

Picture: pm3.1/ze/mdm I.S. Modem

pm3.1/ze/mdm/a is a surface component which provides serial connections to underground. It works directly with the underground main station pm3.1/ze/c. The connection between the two requires only two standard telephone cable pairs. The intrinsically safe design of the remote side allows for easy handling without further protection measures. The non intrinsically safe RS232 side of the modem is connected directly to the serial interface on the main surface station by a kabel/14 cable.

Features:

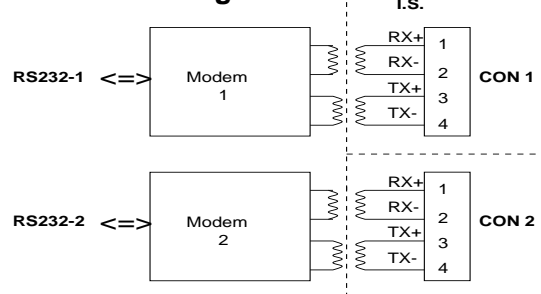
Table with 2 columns: Feature and Specification. Rows include Power supply, Cable type, Distance, Data format RS232, ATEX approval, Ambient temperature, Russian approval, and PPC 00-25498 Rostekhnadzor.

The data format MUST be adhered to as the modem is reliant upon it. If the format is not kept, then some characters may not be correctly transmitted.

Pin Assignment RS232 Side:

Table with 3 columns: Pin, Function, Comment. Lists pins 1 through 25 with their respective functions and comments.

Functional Diagram:



Pin Assignment Remote Side:

Table with 3 columns: Pin, Function, Comment. Lists pins 1 through 4 with their respective functions and comments for the remote side.

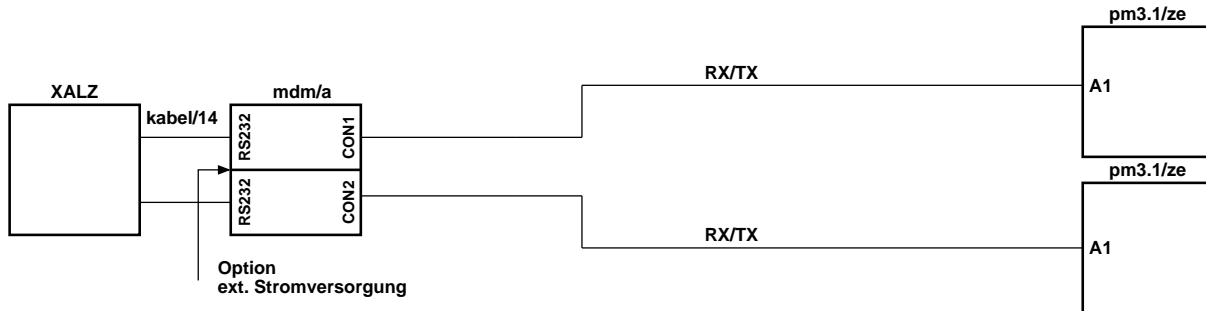
The modem may only be connected to either another pm3../ze/mdm/.. modem which is approved for use in fire-damp endangered atmospheres or to the A1 connection on a pm3../ze/.,



main computer, EC Type Examination Certificate INERIS 03ATEX0269X.

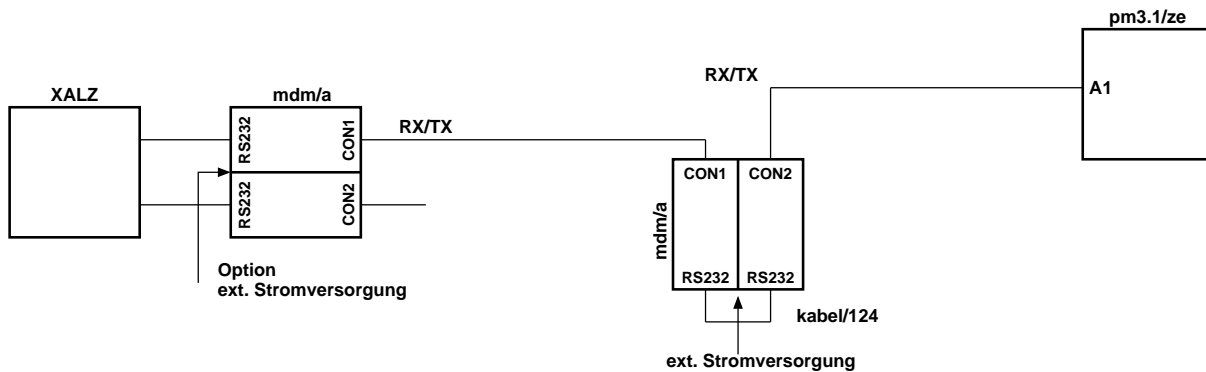
Application:

The unit *pm3.1/ze/mdm/a* consists of two independent modems. Two underground stations can thus be connected to the main surface station.



Application as signal repeater

Together with the cable *kabel/124* and an external power supply, the modem can also be used as a data channel signal repeater for distances of over 13km. The order number for this kit is *pm3.1/ze/mdm/d*. One kit per section is required.



The use of the modem is not limited to this application; it can be used generally for serial data transmission in intrinsically safe areas.

LEDs:

The TX, RX, TRS, DTR and PWR signals have LEDs. Is the relevant input/output open, then the LED is off. Stand-by (negative potential) is shown as red, active status as green (positive potential).

During normal operation, at least one of the RTS, DTR or PWR LEDs must be illuminated, indicating that the modem has a functioning power supply. The RX and TX LEDs change from red to green in time with the data cycle.

If the power supply is insufficient, then interruptions and errors occur in data transfer. (LEDs are not illuminated or show a weak green).



Cable recommendations

To obtain optimum performance from the modem, please observe the following guidelines:

- Always use twisted-pair telephone cable according to the applicable telecommunication standard - this is *not* an option.
- Use twisted-pair cable with a capacitance of 65.6 pF/m (20 pF/ft) or less.
- Avoid twisted-pair cable thinner than 26 AWG (that is, avoid higher AWG numbers than 26).
- Using twisted-pair cable with a resistance greater than that listed here might reduce the maximum distance you can run the cable, but should not otherwise affect your system.

Data rate in bps	Maximum distance in km (miles)		
	19 AWG (53Ω/km)	24 AWG (170Ω/km)	26 AWG (270Ω/km)
19,200	14.5(9)	8 (5)	4.8(3)
38,400	9.7(6)	5.6(3.5)	3.2(2)

Many environmental factors can affect the maximum distances obtainable at a particular site. Use this table as a general guideline only.

If disturbances occur despite of attending the specifications above, the use of another twisted pair wires may sometimes solve the problem.

Order Number	Release	Description
pm3.1/ze/mdm/a pm3.1/ze/mdm/d kabel/14	1.0	I.S. Modem incl. 2 connecting cables to PC I.S. Modem Signal repeater kit Connecting cable between PC and modem (incl. in delivery package pm3.1/ze/mdm/a)

