SENECA

Serie Z

EN

Z113-1

UNIVERSAL ANALOG INPUT DUAL ALARM THRESHOLD

Installation Manual

Contents:

- General specifications
- Technical specifications
- Installation rules
- Electrical connections
- Input ranges
- Factory settings.
- Default conditions
- LEDs signallings
- Purchase order codes
- Module layout
- Decommissioning and disposal



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Per manuali e software di configurazione, visitare il sito www.seneca.it

CSQ IQNet
ISO 9001:2008

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GENERAL SPECIFICATIONS

- Two relay SPST 3A 250V∿ with one output contact in common.
- Available input types: voltage (mV⎓), current (mA⎓), potentiometer (%), thermocouples TC (C°), thermoresistances RTD (C°)
- Removable terminals with section of 2.5 mm^2
- Possibility of USB configuration.
- If current input then sensor powered by 2-wire technique is available: 17 V⎓ Max stabilised, 20mA Max with short-circuit protection (terminal 7).
- 1500V∿ isolation between input and power supply 3000 V∿ to the outputs.
- Possibility to set: input type, input filter, alarm output, reiection, burn-out, etc.. (See: www.seneca.it)
- Front panel display: power on, out of range or burn out error and alarms status.

TECHNICAL SPECIFICATIONS

Universal Input

Number	1
Resolution	14 bit
Sampling time	Selectable between: 16.66 ms(reiection 60Hz) or 20 ms (reiection 50Hz)
Filter	The input signal filter's level can be configured:from 0 to 19
Response time	Sampling time + 6 ms
Voltage input mode	Scale span configurable: from 0V to 10V⎓. Input impedance: 120kΩ. Automatic out of range detection.
Current input mode (active / passive module)	Scale span configurable: from 0mA to 20mA. Internal shunt: 50Ω. Power supply of sensor loop: from sensor to module (passive module) or from module to sensor(actvive module) by terminal 7 (Max 25 mA a Max 17 V) with short-circuit protection. Automatic out of range detection.
Potentiometer input mode	Scale span configurable: from 1% to 100%. Potentiometer input value from 1kΩ to 100kΩ(a R=330Ω parallel circuit must be added). Energising current:1mA. Input impedance: >5MΩ. Automatic out of range detection.
thermocouples (TC) input mode	TC type: J, K, R, S, T, B, E, N. input impedance: > 5 MΩ. Automatic burn-out detection
thermoresistances (RTD) input mode	RTD type: PT100, PT500, PT1000,NI100. (2, 3 or 4 wires resistance measurement). Energising current: 1.1mA (PT100) and 0.11mA (PT1000, PT500). Automatic burn-out detection

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Errors related to max measuring range	Accuracy	Thermal stability	Linearity error	EMI
Voltage or current input type	0.1%	0.01%/°K	0.05%	<1% (1)
TC input type: J, K, E, T, N	0.1%	0.01%/°K	0.2°C	<1% (1)
TC input type: R, S	0.1%	0.01%/°K	0.5°C	<1% (1)
TC input type: B (2)	0.1%	0.01%/°K	1.5°C	<1% (1)
Cold junction compensation (for all TC inputs type)	2°C tra 0°C e 50°C ambiente	/	/	/
Potentiometer input type	0.1%	0.01%/°K	0.1%	<1%
Thermoresistance RTD input type: PT100, PT500, PT1000, NI100.(3)	0.1%	0.01%/°K	0.02%(se t>0°C) 0.05%(se t<0°C)	<1% (4)

(1) Influence of wire resistances: 0.1 uV/Ω
(2) Output zero if t < 250°C
(3) All the errors have to be calculated with reference to resistive value
(4) Influence of wire resistances: 0.005 %/Ω, max 20 Ω

Outputs

Channel numbers	2
Output type	RELAYS' SPST N.O. position with common
Max RELAY current	3 A @ 250V∿; 3 A @ 30V⎓
Max RELAY voltage	250 V∿ CAT. II

Power supply

Voltage	10 – 40 V⎓; 19 - 28 V∿ 50 – 60 Hz
Consumption	Typical: 2,5 W, Max: 3 W

Environmental conditions

Temperature	-10 – +65°C
Humidity	30 – 90% a 40°C not condensing
Altitude	Up to 2000m a.s.l.
StorageTemperature	-20 – +85°C
Protection degree	IP20

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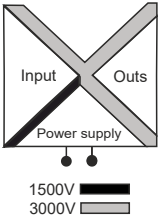
Electrical connections

Removable 3-way screw terminals 200mls pitch
MicroUSB frontal plug

Dimensions / Module box

Dimensions	L: 100 mm; H: 112 mm; W: 17,5 mm
Module box	PBT, black

Isolations 1500 / 3000 V



Standards

The module complies with the following standards:

EN61000-6-4 (electromagnetic emission, industrial environment).

