

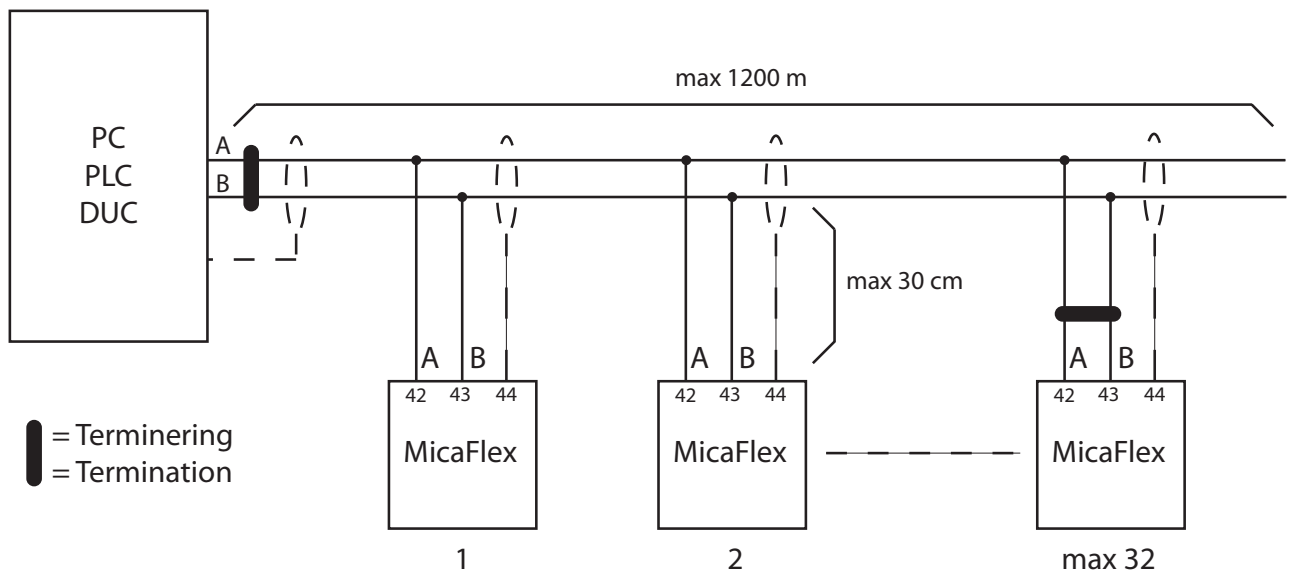
Modbus RTU Data communication module with RS-485 interface

Modbus-RTU MF-PD ver 4

Electrical connection

The communication module for Modbus RTU uses RS-485 as interface and has 4 terminals:

- 41 Signal zero (normally not used)
- 42 A (T+/R+)
- 43 B (T-/R-)
- 44 Shield



RS-485 must be terminated in each end of the bus and it is done by setting the miniature switches on DIL1 in position 'ON'. The termination is done to prevent signal reflections in the wire and at the same time set the bus (RS-485) to a preset passive signal level. This minimize the risc of signal and communication distortion. According to standard the twisted-paired wires are namned with A and B. An older name for A is T+ and for B the older name is T-. When connecting, lead 'A' should be connected to 'A' and lead 'B' connected to 'B'.

Common guidelines:

- The used cable should be of twisted-pair type.
- Bus-net must be used as topology, NOT any star-net. Max distance between the bus and each unit is 30 cm.
- Each end of the bus must be terminated.
- Max length of the bus is approximately 1200 meter, depending on cable quality.
- Max number of connected units to the bus is 32 pcs.

Configuration

Parameters for Modbus RTU.

No.	Description	Min	Max	Preset
P10	Address	1	247	21
P11	Baud OFF = Off 600 = 600 1200 = 1200 2400 = 2400 4800 = 4800 7200 = 7200 9600 = 9600 14400 = 14400 19200 = 19200 38400 = 38400 57600 = 57600	OFF	5760	884
P12	Parity none = No parity odd = Odd parity even = Even parity	none	even	none
P13	Protect no = Read and write yes = Read only	no	yes	no

- P10 is the units unique address on the bus. Using several units on the same bus requires that each unit has its own unique address.
- P11 is the transfer rate. It is very important that all units are configured with the same rate in Baud.
- P12 is the selected parity for data communication. All units on the same bus must use the same parity to communicate. If 'NONE' is selected, two stop bits are automatically added. If 'ODD' or 'EVEN' parity is used, one stop bit is automatically added.
- P13 is used to protect the configuration and settings to be altered through remote access. 'YES' will result in read-only mode, i.e. parameters and values can only be read on the remote terminal. 'NO' will result in read and write permissions on the remotely accessed unit, i.e. parameters can be read and changed. It is for example possible to set a different alarm limit value through the Modbus RTU.

Reading values from the parameter list

Reading of parameter list is done with the function 03 in Modbus RTU, "Read Holding Registers". Parameter P00 is read from register 40001, P01 is read from register 40002 etc. All communication use only integer values.

Writing values to the parameter list

Writing to parameter list is done with the function 06 in Modbus RTU, "Preset Single Register" alternatively function 16, "Preset Multiple Registers". Parameter P00 uses register 40001, P01 uses register 40002 etc. All communication use only integer values.

Reading current values

Reading of current values is done with the function 04 in Modbus RTU, "Read Input Registers". Current value I00 is read from register 30001, I01 is read from register 30002 etc. All communication use only integer values.

Micaflex-PD: [Applies to software version I/O-board 4.10 and higher]**Parameters**

Register	No.	Description	Min	Max	Decimals
40001 *	P00	Software version I/O-board	0,00	99,99	2
40002	P01	Alarm limit [Pa]	Min. pressure	Max. pressure	0
40003	P02	Time delay [seconds]	000	600	0
40004	P03	Alarm function	0 = Off 1 = High alarm 2 = Low alarm		
40005	P04	Indication of pressure	0 = Positive ind. 1 = Negative ind.		
40006	P05	<i>Not used</i>			
40007	P06	<i>Not used</i>			
40008	P07	<i>Not used</i>			
40009 *	P08	Software version I/O-board	0,00	99,99	2
40010 *	P09	Software version displayboard	0,00	99,99	2
40011	P10	Address	1	247	0
40012	P11	Baud	0 = Off 1 = 600 2 = 1200 3 = 2400 4 = 4800 5 = 7200 6 = 9600 7 = 14400 8 = 19200 9 = 38400 10 = 57600		
40013	P12	Parity	0 = No parity 1 = Odd parity 2 = Even parity		
40014	P13	Protect	0 = Read and write 1 = Read only		

* = Read only

Current values

Register	No.	Value	Min	Max	Decimals
30001	I00	Software version I/O-board	0,00	99,99	2
30002	I01	Current pressure	Min. pressure	Max. pressure	0
30003	I02	<i>Not used</i>			
30004	I03	Status alarm limit	0 = Normal 1 = Alarm		

AB Micatrone
Åldermansvägen 3
SE-171 48 SOLNA
SWEDEN

Telephone: +46 8-470 25 00
Fax: +46 8-470 25 99
Internet: www.micatrone.com
E-mail: info@micatrone.se