INSTALLATION MANUAL

Z-8AI

PRELIMINARY WARNINGS

The word **WARNING** preceded by the symbol ⚠ indicates conditions or actions that put the user's safety at risk. The word **ATTENTION** 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 any operation. The module must only be used by qualified electricians. Specific documentation is available using the QR-CODE shown on page 1.
	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.
	Electrical and electronic waste disposal (applicable in the European Union and other countries with recycling). The symbol on the product or its packaging shows the product must be surrendered to a collection centre authorized to recycle electrical and electronic waste.

Z-8AI
DOCUMENTATION

SENECA

QUALITY MANAGEMENT SYSTEM
ISO 9001:2015

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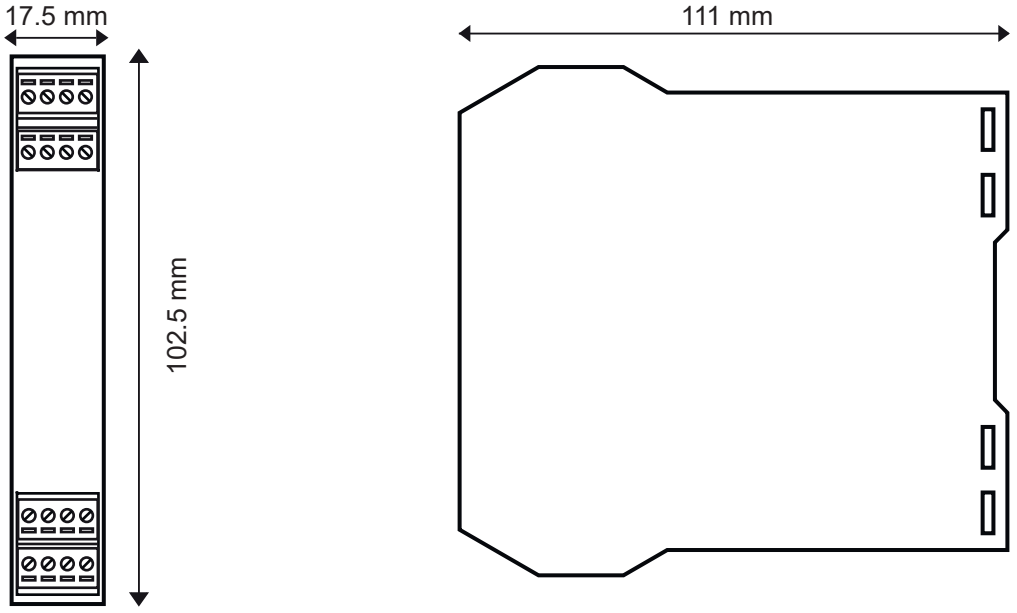
CONTACT INFORMATION

Technical support	support@seneca.it	Product information	sales@seneca.it

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MODULE LAYOUT

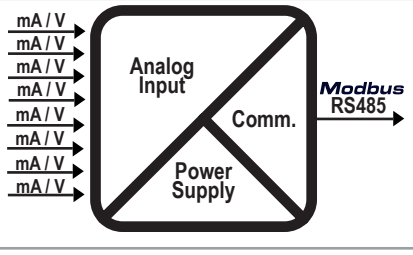


Dimensions LxHxD 17.5 x 102.5 x 111 mm; **Weight:** 110 g; **Enclosure:** PA6, black

SIGNALS VIA LED ON FRONT PANEL

LED	STATUS	LED meaning
PWR Green	ON	The device is powered correctly
FAIL yellow	Flashing	Anomaly or fault
RX Red	Flashing	Receipt of packet completed
RX Red	ON	Anomaly / Check connection
TX Red	Flashing	Transmission of packet completed

