INSTALLATION MANUAL

Manual Language	ENGLISH
Seneca line product	Z-PC
Product	**Z-miniRTU**
Description	Multifunction controller with Straton PLC, I/O and GPRS modem on board

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CE

Factory

azienda con sistema di gestione per la qualità certificato
ISO 9001:2008

Seneca srl
Headquarters: Via Austria 26
35127 – Z.I. - Padova – IT
Phone: +39.049.8705355- 8705355
Fax +39 049.8706287

Site www.seneca.it

Mail Technical support: support@seneca.it
Product Informations: sales@seneca.it

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PRELIMINARY WARNINGS



Before performing any operation, it is mandatory to read and understood in full the contents of this installation manual. The module may only be used by qualified and skilled technicians in the field of electric installations. Specific documentation is available at website: www.seneca.it/products/z-minirtu



Only the Manufacturer is authorized to repair the module or to replace damaged parts. The product is susceptible to electrostatic discharge, take appropriate countermeasures during any operation.



The user must comply of the safety instructions in this installation manual, the country-specific installation standards and all prevailing safety regulations and accident prevention rules. No warranty is guaranteed in connection with faults resulting from improper use, from modifications or repairs carried out by Manufacturer-unauthorized personnel on the device, or if the content of this user Manual is not followed.

PRELIMINARY INSTRUCTIONS



It is forbidden block the ventilation slots with any object.
It is forbidden to install the module near heat sources.

GENERAL SPECIFICATIONS

- Multiprotocol Terminal GSM/GPRS, with integrated I/O.
- Power supply voltage 11 – 40 V⎓ or 19 – 28 V∿, consumption Max. 6.5 W
- Internal UPS with two rechargeable NiMh batteries AAA 1.2 V, battery runtime Max. 2h
- Modem GSM/GPRS Quad-Band
- Insulation 3000 V∿ between power supply and relays contacts, 1500 V∿ between power supply and other circuits
- Easy power supply and serial communication wiring through Seneca IEC EN 60715 DIN rail bus
- LEDs signaling: digital inputs, digital outputs, Ethernet activity and GSM activity
- 2 analog inputs at 16 bit configurables for voltage or current.
- 4 digital inputs and 2 digital outputs (free contacts relay)
- 1 Ethernet RJ45 front. 10/100 Mbps, 1 RS485 Port, 1 RS232/RS485 Port, 1 miniUSB Port type B
- 4 32bit totalizers and 4 32bit resettable counters with max. frequency= 250 Hz
- Supported System Protocols: FTP, SMTP, http, ModBUS TCP, ModBUS RTU
- PLC memory max.= 93 Kbyte(variables + program), PLC program memory max.= 64 Kbytes
- RAM retentive variables max.= 4 kByte (Fe-RAM technology with limitless writes)
- Micro SD additional storage memory up to 32 GB
- ARM Processor 120 MHz, 32 bit, Real Time multitasking O.S.

TECHNICAL SPECIFICATIONS

Digital inputs

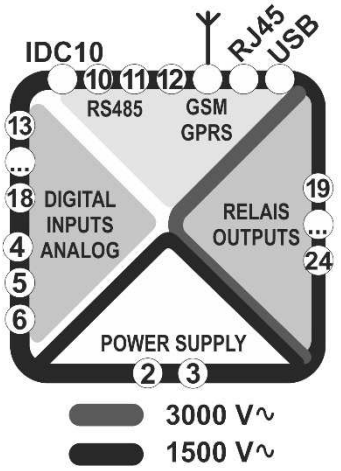
4 PNP or NPN configurable channels, power supply available for digital inputs: 12V⎓ 20mA, max. frequency= 250 Hz, absorbed current= 3mA, min. Von= 8 V and max. Voff= 6 V

Digital outputs

2 channels SPDT free contact relay, voltage= 250 V∿ and max. current= 2A

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Analog inputs	
2 channels: mA or V⎓ configurable, resolution: 16 bit, inputs protection: 40V 25mA, Voltage input: 0 – 30 V / accuracy 0,1% of the full scale Current input: 0 – 20 mA / accuracy 0,1% of the full scale	
Communication ports	
RS485	COM2 IDC10 rear port
RS485 / RS232	COM4 removable screw terminal port, pitch 5 mm
Ethernet	Ethernet 10/100 Base-T RJ45 frontal port with autoswitch
USB	Micro USB side port
Storage unit	
Micro SD	Micro SD or micro SHDC, max.= 32GByte
Power supply	
Voltage	11 – 40 V⎓; 19 – 28 V∿ 50 – 60 Hz
Power consumption	6,5 W Max
Environmental conditions without / (with batteries)	
Temperature	From -10 to +50°C / (From -10 to +40°C)
Humidity	30 – 90% a 40°C not condensing
Storage temperature	From -20 to +85°C / (From -20 to +45°C < 6 months)
Protection degree	IP20
Overall dimensions / Case	
Dimensions / Weight	L: 100 mm; H: 111 mm; W: 35 mm / 280 gr.
Case	PA6, black

