INSTALLATION MANUAL

Z-KEY-MBUS

MeterBUS to Serial / Ethernet MODBUS gateway



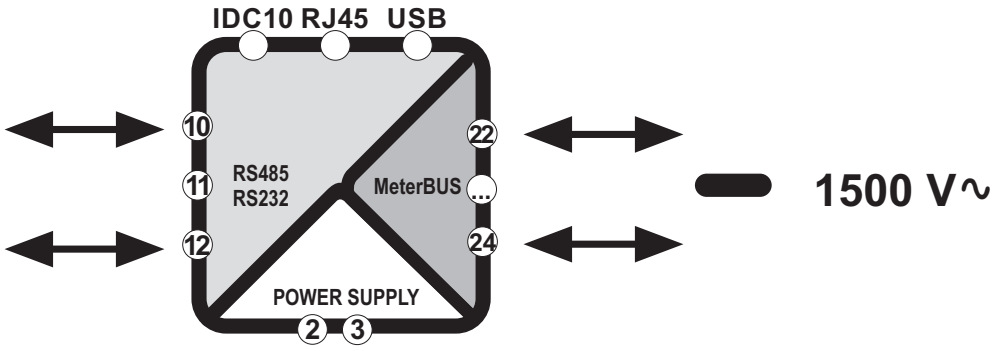
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For manuals in other languages and the configuration software, visit www.seneca.it/products/z-key-mbus

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TECHNICAL SPECIFICATIONS

STANDARDS	**EN61000-6-4** Electromagnetic emissions, industrial environment. **EN61000-6-2**. Electromagnetic immunity, industrial environment. **EN60950 -1** Safety.
INSULATION	
ENVIRONMENTAL CONDITIONS *Temperature* *Humidity* *Storage temperature* *Protection rating*	 -25°– + 65°C 30%– 90% non condensing. -30 – + 85°C IP20.
ASSEMBLY	25Mm DIN rail IEC EN60715
CONNECTIONS	Removable 3-way screw terminals, 5 mm pitch for cable up to 2.5 mm2, IDC10 Rear, RJ45 and micro USB.
POWER SUPPLY	11 – 40 Vdc or 19 – 28 Vac ; 50 – 60 Hz. P typ. 3.5W P 6.5 W max.
EXTERNAL MEMORY	Side slot for micro SD card
COMMUNICATIO N PORTS	Rear RS485 COM1 IDC10. RS485 or RS232 M10-M11-M12. Ethernet 100 baseT RJ45 front. Side micro USB.
PROTOCOLS	MeterBUS, ModBUS TCP server and ModBUS RTU slave. For further information, refer to the **User Manual**.
PROCESSOR	ARM 32bit.
FEATURES	Integrated webserver, Number of MBUS slave 25 max.
MBus PORT (Meter-Bus)	on terminals M22-M24 Number of slaves: 25 Max. Baud rate: 300 - 38k4 Baud Voltage: 28 Vdc Maximum length: 3000 m

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PRELIMINARY WARNINGS

The word **WARNING** preceded by the ⚠ symbol indicates conditions or actions that put the user's safety at risk. The word **CAUTION** preceded by the symbol ⚠ indicates conditions or actions that might damage the instrument or the connected equipment.

The warranty shall become null and void in the event of improper use or tampering with the module or devices supplied by the manufacturer as necessary for its correct operation, and if the instructions contained in this manual are not followed.

	**WARNING: The full content of this manual must be read before operation.** The module must only be used by qualified electricians. Specific documentation is available at www.seneca.it/prodotti/z--key-mbus.
	The module must be repaired and damaged parts replaced by the Manufacturer. The product is sensitive to electrostatic discharges; take appropriate measures during any operation.
	**Caution: Obstructing ventilation slots with any object is prohibited.** **Installing the module next to devices that generate heat is prohibited.**
	Electrical and electronic waste disposal (applicable in the European Union and other countries with recycling). The symbol on the product or its packaging shows that the product must be disposed of at a collection centre authorised to recycle **electrical and electronic waste**.

