

AMBUS® IS

M-Bus pulse collector

Applications

Pulse collector for connecting meters with pulsers to M-Bus systems or transmitting status signals to M-Bus systems. These pulsers are equipped with a mechanical contact, open collector or a Namur output circuit (DIN 1924). With a 12...18 VAC or 12...24 VDC power supply.



Features

- Pulse collector with an M-Bus interface
- Status signal input with M-Bus interface
- 12...18 VAC or 12...24 VDC external power supply
- Configuration via AMBUS® Win Software

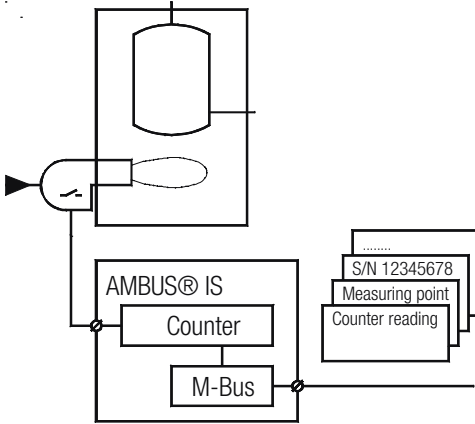
Benefits

- Connecting meters with pulsers to M-Bus systems
- Recording status signals with M-Bus systems
- Maintenance-free, without batteries
- Easy start-up

Product description

AMBUS® IS is a converter for an M-Bus interface providing binary signals to the M-Bus network. The following two applications are available:

Pulse collector application

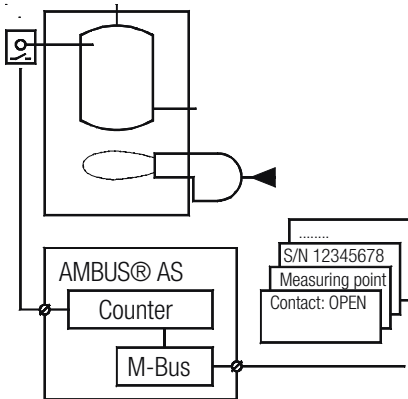


When parameterised as pulse collector, AMBUS® IS collects the incoming impulses from a single device in a counter and allows to read the counter through an M-Bus Network.

One AMBUS® IS is required for every device connected to the M-Bus in order to ensure that the measuring point is identifiable and unique. The text field (or tag) for the measuring point can easily be stored in the AMBUS® IS. The M-Bus then identifies the measuring point either by the 8-character serial number of the AMBUS® IS (secondary address) or by a primary address which can be set by the operator.

The input of the AMBUS® IS is for a pulser with a potential-free contact, an open collector or Namur output circuit conforming to DIN 1924. A filter to eliminate the bounce of the input signal can be activated as required. This is especially recommended for pulsers with mechanical contacts (e.g. reed switches). The settings and readout are carried out using the M-Bus. The AMBUS® IS itself has no display or operating keys and requires no maintenance since no alkaline or rechargeable batteries are required to operate it.

Alarm or status collector application



When parameterised as alarm collector, AMBUS® IS reads a single binary signal from an device and allows to read signal status and overall number of events through an M-Bus Network.

General features

AMBUS® IS can read input from a mechanical contact or an open collector or Namur output-circuit (DIN 19234). An input filter can be activated to debounce the signal (recommended for reed contacts).

The measuring point designator can be entered, so it can be read by M-Bus.

The data can be identified by the parametrisable primary M-Bus address, or by using the 8-digit AMBUS® IS serial number as secondary M-Bus address.

AMBUS® IS provides no local display or controls. Parameters can be set with a SW-tool through the M-Bus-Interface (e.g. M-Bus-Tool).

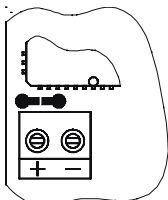
2 Parameters and specification

Data backup

With AMBUS® IS, an EEPROM is used for data backup. An internal backup is performed each full hour and also on voltage interruption. This concerns mainly the counter reading, the date and the time.

Parametrization

AMBUS® IS can be configured by means of the Software AMBUS® Win, which is available on www.aquametro.com / "Downloads" with the corresponding user instruction.



After completion of parametrization, this may be protected from manipulation by setting the so-called 'stop bit', and then sealing the housing cover. This prevents the stop bit from being reset. To re-parameterize a protected AMBUS® IS, the stop bit may be temporarily reset. To do this, the device must be opened. This involves breaking the safety seal and shorting the position designated as 'stop bit' on the PCB.

Following reparametrization or after the change of date to the next day, AMBUS® IS is automatically disabled.