EN61000-6-2 (electromagnetic immunity, industrial environment).

EN61010-1 (safety).

One max 2.5A fuse must be installed near the module.

ADDITIONAL NOTES:
Use in environment with 2 or less pollution degree.
Power Supply must be Class 2.
The relay contacts are suitable for CAT II circuits.

INSTALLATION RULES

The module is designed to be installed, in vertical position, on DIN 46277 rail. For the best module performance and long life, avoid to place cables raceways and other objects that could obstruct ventilation slits.
Never install the modules near heat sources. We suggest to install the module in the bottom of the control panel.

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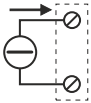
ELECTRICAL CONNECTIONS

Power supply

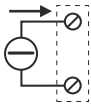


The supply voltage must be between 10 to 40 V⎓ (Any polarity), or between 19 e 28 V~. **These upper limits must not be exceeded to avoid serious damage to the module.**
It's necessary to protect the power supply source against any failure of the module using appropriately sized fuse.

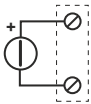
Universal input



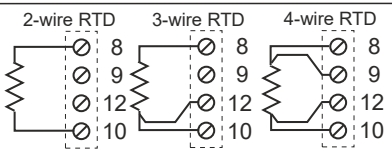
Passive current input (0 – 20 mA). The sensor supplies the current loop.
Use this connection if the input current come from outside.



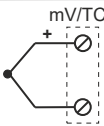
Active current input (0 – 20 mA). The module supplies the current loop.
Use this connection with 2 wire measurement.
The transducer is powered by the module Z113-1.



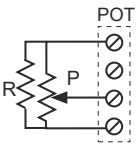
Voltage input (0 – 10 V⎓)



Thermoresistance input type:
PT100, NI100, PT500 and PT1000.



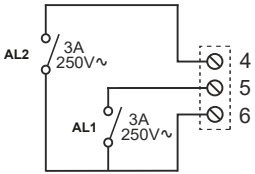
Thermocouple input type: J, K, R, S, T, B, E and N.



Potentiometer input:
One 330Ω resistance parallel circuit is needed.
Potentiometer value must be from1 a 100kΩ

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Outputs



Two relays output with normally open contact.

INPUT RANGES

	Lower limit	Upper limit
Voltage (mV)	0 mV	11000 mV
Current (µA)	0 µA	21000 µA
Potentiometer (%)	0 %	105 %
Thermocouple J (°C)	-210° C	1200° C
Thermocouple K (°C)	-200° C	1370° C
Thermocouple R (°C)	-50° C	1760° C
ThermocoupleS (°C)	-50° C	1760° C
Thermocouple T (°C)	-200° C	400° C
Thermocouple B (°C)	0° C	1820° C
ThermocoupleE (°C)	-200° C	1000° C
Thermocouple N (°C)	-200° C	1300° C
RTD Pt100 (°C)	-200° C	660° C
RTD Ni100 (°C)	-60° C	250° C
RTD Pt500 (°C)	-200° C	660° C
RTD Pt1000 (°C)	-200° C	660° C

FACTORY SETTING

- Relays outputs: NORMALLY OPEN
- Safety state : ENABLED
- Safety timer : DISABLED
- Relay inverted state (Normally Closed): DISABLED

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DEFAULT CONDITIONS

Default module setting parameters:	
Input type	Current
Input filter (acquired signal)	Disabled
Start / End input range	0 [mA] / 20 [mA]
Reiection at mains frequency / Sampling time	Reiection = 50Hz / Sampling time = 20ms
Cold junction compensation (for RTc input)	Disabled
Input fail detection: out of range error (if voltage or current or potentiometer input); burn-out error (if Tc or RTD input); fault value measured	Disabled

LEDs Signallings

LED	STATE	*LED Meanings*
PWR	On	Power supply presence.
PWR	Blinking	Out of range or burn out or value error.
ALARM1	On	Alarm1 activated
ALARM2	On	Alarm2 activated

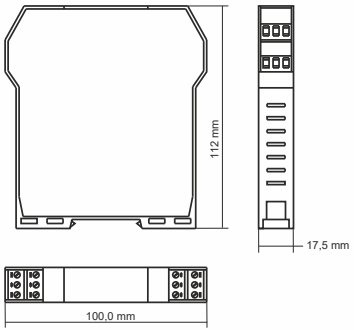
PURCHASE ORDER CODE

Order code	Description
Z113-1	Universal analog input dual alarm threshold
KIT-USB	USB cable and configuration software
CAVO-USB-A-MICRO-B	USB / microUSB cable

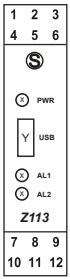
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MODULE LAYOUT

MODULE DIMENSIONS



FRONT PANEL



Variations of standard parameters are possible by software (see www.seneca.it).
For more information about a list of all register and their function please read: USER manual.

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

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