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INSTALLATION ON AND REMOVAL FROM THE IEC EN 60715 RAIL

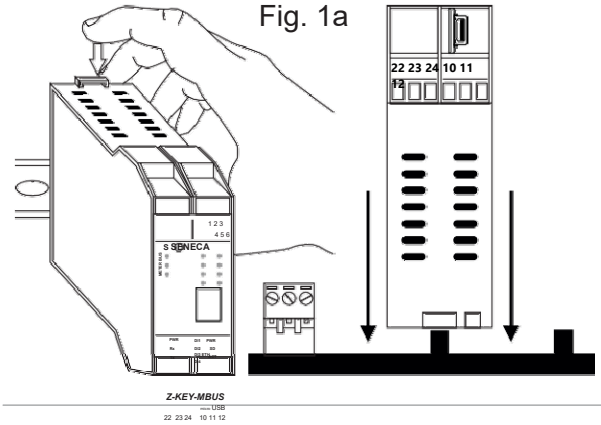


Fig. 1a

Insertion onto the OMEGA IEC EN 60715 rail:
1) Move the two hooks on the back of the module outward as illustrated in Fig. 1b.
2) Insert the rear IDC10 connector of the module into a free slot of the OMEGA rail accessory as shown in Fig. 1a. (insertion is univocal as connectors are polarised).
3) To secure the module to the OMEGA rail, tighten the two hooks on the side of the IDC10 rear connector as illustrated in Fig. 1a.

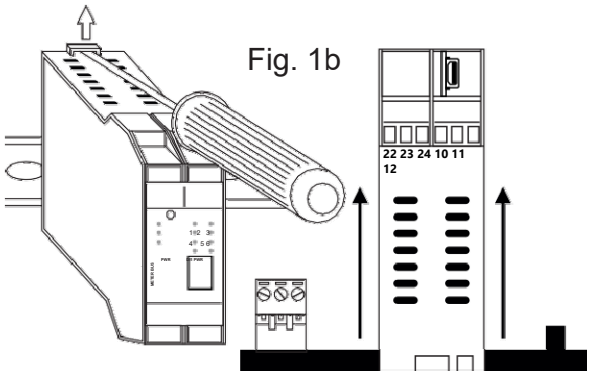


Fig. 1b

Removal from the OMEGA IEC EN 60715 rail:
As shown in figure 1b:
1) With the help of a screwdriver, move outwards the two hooks on the side of the module .
2) Carefully extract the module from the rail.

USE OF THE Z-PC-DINAL ACCESSORY

Do not turn the module upside down and **do not force the insertion** of the IDC10 connector on the Z-PC-DIN bus. The module's rear IDC10 connector must be plugged into a free slot on the Z-PC-DIN bus.
The illustration shows the meanings of the various IDC10 connector pins if signals are to be sent via them directly.
Fig. 1 c and **Fig. 1 d** show the power connection and RS485 COM1 port on the IDC10.

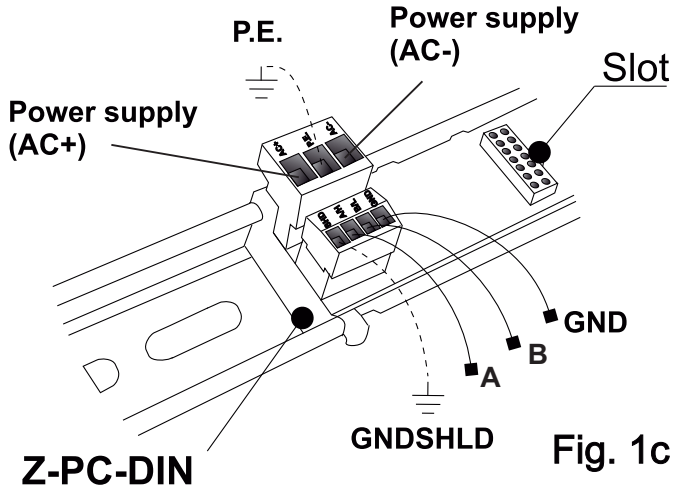


Fig. 1c

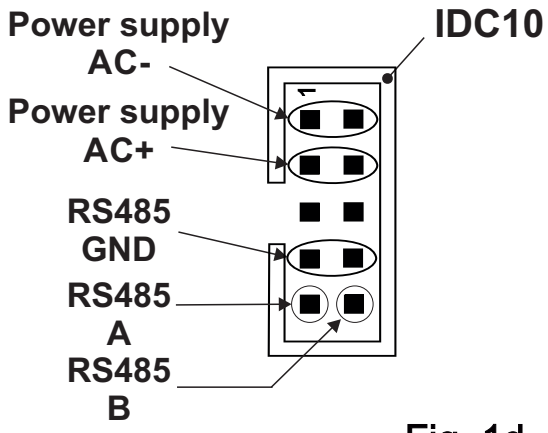


Fig. 1d

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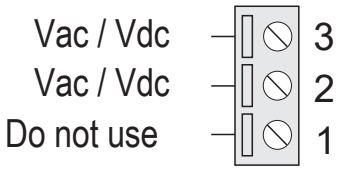
ELECTRICAL CONNECTIONS

Caution: The upper power supply limits must not be exceeded, as this could cause serious damage to the module.

