SENECA®

INSTALLATION MANUAL — *Serie Z PC*

EN **Z-GPRS2** — GSM/GPRS unit - RTU multiprotocol datalogger

CHAPTER INDEX

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1 PRELIMINARY WARNINGS

Before carrying out any operation it's mandatory to read all the content of this user Manual. Only electrical-skilled tecnicians can use the module described in this user Manual. Specific documentation is available on www.seneca.it.

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

No warranty is guaranteed in connection with faults resulting from improper use, from modifications or repairs carried out by Manufacturer-unauthorized personnel on the module, or if the content of this user Manual is not followed.

2 DESCRIPTION AND CHARACTERISTICS

2.1 Module description

• The Z-GPRS2 is an multiprotocol device with high performance integrated I/O for acquire and store data from wireless network. Z-GPRS2 can send and receive measure, command and alarm.

2.2 General characteristics

• Power supply 11 – 40 V=; 19 – 28 V~ max 6.5 W
• 2 backup Batteries AAA 1.2 V rechargeable, NiMh
• GSM/GPRS Quad-Band modem
• 1500 V~ insulation between power supply and other circuits.
• Quick mounting on DIN 46277 rail
• LEDs signalling Digital Inputs, Digital Outputs, Ethernet and GSM.
• 4 Digital Inputs.
• 2 Analog Inputs (configurable in voltage/current, at 16 bit)
• 2 Digital Output (free contacts relays)
• Ethernet RJ45 front 10/100 Mbps
• 2 Ports RS485
• 1 MiniUSB type B port
• 4 Totalizers at 32 bit
• 4 Resettable counters at 32 bit
• Compatible system protocol: FTP, SMTP, POP3, http, ModBUS TCP, ModBUS RTU master
• 128 kB RAM memory
• Micro SD additional storage memory up to 32 GB
• 512 kB + 2 MB (log) FLASH memory
• ARM processor, 100 MHz, 32 bit
• Real Time multitasking O.S.

3 TECHNICAL SPECIFICATIONS

3.1 Digital inputs

Number of channels	4
Input type	PNP / NPN Configurable
Auxiliary voltage supply	12 V=
Supply current	20 mA
Maximum frequency	30 Hz
Absorbed current	3mA

3.2 Digital outputs

Number of channels	2
Output type	SPDT Relays (free contacts)
Maximum voltage	250 V~
Maximum current	2 A

3.3 Analog inputs

Number of channels	2
Input type	mA / V=, configurable
Voltage input	0 – 30 V accuracy 0,1% of full scale
Current Input	0 – 20 mA accuracy 0,1% of full scale
Input protection	YES, 40V / 25mA
Resolution	16 bit

3.4 Communication ports

RS485	port#1, rear
RS485	port#2, M10..12
Ethernet	10/100 baseT, RJ45 on front with autoswitch
USB mini B	Mini B, side

3.5 Storage memory unit

Micro SD	microSD and microSDHC, MAX 32 GB

3.6 Power supply

Voltage	11 – 40 V=; 19 – 28 V~
Consumption	6,5 W

3.7 Environmental condition without // (with batteries)

Temperature	From -10 to + 50°C // (From -10 to + 40°C)
Humidity	30 – 90% to 40°C not condensing
Storage Temperature	From-20 to + 85°C // (From -20 to + 45°C < 6month)
Protection degree	IP20

3.8 Standards

EN61000-6-4/2002-10	Electromagnetic emission, industrial environment.
EN61000-6-2/2006-10	Electromagnetic immunity, industrial environment.
EN 301 511	Harmonized standard for mobile stations in the GSM 900 and 1800 bands.
EN 301 489-1	ElectroMagnetic Compatiily standard for radio equipment and services.
EN 301 489-7	Specific (EMC) conditions for mobile radio equipment (GSM 900 and 1800).
EN60950	Safety of information Technology Equipment.

3.9 Box specification

Dimension and weight	100 x 111 x 35 mm, 280g
Material	PBT, black

3.10 1500 V~ insulation

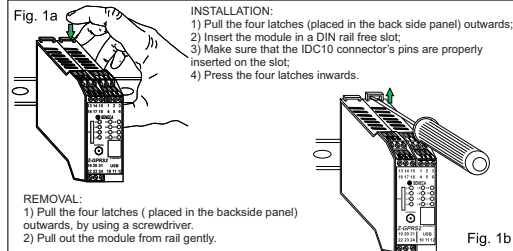Power Supply → Digital Inputs, Analog Inputs, Digital Outputs, Comunication Ports

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4 PRELIMINARY INSTRUCTIONS FOR USE

The module is designed to be installed on DIN 46277 rail in vertical position.

It is forbidden to place anything that could obstruct the ventilation slits.
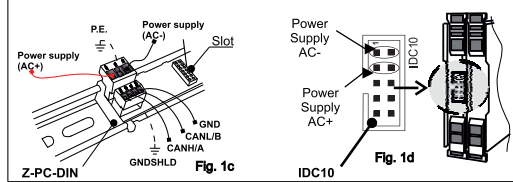It is forbidden to install the module near heat sources.

«Severe operating conditions» are defined as follows:
-high power supply voltage: exceed 30V= or exceed 26V~;
-the module power the input sensor.

If the modules are installed side by side, **Separate them by at least 5 mm** in the following cases:
- The operating temperature exceed 45°C and at least one of the severe operating conditions exist;
- The operating temperature exceed 35°C and at least two of the severe operating conditions exist.

4.1 Installation and removal on DIN 46277 rail

Fig. 1a

INSTALLATION:
1) Pull the four latches (placed in the back side panel) outwards;
2) Insert the module in a DIN rail free slot;
3) Make sure that the IDC10 connector's pins are properly inserted on the slot;
4) Press the four latches inwards.

