaning	Converter 050201 9-pole female submin D connector	
Pin	Name		Name	Pin
4	D+	Data+	D+	6
5	D−	Data−	D−	1
8	GND	Ground	GND	5

6.1.5 SD2 and FC2 (RS485)

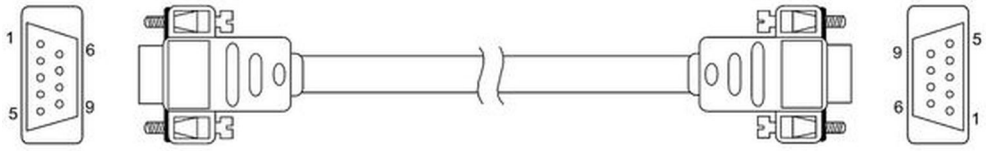
- cable type: 3 × 0.14 mm²
- 8-pole male RJ45 connector ↔ 9-pole female submin D connector
- cable shield is connected to the connector shell



SD2 / FC2 8-pole male RJ45 connector		Meaning	Converter 050201 9-pole female submin D connector	
Pin	Name		Name	Pin
3	D+	Data+	D+	6
6	D−	Data−	D−	1
7	GND	Ground	GND	5

6.1.6 SD2S, SD2M and SD2B (RS232)

- cable type: 3 × 0.14 mm²
- 9-pole female submin D connector ↔ 9-pole female submin D connector
- cable shield is connected to the connector shell

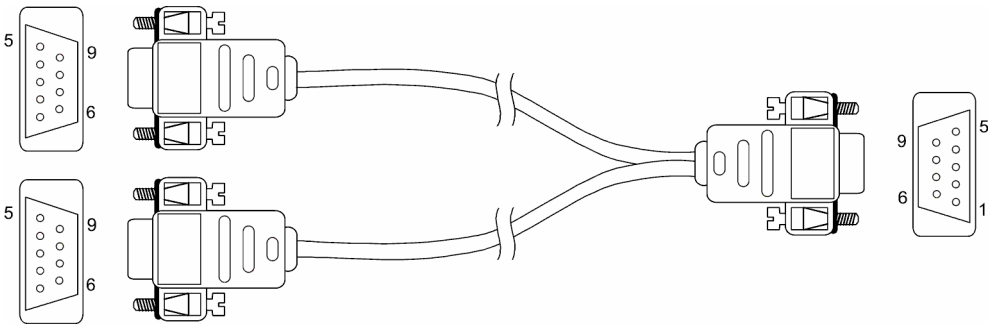


SD2S / SD2M / SD2B 9-pole female submin D connector		Meaning	Converter 050201 9-pole female submin D connector	
Pin	Name		Name	Pin
2	RX	Receive data / transmit data	TX	3
3	TX	Transmit data / receive data	RX	2
5	GND	Ground	GND	5

Connection of 2 devices (converter version 1.000 an higher)

From device version 1.000 onwards the USB>RS232/485 Converter 050201 is designed for the connection of 2 devices via 2 cables.

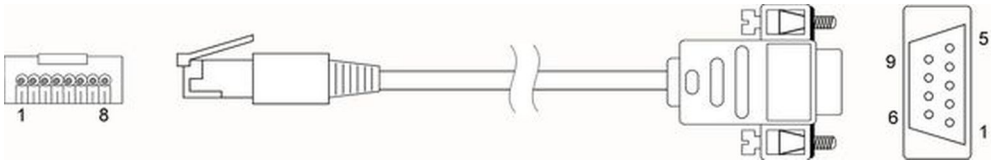
- cable type: 3 × 0.14 mm²
- 2 × 9-pole female submin D connector ↔ 9-pole female submin D connector
- cable shield is connected to the connector shell



Device	SD2S / SD2B 9-pole female submin D connector		Meaning	Converter 050201 9-pole female submin D connector	
	Pin	Name		Name	Pin
First SD2S/SD2M/ SD2B	2	RX	Receive data / transmit data	TX1	3
	3	TX	Transmit data / receive data	RX1	2
	5	GND	Ground	GND	5
Second SD2S/ SD2M/SD2B	2	RX	Receive data / transmit data	TX2	8
	3	TX	Transmit data / receive data	RX2	7
	5	GND	Ground	GND	9

6.1.7 FC2 (RS232)

- cable type: 3 × 0.14 mm²
- 8-pole male RJ45 connector ↔ 9-pole female submin D connector
- cable shield is connected to the connector shell



FC2 (only at connector X3) 8-pole male RJ45 connector		Meaning	Converter 050201 9-pole female submin D connector	
Pin	Name		Name	Pin
4	TX	Transmit data / receive data	RX	3
5	RX	Receive data / transmit data	TX	2
7	GND	Ground	GND	5

7 Optional Accessories

7.1 RS485 to RS232 Converter 036210054

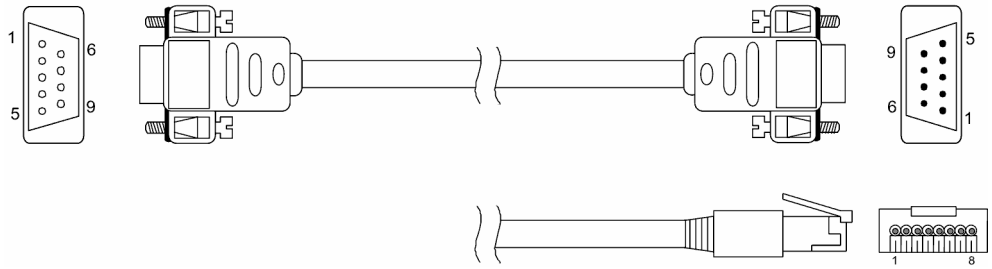
The RS485 to RS232 converter 036210054 is used to connect several drive amplifiers of the series SD2S, SD2M and SD2B to the USB>RS232/485 Converter 050201. For this purpose, the converter 036210054 is connected to the RS485 interface of the converter 050201.

For further information on the RS485 to RS232 converter 036210054, refer to the manual “036210054 – RS485 to RS232 Converter”.

You can use the following cables to connect the converter:
- cable for 06150XX (RS485) only upon request
- cable K362101xxxR01 (xxx = cable length in dm)

Connection between converter 050201 and converter 036210054

You can connect the cable either to the female submin D connector (X7/X8) or to the male RJ45 connector (X5/X6) of the RS485 to RS232 converter 036210054.
- cable type: 3 × 0.14 mm²
- 9-pole female submin D connector ↔ 9-pole male submin D connector / 8-pole male RJ45 connector
- cable shield is connected to the connector shell



Converter 050201 9-pole female submin D connector		Meaning	Converter 036210054		
			Name	9-pole male submin D connector (X7/X8)	8-pole male RJ45 connector (X5/X6)
Pin	Name			Pin	Pin
1	D−	Data−	D−	1	6
6	D+	Data+	D+	6	3
5	GND	Ground	GND	5	7 or 8

8 Troubleshooting

8.1 Driver Installation and Security Programs

Spybot - Search & Destroy : DOS Exploit

Security programs like “Spybot - Search & Destroy” are used for closing security gaps in Windows by manipulating entries in the “Registry”.

If you use the program “Spybot - Search & Destroy” consider the following: As long as the protection with the name “DOS Exploit” is active, no device driver can be installed. First, the protection must be deactivated.

8