Parameter settings

Parameter	Range	Default value, equivalent to alarm collector application
Impulse value/unit [l for m ³] *	0,00001 ... 0,0333 · 10 ⁰⁰⁰	1 (exclusively)
Physical unit *	m3, kWh, MJ oder "no units"	"no units" (exclusively)
Debounce filter *	Activated / deactivated	As for AMBUS® IS
Medium *	Water Hot water Heat / hot side Heat / cold side Steam Electricity Gas Oil Pressurized air Heating cost allocation scheme Others Not known	Others (The combinations "no units" and "others" define the AMBUS® AS)
Define start counter status *	0 ... 1'000'000 **	0 (exclusively)
Text field for description of measuring point	Max. 32 ASCII-characters **	As for AMBUS® IS
Primary bus address	0 ... 250	As for AMBUS® IS
Baud rate	300 / 2400 / 9600	As for AMBUS® IS
Stop bit *	Set / not set	As for AMBUS® IS
Billing date	DD.MM. 30.06	As for AMBUS® IS
Date/time	DD.MM.YY – hh:mm **	As for AMBUS® IS

Bold type designates factory default setting.

* protected when stop bit set.

** Data depend on production process.

M-Bus data record

Detailed information on the M-Bus protocol and the size of the data record returned by the standard readout (Req_UD2) of an AMBUS® IS can be found in the 'M-Bus data selection' publication.

Internal clock / service hour meter

AMBUS® IS is equipped with a clock with calendar function and service hour meter. The service hour meter begins the summation as soon as AMBUS® IS is connected to the grid. At this point, the clock is switched on, commencing with the time last recorded. All clocks in the appliances connected to the M-Bus can be synchronized with the AMBUS® Data program.

Billing date

At 24.00 hours on the day designated as the billing date, the counter reading, the date and the time are recorded. This information can be read out via M-Bus.

Error messages

Error 7: Voltage too high or too low
Other error messages: Device failure

Voltage supply

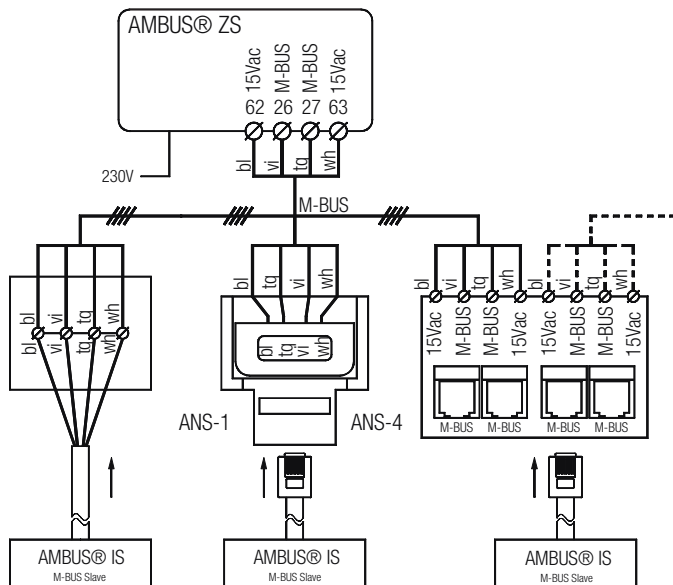
The pulser is connected to a 2 pole contact.

The appliance is connected to the M-Bus via the RJ-11 socket.

AMBUS® IS is connected to the M-Bus installation in the building, either

- with an M-Bus ANS-1/4 terminal point using the oval cable, or
- with a bus connection box using the RJ-11 round cable.

When using an Aquametro M-Bus central unit and 4 pole wiring, in addition to the M-Bus connection, AMBUS® IS/AS has a separate voltage supply.

