



MODBUS Submersible Level Transmitter

Communication Protocol



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NOTICE

Read this manual before working with the product. For personal and system safety, and for optimum product performance, make sure you thoroughly understand the contents before installing, using, or maintaining this product.

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Pressure Transmitter Communication Protocol

Communication format:

I. Read command format (03 function code) example:

A. Send Read command format

| Register Address | function code | Register High Address (H) | Register High Address (L) | Register Quantity High Byte (H) | Register Quantity Low Byte (L) | CRC16 (L) | CRC16 (H) |
|------------------|---------------|---------------------------|---------------------------|---------------------------------|--------------------------------|-----------|-----------|
| 0 X 01 | 0 X 03 | 0 x 00 | 0 x 00 | 0 x 00 | 0 X 01 | 0 X 84 | 0 X 0A |

B. Return Read data format:

| Register Address | function code | Data Bytes | data (H) | data (L) | CRC16 (L) | CRC16 (H) |
|------------------|---------------|------------|----------|----------|-----------|-----------|
| 0 X 01 | 0 X 03 | 0 X 02 | 0 X 00 | 0 X 01 | 0 X 79 | 0 X 84 |

II. Write comm and format (06 function code) example

A. Send write command format

| Register Address | function code | Register High Address (H) | Register High Address (L) | Register Quantity High Byte (H) | Register Quantity High Byte (L) | CRC16 (L) | CRC16 (H) |
|------------------|---------------|---------------------------|---------------------------|---------------------------------|---------------------------------|-----------|-----------|
| 0 X 01 | 0 X 06 | 0 X 00 | 0 X 00 | 0 X 00 | 0 X 02 | 0 X 08 | 0 X 0B |

B. Return write data format example:

| Register Address | function code | Register High Address (H) | Register High Address (L) | Register Quantity High Byte (H) | Register Quantity High Byte (L) | CRC16 (L) | CRC16 (H) |
|------------------|---------------|---------------------------|---------------------------|---------------------------------|---------------------------------|-----------|-----------|
| 0 X 01 | 0 X 06 | 0 X 00 | 0 X 00 | 0 X 00 | 0 X 02 | 0 X 08 | 0 X 0B |

III. Abnormal response return

| Register Address | function code | Abnormal code | CRC16 (L) | CRC16 (H) |
|------------------|------------------------|---|-----------|-----------|
| 0 X 01 | 0 X 80 + function code | 0 X 01 (illegal function) 0 X 02 (illegal data address) 0 X 03 (illegal data) | | |

Supported command, meaning of command and data

MODBUS-RTU protocol command list is as follows:

| Function code | Register High Address | Register Quantity High Byte | Data byte | Data scope | Command meaning |
|---|-----------------------|-----------------------------|-----------|---|---|
| 0 X 03 function code read data | | | | | |
| 0 X 03 | 0 X 0000 | 1 | 2 | 1-255 | Read slave address |
| 0 X 03 | 0 X 0001 | 1 | 2 | 0-1200 1-2400 2-4800 3-9600 4-19200 5-38400 6-57600 7-115200 | Read Baud rate |
| 0 X 03 | 0 X 0003 | 1 | 2 | 0-#### 1-###.# 2-##.## 3-#.### | Decimal point stands for 0-3 digits decimal points |
| 0 X 03 | 0 X 0002 | 1 | 2 | 0- Mpa/°C I 1- Kpa 2- Pa 3- Bar 4- Mbar 5- kg/cm ² 6- psi 7- mh ² o 8- mmh ² o | Pressure unit |
| 0 X 03 | 0 X 0004 | 1 | 2 | -32768 -32767 | Measurement output value |
| 0 X 03 | 0 X 0005 | 1 | 2 | -32768-32767 | Zero point of transmitter range |
| 0 X 03 | 0 X 0006 | 1 | 2 | -32768 -32767 | Full point of transmitter range |
| 0 X 03 | 0 X 000c | 1 | 2 | -32768 -32767 | Zero point offset value, generally factory sets as 0. |
| 0 X 06 function codes write data | | | | | |
| 0 X 06 | 0 X 0000 | | 2 | 1-255 | Write slave address |
| 0 X 06 | 0 X 0001 | | 2 | 0-1200 1-2400 2-4800 3-9600 4-19200 5-38400 6-57600 7-115200 | Write Baud rate |
| 0 X 06 | 0 x 000c | | 2 | -32768 -32767 | Zero point offset value* pressure output value= calibration measurement value + Zero point offset value |

| Save and factory reset | | | | | |
|------------------------|----------|--|---|-----------------------------|--|
| 0 X 06 | 0 X 000F | | 2 | 0- save t o user area | |
| 0 X 06 | 0 X 0010 | | 2 | 1- factory reset | |



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DOC#TEK/TIPS/MNL/IM-COMMUNICATION_PROTOCOL/24/05/20/00_1
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