TECHNICAL SPECIFICATIONS

CERTIFICATIONS	https://www.seneca.it/products/z-8ai/doc/CE_declaration **Note UL:** use in environments with pollution degree 2 or lower. The power supply unit must be class 2.
INSULATION	 **WARNING** the maximum working voltage between any terminal and ground must be less than 50Vac / 75Vdc **1500 V~**
ENVIRONMENTAL CONDITIONS	*Temperature*: -20 ÷ + 65°C (-10 ÷ +55 °C UL) *Humidity*: 30% ÷ 90% non condensing. *Altitude:* up to 2000m above sea level *Storage temperature:* -20 ÷ + 85°C *Protection degree:* IP20.
ASSEMBLY	35mm DIN rail IEC EN60715 in vertical position.
CONNECTIONS	3-way removable screw terminals, pitch 5mm Rear connector IDC10 for DIN bar 46277 front micro USB
POWER SUPPLY	Voltage: 10 ÷ 40Vdc; 19 ÷ 28Vac; 50 ÷ 60Hz; Absorption: Max. 3.5W

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INPUTS	
Voltage input:	Bipolar with F.S. programmable at +2Vdc and +10Vdc Input impedance >100kOhm
Current input:	Bipolar with F.S. Programmable at +20mA with 50Ohm internal shunt selectable via DIP-switch. Available power supply: 90 + 90mA at 13Vdc.
Number of channels:	8
Input resolution:	15 bit + sign.
Input protection:	± 30Vdc or 25mA
Precision voltage and current:	Starting: 0.1 of full scale Linearity : 0.03% of scale. Zero: 0.05% of scale. TC: 100 ppm, EMI: <1 %
Sampling time	120 ms/channel or 60 ms/channel
Measurement update time (sampling rate: 10ms)	1 channel enabled (update time for 1 channel) 4 channels enabled (update time for 4 channels) 8 channels enabled (update time for 8 channels)

CONFIGURATION OF FACTORY SETTINGS

All DIP-switches in	OFF position
Communication parameters of ModBUS protocol:	38400 8, N, 1 Address 1
Communication parameters of micro USB front port	2400 8, N, 1 Address 1
Channel input from 1 to 8:	VOLTAGE ± 10Vdc
Numerical representation of the input measurement:	± 10000mV
Sampling time:	120ms

SETTING THE DIP-SWITCHES

The position of the DIP-switches defines the Modbus communication parameters of the module: Address and Baud Rate
The following table shows the Baud Rate and Address values according to the DIP-switch setting:

DIP-Switch status					
SW1 POSITION	**BAUD RATE**	**SW1 POSITION**	**ADDRESS**	**POSITION**	**TERMINATOR**
1 2 3 4 5 6 7 8		3 4 5 6 7 8		**10**	
- - - - - - - -	9600		#1		Disabled
- - - - - - - -	19200		#2		Enabled
- - - - - - - -	38400	. . . . .	#...		
- - - - - - - -	57600		#63		
	From EEPROM		From EEPROM		

Note: When DIP switches 1 to 8 are OFF, the communication settings are taken from programming (EEPROM).
Note 2: The RS485 line must be terminated only at the ends of the communication line.

SW2 ANALOG INPUT								
1	2	3	4	5	6	7	8	CHANNEL
								CURRENT INPUT
								VOLTAGE INPUT

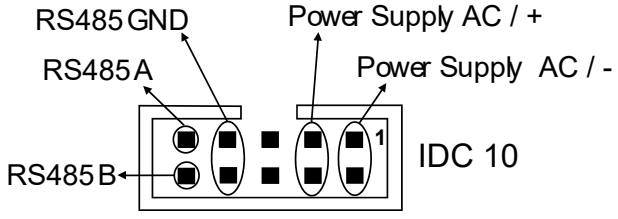
LEGEND	
	ON
	OFF

The settings of the dip-switches must be compatible with the settings on the registers. The description of the registers is available in the USER MANUAL.

