



# Modbus Module

sonico® EDGE



## Your benefits

- Detailed volume and flow rate information:  
**Cumulative, forward, and reverse volume incl. information about actual flow rate**
- Temperature information:  
**Precise water and environmental temperature measurements**
- Alarm status and version information:  
**Alarm status of the flow meter and information about actual firmware version installed.**
- High flexibility:  
**Multiple communication modules attached to the meter can operate simultaneously.**
- Water proof design:  
**Sealed housing (IP68)**
- Plug & Play:  
**Easy and fast on-site installation with auto NFC interface-detection**

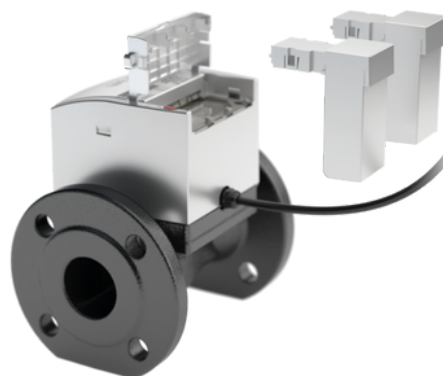
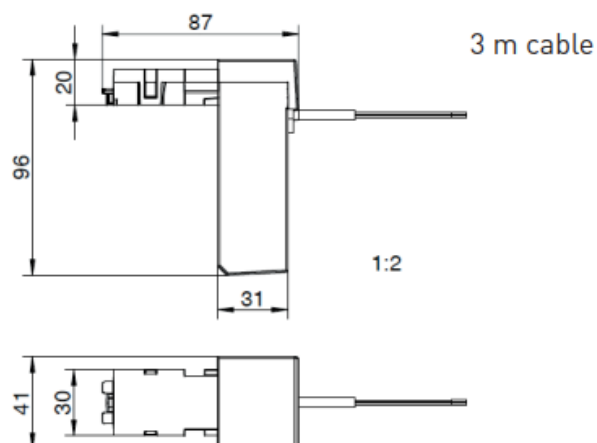
## Properties

- ModbusRTU/ASCII protocol with extended flowmeter data
- Compatible with sonico EDGE flowmeter DC powered over Modbus
- cable Simple installation and automatic start-up after connecting to meter. Continuous and tamper-proof connection, thoroughly reliable
- results Can be factory fitted or retrofitted at installation site without breaking metrological seal.
- Snap-in NFC module slots – no connectors or cables needed.
- CE Approval

## Applications

- Industrial application
- Building management system
- Data logging in combination with various data loggers
- Installation in harsh and flooded environment

## Dimensions (mm)



## Technical data

### General

|                                 |                                |
|---------------------------------|--------------------------------|
| Operating temperature           | -25 to + 70 °C                 |
| Storage temperature             | -25° to 70°C (dry environment) |
| Weight potted Module with cable | 290 g                          |

### Electrical data

|                                  |                                |
|----------------------------------|--------------------------------|
| Voltage supply                   | + 12 VDC to + 24 VDC (+/- 10%) |
| Standby current                  | 4 mA                           |
| Operating current                | <30 mA                         |
| Relative humidity                | 0 to 90 % (IP68)               |
| Min. req. FW version Sonico EDGE | COM 2.XX                       |
| Bus termination                  | Line termination 120 ohm       |

### Cable connection

|                                                             |                                         |
|-------------------------------------------------------------|-----------------------------------------|
| Cable                                                       | Twisted pair RS-485 (2x2x0.25 shielded) |
| Length                                                      | 3m                                      |
| Max. allowed cable length (default installation conditions) | 30m                                     |
| RS-485 cable interface                                      | Terminal A, B and shield (Ground or PE) |

| Protocol value |                        |
|----------------|------------------------|
| Value          | Corresponding Protocol |
| 7              | ASCII                  |
| 8              | RTU (default)          |

| Parity |                      |
|--------|----------------------|
| Value  | Corresponding Parity |
| 0      | None (default)       |

| Stop Bit |                        |
|----------|------------------------|
| Value    | Corresponding Stop bit |
| 1        | 1 (default)            |
| 2        | 2                      |

| Baud rate [BPS] (The Protocol value defines the data bits.) |                         |
|-------------------------------------------------------------|-------------------------|
| Value                                                       | Corresponding Baud rate |
| 1                                                           | 600                     |
| 2                                                           | 1200                    |
| 3                                                           | 2400                    |
| 4                                                           | 4800                    |
| 5                                                           | 9600                    |
| 6                                                           | 19200 (default)         |
| 7                                                           | 34800                   |
| 8                                                           | 57600                   |
| 9                                                           | 115200                  |

