INSTALLATION AND USER GUIDE

Language manual	English
Product	**ZE-2AI**
Description	**2 analog in Modbus RTU / Modbus TCP-IP, Web server**

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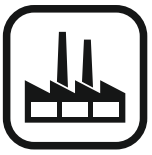
1.0 DISCLAIMER

Before executing any operation it's mandatory to read all the content of this user manual. Only electrical-skilled technicians can use the module described in this user Manual; it is responsibility of the manufacturer to verify that the installation complies with safety standards.

Only the Manufacturer is authorized to repair the module or to replace damaged components.

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



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2.0 DESCRIPTION AND GENERAL FEATURES

2.1 Description

Module with 2 analog inputs, slave for Modbus TCP-IP communication (Ethernet) and Modbus RTU, on two RS485 serial ports.

2.2 General features

- Server mode for the ethernet communication port with ModbusTCP-IP protocol: Ethernet port (10-100 Mbit / s), **4 client, Embedded Webserver**
- Possibility to set the parameters via internet (Web-server) or USB (Easy setup software)
- Replica of the Modbus registers on TCP-IP protocol (NR.1 Ethernet port) and RTU (NR.2 independent RS485 slave ports)
- Baud rate for ModbusRTU: 1200 baud up to 115200 baud
- Configuration of two analog inputs: voltage or current
- 1500 Vac galvanic isolation between power supply and communication
- Quick installation on DIN 46277 rail
- Removable screw terminals with section of 2.5 mm^2

3.0 TECHNICAL SPECIFICATIONS

3.1 General specifications

Power supply	19.. 28 Vac (50..60 Hz), 11.. 40Vdc
maximum power consumption	1,8 W
Isolation	1500 Vac

3.2 COM RS485

Maximum Baud rate	115 k

Connection	Screw terminals (M10, M11, M12): port 2, or IDC10 (rear connector): port 1
3.3 COM Ethernet	
Ethernet	10 - 100 Mbit/s, autoswitch
Protocol	Modbus TCP-IP
Max connection lenght	100 m
Connection	RJ 45 on frontal
3.4 Analog inputs	
Number of channels	2
Input type	mA/ Vdc, configurable; 16 bit
Voltage / current input	0..30 Vdc / 0..20 mA, accuracy 0,1% of the end scale
Input protection	Yes, 40 Vdc or 25 mA
Sampling time	Configurable, from 1 to 300 ms
3.5 Environmental conditions	
Temperature	-20 °C.. +70 °C
Humidity	30 ..90% a 40 °C no condensing
Storage temperature	-25 .. +85°C
3.6 Box	
Dimensions	100 x 17,5 x 111 mm
Box; protection degree	Black, PA6, IP20
3.7 Connectors	
Connectors	IDC 10 for Seneca bus
	Removable terminals, pitch 5,08 mm
	Mini-B USB
	Ethernet RJ45
3.8 Standars	
EN 61000-6-4/ 2007	Emission, industrial envinromental
EN 61000-6-2/ 2005	Immunity, industrial envinromental
EN 61010-1/ 2001	Safety

4.0 PRELIMINARY INSTRUCTIONS FOR USE

The module is designed to be installed on DIN 46277 rail (fig.1) in vertical position.

No operation on the module is allowed while it is power on.
It is forbidden to install the module near heat-emitting devices

It is reccomended that the use and installation operations are performed by an electrical-skilled technician

5.0 INSTALLATION

To install/remove the module on/from DIN 46277 rail, execute the following operations (Fig.1a and Fig.1b

5.1 Installation on/removal from DIN 46277 rail

Fig. 1a

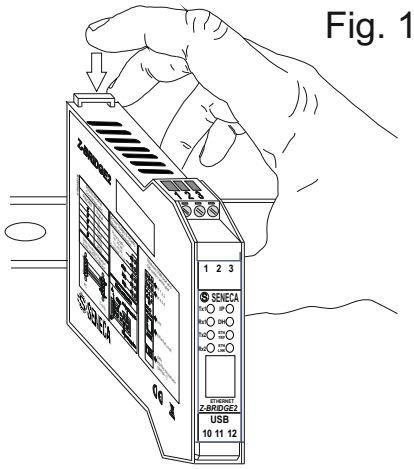
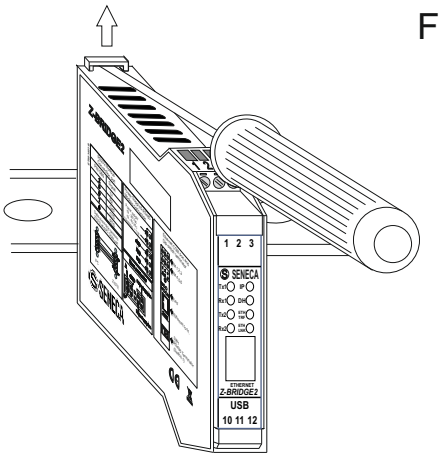


Fig. 1b



INSTALLATION
1)Pull the four latchs (placed in the back-side panel) outwards;
2) insert the module in a DIN rail free slot;
3) make sure that the IDC10-connector pins are inserted on the slot correctly;
4) press the four latchs inwards.

