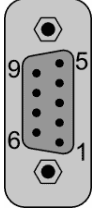


Serial Interface COM1 (PM55x, PM56x)

	1	FE	Functional earth
	2	SGND	0 V power supply, internally connected to M terminal
	3	RxD/TxD-P	Receive/Transmit positive
	4	Reserved	Reserved, not connected
	5	SGND	0 V power supply, internally connected to M terminal
	6	+3.3 V	3.3 V power supply
	7	Reserved	Reserved, not connected
	8	RxD/TxD-N	Receive/Transmit negative
	9	Reserved	Reserved, not connected
	Shield	Cable shield	Functional earth

The serial interface COM1 is connected via a 9-pole SUB-D plug. It is configurable for RS-485 and can be used for

- an online access (RS-485 programming interface for PC/Control Builder)
- a free protocol (communication via the [COM_SEND](#) and [COM_REC](#) function blocks)
- Modbus RTU, master and slave or
- a CS31 system bus (RS-485), as master only

If the RS-485 bus is used, each interconnected bus line (each bus segment) must be electrically terminated. The following is necessary:

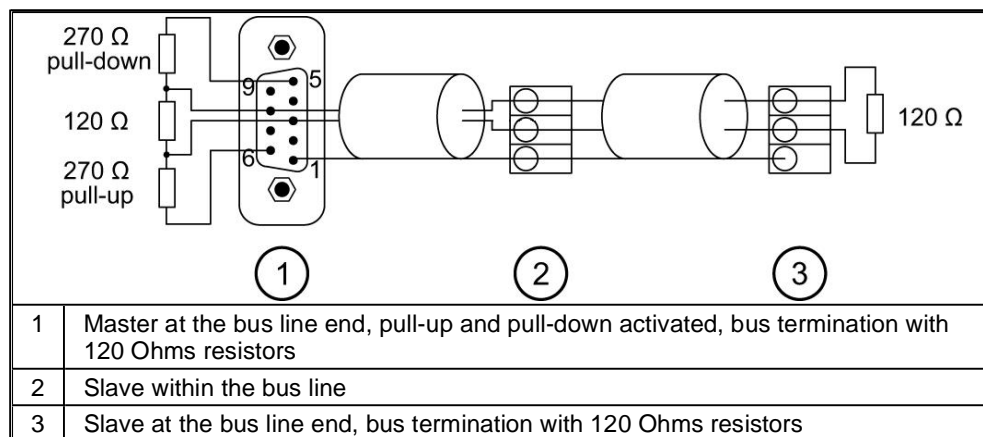
- 2 resistors of 120 Ohms each at both line ends (to avoid signal reflections)
- in addition, a pull-up resistor at RxD/TxD-P and a pull-down resistor at RxD/TxD-N. These two resistors care for a defined high level on the bus, while there is no data exchange.

**Note**

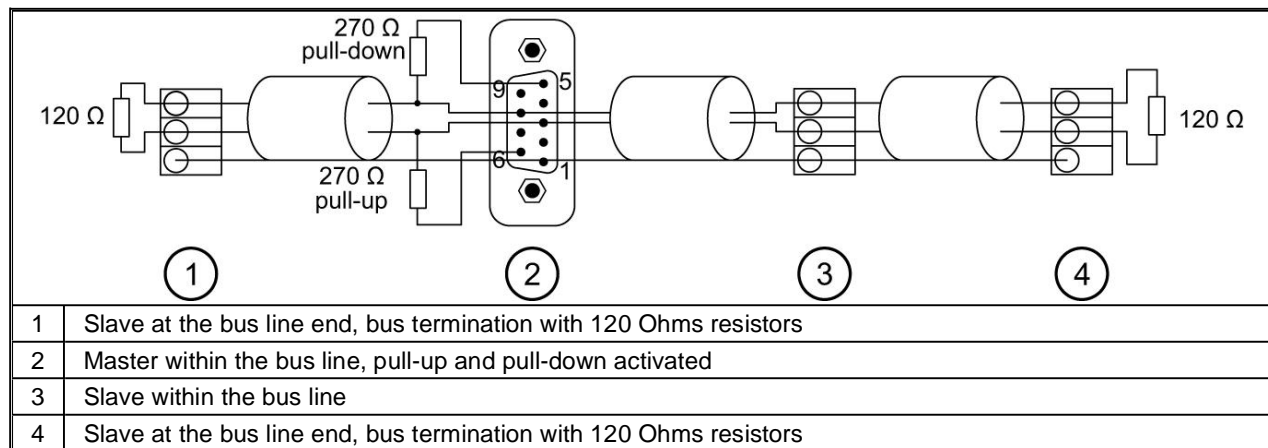
The pull-up, pull-down and termination resistors are **not** included inside the CPU and must be connected externally.

It is useful to add both the pull-up and the pull-down resistors, which only are necessary once on every bus line, at the bus master.

The following figure shows an RS-485 bus with the bus master at one line end.



If the master is located within the bus line, it does not need a terminating resistor. The pull-up and the pull-down resistors, however, are necessary (see the following figure).



Risk of EMC disturbances!

Unshielded cables may cause EMC disturbances.
Always use shielded cables and connect the shield at every device.

CAUTION



Risk of malfunctions!

The pull-up resistors must be used only one time within a bus line.
Use the pull-up resistors only at 1 master.

CAUTION

The cable shields must be earthed (see chapter [CS31 System Bus \(PM55x, PM56x\)](#) for more information).