

Manual

RS232 Isolators



Model	88001
	88004
	88050
	11573
Release	1.3

© 10/2009 by Wiesemann & Theis GmbH

Subject to error and alteration:

Since it is possible that we make mistakes, you mustn't use any of our statements without verification. Please, inform us of any error or misunderstanding you come about, so we can identify and eliminate it as soon as possible.

Carry out your work on or with W&T products only to the extent that they are described here and after you have completely read and understood the manual or guide. We are not liable for unauthorized repairs or tampering. When in doubt, check first with us or with your dealer.

Differences in potential between RS232 devices connected to each other are frequently the cause of erroneous data transmission and failed interface components.

Wiesemann & Theis offers a whole family of galvanic isolators for data lines to prevent compensation currents from flowing over the signal lines when there are potential differences between the devices.

The RS232 Isolator family is described together with their technical specifications and wiring examples on the following pages.

Up-to-date information on new developments as well as the newest driver releases can be found in the Internet at <http://www.wut.de> or in the e-mail short infos available through the W&T Interface Club. You can register for the Interface Club on the W&T homepage.

Safety Advisory:

The following advisory must be read and understood before installing the power supply. Non-observance of this advisory may have serious or fatal consequences.



The RS232 Isolators described here may be used only for protecting serial ports from damage by equalizing currents which would flow through the data lines when there are differences in potential between the connected devices. Use of the Isolator for protection of persons against contact with hazardous voltages is not permitted.

If a safety-critical solution is required, please contact us.



Index

RS232 Isolator, 1kV, model 88001 19

RS232 Isolator, 4kV, model 88004 22

RS232 Isolator, 50kV, model 88050 25

Adapter set for connecting isolators
to 9-pin interfaces, Model 11573 28

RS232 Isolator 1kV, model 88001**Function**

The Isolator galvanically isolates two RS232 devices from each other with an isolation voltage of 1kV DC. It must be inserted into the data line between these devices.

One channel in each direction is provided which may be used only for the data lines TxD and RxD but not for the handshake lines (DTR, RTS, etc.). The two lines must always be connected on both ends, even if data transmission is only in one direction.

Galvanic isolation of the signals is implemented using optocouplers. The RS232 drivers and receivers are powered from the connected peripheral devices; no external power supply is required.

When installing you must ensure that the data cables are sufficiently far enough away from each other to prevent flashover.

In the event of a problem check first whether the connection works without the isolator by connecting only a 3-conductor cable (TxD, RxD, GND) between the two RS232 devices.

The lower baud rate limit of the 88001 Isolator of 300 baud depends on the output voltage of the connected interface. At very low baud rates and unclear interface conditions you should switch to the static operating model 88004 or the externally powered 1kV Isolator model 88205.



Connectors

Both interfaces of the W&T RS232 Isolator model 88001 are implemented as 25-pin SUB_D connectors. By using the adapter set model 11573 you can easily connect the isolator to 9-pin terminals with PC configuration. A description of the adapter set can be found later in this manual.

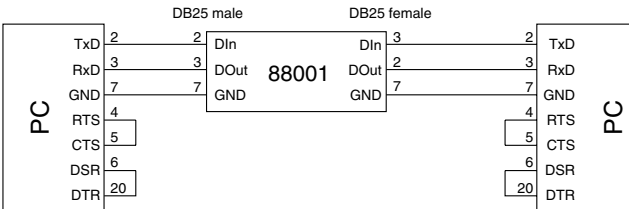
The function of the isolator connection pins can be found in the following table and on the sticker located on the device itself.

RS232 interface (DB25 male connector)	
Pin#	Function
2	data in
3	data out
7	signal GND

RS232 interface (DB25 female connector)	
Pin#	Function
2	data out
3	data in
7	signal GND

Wiring example:

RS232 software handshake application



Technical Data

Baudrate:	300..19200 baud
Data format:	any data format
Supported signals:	RxD, TxD
Isolation:	min. 1.000 volts DC
Supply voltage:	no external power supply required
Input impedance:	> 470 Ohm
RS232 interfaces:	DB25 male connector, DCE pin assignment DB25 female connector, DTE pin assignment
Housing:	plastic mini-housing, 63 mm x 54 mm x 16 mm
Weight:	approx. 50 g
Scope of delivery:	1x RS232 Isolator, model 88001 1x Gender Changer 25F-25F, model 11770

RS232 Isolator 4kV, model 88004**Function**

The Isolator galvanically isolates two RS232 devices from each other with an isolation voltage of 4kV DC. It must be inserted into the data line between these devices.

One data channel and 2 handshake channels in each direction are provided. To ensure a stable energy supply to the isolator at least as many signal inputs should be connected to the isolator as there are outputs available.

Galvanic isolation of the signals is implemented using opto-couplers. The RS232 drivers and receivers are powered from the connected peripheral devices; no external power supply is required.

When installing you must ensure that the data cables are sufficiently far enough away from each other to prevent flashover.

In the event of a problem check first whether the connection works without the isolator by connecting the two RS232 devices directly without the RS232 isolator.

Connectors

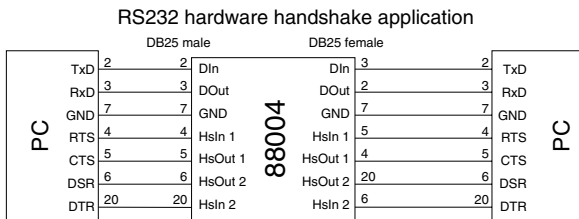
Both interfaces of the W&T RS232 Isolator model 88004 are implemented as 25-pin SUB-D connectors. By using the adapterset model 11573 you can easily connect the isolator to 9-pin terminals with PC configuration. A description of the adapter set can be found later in this manual.

