

Ammonit's M83575 includes two modules designed to establish stable data transmission on two wire RS485 connections between Meteo-40 data logger and various sensors:

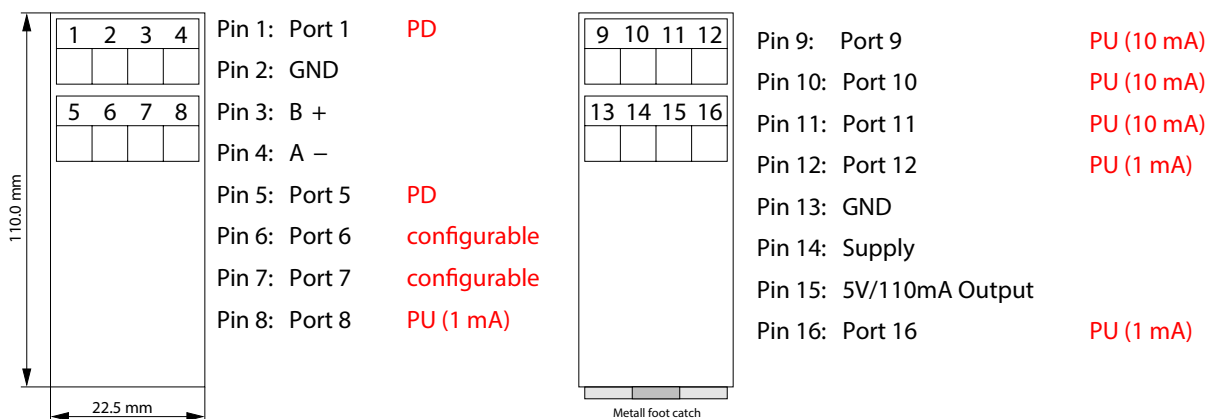
1. **M83570 Biasing module** for RS485 (half-duplex, purpose: set biasing voltage on data lines according to RS485 specification)
2. **M84100 Isolating repeater** I-7510 for RS485 (half-duplex, purpose: overvoltage protection, galvanic isolation between sensor and data recording)

M83570: Description

M83570 provides:

- Biasing resistor circuit to set voltage for RS485 (configurable with jumpers)
- RS485 bus termination (120 Ω / configurable with jumpers)
- 10 individually configurable ports with various configuration possibilities (see data sheet M83570)
- Stabilized 5 V/110 mA output

M83570: Pin Assignment



Note: Figure shows default configuration.

PD = pull-down
PU = pull-up

M83570: Electrical characteristics

Parameter	Pin	Min	Max
Supply voltage (DC)	14	9 V	32 V
Output voltage (5 V DC)	15	5 V	5.3 V
Output current ($\vartheta = 25^{\circ}\text{C}$)		110 mA	130 mA
Pull-up current limit 5.1 k Ω (LI = Low current)	(1), (5), (6), (7), 8, (9), (10), (11), 12, 16	0.97 mA	1.05 mA
Pull-up current limit 470 Ω (HI = High current)	(1), (5), (6), (7), (8), 9, 10, 11, (12), (16)	10.5 mA	11.4 mA
Pull-down resistor 10 k Ω	1, 5, (6), (7), (8), (9), (10), (11), (12), (16)	9900 Ω	10100 Ω
Operating temperature		-40 $^{\circ}\text{C}$	+75 $^{\circ}\text{C}$
Quiescent current	14	6 mA	
RS485 Bus termination	3, 4		120 Ω
Fuse T0.8A (time lag, slow-blow): 5 x 20 mm			

Note: Pin numbers without brackets show the default port configuration.