Insulation	Standards	
	CE	**The instrument complies with the following standards:** **EN301 511** (Harmonized for mobile stations in the GSM900 and GSM1800 bands covering). **EN301 489-1** (Electromagnetic compatibility for radio equipment and services) **EN301 489-7** (EMC specific conditions for mobile, portable radio and ancillary equipment in the GSM900 and 1800 bands). **EN60950** (Information technology equipment safety). ADDITIONAL NOTES ON USE: It is necessary to install a fuse with 1 A, delayed, in series to the power supply connection, near to the module.

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INSTALLATION STANDARDS

The module has been designed for vertical installation on an IEC EN 60715 omega guide. For optimal operation and long working life, adequate ventilation must be provided. Avoid positioning cable ducts or other objects so that they obstruct the ventilation slots. Avoid mounting modules over equipment generating heat. Installation in the bottom part of the distribution board is recommended.

OMEGA IEC EN 60715 guide installation and removal.

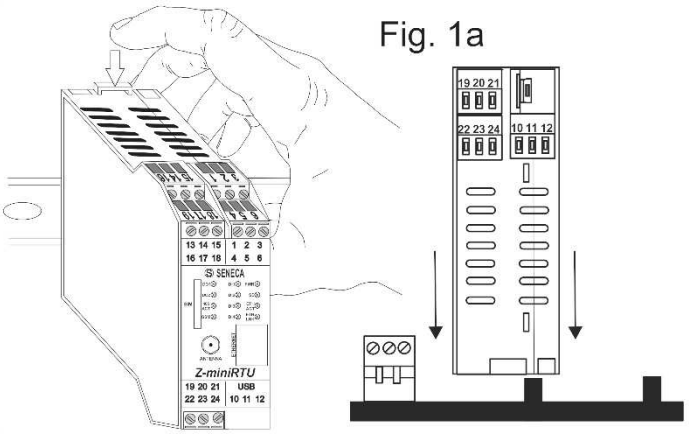


Fig. 1a

Insertion onto the IEC EN 60715 guide:
1) Move the two hooks on the back of the module outwards as illustrated in fig. 1b.
2) Rest the module on the OMEGA guide.
3) To secure the module to the OMEGA guide, tighten the two hooks on the side of the IDC10 rear connector as shown in fig. 1a.

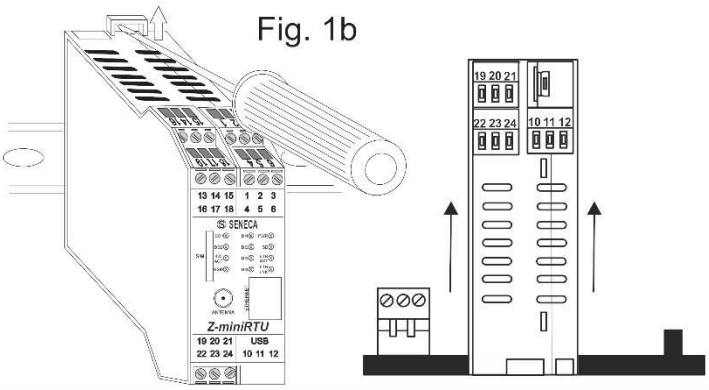
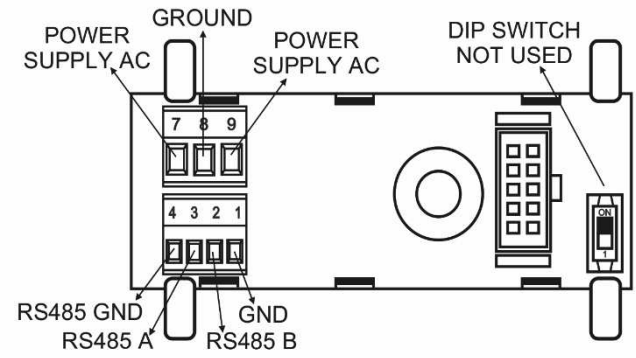


Fig. 1b

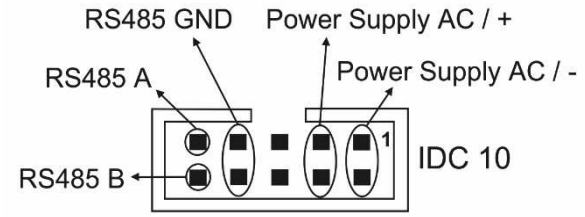
Removal from the IEC EN 60715 guide:
As shown in figure 1b:
1) Move outwards the two hooks on the side of the module, with the help of a screwdriver.
2) Extract the module from the guide.

