1. Function

The W&T Interface Model 86000 permits bi-directional connection of RS232 devices with components which are equipped with an RS422, RS423 or RS485 port. The Interface converts one data line and one handshaking line in each direction.

2. Connectors

The two ports of the W&T interface 86000 use DB25 connectors. The connector pin assignments are shown in the table below. The connector configuration can also be found on a label on the interface housing.

RS232 interface (DB25 male connector)	
Pin	**Function**
2	Data In
3	Data Out
5	Handshake Out
7	Signal GND
20	Handshake In

RS422, RS485 interface (DB25 female connector)	
Pin	**Function**
10	Data Out A (-)
11	Data In A (-)
12	Handshake control
13	Automatic control
14	Signal GND
15	Handshake Out A (-)
16	Handshake Out B (+)
17	Handshake In A (-)
18	Handshake In B (+)
19	Termination A
21	Termination B
22	Data Out B (+)
23	Data In B (+)
25	Control select input

3. Operating modes

The W&T interface 86000 can be set for three different operating modes, which are briefly described here:

3.1. RS422, RS423, 4-wire RS485 Bus master

One data channel and one handshake channel in each direction are available. The RS422/RS423 receivers and transmitters are always active in this operating mode.
Pin 25 of the female connector (control select input) must not be connected to another pin.

3.2. 2-wire RS485 handshake control with echo, 4-wire RS485 handshake control

One data channel in each direction is available. The RS485 driver is switched on with a positive RS232 handshake signal, while a negative signal forces the driver high. The RS485 receiver is always active in this operating mode. For selecting this operating mode Pin 25 of the female connector (control select input) must be connected to pin 12 (handshake control).

3.3. 2-wire RS485 automatic control with echo, 4-wire RS485 automatic control

One data channel in each direction is available. The RS485 driver is activated automatically with each transmission of data, and goes high again after the end of transmission. The RS485 receiver is always active in this operating mode.
For selecting this operating mode Pin 25 of the female connector (control select input) must be connected to pin 13 (automatic control).
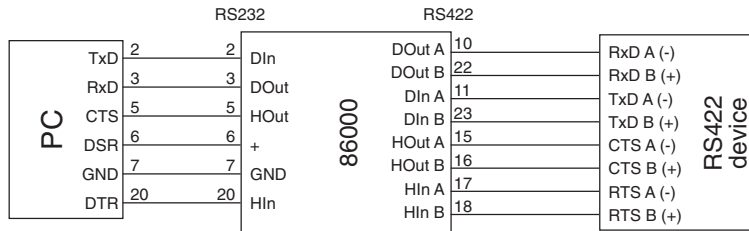
4. Termination

For all RS485 operating modes it is essential that the bus system is terminated with a termination network which assures a defined idle state in the high-impedance phases of bus operation.
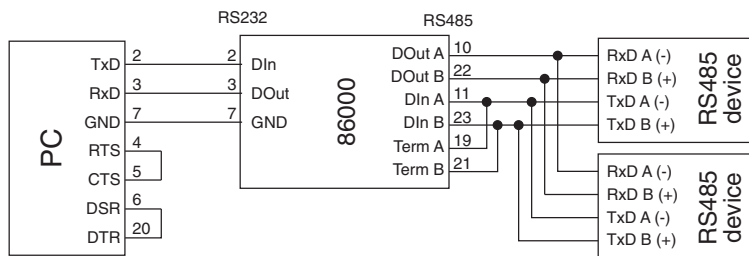The bus system can be terminated by connecting the wires of the bus to pin 19 and 21 of the female interface connector.
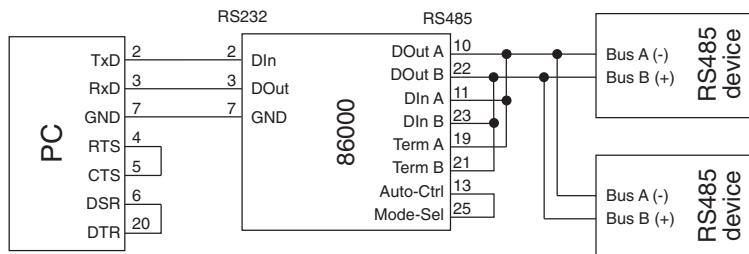
Subject to error and alteration 08/2000

5. Applications

RS422 hardware handshake application

	RS232		RS422	
PC		86000		RS422 device

PC:
TxD 2 —— 2 DIn
RxD 3 —— 3 DOut
CTS 5 —— 5 HOut
DSR 6 —— 6 +
GND 7 —— 7 GND
DTR 20 —— 20 HIn

86000 RS422:
DOut A 10 — RxD A (-)
DOut B 22 — RxD B (+)
DIn A 11 — TxD A (-)
DIn B 23 — TxD B (+)
HOut A 15 — CTS A (-)
HOut B 16 — CTS B (+)
HIn A 17 — RTS A (-)
HIn B 18 — RTS B (+)

RS485 4-wire application

PC RS232:
TxD 2 —— 2 DIn
RxD 3 —— 3 DOut
GND 7 —— 7 GND
RTS 4
CTS 5
DSR 6
DTR 20

86000 RS485:
DOut A 10 — RxD A (-)
DOut B 22 — RxD B (+)
DIn A 11 — TxD A (-)
DIn B 23 — TxD B (+)
Term A 19
Term B 21

RS485 device:
RxD A (-)
RxD B (+)
TxD A (-)
TxD B (+)

RS485 2-wire application

PC RS232:
TxD 2 —— 2 DIn
RxD 3 —— 3 DOut
GND 7 —— 7 GND
RTS 4
CTS 5
DSR 6
DTR 20

86000 RS485:
DOut A 10 — Bus A (-)
DOut B 22 — Bus B (+)
DIn A 11
DIn B 23
Term A 19
Term B 21
Auto-Ctrl 13
Mode-Sel 25

RS485 device:
Bus A (-)
Bus B (+)

6. Technical data

Baudrate:	0..115200 Baud
Data format:	any data format
Isolation:	no isolation
Termination:	switchable termination network for RS485 modes (330Ω/120Ω/330Ω)
Power supply:	plug in adaptor Input voltage: 230V / 50 Hz Output voltage: 5 V DC
Supply current:	approx. 70 mA
RS232 interface:	DB25 male connector DCE pin assignment
RS422,423,485 interface:	DB25 female connector
Housing / Dimensions:	DB25 dongle housing, 63 x 54 x 16 mm
Weight:	130 g incl. AC/DC adaptor
Packing list:	1 x Interface, type 86000 1 x Mini gender changer 25F-25F 1 x AC/DC adaptor