- Case dimension (width x height x depth): 22.5 x 110 x 115 mm
- Mounting on DIN-rail (35 x 7.5 mm)
- Terminal: wire cross section from 0.25 to 1.5 mm²

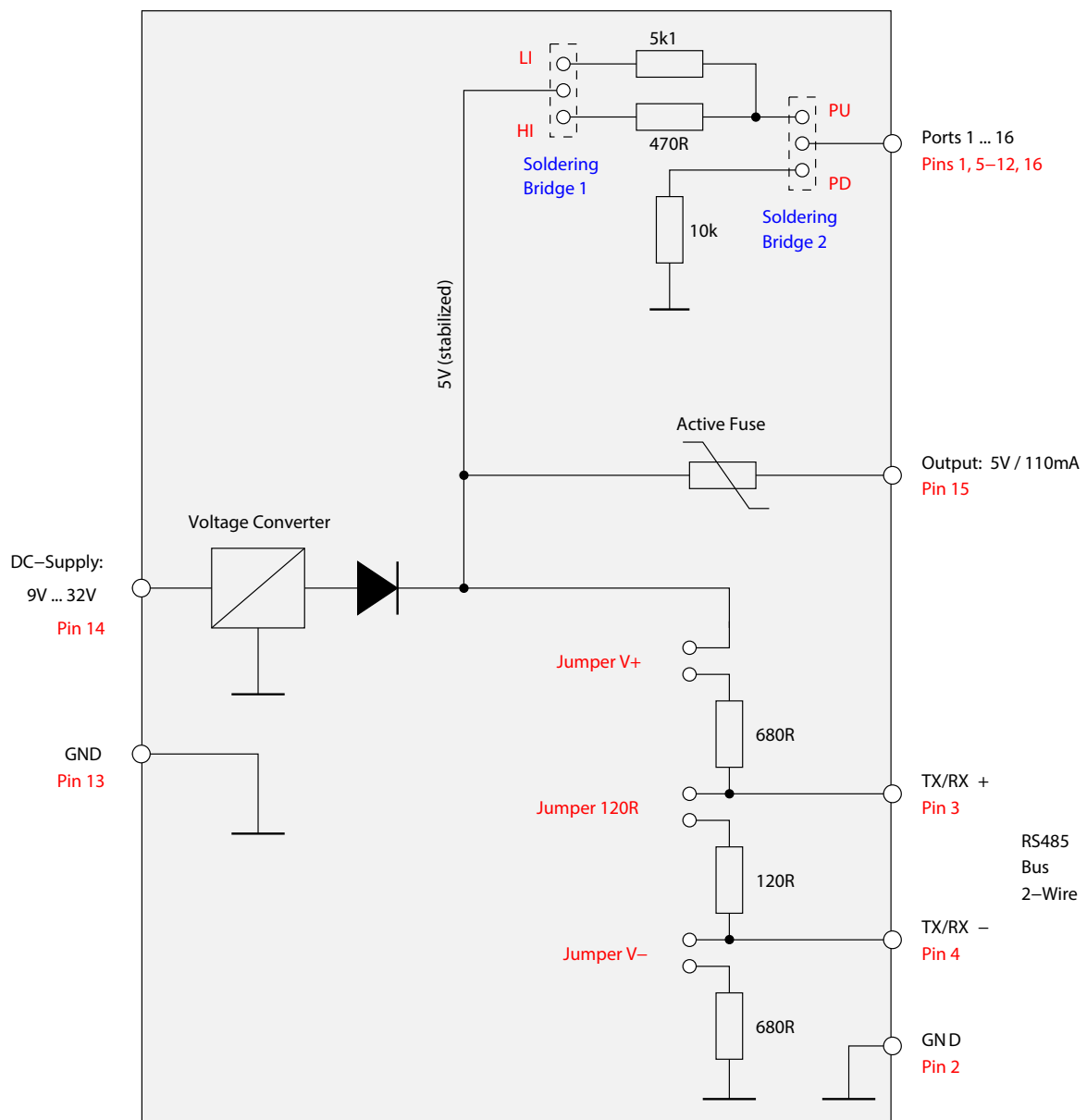
M84100 (Isolating repeater): Electrical characteristics

Parameter	Pin	Min	Max
Supply voltage (DC)	9 (+), 10 (GND)	10 V	30 V
Power consumption	9 (+), 10 (GND)		2.2 W
Isolation voltage			3 kV
Baud rates		300 Bps	115200 Bps