## Holding Register (Big Endian Encoding)

Read Holding Register = Function Code 3

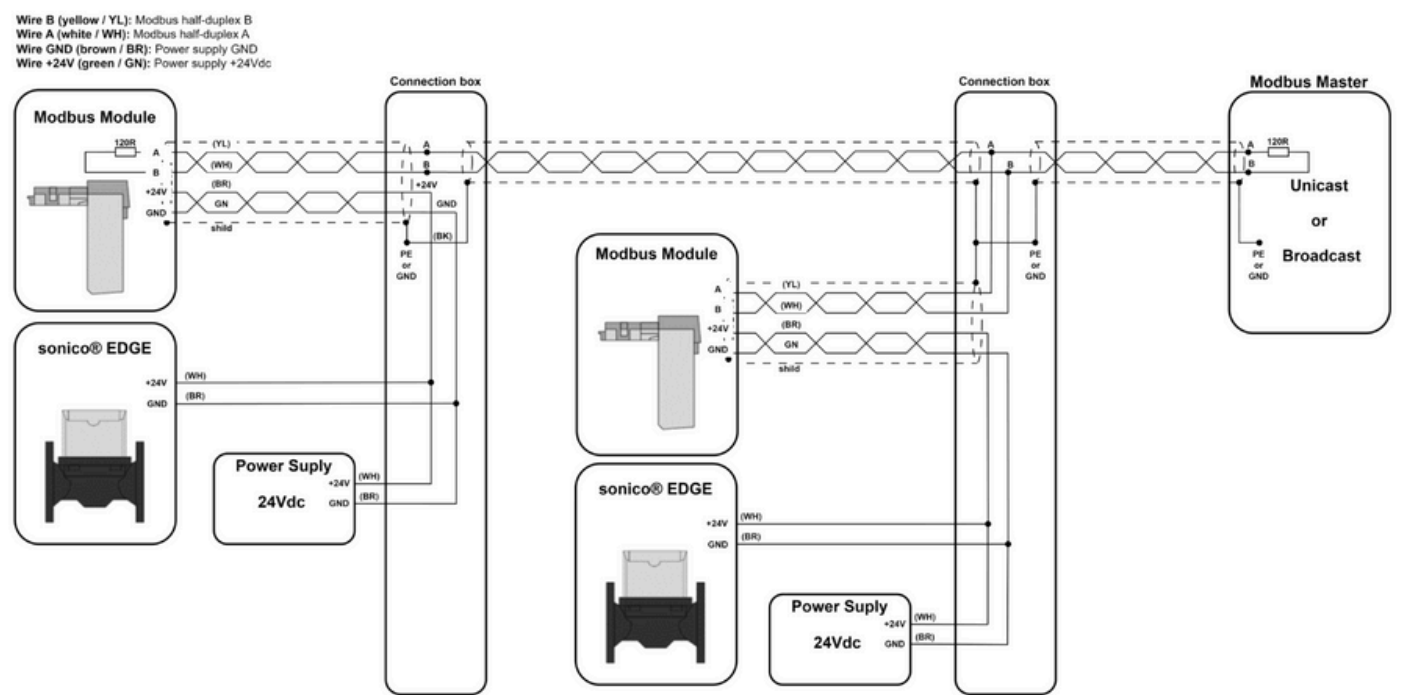
Write Single Register = Function Code 6

| Address | Size [bit] | Access [R/W] | FCN Code | Values / parameters /                                                         | Description      |
|---------|------------|--------------|----------|-------------------------------------------------------------------------------|------------------|
| 1000    | 16         | R            | 3        | Module readout with fixed hex value:<br>- Default value 0x1EE6 for GWF        | Manufacturer ID  |
| 1001    | 16         | R            | 3        | Module readout with fixed unsigned value,<br>FW Version = readout value / 100 | Firmware Version |

