Quick Guide

MOP301 - Moisure in Oil Probe with Modbus RTU

your partner in sensor technology.

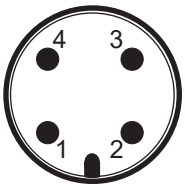
PLEASE NOTE

Find this document and further product information on our website at www.epluse.com/mop301.

Electrical Connection

WARNING

Incorrect installation, wiring or power supply may cause overheating and therefore personal injuries or damage to property.
For correct cabling of the device, always observe the presented wiring diagram for the product version used.
The manufacturer cannot be held responsible for personal injuries or damage to property as a result of incorrect handling, installation, wiring, power supply and maintenance of the device.



M12 device plug
front view

Pin number	Function
1	Supply voltage 24 V DC class III (Europe) / class 2 (North America)
2	RS485 B (D-)
3	GND
4	RS485 A (D+)

Modbus Setup

	Factory settings	User selectable values (via PCS10)
Baud rate	9600	9600, 19200, 38400, 57600, 76800, 115200
Data bits	8	8
Parity	Even	None, odd, even
Stop bits	1	1, 2
Modbus address	70	1...247

PLEASE NOTE

Customer specific factory settings deviating from the above are indicated directly on the probe.

Example: Modbus RTU (19200 8-E-1 ID: 40)

Baud rate
Data bits
Parity
Stop bit
Modbus address

The recommended settings for multiple devices in a Modbus RTU network are 9600, 8, Even, 1. The MOP301 represents 1 unit load in a Modbus network.
Device address, baud rate, parity and stop bits can be set via:

- PCS10, Product Configuration Software and the appropriate configuration cable HA011018.
  The PCS10 can be downloaded free of charge from www.epluse.com/pcs10.
- Modbus protocol in the register 1 (0x00) and 2 (0x01).
  See Application Note Modbus AN0103 (available at www.epluse.com/mop301).

The serial number as ASCII-code is located in read-only registers 1 - 8 (0x00 - 0x07, 16 bits per register).
The firmware version is located in register 9 (0x08) (bit 15...8 = major release; bit 7...0 = minor release).
The sensor name as ASCII-code is located in read-only registers 10 - 17 (0x09 - 0x11, 16 bits per register).

Communication settings (INT16)

Parameter	Register number[1] [Dec]	Register address[2] [Hex]	Size[3]
Write register: function code 0x06			
Modbus address[4]	1	00	1
Modbus protocol settings[4]	2	01	1

Device information (INT16)

Parameter	Register number[1] [Dec]	Register address[2] [Hex]	Size[3]
Read register: function code 0x03 / 0x04			
Serial number (as ASCII)	1	00	8
Firmware version	9	08	1
Sensor name (as ASCII)	10	09	8
Device status (bit decoded)[4]	602	0x259	1

1) Register number (decimal) starts from 1.
2) Register address (hexadecimal) starts from 0.
3) Number of registers
4) For Modbus protocol settings see Application Note Modbus AN0103 (available on www.epluse.com/mop301).

Modbus Register Map

FLOAT32

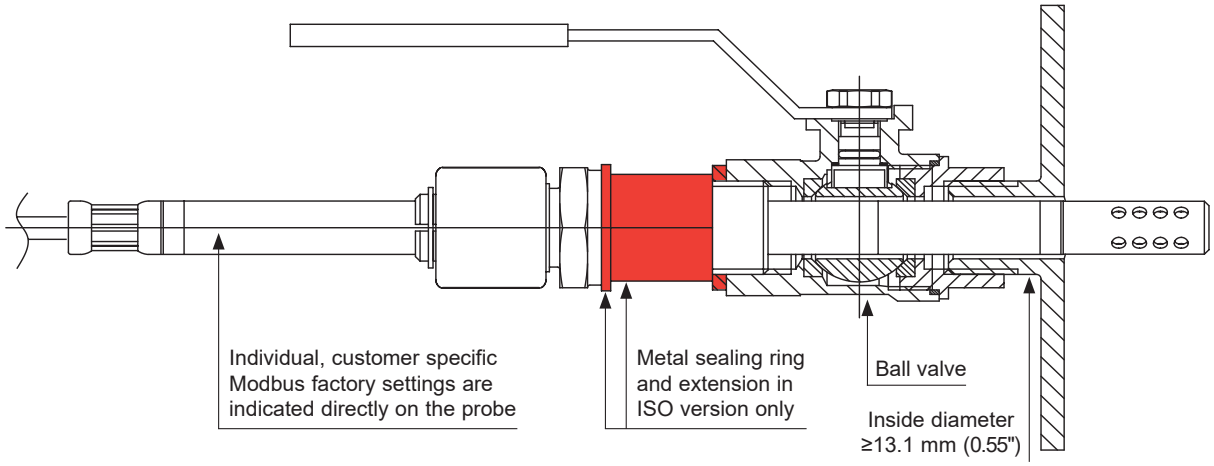
Parameter	Unit	Register number[1] [DEC]	Register address[2] [HEX]
Read register: function code 0x03 / 0x04			
Water activity aw	-	1135	46E
Water content x	ppm	1141	474
Temperature	°C	1003	3EA
	°F	1005	3EC
Saturation	%	1137	470
Oil parameter A	-	0224	DF
Oil parameter B	-	0226	E1
Write register: function code 0x10			
Oil parameter A[3]	-	0101	64
Oil parameter B[3]	-	0103	66

1) Register number starts from 1
2) Register address starts from 0
3) Examples: Writing Parameter A -2663.30005 decimal: 46 10 00 64 00 02 04 74 CD C5 26 E3 44
Writing Parameters A and B -1663.30005 and 7.3705 decimal: 46 10 00 64 00 04 08 E9 9A C4 CF DB 23 40 EB CA 19
If two parameters are to be uploaded, it is recommended to write them with a single command.

Installation

PLEASE NOTE

Continuous oil flow allows for short response time. In such installations, place the sensor with the perforated filter at least partially within the oil



Mounting example with a ball valve (not included in the scope of supply).
For further mounting options, please refer to the user manual on our website: www.epluse.com/mop301.

Approval

DNV (Det Norske Veritas) maritime type approval.
For the scope of approval, please refer to the User Manual, chapter 9.4 DNV Type Approval.

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