

AMBUS® ZS

Signal-converter

Applications

For fast efficient remote reading at a convenient central location in the building or via modem.



Features

- Built-in power supply for the entire meter network
- Up to 250 meters per AMBUS® signal-converter, with possibilities of extensions
- M-Bus access point via RS232 and RS485 interface for higher-ranking data systems
- Simple M-Bus installation with 4-core cable

Your benefits

- Protection of the tenant's private environment
- The remote reading technology guarantees absolute identicalness with local readings
- Read-out by PC/Modem via the normal M-Bus interface to EN 1434-3 at any time
- User-friendly PC software for reading and maintenance services

AMBUS® Signal-converter

General description

Aquametro presents its M-Bus signal-converter in the form of the AMBUS® ZS product range. AMBUS® ZS supplies the meters with power and forms the interface between M-Bus and PC or automation system. It converts the RS232 or RS485 signals of the PC or automation system connected to it to an M-Bus signal conforming to EN 1434-3, without however interfering in data transmission, and without recourse to intermediate data storage. The associated PC can access the meters on-line and in real time. In this way, the meters can be interactively read out, operated and parameterized.

Product range:

| Signal-converter | Number of M-Bus appliances | RS-485 | M-Bus repeater | Art. No. |
|------------------|----------------------------|--------|----------------|----------|
| AMBUS® ZS 5 | approx. 5 | - | - | 93542 |
| AMBUS® ZS 60 | approx. 60 | • | • | 93538 |
| AMBUS® ZS 250 | approx. 250 | • | • | 93537 |

Busy:

This signal permits to know the RS485-Master that the Master wired to the RS232 is requesting meter dates through the M-Bus and thereby has to stop his communication.

General issues:

For further questions about M-Bus, especially:

- Network planing
- Engineering
- System integration
- Commissioning
- Application software

Aquametro experts are available.

Standards and certification

The appliances are tested according to EN 61010.

They comply with EU requirements and carry the CE mark.

The M-Bus output corresponds to the physical layer as defined in EN 1434-3.

AMBUS® ZS 5



AMBUS® ZS 5 is a low-price signal-converter unit for small M-Bus networks. It is particularly suitable for small installations and laboratory and software testing. It can power up meters.

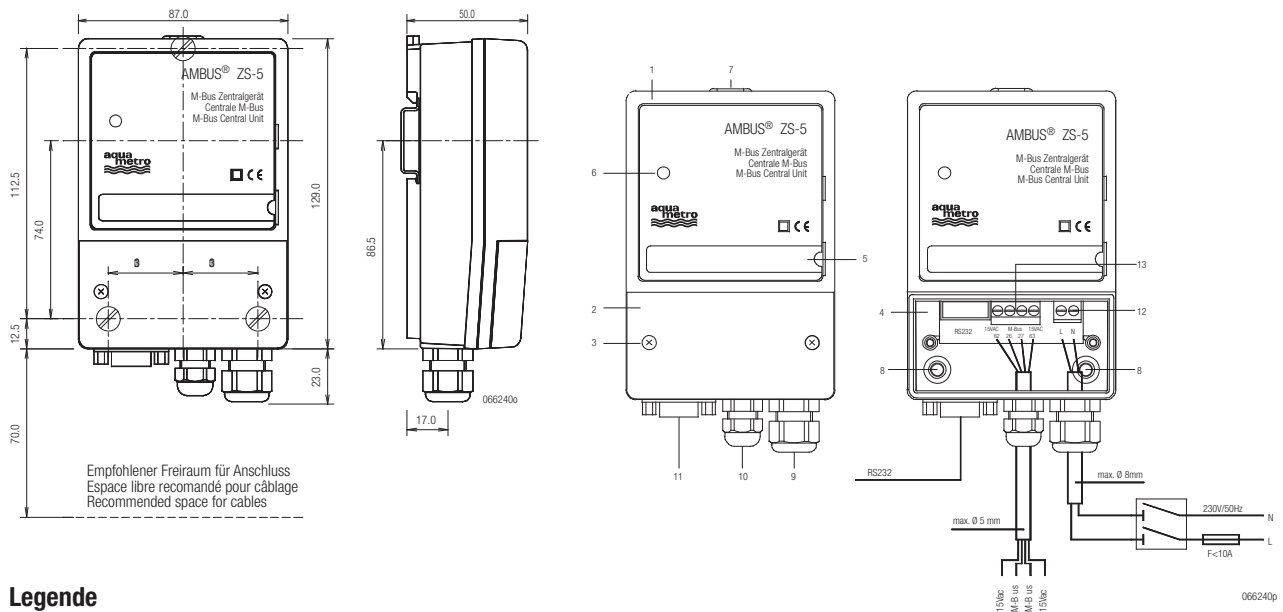
Limitations compared to AMBUS® ZS 60/250

