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 inter-face to EN 1434-3 at any time
- User-friendly PC software for reading and mainte-nance services

AMBUS® Signal-converter

General description

INTEGRA Metering presents its M-Bus signal-converter in the form of the AMBUS® ZS product range. AMBUS® ZS supplies the meters with pow-er 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 re-course to intermediate data storage. The associated PC can access the meters on-line and in real time. In this way, the meters can be in-teractively 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 an the-reby has to stop his communication.

General issues:

For further questions about M-Bus, especially:
• Network planing
• Engineering
• System integration
• Commissioning
• Application software
INTEGRA Metering 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.

INTEGRA
METERING

AMBUS® ZS 5

AMBUS® ZS 5 is a low-price signal-converter unit for small M-Bus networks. It is particu-larly 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
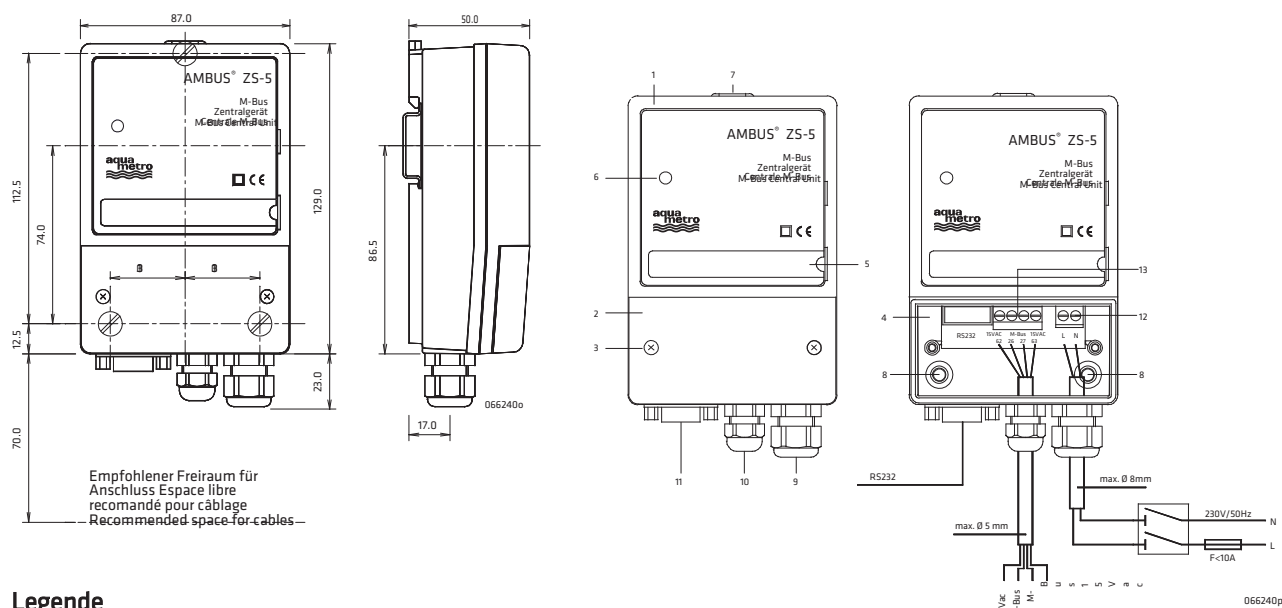
Legende
1   Housing cover
2   Terminal cover
3   Cover screws
4   Terminal box
5   Clip-on plate
6   Operating display
7   Mounting
8   Opening for fixing screw
9   Cable gland for network conncetion
10 Cable gland for bus cable
11 9 pin D-Sub socket for RS232 connection
12 Mains connection
13 Bus connection