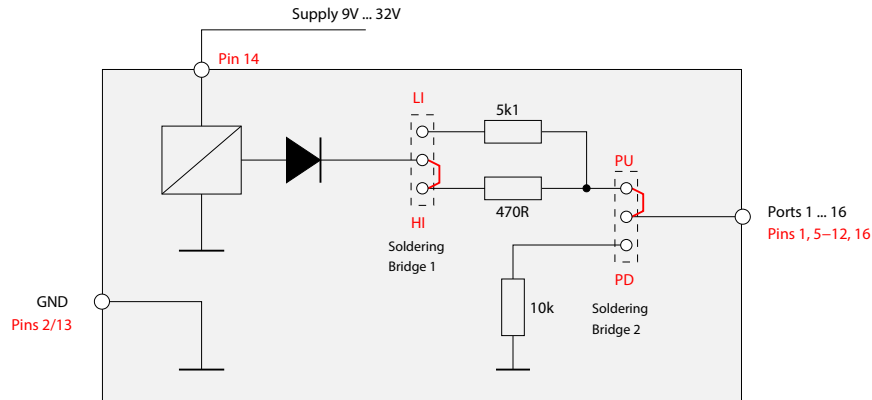
Principle of operation

The picture below shows the principle of the circuit of the module with the following units:

- Port 1 ... Port 16: Configurable outputs providing two different pull-up resistors and one pull-down resistor
- Stabilised 5 V output with overcurrent protection
- RS485 2-wire termination and biasing terminals

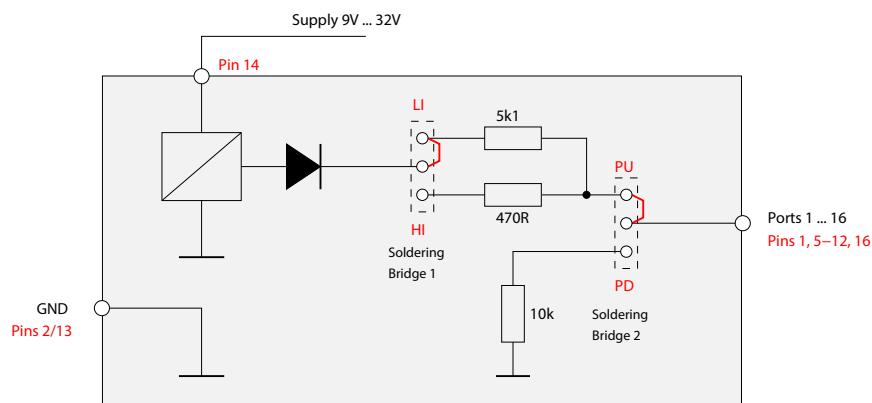


M83570: Configuration of ports - Pull-up high current (470 Ω)



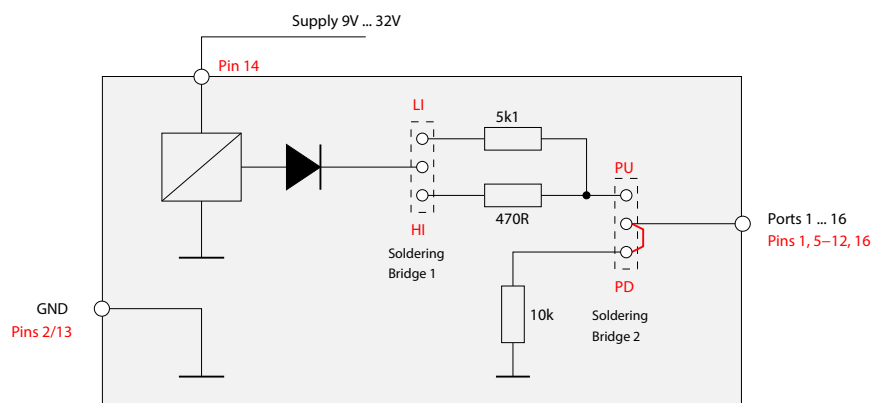
Setting of soldering bridges for **10 mA**: Soldering bridge 1 set to HI, soldering bridge 2 set to PU.

