

Installation Manual

Contents:

- General Specifications
- Optional Features
- Technical Specifications
- Installation Rules
- Electrical connections
- DIP-switch settings
- RS232 serial port
- Additional features
 - Digital outputs
 - Digital inputs
 - Modbus connections rules
- Leds Signallings
- Accessories



SENECA s.r.l.
Via Germania, 34 - 35127 - Z.I. CAMIN - PADOVA - ITALY
Tel. +39.049.8705355 - 8705359 - Fax +39.049.8706287
For manuals and configurations software, see www.seneca.it

This document is property of SENECA srl. Duplication and reproduction are forbidden, if not authorized. Contents of the present documentation refers to products and technologies described in it. All technical data contained in the document may be modified without prior notice. Content of this documentation is subject to periodical revision.

General Specifications

- RS232 serial port communication from DB9 on the side of the module
- RS232 with all handshaking signals.
- Modem GSM/GPRS on board.
- Set up module from DIP-switch.
- Removable screw terminals with section of 2.5 mm².
- 1500 Vac input isolation from rest of low-voltage circuits.
- Power supply and serial connection wiring facilitated by means of a bus that can be housed on the DIN rail. However the screw terminal are still available.
- Insertion and extraction of a bus without interruption of communication or system power supply.
- SIM card push-push connector on front.

Optional features

Optional functions are enabled when the application software has been installed in the module.
Application software are downloadable from www.seneca.it
The application software can be installed with seneca software configuration: EASY-Z-PC

- 2 optoisolated digital input with external power supply from 12 to 30 Vdc.
- 2 optoisolated digital output shared negative pole collectively powered with external power supply from 12 to 30 Vdc, current carrying capacity 50 mA.
- RS485 serial communication port with Modbus-Rtu protocol on the rear side of the module for an easy connection on the Seneca bus up to 63 nodes and it is protected up to 30 Vdc.

Technical specifications

OUTPUTS

Type output	Mosfet with shared negative pole
Number of channel	2
Maximum input range	50 mA / 50 Vdc

INPUTS

Type output	With power supply from 12 to 30 Vdc
Number of channel	2
Maximum input range	30 Vdc

POWER SUPPLY

Voltage	10 ..40 V _{DC} 19 ..28 V _{AC} a 50 ..60 Hz
Consumption	Typical: 2,5 W, Max: 3 W

ENVIRONMENTAL CONDITION

Temperature	-10 ..+65°C
Humidity	30 ..90% a 40°C non condensing
Altitude	Up to 2000 m a.s.l.
Storage Temperature	-20 ..+85°C
Protection	IP20

CONNECTIONS

Connections	Removable 3-way screw terminals, 3,5 pitch Rear IDC10 connector for DIN 46277 rail SIM connector in front & BD9-F in the side of module
-------------	---

DIMENSIONS / BOX

Dimensions	L: 100 mm; H: 112 mm; W: 17,5 mm
Box	PBT, Black

STANDARDS

The module complies with the following standards:

- EN61000-6-4/2002-10 (electromagnetic emission, industrial environment).
- EN61000-6-2/2006-10 (electromagnetic immunity, industrial environment)
- EN61010-1/2001 (safety). All circuits must be isolated from the other circuits under dangerous voltage with double isolation. The power transformer must comply with EN60742: «Isolated transformers and safety transformers».
- EN 301 511 Harmonized standard for mobile stations in the GSM 900 and 1800 bands.
- EN 301 489-1 ElectroMagnetic Compatibility standard for radio equipment and services.
- EN 301 489-7 Specific (EMC) conditions for mobile radio equipment (GSM 900 and 1800)
- EN 60950 Safety of information Technology Equipment

The conformity assessment procedure referred in article 10 and detailed in Annex III of directive 1995/5/EC has been followed.

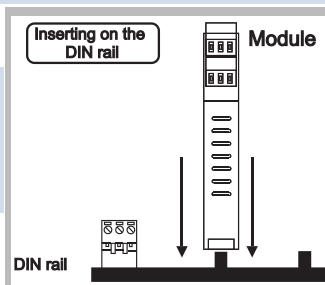
Installation Rules

The module is designed to be installed in vertical position on a DIN 46277 rail. In order to ensure optimum performance and the longest working life, the module(s) must be supplied adequate ventilation and no raceways or other objects that obstruct the ventilation slots. Never install modules above sources of heat; we recommend installation in the lower part of the control panel.

Inserting on the DIN rail

As it is illustrated in the next figure:

- 1) Insert the rear IDC10 connector on a DIN rail free slot (the inserting is univocal since the connectors are polarized).
- 2) Tighten the four locks placed at the sides of the rear IDC10 connector to fix the module.