REMOVAL:
1) Pull the four latches (placed in the backside panel) outwards, by using a screwdriver.
2) Pull out the module from rail gently.

Fig. 1b

4.2 Use Z-PC-DINAL accessory

- It's important to insert the pins on the slot properly because IDC10-connector is polarized; This connection is facilitied by use of a female/male insertion between IDC10 connector and DIN rail slot (Fig. 1 c e Fig.1 d).


Fig. 1c — Z-PC-DIN
Fig. 1d — IDC10

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5 ELECTRICAL CONNECTIONS

⚠ **Power off the module before connecting: input and outputs.**

To satisfy the electromagnetic compliance requirements:
- use shielded cables for signal transmition;
- connect the shield to a earth wire used specifically for instrumentation;
- insert space between these shielded cables and other cables used for power appliances (transformers, inverters, motors, induction ovens, etc...).

5.1 Connections

Description	Analog inputs V/I [2] V/I [1]	Auxiliary Voltage	Power supply	Screw terminals
Analog inputs (V/mA) are configurable with **configuration software**. * See user manual or Easy SETUP software	Configurable*	① +12 V= @ 40 mA	11..40 V= 19..28 V~ 6,5W	1 [+12 V=] 2 3 4 [GND] 5 [AI 1] 6 [AI 2]

Screw terminals	Digital inputs NPN 1 2 3 4	Digital inputs PNP 1 2 3 4	Auxiliary Voltage
DI1 13			
DI2 14			②
12V= 15			15 +12 V= @ 20 mA
GND 16			16
DI3 17			
DI4 18			

Screw terminals	RS485 Comunication port #2	Digital Outputs DO [2] DO [1]	Screw terminals
10	GND, RS485 Port#2	N.Open / Common / N.Close	19 / 20 / 21
11	A, RS485 Port#2	N.Open / Common / N.Close	22 / 23 / 24
12	B, RS485 Port#2		

RS485/power supply from IDC10	Fig. 1d par 4.2	Fig. 1c par 4.2

SIM, from slide connector.
Front panel correct standoff insertion = 4.5mm

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microSD and microSDHC, max 32 GB
Push push connector

Ethernet, RJ45 10/100 BaseT
Note: before to insert the cable into RJ45 connector, remove the protection rubber.

USB mini B

6 PARAMETER FOR USE

6.1 DIP SWITCH tables

SW1	SEE USER MANUAL.

SW2	**SW2 COMMUNICATION ● =ON**
	1
	○ NOT USED.
	● IDC10 rear connector, RS485

6.2 Meaning of the LEDs

LED	Color	State	Meaning
DO1	Red	ON	Digital output, relay excited
		OFF	Digital output, relay not excited
DO2	Red	ON	Digital output, relay excited
		OFF	Digital output, relay not excited
485 ACT	Green	ON	RS485 Activity
GSM	Yellow	Blink (slow)	Linked on network GSM/GPRS
		Blink (quick)	Searching network
DI1 (NPN)	Red	ON	Digital input: CLOSED TO GND
		OFF	Digital input: OPEN
DI2 (NPN)	Red	ON	Digital input: CLOSED TO GND
		OFF	Digital input: OPEN
DI3 (NPN)	Red	ON	Digital input: CLOSED TO GND
		OFF	Digital input: OPEN
DI4 (NPN)	Red	ON	Digital input: CLOSED TO GND
		OFF	Digital input: OPEN
DI1 (PNP)	Red	ON	Digital input: CLOSED TO +12V
		OFF	Digital input: OPEN
DI2 (PNP)	Red	ON	Digital input: CLOSED TO +12V
		OFF	Digital input: OPEN
DI3 (PNP)	Red	ON	Digital input: CLOSED TO +12V
		OFF	Digital input: OPEN
DI4 (PNP)	Red	ON	Digital input: CLOSED TO +12V
		OFF	Digital input: OPEN
PWR/STS	Green	ON	Z-GPRS2 active, log is OFF waiting boot
		OFF	Z-GPRS2 OFF
		Slow BLINK 3/0.5sec ON/OFF	Log activated, normal functioning
		Normal BLINK 1/1sec ON/OFF	Back-up battery functioning log is OFF
		Quick BLINK 0.2/0.2sec ON/OFF	Battery low poweroff in progress.
SD/STS	Red	Blink	MicroSD card access
ETH LNK	Green	Blink	RJ45 connection is activated
ETH TRF	Yellow	Blink	Traffic on Ethernet port

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7 PURCHASE ORDER CODE

Z-GPRS2		GSM/GPRS unit - RTU multiprotocol datalogger
Z-PC-DIN	AL1-35	DIN rail support with screw terminals P= 35 mm
	1-35	DIN 1 slot support for rear connector P= 35 mm
A-GSM		External GSM antenna dual band swing, cable 3,2 m
FD01		Photodetector for pulse counter, MAX frequency 10 Hz

8 MODULE LAYOUT

100 mm — 35 mm — 111,0 mm
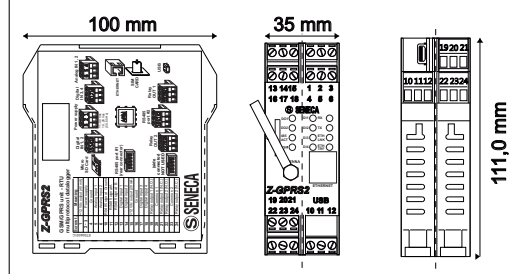
9 DECOMMISSIONIG AND DISPOSAL

Disposal of Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collections programs). This symbol, found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical & electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources. For more detailed information about the recycling of the product, please contact your local city office, the waste disposal service or the retail store where you purchased this product.