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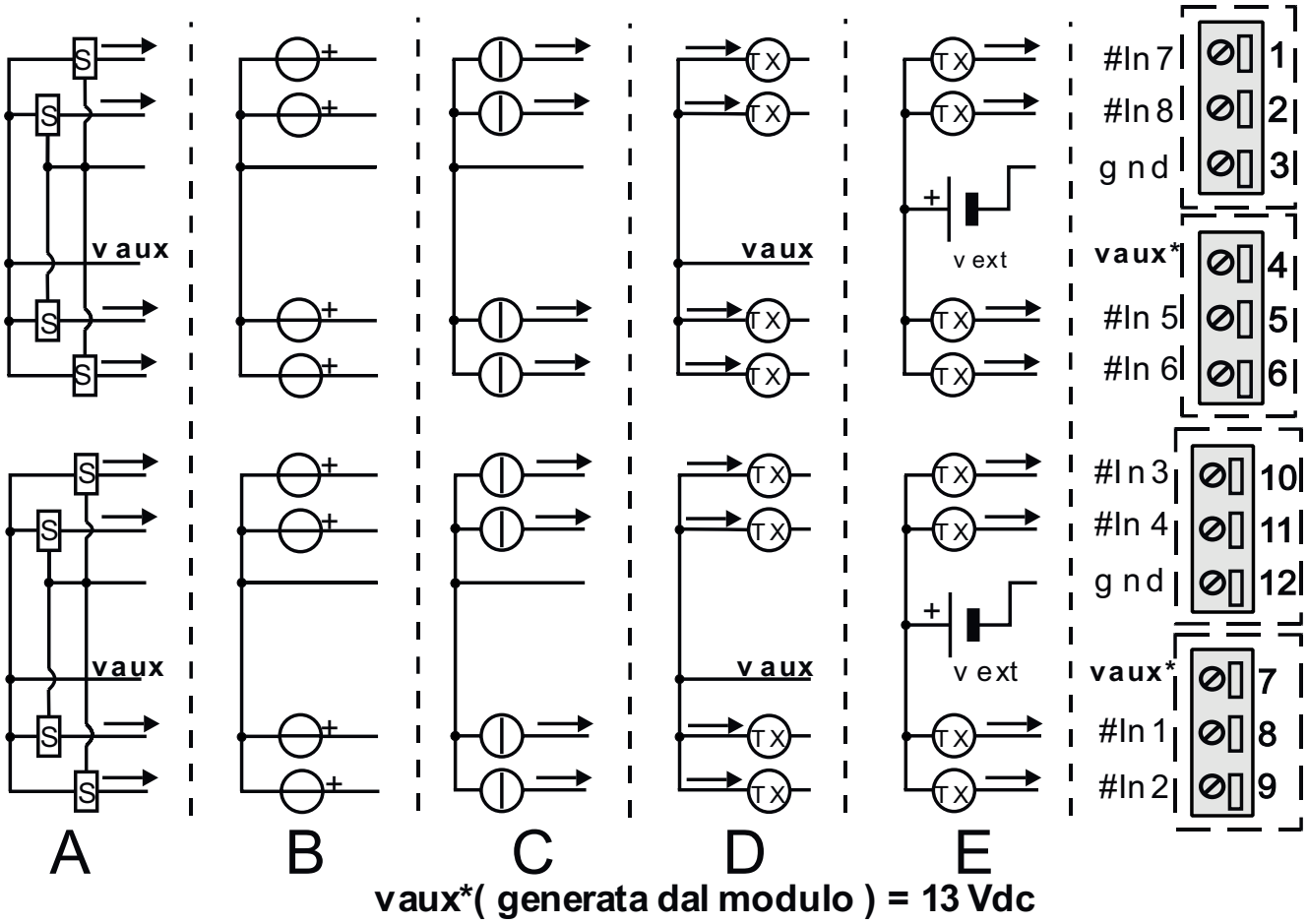
ELECTRICAL CONNECTIONS

Power supply and Modbus interface are available using the Seneca DIN rail bus, via the IDC10 rear connector, or the Z-PC-DINAL-17.5 accessory.



Back connector (IDC 10)
The illustration shows the meanings of the various IDC10 connector pins if signals are to be sent via them directly.

INPUTS



vaux*(generata dal modulo) = 13 Vdc

A) Voltage input with sensor supply from the MODULE (13 Vdc)

B) Voltage input with sensor supply NOT coming from the MODULE

C) Current input with sensor supply NOT coming from the MODULE

D) Current input with sensor supply from the MODULE (13 Vdc)

E) Current input with sensor EXTERNAL power supply

⚠ ATTENTION

The upper power supply limits must not be exceeded, as this might 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 (inverters, motors, induction ovens, etc...).
- install a fuse with a MAX capacity of 2.5A near the module.
- make sure that the power supply voltage to the module does not exceed: 40Vdc or 28Vac, otherwise the module will be damaged.

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