M83570: Configuration of ports - Pull-up low current (5.1 kΩ)



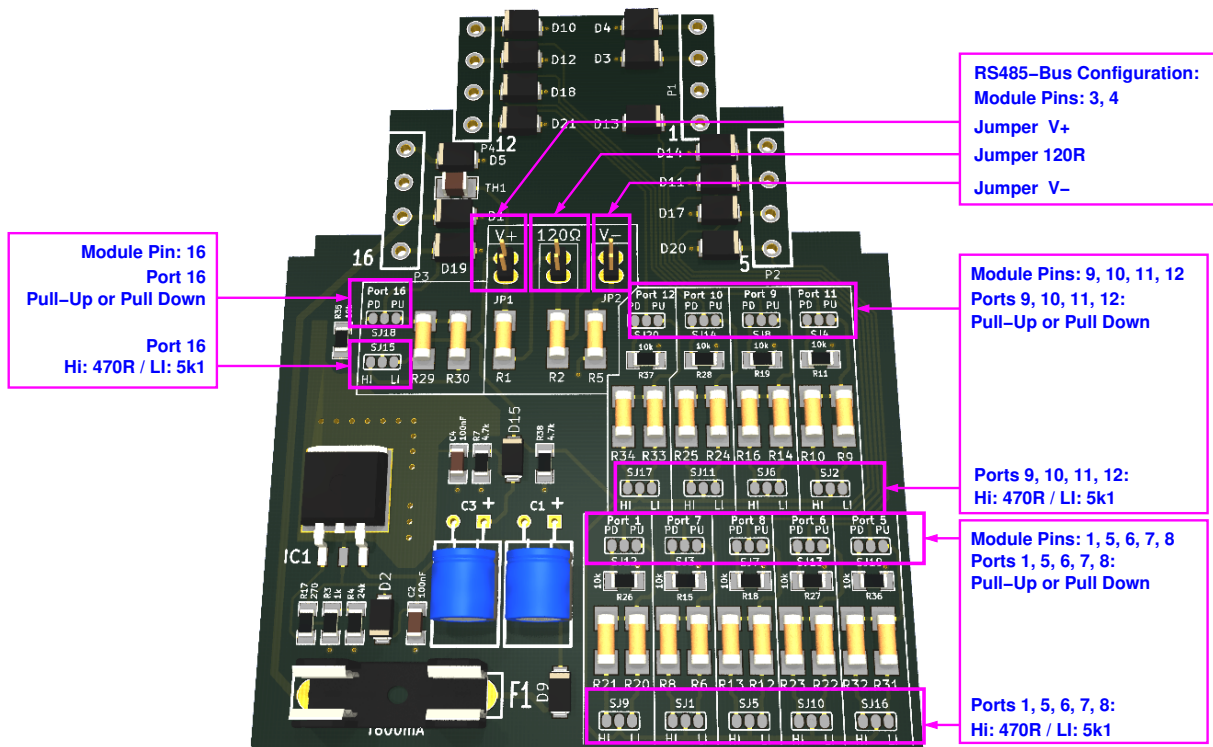
Setting of soldering bridges for **1 mA**: Soldering bridge 1 set to LI, soldering bridge 2 set to PU.

M83570: Configuration of ports - Pull-down (10 kΩ)



Setting of soldering bridges for **pull-down**: Soldering bridge 1 left open, soldering bridge 2 set to PD.

M83570: Port and RS485 biasing configuration



Configuration of RS485 bus

- To set the termination resistance (120 Ω), set the jumper 120 Ω. For use **with repeater** always set termination.
- If bus biasing is needed, set all jumpers (V+, 120 Ω, V-).

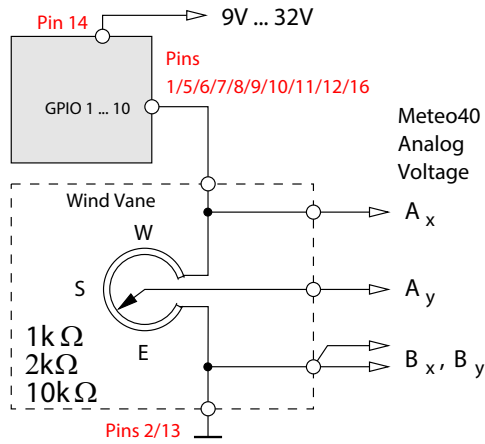
Default setting of the jumpers V+, V- and 120 Ω

- The jumpers V+, V- and 120 Ω are set by default (factory setting).

