Manual
RS 232 <> 20mA
Interface Converter

W&T

Model	**84001,**
	84003, 84004
Release	**1.2**

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Subject to errors and changes:

Since we can make mistakes, none of our statements should be used without checking. Please let us know of any mistakes or misunderstandings you are aware of, so that we can recognize and eliminate them quickly.

Perform work on and with W&T products only as described here and only if you have read and understood the manual fully. Unauthorized use can result in hazards. We are not liable for the consequences of unauthorized use. When in doubt, check with us or consult you dealer!

The Wiesemann & Theis RS232 <> 20mA Compact Interfaces and interface cables are handy, plug-in (some models) converters for connecting 20mA devices to standard PC ports.

These interfaces are described on the following pages along with their properties and technical data.

In passive mode the galvanic isolation incorporated in the interfaces between the two converted ports ensures problem-free and noise-immune operation of the connected components.

If galvanic isolation is also required in active mode, W&T offers a solution in the form of the RS232 <> 20 mA Industry, Art. No. 84201.

The latest information on new products can be found on the Internet at http://www.wut.de or in the e-mail notices sent to members of the W&T Interface Club, which you can sign up for on the W&T homepage.

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RS232 <> 20mA Interface Converter, Model 84001

Function

The W&T Compact Interface 84001 enables bi-directional communication between RS232 devices and active or passive 20mA components. The interface converts one data line in each direction and in passive mode provides galvanic isolation between the RS232 and 20mA side with an isolation voltage of 1kV.

The interface can be used as an active or passive 20mA component. In active mode the interface provides the loop current for the respective 20mA loop, whereas in passive mode the connected device must provide the loop current. The mode can be set independently for both loops depending on the external wiring of the interface. Examples for wiring the interface in active and passive mode can be found in the connection examples on the following pages.

The LEDs integrated into the converter allow you to verify correct wiring of the 20mA input. The green LED indicates correct current flow in the receiving loop, whereas the red LED comes on when the polarity is reversed.

Power supply and galvanic isolation

The interface is powered by the included power supply, which must be connected regardless of which mode the interface is operated in.

Both interface ports are optocoupler isolated from each other in passive mode with an isolation voltage of min. 1000V RMS.

Serial parameters

It is not necessary to configure the Interface for the serial transmission parameters (baud rate, data format and parity). The transmission speed can be selected as desired between 0 and 19,200 baud.

On the RS232 side the hardware handshake lines CTS and DSR are set at the enable level, so that the Interface can operate directly on RS232 ports with DTE configuration without any additional jumpers.

Block schematic and pinouts
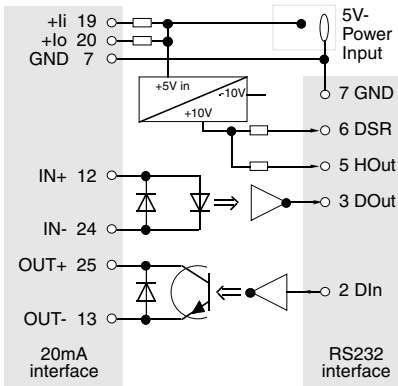
Current Loop	RS232
20mA	- 3..15 V
0mA	+ 3..15 V

Connection examples:

IN-Channel active

OUT-Channel active

IN-Channel passive

OUT-Channel passive
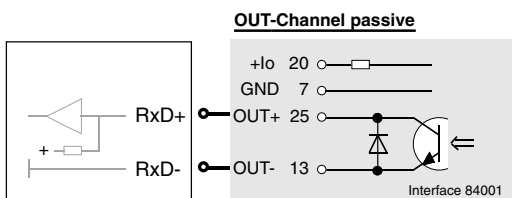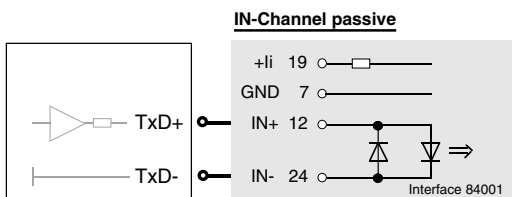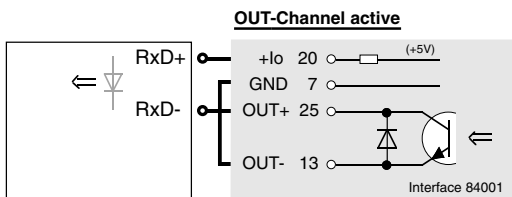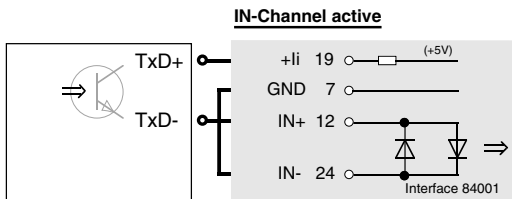
Technical Data

Operating modes:	active and passive mode for both loops can be set separately
Data format:	any format
Signal lines:	RxD, TxD
Isolation:	min. 1 kV in passive mode
Baud rate:	0..19,200 baud
RS232 adapter:	25-pin male SUB-D connector, DCE pinout
20mA adapter:	25-pin female SUB-D connector
Power supply:	supplied power adapter 230V AC, 50Hz - 5V DC, 250mA
Housing:	Small plastic housing, 63 x 54 x 16mm
Weight:	approx. 270 g incl. power adapter
Delivery:	RS232 <> 20mA interface compact power adapter 25-pin gender changer female/female

RS232 <> 20mA S5 Interface Cable, Model 84003

Function
The Model 84003 cable interface converts an RS232 interface into a passive current loop interface while providing a 20mA data channel in each direction. The converter is intended exclusively for connecting active current loop devices which provide the loop current for both the Rx loop and the Tx loop. To connect passive devices, use the W&T Universal Interface RS232 <> 20mA models 84001 or 84201.