- no RS485 interface, and therefore no busy relay
- no M-Bus Repeater input
- only a single M-Bus circuit available
- small-size plastic IP 42 housing (optionally IP 54)

| AMBUS® | ZS 5 |
|-------------------------|-----------------------------|
| Number of meters (type) | 20*) M-Bus-slaves |
| RS232 | • |
| RS485 | - |
| M-Bus-Repeater | - |
| Transmission rate | 300, 2400, 9600 baud |
| Meter supply*) | 15 V AC ±20 % 300 mA |
| Power supply | 230 VAC +10 %, -15 %, 50 Hz |
| Max. load | 8 VA |
| Ambient temperature | 0...50 °C |
| Protection | IP 42 |
| Dimensions | 129 x 87 x 50 mm |

*) The exact number of meters that may be connected can be calculated based on the supply current available and the current capacity of the individual meters.

Dimensional sketches



Legende

- | | |
|---------------------|--|
| 1 Housing cover | 8 Opening for fixing screw |
| 2 Terminal cover | 9 Cable gland for network connection |
| 3 Cover screws | 10 Cable gland for bus cable |
| 4 Terminal box | 11 9 pin D-Sub socket for RS232 connection |
| 5 Clip-on plate | 12 Mains connection |
| 6 Operating display | 13 Bus connection |
| 7 Mounting | |

AMBUS® ZS 60 / 250



AMBUS® ZS consists of two functional blocks: a low-voltage supply and a bi-directional M-Bus converter with three communication channels (RS232, RS485 and M-Bus Repeater).

Interfaces

AMBUS® ZS permits access to the M-Bus via three interfaces:

- the RS232 interface is the most commonly used interface. It is fitted with a 9 pin D-Sub socket, and can be connected to a free COM port of a PC via standard modem cable
- up to 16 central units can be routed via the RS485 interface, for example to an automation system. At the same time, the RS232 interface can continue to be used for local or modem readout
- the M-Bus Repeater input can be used to amplify the M-Bus signal of another central unit, for example when data must be transmitted over greater distances, or when more than 250 meters must be connected

| AMBUS® | ZS 60 | ZS 250 |
|-------------------------|-----------------------------|-----------------------------|
| Number of meters (type) | 60*) | 250*) |
| RS232 | • | • |
| RS485 | • | • |
| M-Bus Repeater | • | • |
| Transmission rate | 300, 2400, 9600 baud | 300, 2400, 9600 baud |
| Meter supply*) | 15 VAC ±20 % 1.3 A | 15 VAC ±20 % 5 A |
| Power supply | 230 VAC +10 %, -15 %, 50 Hz | 230 VAC +10 %, -15 %, 50 Hz |
| Max. load | 50 VA | 110 VA |
| Ambient temperature | 0...55 °C | 0...55 °C |
| Protection | IP 54 | IP 54 |
| Dimensions | 160 x 240 x 54 mm | 160 x 240 x 54 mm |

*) The exact number of meters that may be connected can be calculated based on the supply current available and the current capacity of the individual meters.

Priority control

The M-Bus master-slave architecture does not permit the bus to be controlled simultaneously by several appliances. The priority control system does, however, permit an M-Bus network to be triggered via different channels of the central unit. Thus using a laptop, the service technician or meter reading service can read out a central unit connected to an automation system by means of an RS485 interface via the RS232 interface. The RS232 interface has highest priority to enable the technician to access the network without unnecessary delay, even when the automation system is in continuous readout mode.

During operation of the RS232 interface, one of the relay contacts is closed (busy). This contact can be used either to inform the automation system that readout is not possible at the present time, or to interrupt the line to the RS485 interface or the M-Bus Repeater.

Notes:

As with other appliances, the Aquametro central units do not support simultaneous readout via multiple channels.

When the central unit is connected to an automatic readout system, and there is a likelihood that the bus could also be accessed via the RS232 interface, a busy signal must be generated to ensure the readout system recognizes that readout is temporarily disabled.

M-Bus outputs and low-voltage supply

The network output consists of two M-Bus and two supply cables (four wires).

In total, there are three outputs, each corresponding to a four wire cable.

The output low-voltage supply is 15 VAC.