The function of the isolator connection pins can be found in the following table and on the sticker located on the device itself.

RS232 interface (DB25 male connector)	
Pin#	Function
2	data in
3	data out
4	handshake in 1
5	handshake out 1
6	handshake out 2
7	signal GND
20	handshake in 2

RS232 interface (DB25 female connector)	
Pin#	Function
2	data out
3	data in
4	handshake out 1
5	handshake in 1
6	handshake in 2
7	signal GND
20	handshake out 2

Wiring example:



Technical Data

Baud rate:	0..115200 Baud
Data format:	any data format
Supported signals:	RxD, TxD, RTS, CTS, DSR, DTR
Galvanic isolation:	min. 4kV DC isolation voltage
Creepage and clearance distances:	> 7mm
Supply voltage:	no external power supply required
Input impedance:	> 1000 Ohm
RS232 interfaces:	DB25 male, DCE configuration DB25 female, DTE configuration
Housing:	plastic mini-housing, 63 mm x 54 mm x 16 mm
Weight:	approx. 50 g
Scope of delivery:	1x RS232 Isolator, Model 88004 1x Gender Changer 25F-25F, Model 11770

RS232 Isolator 50kV, model 88050**Function**

The Isolator galvanically isolates two RS232 devices from each other with an isolation voltage of 50 kV DC. It must be inserted into the data line between these devices.

One channel in each direction is provided which may be used only for the data lines TxD and RxD but not for the handshake lines (DTR, RTS, etc.). The two lines must always be connected on both ends, even if data transmission is only in one direction.

Galvanic isolation of the signals is implemented using a 100 mm long fiber optic cable. The RS232 drivers and receivers are powered from the connected peripheral devices; no external power supply is required.

When installing you must ensure that the data cables are sufficiently far enough away from each other (min. 100 mm) to prevent flashover.

In the event of a problem check first whether the connection works without the isolator by connecting only a 3-conductor cable (TxD, RxD, GND) between the two RS232 devices.

The lower baud rate limit of the 88050 Isolator of 300 baud depends on the output voltage of the connected interface.



Connectors

Both interfaces of the W&T RS232 Isolator model 88050 are implemented as 25-pin SUB-D connectors. By using the adapterset model 11573 you can easily connect the isolator to 9-pin terminals with PC configuration. A description of the adapter set is described later in this manual.

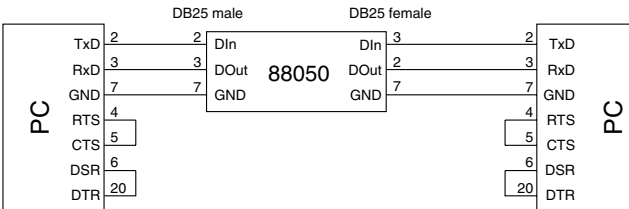
The function of the isolator connection pins can be found in the following table and on the sticker located on the device itself.

RS232 interface (DB25 male connector)	
Pin#	Function
2	data in
3	data out
7	signal GND

RS232 interface (DB25 female connector)	
Pin#	Function
2	data out
3	data in
7	signal GND

Wiring example:

RS232 software handshake application



Technical Data

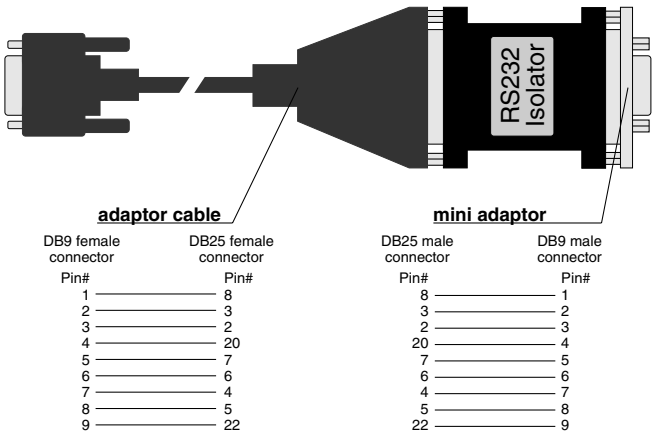
Baud rate:	300..19200 baud
Data format:	any data format
Supported signals:	RxD, TxD
Galvanic isolation:	min. 50 kV DC isolation voltage
Creepage and clearance distances:	> 95 mm
Supply voltage:	No external power supply required
Input impedance:	> 330 Ohm
RS232 interfaces:	DB25 male with 2m cable, DCE configuration DB25 female with 2m cable, DTE configuration
Housing:	Plastic mini-housing, 250 mm x 20 mm dia.
Weight:	approx. 340 g
Scope of delivery:	1 x RS232 Isolator, model 88050 1 x Gender Changer 25F-25F, Model 11770

9-pin Adapter Set, model 11573

Function

The Model 11573 Adapter Set consists of a 15 cm long connection cable with 9-pin SUB-D female and 25-pin SUB-D male as well as a mini-adapter with 25-pin SUB-D female and 9-pin SUB-D male.

In order to incorporate the model 88001, 88004 and 88050 isolators into a 9-pin connection, the adapters are connected to the two RS232 interfaces of the isolators. The mechanical arrangement as well as the pinout of the adapter can be seen in the following diagram:



By using the short adapter cable the isolators can be connected directly to 9-pin serial devices having a SUB-D male with standard PC configuration.