

W&T

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Manual

Function and wiring

Interfaces 20mA

valid for Interfaces:

#84001	Interface RS232 <> 20mA (TTY)
#84004	Interface RS232 <> 20mA (S5-Belegung)



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Legal Notices

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 your dealer!

Warning note concept

This manual contains notes which must be observed for your personal safety and to prevent equipment damage. The notes are called out with a warning triangle. Depending on the hazard level the warning notes are represented in decreasing order of hazard as follows:

DANGER

Indicates a hazard which will result in death or serious injury if no appropriate safety measures are taken.

WARNING

Indicates a hazard which can result in death or serious injury if no appropriate safety measures are taken.

CAUTION

Indicates a hazard which can result in slight injury if no appropriate safety measures are taken.

NOTE

Indicates a hazard which can result in equipment damage if no appropriate safety measures are taken.

When multiple hazard levels are present the warning note for the highest level is

used. If the warning triangle for personal injury is used, then a warning for equipment damage may also be added in the same warning note.

Qualified personnel

The product described in this manual may be installed and placed in operation only by personnel who are qualified for the respective task.

In addition the documentation for the respective task must be followed, especially the safety and warning notes included in it.



Qualified personnel have received training and experience which enable them to recognize risks associated with handling the described products and to avoid possible hazards.

Disposal

Electronic devices may not be disposed of with household waste, but rather be brought to a proper electronics waste disposal facility.

A complete Declaration of Conformity for the described devices can be found on the respective datasheet pages on the W&T Homepage at <http://www.wut.de>.

Symbole auf dem Produkt

Symbol	Explanation
	CE mark The product conforms to the requirements of the relevant EU Directives.
	WEEE mark The product may not be disposed of with normal waste, but rather in accordance with local disposal regulations for electrical scrap.

Safety Instructions

General precautions

CAUTION

This manual is intended for the installer of the described interface and must be read and understood before beginning any work.

The interfaces are to be installed and placed in service only by an electrical specialist.

Intended use

CAUTION

The intended use of the interfaces is the use in accordance with the information provided in the manual.

The devices may be operated only using the maximum permitted connection values according to the technical data. Any other use or modification is considered to be improper.

Installation

CAUTION

Before beginning any work on the devices, the power supply of the devices to be connected via the interface must be completely disconnected by suitable measures. Make sure that the devices cannot be turned on again accidentally!

Please do not install the interface in places with high moisture or near water.

Please do not install the devices in places with high ambient temperature or near heat sources. Please refer to the specification of the maximum ambient temperature.

Electrical Safety

Danger

Both ports of the interfaces are isolated from each other with a dielectric strength of 1kV (#84001 or 4kV (84004) DC.

This allow the interfaces to suppress compensation currents which can flow as a result of potential differences between the connected devices when directly copper connections are used. Such currents can cause interference with data transmission or even destroy the interfaces.

The galvanic isolation of the interfaces described in this manual are designed for protecting the serial ports and for ensuring noise-free data transmission in noisy environments. Use of the devices to protect persons against contact with hazardous voltages is not permitted. For safety-critical galvanic isolation, please contact us.

Make sure that there is enough space between the cables leading to the serial ports of the interfaces to avoid any potential flashovers between the cables.

Protection of operating personnel and the equipment is only assured if the devices are used according to their intended purpose. Any other use than described in the manuals may compromise the safety and function of the interfaces and the connected systems.

If a fault is unable to be eliminated, the devices must be taken out of service and protected against accidental startup.

Responsibility for adhering to the local prevailing safety regulations lies with the operator.

EMC

NOTE

All W&T RS232 isolators meet the limits for noise immunity in industrial environments as well as emissions in commercial and residential areas, so that use of these converters is not subject to any EMC based restrictions.

To ensure compliance with the EMC standards, shielded signal cables must be used.

If the RS232 isolator is part of an integrated solution, the installer must ensure that the entire system complies with the EMC guidelines.