Use of Z-PC-DINAL 1-35 accessory



If Z-PC-DINAL1-35 accessory is used, the power supply and communication signals may be provided by the terminals block into the DIN rail support. The figure shows the meaning of the terminal blocks and the position of the DIP-switch in the Seneca IEC EN 60715 DIN rail accessory.
GNDSHLD: Shield to protect the connection cables against interference (recommended).

IDC10 rear connector



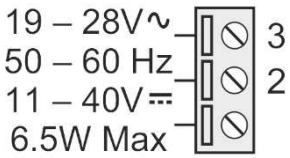
The IDC10 connector located on the rear of the module will be inserted on a free slot of Z-PC-DIN accessory. In the figure you can see the meaning of the IDC10 connector pins if you want to provide signals through them.
The IDC10 connector has the COM 2 RS485 port.

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ELECTRICAL CONNECTIONS

Power off the module before connecting the inputs and outputs.
In order to satisfy the electromagnetic compliance requirements:
- Use shielded cables for the signals transmission;
- Connect the shield to a preferential ground for devices;
- Space the shielded cables from other cables used for power installations (transformers, inverters, motors, induction ovens, etc...);

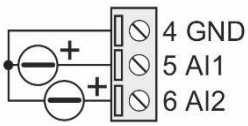
Power supply



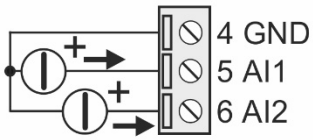
The power supply must be connected to terminals 2 and 3. The supply voltage must be between 10 and 40V⎓ (any polarity), or between 19 and 28 V∿.
The upper limits must not be exceeded in order to avoid serious damage to the module.
The power supply source must be protected from any malfunctions of the module through appropriately sized safety fuse.
Important: On first start-up, the module must be supplied without any interruptions for at least 72 hours to charge the internal batteries.

Analog input 1 and 2

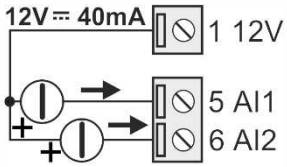
Voltage



Current sensor active (4 wires)



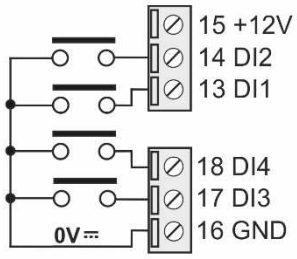
Current sensor passive (2 wires)



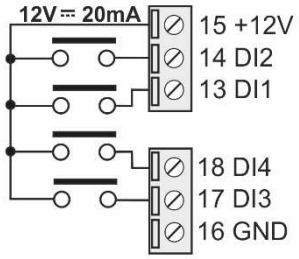
The Z-miniRTU module has two software voltage or current configurable analog inputs.
For the configuration software you can read the user manual.

Digital Input 1, 2, 3 and 4

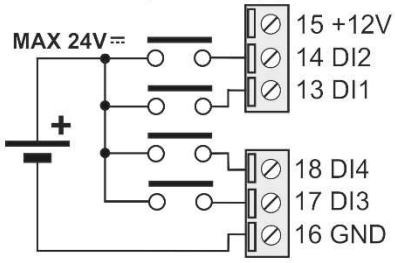
Internal power supply NPN



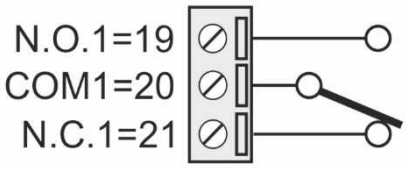
Internal power supply PNP



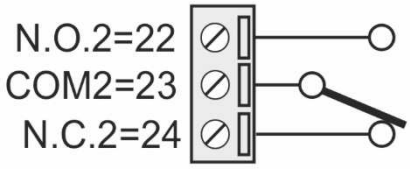
External power supply PNP



Digital output 1



Digital output 2

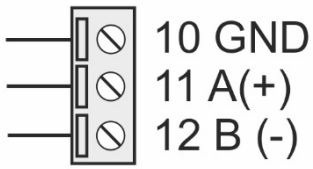


Free contacts output

The Z-miniRTU module has two digital outputs with free contacts The figures show the internal relay contacts available.