The cable is connector-compatible with PC's having a 9-pin RS232 port and with the Siemens automation device families S5 100U, S5 115U, S5 135U and S5 155U (programming port).

The included adapter also allows you to use the cable in PC's with a 25-pin port.

Supply voltage with galvanic isolation
The Interface is powered from the connected signal lines and therefore needs no external power supply. This makes the converter ideal for mobile applications.

Both ports on the Interface are galvanically (opto-coupler) isolated from each other with an isolation voltage of min. 2500 volts RMS.

Serial parameters
It is not necessary to configure the Interface for the serial transmission parameters (baud rate, data format and parity). The transmission speed can be selected as desired between 300 and 19,200 baud. The corresponding hardware handshake lines are jumpered on the RS232 side, so that the interface of the connected RS232 device is enabled.

Functional Diagram and pinout

DB15 male

DB9 female

```
        11 o──┐
         6 o──┘

IN+      7 o──┐
              ├──▷────o 2 DOut
IN-     12 o──┘

                      o 1
                      o 4
                      o 6

        13 o──┐       o 7
         9 o──┘       o 8

OUT+     2 o──┐
              ├──◁────o 3 DIn
OUT-    15 o──┘       o 5 GND
```
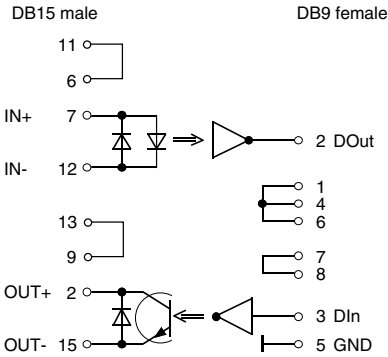
Technical Data

Operating modes:	passive mode
Data format:	any format
Signal lines:	RxD, TxD
Isolation:	min. 2.5 kV
Baud rate:	300..19,200 baud
RS232 adapter:	9-pin SUB-D socket for PC
20mA adapter:	15-pin SUB-D adapter
	Plug compatible to Siemens S5
Power supply:	through the RS232/20mA signals, no power adapter required
Housing:	Plastic housing, 145 x 20 mm Ø
Weight:	approx. 185 g
Delivery:	RS232 <> 20mA interface for Siemens S5 9-pin / 25-pin mini gender changer

RS232 <> 20mA S5 Interface Cable, Model 84004

Function
The Model 84004 cable interface converts an RS232 interface into a passive current loop interface while providing a 20mA data channel in each direction. The converter is intended exclusively for connecting active current loop devices which provide the loop current for both the Rx loop and the Tx loop. To connect passive devices, use the W&T Universal Interface RS232 <> 20mA models 84001 or 84201.

The cable is connector-compatible with PC's having a 9-pin RS232 port and with the Siemens automation device families S5 100U, S5 115U, S5 135U and S5 155U (programming port).

The included adapter also allows you to use the cable in PC's with a 25-pin port.
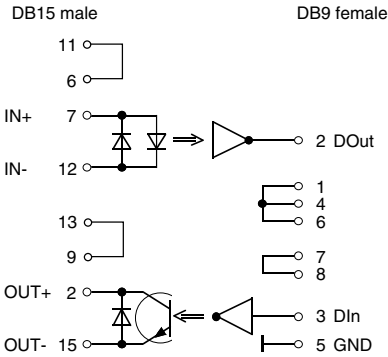
Supply voltage with galvanic isolation
The Interface is powered from the connected signal lines and therefore needs no external power supply. This makes the converter ideal for mobile applications.

Both ports on the Interface are galvanically (opto-coupler) isolated from each other with an isolation voltage of min. 4000 volts RMS.

Serial parameters
It is not necessary to configure the Interface for the serial transmission parameters (baud rate, data format and parity). The transmission speed can be selected as desired between 1200 and 57,600 baud. The corresponding hardware hands-hake lines are jumpered on the RS232 side, so that the interface of the connected RS232 device is enabled.

Functional Diagram and pinout

DB15 male   DB9 female

```
        11 o─┐
         6 o─┘
IN+      7 o─┐
             ├──▷──○ 2 DOut
IN-     12 o─┘

        13 o─┐                    ○ 1
         9 o─┘                    ● 4
                                  ○ 6
OUT+     2 o─┐
             │                    ○ 7
             │                    ○ 8
OUT-    15 o─┘         ◁──○ 3 DIn
                          ○ 5 GND
```

Technical Data

Operating modes: passive mode
Data format: any format
Signal lines: RxD, TxD
Isolation: min. 4.0 kV
Baud rate: 1200..57,600 baud
RS232 adapter: 9-pin SUB-D socket for PC
20mA adapter: 15-pin SUB-D adapter
                   Plug compatible to Siemens S5
Power supply: through the RS232/20mA signals, no
                   power adapter required
Housing: Small Plastic housing, 55 x 30 x 16 mm
Weight: approx. 120 g
Delivery: RS232 <> 20mA interface for Siemens S5
                   9-pin / 25-pin mini gender changer