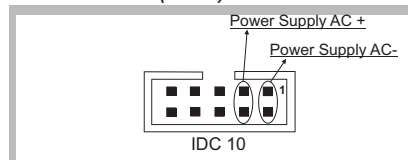


Electrical Connections

The RS485 interface, the digital inputs and the digital outputs can be used only after a correct installation of application software.
The application software can be installed with seneca software configuration. EASY-Z-PC.
For more information see the USER MANUAL available on the site www.seneca.it

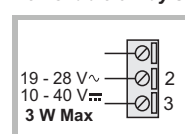
POWER SUPPLY

Rear Connector (IDC10)



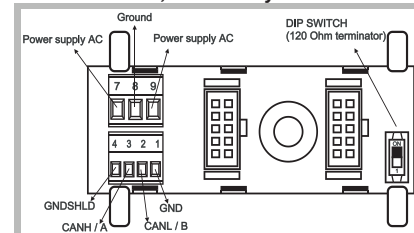
In the figure the meaning of the IDC10 connector pins is showed, in the case the user decides to provide the signals directly through it.

Removable 3-way screw terminals [1,2,3]



Terminals 2 and 3 can be used to provide the module with power supply as an alternative to connection using the Z-PC-DINx bus. **The upper limits must not be exceeded as this can seriously damage the module.** If the power supply source is not protected against overload, a safety fuse with a max. permissible value of 2.5 A must be installed in the power supply line.

Z-PC-DINAL2-17,5 Accessory Use



In case of Z-PC-DINAL2-17,5 accessory use, the signals may be provided by terminal blocks. The figure shows the meaning of the terminals and the position of the DIP-switch (present on each DIN rail supports listed on Accessories) for network termination (not used in case of Modbus network). GNDSHLD: Shield to protect the connection cables (recommended).

DIP-switch settings

The DIP-switches position defines the module Modbus communication parameters: Address and Baud Rate. In the following figure the Baud Rate and Address values are listed as a function of the DIP-switches position:

DIP SWITCH STATUS

RS485 address and Baud Rate of serial communication are settable from Dip-switches.
Dip-switches are disable when the module functioning as a modem (default setting).

POSITION	BAUD RATE	POSITION	ADDRESS
00xxxxxx	9600	xx000001	# 1
01xxxxxx	19200	xx000010	# 2
10xxxxxx	38400
11xxxxxx	57600	xx111111	# 63*(N.B.)

POSITION	BAUD RATE	POSITION	ADDRESS
xx000000	From EEprom	xx000000	From EEprom

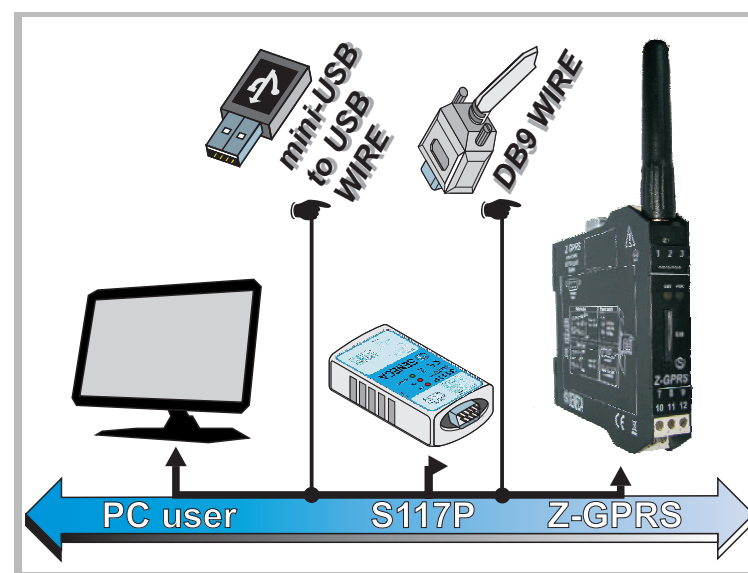
*N.B. In this configuration the module operates as a MODEM using the RS232 serial port (for AT command) and the antenna for GSM transmission. **All the other function are disable.**

RS 232 serial port

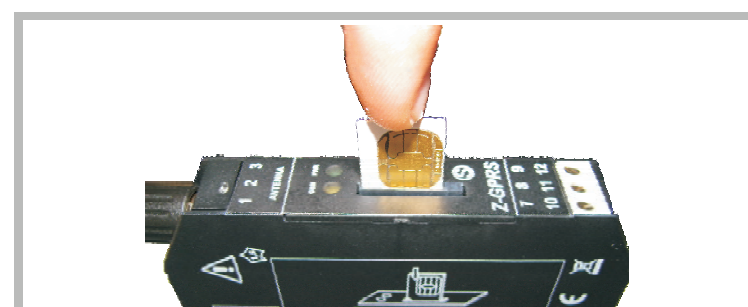
RS232 has all the handshaking signals to allow the Z-GPRS to behave like a modem (by sending AT commands). The meaning of the pins available on the DB9 connector, placed on the side of the module, is shown in the following table.