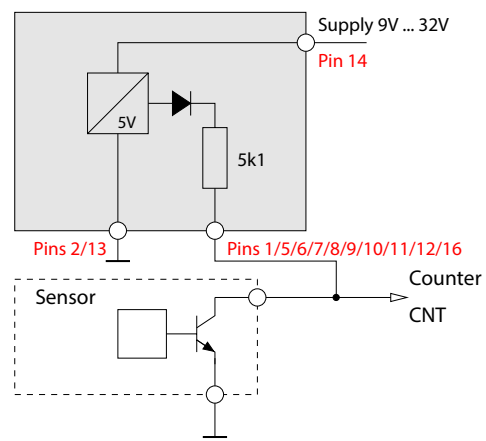
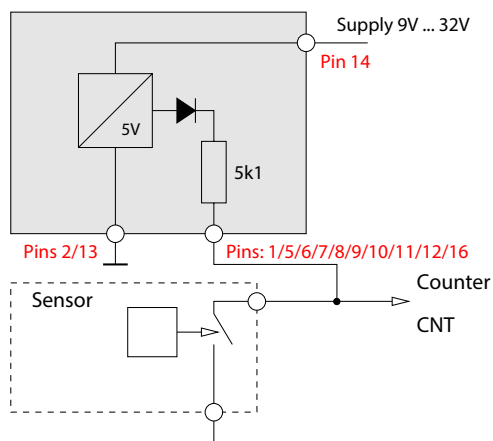
Configuration of ports 1 ... 16

- Soldering bridge 1 (pull-up configuration): Bridge between LI and center-pad sets low current (i.e., 5.1 kΩ, 1 mA), bridge between HI and center-pad sets the corresponding port to high current (470 Ω / 10 mA).
- Soldering bridge 2 (pull-up or pull-down configuration): Bridge between pull-up and center-pad sets the corresponding port to pull-up, bridge between pull-down and center-pad sets the ports to pull-down (i.e., 10 kΩ to ground [GND]).

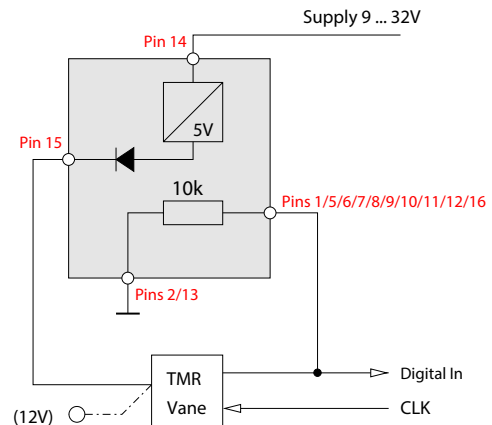
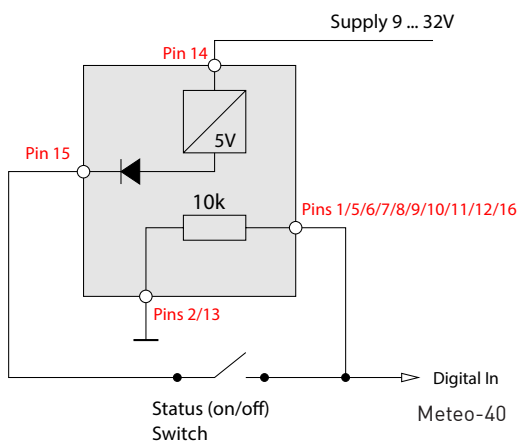
M83570: Protection resistor for potentiometric wind vane



