

APPLICATION NOTE

Setting up the Modbus communication of a CM-UFD.M*M

Grid feeding monitoring relay



The CM-UFD.M*M grid feeding monitoring relays have an integrated RS-485 Modbus RTU interface to communicate with the control system.

This application note describes which parameters have to be set and where to find them.

Modbus RTU

This communication interface enables control commands (e.g. remote trip) to the CM-UFD.M*M and provides status information as well as actual process values. The complete register maps can be found in the corresponding CM-UFD.M*M data sheet:

- CM-UFD.M31M: see document [2CDC112270D0201](#)
- CM-UFD.M22M: see document [2CDC112258D0201](#)
- CM-UFD.M33M: see document [2CDC112271D0201](#)
- CM-UFD.M34M: see document [2CDC112272D0201](#)

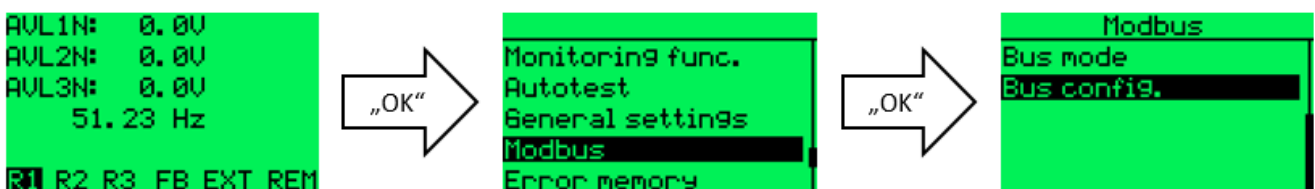
RS-485 is a serial interface standard for communication over a twisted-pair cable. The RS-485 standard specifies only the electrical characteristics of the bus system. The RS-485 transmission line consists of three wires: A, B and C. The isolated signal ground should be connected to prevent common mode voltage between the network devices from drifting outside the allowable limits. The CM-UFD.M*M is not equipped with internal bus termination to prevent signal reflections from the bus cable ends, therefore external termination resistors have to be used according to Modbus specifications. Cable type and cable length have to be selected according to the Modbus specification. The use of passive bus sublines should be avoided.

Configuration of the CM-UFD.M*M

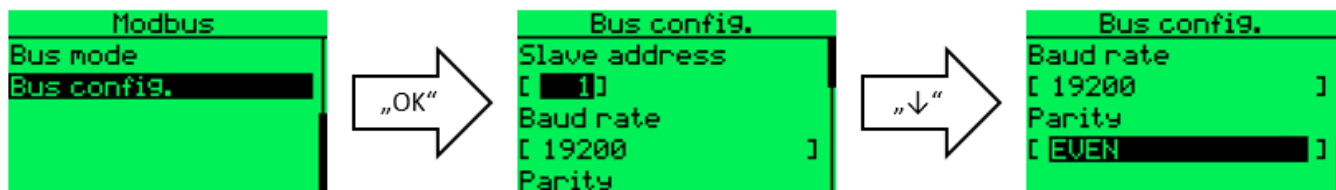
Before the CM-UFD.M*M can communicate with the control system, the communication has to be enabled and also configured correctly. Please consider that baud rate and parity always have to match the settings in the control system. When changing communication parameters, no power cycle is necessary.

The configuration is done via the push buttons of the CM-UFD.M*M:

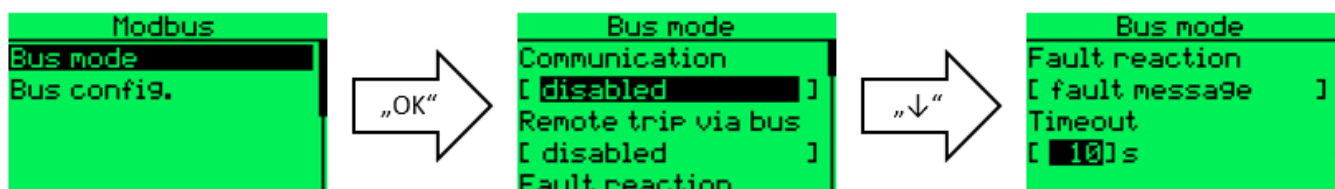
1. Press “OK” to enter the menu.
2. Enter the menu “Modbus” → “Bus config.”



3. Set the bus address to a value between “1” and “247”.
4. Set the Baud rate and the parity of the Modbus RTU communication.



5. Return to the “Modbus” menu and open “Bus mode”.
6. The following settings are available:
 - a) “Communication”: enables/disables the bus communication.
 - b) “Remote trip via bus”: the PLC can send a bit over Modbus RTU to trip output relay R1
 - c) “Fault reaction”: In case of a bus fault, one of the following reactions can be selected:
 - Trip R1 to disconnect the power plant from the grid
 - Signalization via output relay R3
 - Signalization via fault message in the display
 - Forcing external signal to activate the restrictive thresholds S1
 - d) “Timeout”: When the set time is over and no signal from the control system was received, the CM-UFD.M*M assumes that the connection to the control system is lost and indicates a bus fault.



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