REMOVAL
1) Pull the four latchs (placed in the back-side panel) outwards, using a screwdriver;
2) pull out the module gently.

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

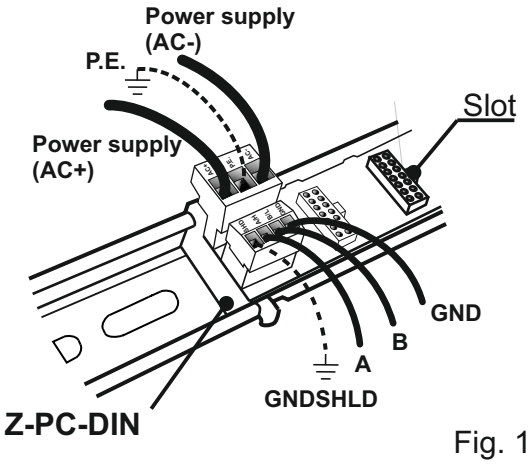


Fig. 1c

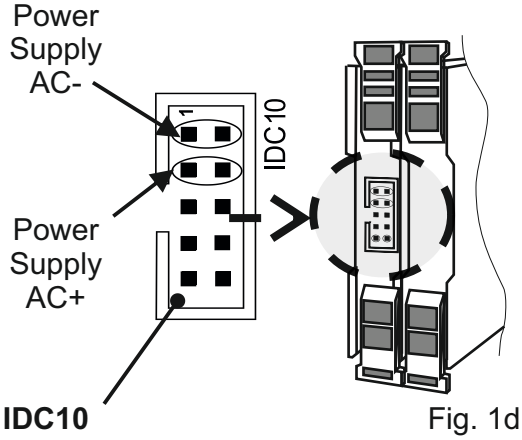
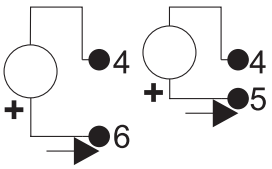
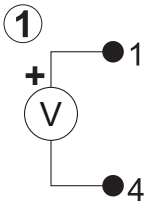
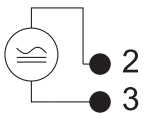


Fig. 1d

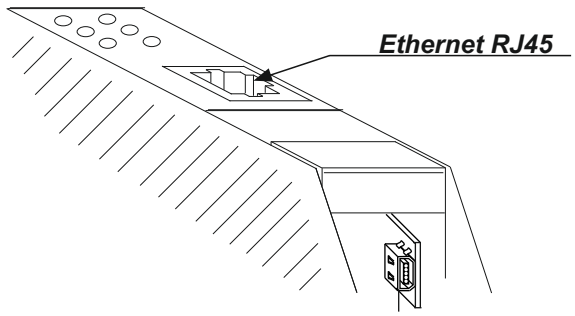
6.0 ELECTRICAL CONNECTIONS

6.1 Terminals

Description	Analog Inputs V/I [2]	Analog Inputs V/I [1]	Auxiliary Voltage	Power supply	Screw terminals
Analog inputs (V/mA) are configurable with **configuration software.** * Using the software Easy Setup	Configurable* 		 12 Vdc @ 40 mA	 11..40 Vdc 19..28 Vac	

Screw terminals	RS485 Communication port #2
	GND, RS485 Port #2 A, RS485 Port #2 B, RS485 Port #2