Switch the module off before connecting inputs and outputs.

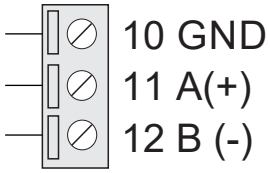
To meet the electromagnetic immunity requirements:
- use shielded signal cables;
- connect the shield to a preferential instrumentation earth system;
- separate shielded cables from other cables used for power installations (transformers, inverters, motors, induction ovens, etc...).

• POWER SUPPLY

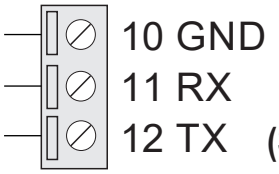


The power supply must be connected to terminals 2 and 3 or, alternatively, the Z-PC-DINAL accessory can be used to supply through the rear IDC10 connector. The supply voltage must comply with the data on the device's plate. The power supply source must be protected against any module malfunctions u an appropriately-sized safety fuse.

• COM2 SERIAL PORT



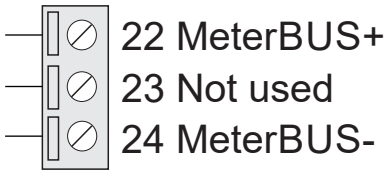
SERIAL PORT RS485 (SW2=OFF↓)



SERIAL PORT RS232 (SW2=ON↑)

The module has a COM2 serial port configurable via the SW2 switch on terminals 10-11-12.

• MeterBUS PORT



The module has a MeterBUS port on terminals 22-24

CONNECTION STANDARDS

Type of installation	Maximum speed	Connection maximum distance	Connection total length	Type of cable
Small in house	38400	< 350 m	< 1000 m	0.5 mm_2, R < 30 Ω
Large in house	9600	< 350 m	< 3000 m	0.5 mm_2, R < 30 Ω
Small wide area	2400	< 1000 m	< 3000 m	1.5 mm_2, R < 90 Ω

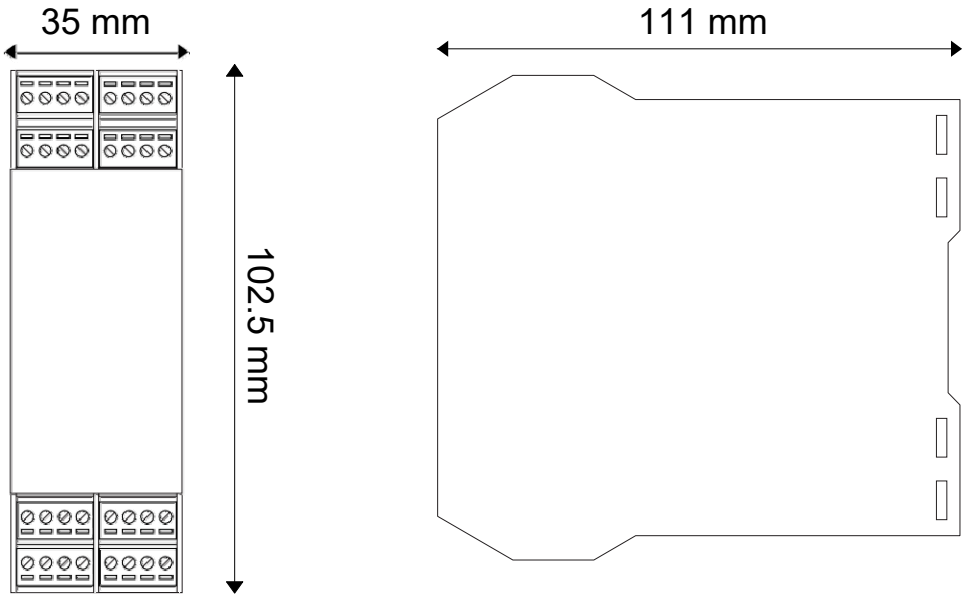
The M-Bus is a non-polarized bus.