PIN	NAME	DESCRIPTION	PIN	NAME	DESCRIPTION
3	TX	Trasmitted data.	6	DSR	Data set ready.
2	RX	Received data.	9	RI	Ring indicator.
7	RTS	Request to send.	1	DCD	Data carrier detect.
8	CTS	Clear to send.	5	GND	Ground.
4	DTR	Data terminal ready.			

CONNECTION FOR MODEM CONFIGURATION

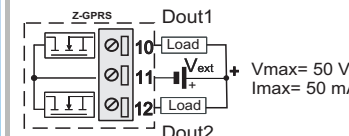


FRONTAL INSERTING OF SIM CARD IN THE PUS-PUSH CONNECTOR



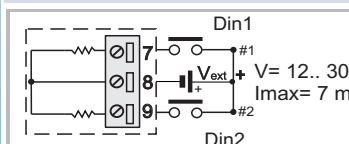
Additional features

DIGITAL OUTPUT



The state of outputs can be set from Modbus register. The bit of register represent respectively the value of output (on / off). See USER MANUAL. Resistive, inductive or capacitive loads can be connected to the output terminals.

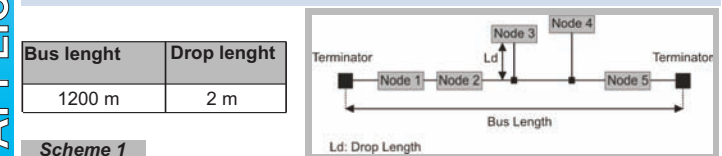
DIGITAL INPUT



An external power supply from 12 to 30 Vdc can be connected to the input terminal. All the inputs are connected in shared connection to terminal 8 (GND). The current that flows through a closed input is approx. 7mA.

Modbus connection rules

- 1) Install the modules on the DIN rail (max 120).
- 2) Connect the remote modules using cables of proper length. On the table the following data about the cables length are provided:
 - Bus Length: Modbus network maximum length as a function of the Baud rate. It is the length of the cables which connect the two bus terminators modules (see Scheme 1).
 - Drop Length: maximum length of a drop line (see Scheme 1) is 2 m.

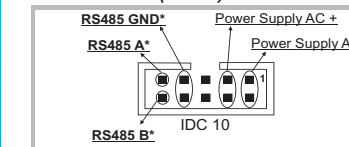


Scheme 1

For the best performances, the use of special shielded cables is recommended (BELDEN 9841 cable for example).

MODBUS RS485

Rear connector (IDC10)

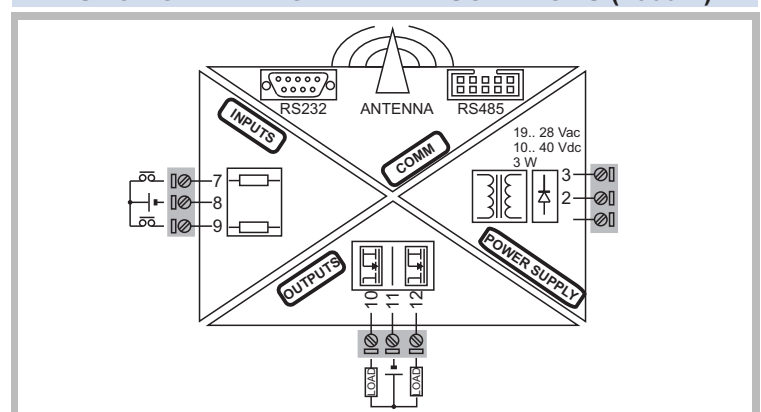


In the figure the meaning of the IDC10 connector pins is showed, in the case the user decides to provide the signals directly through it.

LEDS Signallings

LED	STATE	Meaning of LEDS
PWR	On	Power supply presence.
FAIL	Blinking fast	Searching network GSM
	Blinking slow	Docking to the network GSM

FUNCTIONAL DIAGRAM AND ISOLATIONS (1500 V)



Variations of standard parameters are possible by using configuration softwares EASY-Z-PC (www.seneca.it).
For more information about a list of all register and their function consult the USER manual.

Accessories

ANTENNA A-GSM	External antenna GSM dual band swing with 3 m of cable
Z-PC-DIN2-17,5	Expansion for DIN RAIL with 4 position, pitch 17,5
Z-PC-DIN8-17,5	Expansion for DIN RAIL with 8 position, pitch 17,5
Z-PC-DINAL2-17,5	Support for DIN RAIL with screw terminals for communication and power supply

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, waste disposal service of the retail store where you purchased this product.

 DOWNLOAD APPLICATIONS FROM www.seneca.it