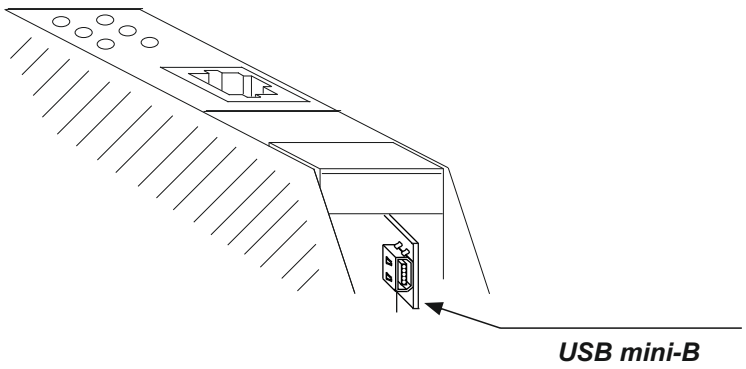
6.2 Ethernet



Ethernet communication port with RJ 45 it's used to connect by the PC. Communication velocity up to 100 Mbit / s, with Modbus TCP-IP protocol. Web server: module configuration by Ethernet port. Note: before to insert the cable into RJ45 connector, remove the protection rubber (if there is), to ensure the latching connector.

6.3 USB

USB port with mini-B plug-in for a easy PC connection.
This port allows to use the Easy setup configuration software to configure the module or update firmware (free download from www.seneca.it).



7.0 CONFIGURATION AND SETTINGS

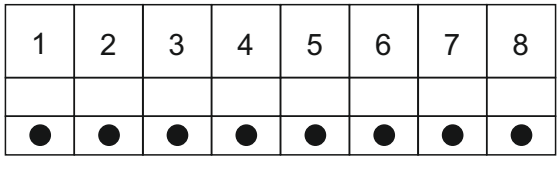
7.1 Dip-Switch

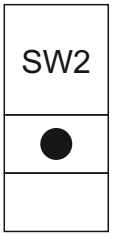
In the following tables: box without circle means Dip-Switch=0 (OFF state); box with circle means Dip-Switch=1 (ON state).

1	2	BAUD RATE RS485 #1-#2	3	4	5	6	7	8	ADDRESS RS485 #1 - #2
		9600							Baud Rate and Address are retreived from EEprom(*)
	●	19200						●	ADD # 1
●		38400					●		ADD # 2
●	●	57600					●	●	ADD # 3
						●			ADD # 4
						●		●	ADD # 5
						●	●		ADD # 6
						●	●	●	ADD # 7
					●				ADD # 8
					●			●	ADD # 9
					●		●		ADD # 10
					...	...	...	...	...
				...	...	...	...	...	...
			●	●	●	●	●	●	ADD # 63

(*) For two RTU ports, it is possible to assign a baudrate and an address different from each other using Easy setup software. In this case, all switch 1..8 must be in OFF. Unchangeable parameters from dip-switch: DATA: 8 bit, PARITY NONE, 1 STOP bit
For both RS485 ports, default parameters are: 38400 baud, 8N1 (from EEPROM).
IMPORTANT: the dip-switch SW2 placed at the right of the switch number 8 must be always in position ON!

Default





ALWAYS ON

7.2 Easy Setup

The configuration software (Easy setup) can be free donwloaded from the website www.seneca.it.

7.3 IP address

The default IP address of the device is static: 192.168.90.101.
To modify IP address, mask and gateway use the Easy Setup software.

8.0 SIGNALLING LEDs

LED	STATE	MEANING
IP (GREEN)	Fixed	Module is power on, in configuration without DHCP and ethernet port is connected to the network
IP (GREEN)	Blinking (quick)	Module is power on, in configuration with DHCP and ethernet port is connected to the network
IP (GREEN)	Blinking (slow)	Module is power on and ethernet port is not connected to the network
FAIL (RED)	Fixed	At least one of the two analog inputs is in overscale or underscale.
ETH TRF (GREEN)	Blinking	Data transmission on Ethernet port
ETH LNK (YELLOW)	Fixed	Ethernet port is connected
Tx1 (RED)	Blinking	Modbus data transmission from device on port 1 RTU
Rx1 (RED)	Blinking	Modbus data receiving on port 1 RTU
Tx2 (RED)	Blinking	Modbus data transmission from device on port 2 RTU
Rx2 (RED)	Blinking	Modbus data receiving on port 2 RTU

9.0 ACCESSORIES

CODE		DESCRIPTION
Z-PC-DIN	AL1-35	DIN rail support with screw terminals P=35 mm
	AL2-17,5	DIN rail support with screw terminals P=17,5 mm
Z-PC-DIN	1-35	DIN 1 slot support for rear connector P=35 mm
	2-17,5	DIN 2 slot support for rear connector P=17,5 mm
	4-35	DIN 4 slot support for rear connector P=35 mm
	8-17,5	DIN 8 slot support for rear connector P=17,5 mm
PM001450		Ethernet cable 1,5 m

Disposal of Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collections programs). This symbol, found on your producr 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 didposed 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.