| Address | Size [bit] | Access [R/W] | FCN Code | Values / parameters /                                                                                                                                                                                                                                                                                                          | Description        |
|---------|------------|--------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 100     | 1          | R            | 3        | Module readout with fixed unsigned value type 7                                                                                                                                                                                                                                                                                | Device Type        |
| 2       | 6          | R            | 3        | Meter readout with fixed unsigned value                                                                                                                                                                                                                                                                                        | Volume Unit        |
| 100     | 1          | R            | 3        | Meter readout with fixed unsigned value                                                                                                                                                                                                                                                                                        | Volume Decimals    |
| 3       | 6          | R            | 3        | Meter readout with fixed unsigned value                                                                                                                                                                                                                                                                                        | Flow Unit          |
| 100     | 1          | R            | 3        | Meter readout with fixed unsigned value                                                                                                                                                                                                                                                                                        | Flow Decimals      |
| 4       | 6          | R            | 3        | Meter readout with fixed unsigned value:<br>- Operation = 2<br>- Testbench = 3                                                                                                                                                                                                                                                 | Meter Mode         |
| 5       | 6          | R            | 3        | Meter readout with fixed unsigned value:<br>- No flow direction set = 0<br>- Arrow direction from right to left = 1<br>- Arrow direction from left to right = 2                                                                                                                                                                | Flow Direction     |
| 100     | 1          | R            | 3        | Meter readout with fixed unsigned value:<br>- Meter 24 VDC powered = 0<br>- Meter Battery powered = 1                                                                                                                                                                                                                          | Battery Symbol     |
| 1009    | 16         | R            | 3        | 64-bit Meter value readout:<br>- In Operation Mode = 2 with 3 decimals<br>- In Testbench Mode = 3 with 4 decimals                                                                                                                                                                                                              | Cumulative Volume  |
| 1010    | 4x16       | R            | 3        | 64-bit Meter value readout, no decimals                                                                                                                                                                                                                                                                                        | Volume Flow        |
| 1014    | 4x16       | R            | 3        | 64-bit Meter value readout:<br>- In Operation Mode = 2 with 3 decimals<br>- In Testbench Mode = 3 with 4 decimals                                                                                                                                                                                                              | Forward Volume     |
| 1018    | 4x16       | R            | 3        | 64-bit Meter value readout:<br>- In Operation Mode = 2 with 3 decimals<br>- In Testbench Mode = 3 with 4 decimals                                                                                                                                                                                                              | Reverse Volume     |
| 1022    | 4x16       | R            | 3        | Air Temperature =<br>Edge value readout/100                                                                                                                                                                                                                                                                                    | Air Temperature    |
| 1026    | 16         | R            | 3        | Water Temperature =<br>Edge value readout/100                                                                                                                                                                                                                                                                                  | Water Temperature  |
| 1027    | 16         | R            | 3        | Meter hex value readout:<br>- No error 0x00                                                                                                                                                                                                                                                                                    | Module Status      |
| 1028    | 16         | R            | 3        | - Module not physically attached on an Edge 0x30<br>- Module physically attached on an Edge but Edge not responding at all 0xB0<br>- Wrong messages received 0x50<br>- Any Edge Alarm - Alarm Bank 1-2 0x13<br>Meter hex value readout:<br>- Air in pipe 0x0001<br>- Reverse flow 0x0004                                       | Alarm 1            |
| 1029    | 16         | R            | 3        | - Leak detection 0x0008<br>- Burst pipe 0x0010<br>- No usage 0x0020<br>- Water temperature 0x0080<br>- Electronics temperature 0x0100<br>- No external power supply 0x2000<br>- Internal error (Any MET alarm) 0x8000<br>Meter hex value readout:<br>- AES encryption 0x0001<br>Edge SN readout with max. 8 numeric characters | Alarm 2            |
| 1030    | 16         | R            | 3        |                                                                                                                                                                                                                                                                                                                                | EDGE Serial Number |
| 1031    | 2x16       | R            | 3        |                                                                                                                                                                                                                                                                                                                                |                    |

| Address | Size [bit] | Access [R/W] | FCN Code | Values / parameters /                                                                                                                                                  | Description                   |
|---------|------------|--------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 1033    | 16         | R            | 3        | TOF =<br>Edge value readout/ 2^32                                                                                                                                      | Time of flight path 1 forward |
| 1037    | 16         | R            | 3        | TOF =<br>Edge value readout/ 2^32                                                                                                                                      | Time of flight path 1 reverse |
| 1041    | 16         | R            | 3        | TOF =<br>Edge value readout/ 2^32                                                                                                                                      | Time of flight path 2 forward |
| 1045    | 16         | R            | 3        | TOF =<br>Edge value readout/ 2^32                                                                                                                                      | Time of flight path 2 reverse |
| 1049    | 16         | R            | 3        | Amplitude =<br>Edge value readout/ 2^32                                                                                                                                | Amplitude path 1 forward      |
| 1050    | 16         | R            | 3        | Amplitude =<br>Edge value readout/ 2^32                                                                                                                                | Amplitude path 1 reverse      |
| 1051    | 16         | R            | 3        | Amplitude =<br>Edge value readout/ 2^32                                                                                                                                | Amplitude path 2 forward      |
| 1052    | 16         | R            | 3        | Amplitude =<br>Edge value readout/ 2^32                                                                                                                                | Amplitude path 2 reverse      |
| 2000    | 16         | R/W          | 3/6      | Set C: Stop Bits, B: Parity and AA: Baud<br>Rate according UART Data Setup:<br>0xCBA, default 19200, 8, n, 1                                                           | UART Setup                    |
| 2001    | 16         | R/W          | 3/6      | 1 to 247, default address 1<br>Reserved Addresses (do not use):<br>- Broadcast 0<br>- Modbus specific 248-255<br>0 = ASCII<br>1 = RTU, default (1 = RTU)<br>KEY: 12345 | Modbus Address                |
| 2002    | 16         | R/W          | 3/6      |                                                                                                                                                                        | Modbus Protocol               |
| 2003    | 16         | W            | 6        |                                                                                                                                                                        | Safe & Reboot                 |

Electrical scheme



## Standards

|               |                           |                   |
|---------------|---------------------------|-------------------|
| EC 61000-4-5  | 1.2/50- $\mu$ s surge     | $\pm 4,000$ [kV]  |
| IEC 61000-4-2 | Contact discharge         | $\pm 15,000$ [kV] |
| IEC 61000-4-2 | Air-gap discharge         | $\pm 15,000$ [kV] |
| IEC 61000-4-4 | Electrical fast transient | $\pm 4,000$ [kV]  |