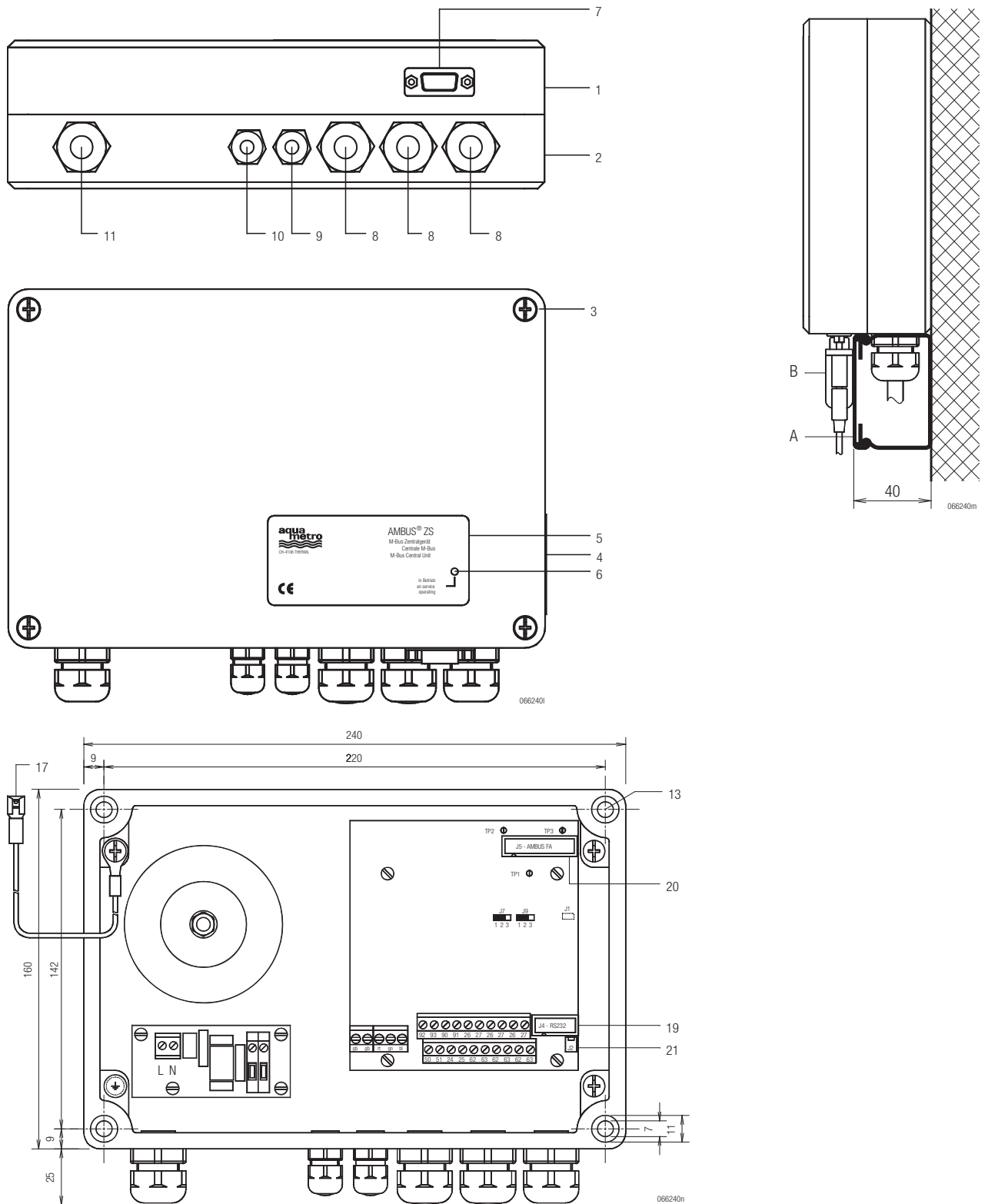
The outputs are short-circuit protected.

Notes for mounting

Laying of cable in raceway.

If the cables are laid in a 40 mm high raceway (A), access to the RS232 interface (B) is still assured.

Dimensional sketches



Legende

- | | |
|---|---|
| 1 Housing cover | 9 Cable gland for M-Bus Repeater / RS485 connection |
| 2 Housing base | 10 Cable gland for relay |
| 3 Housing screws | 11 Cable gland for network connection |
| 4 Name plate | 13 Mounting holes |
| 5 Front decal | 17 Ground wire for the housing cover |
| 6 Operating display | 19 Plug D-Sub jack |
| 7 9 pin D-Sub socket for RS232 connection | 20 Plug for display board |
| 8 Cable gland for 1 M-Bus circuit | 21 Plug for operating display |

Wiring diagrams/terminal configuration

| AMBUS® connections | ZS 5 | ZS 60 / 250 |
|--|-------------|--------------------|
| 230 V phase/neutral/ground | L/N/- | L/N/PE |
| M-Bus output | 26/27 | 26/27 (3x) |
| Meter supply | 62/63 | 62/63 (3x) |
| M-Bus-Repeater | - | 24/25 |
| RS232 | D-Sub9 jack | D-Sub9 jack |
| RS485 A+/A- | - | 90/91 |
| Alarm relay | - | - |
| RS232 busy | - | 92/93 |
| Test pins | | |
| Transmission signal in direction M-Bus (TXD) | - | TP1 |
| Receiver signal in direction M-Bus (RXD) | - | TP2 |
| Ground | - | TP3 |
| Jumper | | |
| RS232/RS485 enabled | - | J7: 1-2 closed |
| RS232/RS485 disabled | - | J7: 2-3 closed |
| M-Bus-Repeater enabled | - | J9: 1-2 closed |
| M-Bus-Repeater disabled | - | J9: 2-3 closed |

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