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 auto-mation 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	15 VAC
	±20 %	±20 %
	1.3 A	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 automa-tion 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 INTEGRA Metering 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.
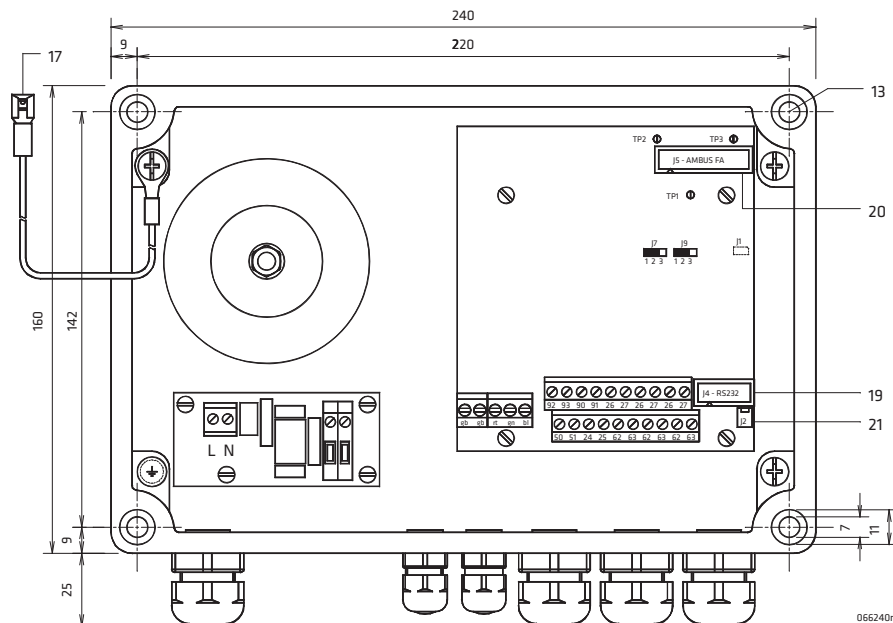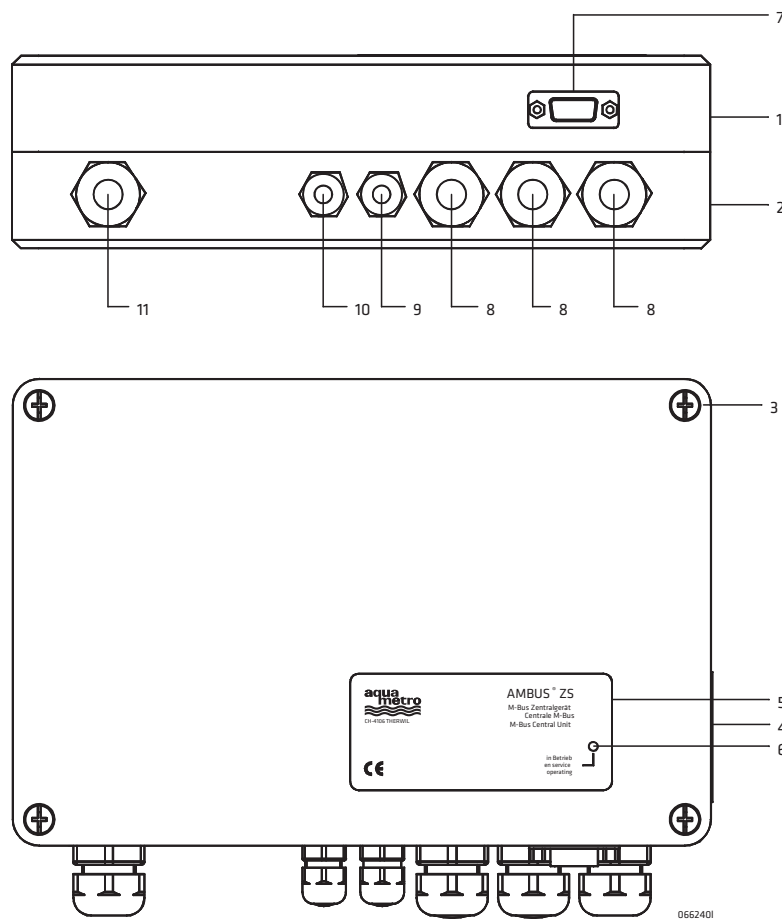
M-Bus outputs and low-voltage supply
The network output consists of two M-Bus and two supply cables (four wires).
In total, there are three outputs, each corresponding to a four wire cable.
The output low-voltage supply is 15 VAC.
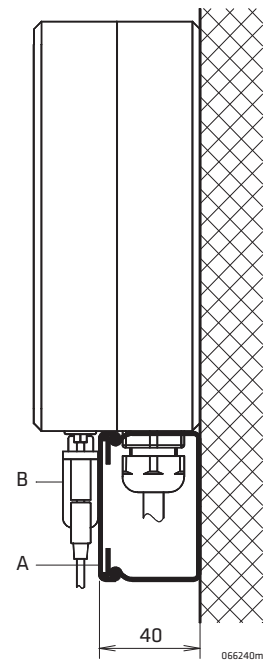The outputs are short-circuit protected.

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
2   Housing base
3   Housing screws
4   Name plate
5   Front decal
6   Operating display
7   9 pin D-Sub socket for RS232 connection
8   Cable gland for 1 M-Bus circuit

9   Cable gland for M-Bus Repeater / RS485 connection
10 Cable gland for relay
11 Cable gland for network connection
13 Mouting holes
17 Ground wire for the housing cover
19 Plug D-Sub jack
20 Plug for display board
21 Plug for operating display

Wiring dagrams/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	-	TP1
Transmission 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