A complete Declaration of Conformity for the described devices can be found on the respective datasheet pages on the W&T Homepage at <http://www.wut.de>.

Interface Converter RS 232 <> 20 mA, #84001

Function

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

The interface can be used as an active or passive 20 mA component. In active mode the interface provides the loop current for the respective 20 mA 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 20 mA 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

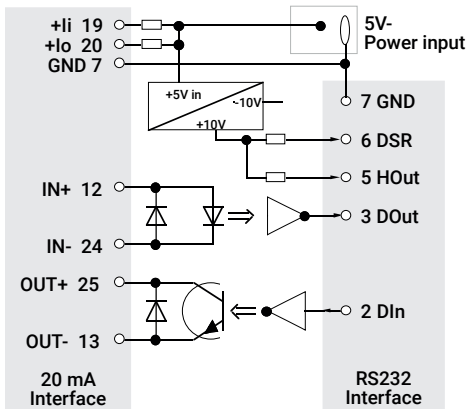
It is not necessary to configure the interface for the serial transmission parameters (baud rate, data format and parity). The transmission speed can be selected as desired between 0 and 19,200 baud.

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.

Technical Data

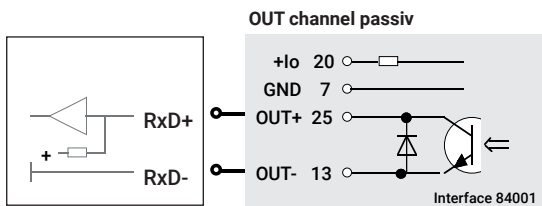
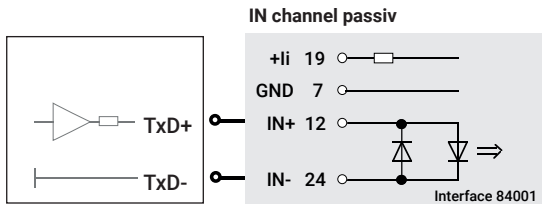
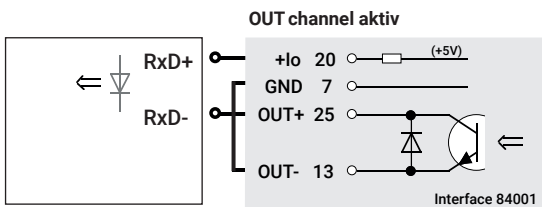
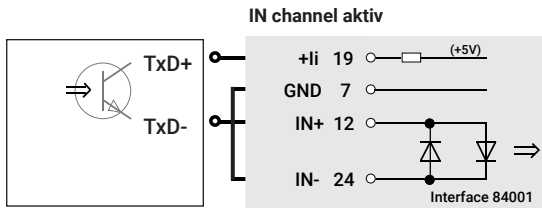
Operating modes:	active and passive mode for both loops can be set separately
Data format:	any format
Signal lines:	RxD, TxD
Isolation:	min. 1 kV in passive mode
Baud rate:	0..19,200 baud
RS232 adapter:	25-pin male SUB-D connector, DCE pinout
20 mA adapter:	25-pin female SUB-D connector
Power supply: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

Block schematic and pinouts



Current Loop	RS232
20 mA	- 3..15 V
0 mA	+ 3..15 V

Connection examples:



S5 Interface Cable RS 232 <> 20 mA, #84004

Function

The Model 84004 cable interface converts an RS232 interface into a passive current loop interface while providing a 20 mA 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 <> 20 mA 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 PCs 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 handshake lines are jumpered on the RS232 side, so that the interface of the connected RS232 device is enabled.

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
20 mA adapter:	15-pin SUB-D adapter, Plug compatible to Siemens S5
Power supply:	through the RS232/20 mA signals, no power adapter required
Housing:	Small Plastic housing, 55 x 30 x 16 mm
Weight:	approx. 120 g
Delivery:	RS232 <-> 20 mA interface for Siemens S5 9-pin / 25-pin mini gender changer

Block schematic and pinouts