For the connection it is possible to use a two-wire shielded telephone cable or an unshielded duplex cable following the indications in the table.

If a shielded cable is used, this must be **connected to earth only from the Z-KEY-MBUS side**.

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MODULE LAYOUT



Dimensions (LxHxD)	35 x 102.5 x 111 mm (terminals included).
Weight	250 g
Case	PA6 material, black.

CONFIGURATION

The device can be fully set up via integrated web server.
Product programming tools can be downloaded free of charge from www.seneca.it, in the Z- KEY-MBUS section.
To access the maintenance Web Server, connect with a browser to the maintenance page at the IP address of the Z-KEY-MBUS, for example: http://192.168.90.101 and, when requested, enter the following credentials: Username: admin Password: admin.

The default module IP address is static: 192.168.90.101 To

download the factory configuration.

Turn the Z- KEY-MBUS module off and set all eight SW1 DIP-switches ON.
Turn the Z- KEY-MBUS module on and wait 10 seconds.
Turn the Z- KEY-MBUS module off and set all eight SW1 DIP-switches OFF.
This procedure restores the IP address to default settings: 192.168.90.101 and Webserver/FTP server user login credentials to: admin and password: admin.

FOR FURTHER INFORMATION, PLEASE SEE THE USER MANUAL that can be downloaded from the
Z-KEY-MBUS section of the www.seneca.it website

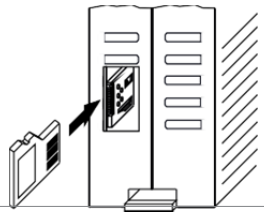
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LED SIGNALS ON THE FRONT PANEL

LED	Status	LED meaning
TX1 (Red)	Flashing	Data transmission on COM1 RS485 port
RX1 (Red)	Flashing	Data reception on COM1 RS485 port
TX2 (Red)	Flashing	Data transmission on COM2 RS485 or RS232 port
RX2 (Red)	Flashing	Data reception on COM2 RS485 or RS232 port
PWR (Green)	ON ■	Device powered
	OFF □	The device is OFF
SD (Red)	Flashing	Access to the micro SD card
ETH LNK (Green)	Flashing	Packet transit on Ethernet port
	ON ■	No activity on Ethernet port
ETH TRF (Yellow)	ON ■	Ethernet port connected
	OFF □	No connection on Ethernet port
MBUS PWR (Green)	ON ■	MeterBUS interface powered
	OFF □	MeterBUS interface OFF
MBUS Rx (Green)	ON ■	No MeterBUS packet received / Anomaly on the MeterBUS bus
	Flashing ■□	Reception of data packet completed
MBUS Tx (Green)	Flashing ■□	Transmission of data packet completed

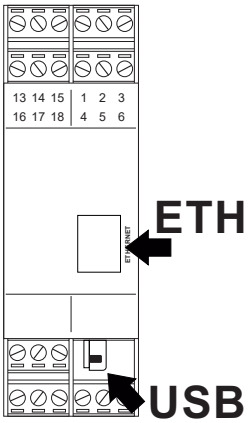
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INSERTING THE SD CARD



Inserting the microSD or microSHDC card, into the side slot. MAX 32 GB.
Push-push connector.

ETHERNET RJ45 AND USB CONNECTION



The module has a RJ45 socket on the front panel.
The figure shows where to insert the RJ45 ethernet connector.
For more information see the **USER MANUAL**.

The module has a microUSB I socket on the front panel.
The figure shows where to insert the micro-USB connector.
For more information see the **USER MANUAL**.

SETTINGS

DIP-SWITCHES

SW1	Default: All DIP switches in **OFF** position For further information, refer to the USER MANUAL.		
SW2	RS232 or RS485 settings on terminals 10-11-12 (COM2 serial port)		
	RS232	**ON**	
	RS485	**OFF**	

ACCESSORIES

Code	Description
Z-PC-DINAL1-35	DIN rail support with power supply terminals P = 35 mm
Z-PC-DIN1-35	DIN 1-slot support for rear connector P = 35mm
CE-RJ45-RJ45-R	Cavo Ethernet 1.5 m
CS-DB9M-MEF-1012	Z-KEY / RS232-DB9 serial connection cable
KIT-USB	Programming KIT (USB + CD cable)
MICRO-SD 4GB-MP	4GN Micro-SD Flash card

CONTACT INFORMATION

Technical support	supporto@seneca.it	Product information	commerciale@seneca.it

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