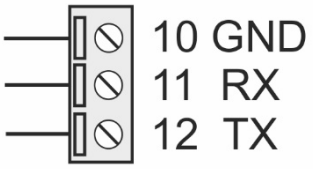
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Connection of COM4 - RS485 serial port (SW2=OFF)



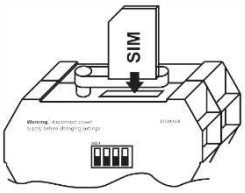
Z-miniRTU has a serial port configurable through the SW2 Switch.
If the switch SW2 is set to ↓ OFF position,
then the RS485 serial port (COM4) is available to terminals 10-11-12.
The picture shows how to make the connection.

Connection of COM4 - RS232 serial port (SW2=ON)

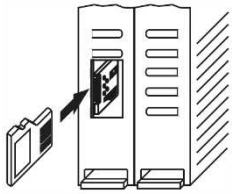


Z-miniRTU has a serial port configurable through the SW2 Switch.
If the switch SW2 is set to ↑ ON position,
then the RS232 serial port (COM4) is available to terminals 10-11-12.
The picture shows how to make the connection.

Inserting the SIM card and SD card

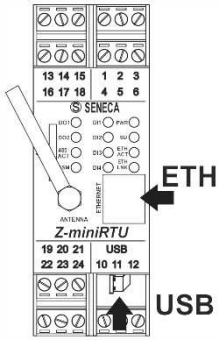


Inserting the SIM card into the frontal slot.
If the SIM card is properly inserted then protrudes from the frontal panel of about 4.5mm.



Inserting the MicroSD or the microSHDC, into the side slot.
MAX 32 GB.
Push-push connector for insertion and removal.

Connection of *RJ45 ETHERNET*



Z-miniRTU module has an Ethernet port with RJ45 connector, on the front of the module, for TCP-IP communications.
Note: Inserting the RJ45 10/100 BaseT Ethernet plug make sure that the connector is securely latched, or before inserting the cable into the RJ45 connector, remove the protective rubber. For further information, refer to the USER MANUAL.

Z-miniRTU module has a serial USB micro port.
The picture shows how to Insert the micro USB plug into the micro USB side socket.
For further information, refer to the USER MANUAL.

CONFIGURATIONS

SW1 DIP-switches configuration to load factory settings

This procedure returns the IP address to the factory default: 192.168.90.101 and return the credentials for access to the web server or FTP server to: User= admin and password= admin.	**KEY**	
Turn off the Z-miniRTU module and set to **ON** all eight DIP switches SW1. Turn on the Z-miniRTU module and then wait 10 seconds. Turn off the Z-miniRTU module and set to **OFF** all eight DIP switches SW1.	**ON**	↑
	OFF	↓

SW2 Switch setting

RS232 or RS485 configuration on terminals 10-11-12 (serial port COM 4)	**KEY**	
RS232	**ON**	↑
RS485	**OFF**	↓

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LED SIGNALLING ON THE FRONTAL PANEL

