100% Made & Designed in Italy

I/O MODULES

Z-PC LINE

R LINE

Modbus RTU

CANopen

Modbus TCP-IP

PROFINET

SENECA

www.seneca.it

Z-PC LINE

Scalable and distributed I/O modules

Extended range

Modular acquisition system management from single signal to thousands of I/Os with a wide range of analog, digital, temperature sensor, and load cell signals with densitiy of up to 24 channels per module.

ModBUS RTU/TCP-IP models

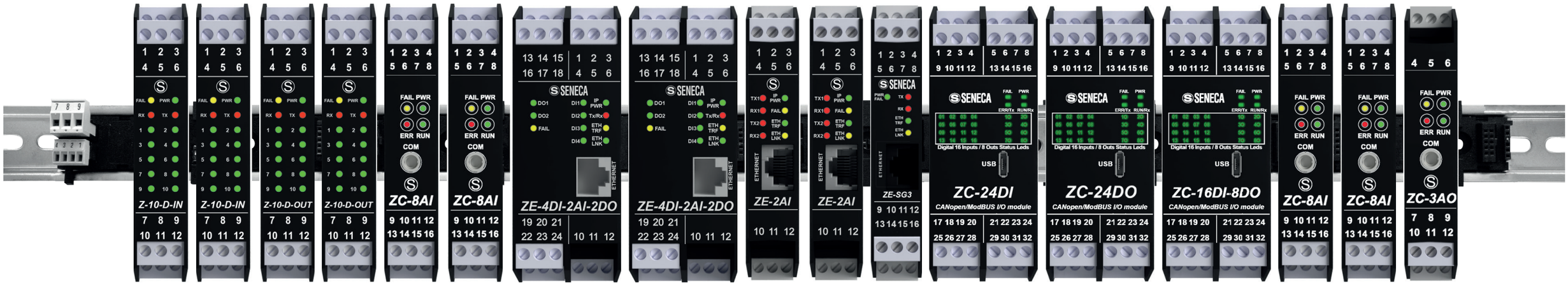
Modules with RS485 serial communication and ModBUS RTU protocol support up to 64 nodes without repeater and speeds up to 115 kbps.
Mixed I/O modules with ModBUS TCPIP protocol and 10/100Mbps Ethernet interface are configurable via web server.

Profinet models

Z-PC Line I/O modules with Profinet IO RT Class 1 protocol are featured by a minimum cycle time of 2 ms and 100 Mbps Ethernet data rate. They support star, tree and ring network topology.

CANopen models

Without using couplers, controllers or repeaters for each communication line, CANopen models ensure speeds of up to 1 Mbps and are therefore ideal for acquisition and control system on plants and machines.



Configuration

Z-PC Line I/O modules offer multiple configuration sytems from single module to complex applications: plug&play software EASY SETUP, sytem design environment Z-NET4, SoftPLC IEC 61131-3, Web Server.

System integration

Z-PC Line I/O modules enable open and flexible IT-OT architectures. In fact, they can be integrated with IEC 61131-3 multifunction controllers, HMIs, power meters, third-party interfaces and technologies (fieldbus, Ethernet, radio, fiber optical, IIoT, Edge and Cloud).

Bus sytem

Power supply and data transmission are ensured by modular bus support (RS485) from DIN rail in 1, 2, 4, 8 slots. Alternatively, depending on of the models, power supply and data transmission are distributed via terminals or IDC10 connector.

Approvals

Passing severe tests for potential fire hazards, electrical shock and mechanical failures, most of the Z-PC Line I/O moduleshave UL (Underwriters Laboratories) international certification.

R LINE

I/O modules with built-in networking

Applications

R Line I/O modules are instruments designed for needs of flexible wiring, space saving installation (thickness 32 mm), applications with high I/O density.

ModBUS RTU/TCP-IP models

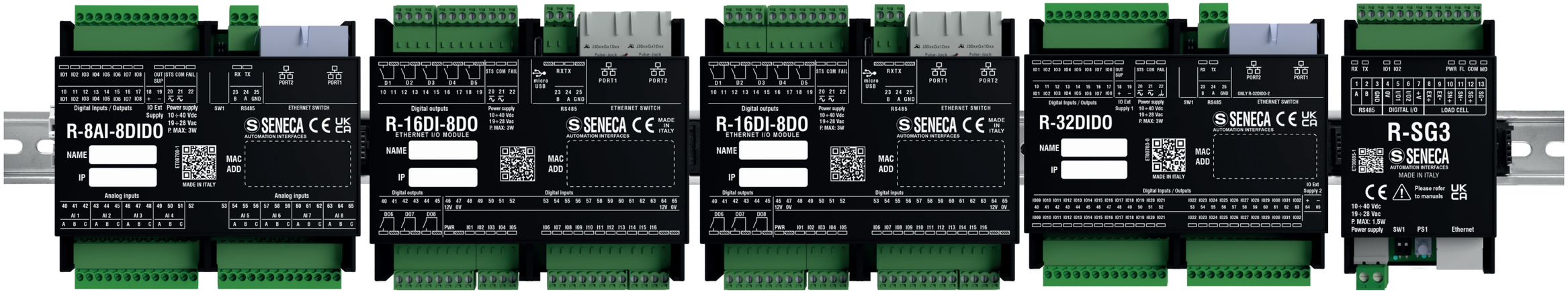
Modbus models support both ModBUS TCP-IP communication (over 1 or 2 Ethernet ports) and RS485 serial communication with Modbus RTU protocol, up to 64 nodes without repeater and 115 kbps data rate.