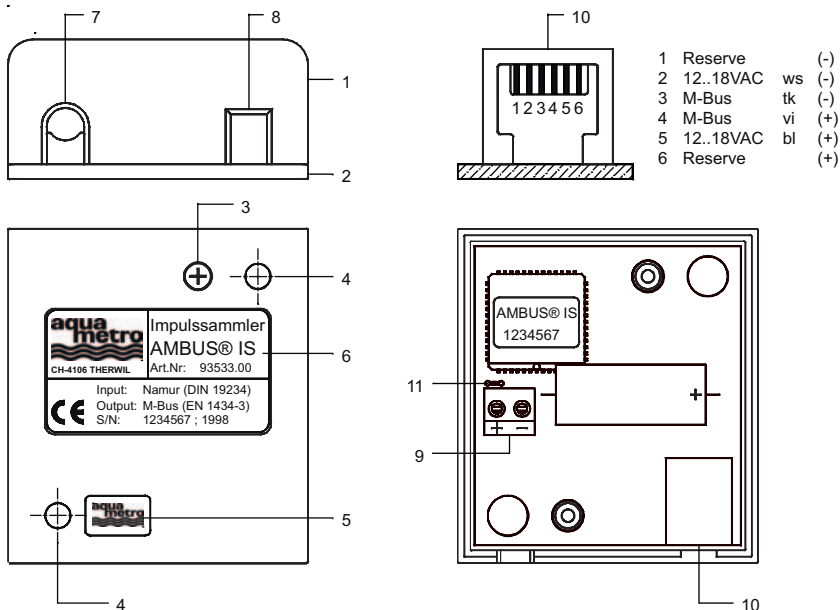


The instructions for installation and operation are included with each appliance. For additional information on planning an M-Bus installation, please refer to our M-Bus planning folder.

Technical data

Supply voltage	12-18 VAC, 50/60 Hz or 12-24 VDC
Current consumption	<20mA
Pulse input	<ul style="list-style-type: none"> • for contact • open collector • Namur pulser according to DIN 19234, galvanically connected to the supply • Mark: <1 mA / space: >2.2mA / short circuit current ca. 8mA
Input frequency	0-1000 Hz
Pulse duration	>0.5ms, debouncing filter disabled
	>25ms, debouncing filter enabled
Pulse line length	max. 30m
Contact cross-section	0.14 – 2.5mm ² rigid or flexible
Cable diameter	max. 7.5mm
Communication interface	M-Bus according to EN 1434.3, potential-free
Communication baudrate	300, 2400*, 9600 baud, *standard
Mounting	Wall mounting with two screws Ø3.5x30mm or adhesive tape
Housing	ASA-PC, red (UL V0)
Ambient temperature	5-55 °C
Protection class / weight	IP40 / 0.065kg
Dimensions	H=67, W=60, D=28mm (see dimensional diagram)

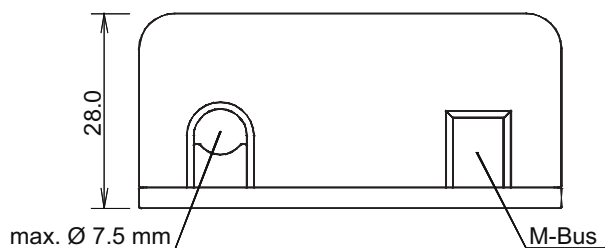
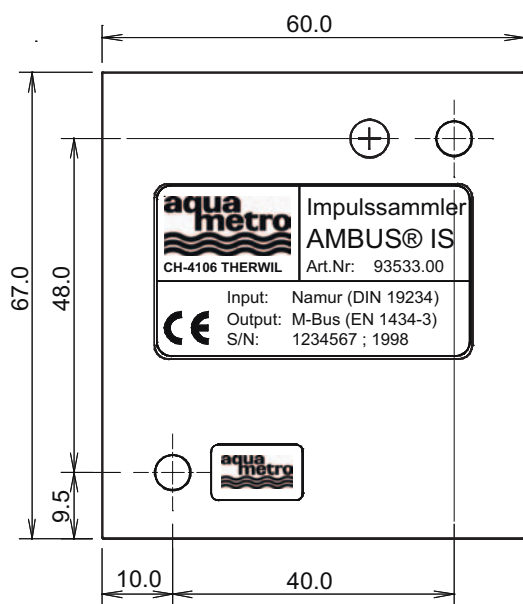
Functional elements and connections



Legend

- 1 Housing cover
- 2 Lower housing
- 3 Housing screw
- 4 Retaining holes
- 5 Safety seal (applied to housing screw)
- 6 Labeling
- 7 Pulser cable entry
- 8 M-bus connection entry
- 9 Pulse input terminal
- 10 RJ-11 socket, M-Bus connection
- 11 'Lock bit' switching area (LOCK)

Overall dimensions



Ordering information

AMBUS® IS

Oval cable 1.5m with RJ-11 connectors at both ends

Art. No. 93533

Art. No. 81589

Aquametro M-Bus accessories for installation

ANS-4/DIN	ANS-4/AP	ANS-1/AP	ANS-1	RJ-11 cable
M-Bus distributor 4x RJ-11 2x4pole terminals	M-Bus distributor, sealable 4x RJ-11 2x4pole terminals	M-Bus connecting box 1x RJ-11	M-Bus connecting box 1x RJ-11	cable 1x RJ-11 2x RJ-11

Aquametro M-Bus software

AMBUS® Data: Readout and data export from M-Bus installations

For further information on the above products, please contact our sales department.

Maintenance

This equipment requires no maintenance.

Standards

All appliances are certified according to CE and product standards requirements. Data transmission accords with EN1434-3:1997.

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