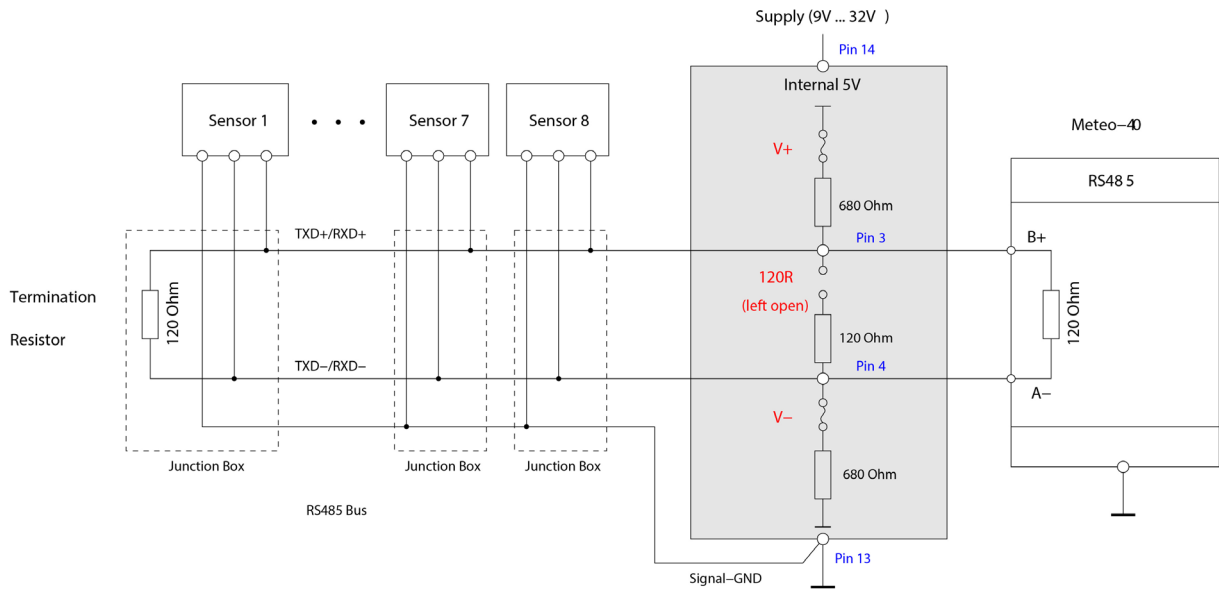
M83570: Counter input with pull-up resistor



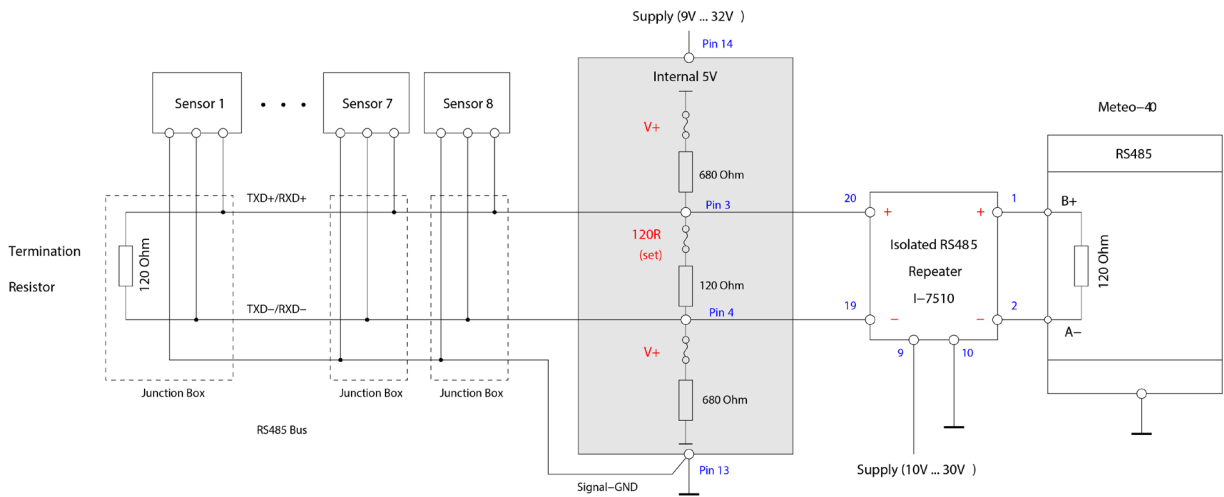
M83570: Digital input / status input with pull-down resistor



RS485-Master: up to eight sensors connected to Meteo-40 Data Logger



Connecting up to eight devices with isolated repeater to Meteo-40 Data Logger



M83570

M84100

If Meteo-40 Data Logger is connected via isolating repeater to the RS485 bus, set the jumper 120 R, jumper V+ and jumper V (this is the default setting on delivery). The RS485 bus is biased and terminated by the module.

M83575: Wiring example

The figure below shows a wiring example, an ultrasonic anemometer with RS485 data communication via isolating repeater I7510 biased with module M83570.