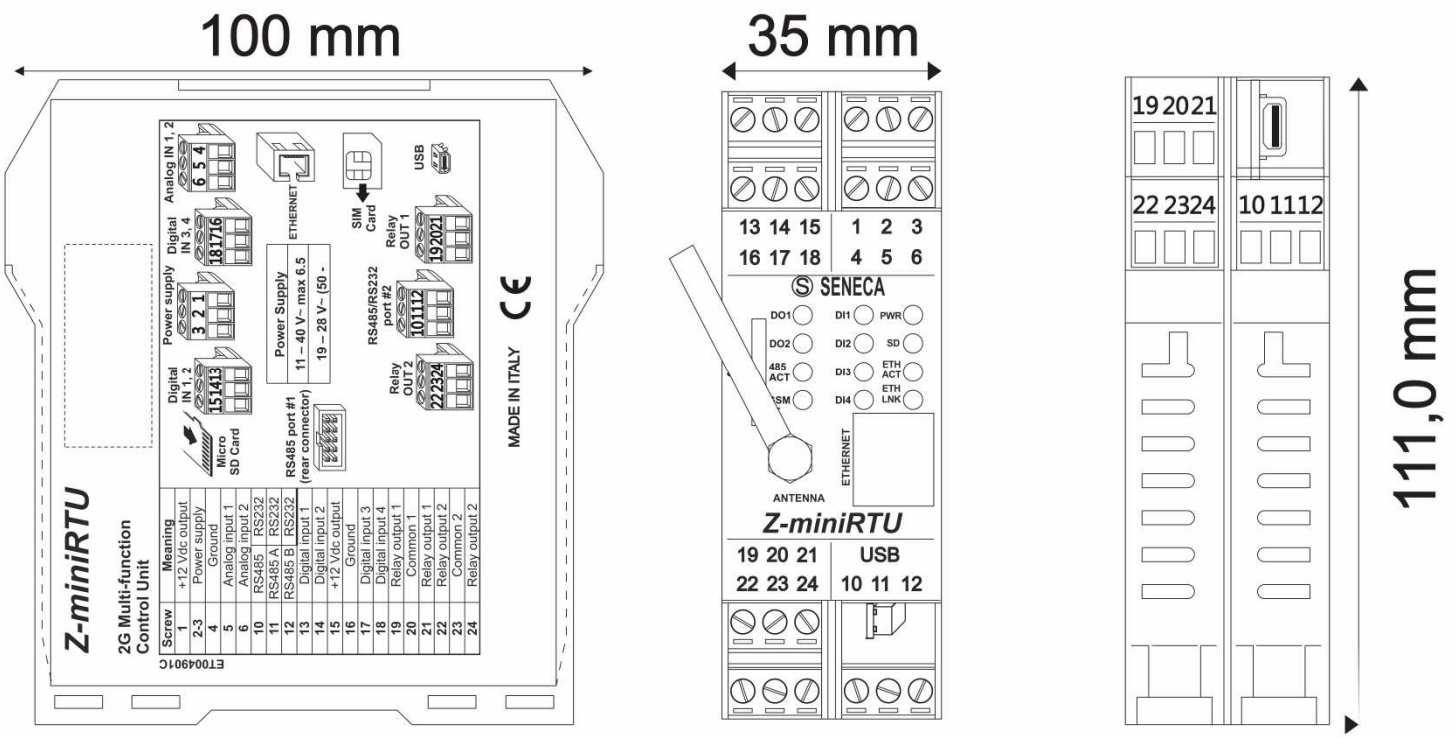
LED	*STATUS*	*LEDs meaning*
DO1 Red	ON	Digital output 1, relay energized
	OFF	Digital output 1, relay de-energized
DO2 Red	ON	Digital output 2, relay energized
	OFF	Digital output 2, relay de-energized
485 ACT Green	ON	RS485 activity
GSM Yellow	Slow blinking	Registered to the GSM network
	Medium blinking	Searching the GSM/GPRS network
	Fast blinking	Connected to the GPRS network
DI1 Red	ON	Digital Input 1: Energized (closed contact)
	OFF	Digital Input 1: De-energized (open contact)
DI2 Red	ON	Digital Input 2: Energized (closed contact)
	OFF	Digital Input 2: De-energized (open contact)
DI3 Red	ON	Digital Input 3: Energized (closed contact)
	OFF	Digital Input 3: De-energized (open contact)
DI4 Red	ON	Digital Input 4: Energized (closed contact)
	OFF	Digital Input 4: De-energized (open contact)
PWR/STS Green	ON	Z-miniRTU ON, PLC program present
	OFF	Z-miniRTU OFF
	Slow blinking	Z-miniRTU ON, PLC program not present
SD/STS Red	Blinking	Micro SD card access
ETH LNK Green	Blinking	RJ45 connection activated
ETH ACT Yellow	Blinking	Traffic on Ethernet port

PURCHASE ORDER CODE

CODE	**DESCRIPTION**
A-GSM	External GSM antenna dual band swing, cable 3,2 m
Z-PC-DINAL1-35	DIN rail support with screw terminals P= 35 mm
Z-PC-DIN 1-35	DIN 1 slot support for rear connector P= 35 mm
FD01	Photodetector for pulse counter, MAX frequency 10 Hz

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MODULE LAYOUT



For the Z-miniRTU configuration, use the **EASY SETUP** software available for download, at:
www.seneca.it/products/z-minirtu
For further information on the product, refer to the **USER MANUAL** available for download, at:
www.seneca.it/products/z-minirtu

DECOMMISSIONING AND DISPOSAL



Electrical and electronic waste disposal (applicable in the European Union and other countries with recycling). The symbol on the product or packaging indicates that the product cannot be discarded as domestic waste. It should be taken to an authorized recycling center for electrical and electronic waste. Ensuring that the product is suitably discarded will avoid potential negative impacts on the environment and human health, that could be caused by non compliant product disposal. Material recycling will contribute to the preservation of natural resources. To receive further information, please contact your local waste disposal service center or product dealer.

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