Profinet IO models

R Line I/O modules with Profinet IO RT Class 1 protocol are featured by a minimum cycle time of 2 ms and 100 Mbps Ethernet data rate. They support star, tree and ring network topology.

Configuration

I/O ModBUS configuration is done through a web server. Profinet IO versions support softPLC IEC 61131-3 (e.g. Straton, CODESYS) and third-party engineering environment (e.g. Siemens TiA Portal).



Daisy Chain

Thanks to the dual Ethernet interface, a series multiple devices connection (daisy chain) avoid expensive industrial switches and simplify wiring.

Fault-by-pass

The Ethernet connection and data transmission are maintained even in case of failure or power failure of a module in the chain connection. In this way, the availability and continuity of the service are guaranteed.

ModBUS Pass Through

Thanks to “ModBUS Pass Through” onboard function modules can redirect to RS485 requests coming from Modbus TCP-IP by behaving as a gateway.

Peer-To-Peer

Digital signals can be duplicated on one or more modules in Peer-To- Peer (mirror I/O function) and remotely transmitted without using a PLC Master.

SIGNALS FLOW

SENSORS & ACTUATORS








mA
V
Ohm
mV

ANALOG I/O modules

Input
Namur, Reed
Photoelectric,
Proximity
TTL
Variable reluctance
PNP, NPN
24 V pulses
Counter
Output
SPST / SPDT relays
MOSFET

DIGITAL I/O modules

Analog
mA, V
Digital
Namur, Reed
Photoelectric,
Proximity
TTL
Variable Reluctance,
PNP, NPN, 24V pulses
Relay
MOSFET

MIXED I/O modules

Load cells

WEITHING I/O modules

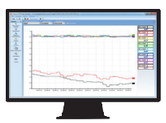
Thermocouples
J,K,R,S,T,B,E,N
Thermistors
NTC
Thermoresistances
Pt100, Pt500,
Pt1000, Ni1000,
Cu50, Cu100, Ni120
mV
Ohm

TEMPERATURE I/O modules

A, V
AC/DC

POWER METERS I/O modules

Modbus
PROFINET
CANopen



Data Recorder
DAQ Software

IEC 61131-3
IEC 61850/870
Multi-function
Controllers

RTUs / IIoT Edge Gateways

PLCs and third-party devices

Radio modules

Gateways / protocol converters

Protocolli IT / IIoT
MQTT(s), OPC UA, http(s) post, Wi-Fi, 4G, PPP, HTTP(s), SMTP, FTP(s), SNMP

HMI

SCADA
Control Room

Telecontrol
Remote Assistance

IoT / Cloud platform

Data Center

Modbus
PROFINET
CANopen
EtherNet/IP

SELECTION TABLE / GENERAL DATA AND CONFIGURATION

Model	Power supply	Power transducer	Isolation (max)	Line	Dimension	Operating temp.	UL	Special features	CONFIGURATION					
									DIP Switch	EASY SETUP	EASY SETUP 2	Z-NET4	Web Server	Ambienti IEC 61131-3
DIGITAL														
R-16DI-8DO	10..40 Vdc; 19..28 Vac	Sì, 12 Vdc / 40 mA	1,5 kVac	R	106 x 90 x 32 mm	-25..+65°C	-	Daisy Chain, Fault-By-Pass, Pass-Through, Peer-To-Peer	x	-	x	-	x	
R-16DI-8DO-P	10..40 Vdc; 19..28 Vac	Sì, 12 Vdc / 40 mA	1,5 kVac	R	106 x 90 x 32 mm	-25..+65°C	-	Daisy Chain, Fault-By-Pass	x	-	-	-		x
R-32DIDO-2	10..40 Vdc; 19..28 Vac	-	1,5 kVac	R	106 x 90 x 32 mm	-25..+65°C	-	Daisy Chain, Fault-By-Pass, Pass-Through, Peer-To-Peer	x	-	-	-	x	
R-32DIDO-2-P	10..40 Vdc; 19..28 Vac	-	1,5 kVac	R	106 x 90 x 32 mm	-25..+65°C	-	Daisy Chain, Fault-By-Pass	x	-	-	-		x
Z-10-D-OUT	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	x	Programmable fail safe	x	x	x	x		
Z-10-D-IN	10..40 Vdc; 19..28 Vac	Sì, 17 Vdc / 40 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	x	-	x	x	x	x		
Z-5DI-2DO	10..40 Vdc; 19..28 Vac	Sì, 16 V / 30 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-20..+65°C	x	-	x	x	x	x		
ZC-16DI-8DO	10..40 Vdc; 19..28 Vac	Sì, 16V / 40 mA	1,5 kVac	Z-PC	35x102,5x111 mm	-10..+65°C	-	-	x	x	x	x		x
ZC-24DI	10..40 Vdc; 19..28 Vac	Sì, 16V / 70 mA	1,5 kVac	Z-PC	35x102,5x111 mm	-10..+65°C	-	-	x	x	x	x		x
ZC-24DO	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	35x102,5x111 mm	-10..+65°C	-	-	x	x	x	x		x
Z-D-IN	10..40 Vdc; 19..28 Vac	Sì, 17Vdc / 20 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	-	x	x	x	x		
Z-D-IO	10..40 Vdc; 19..28 Vac	Sì, 20 V / 30 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	-	x	x	x	x		
Z-D-OUT	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	Programmable fail safe	x	x	x			
ANALOG														
Z-3AO	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	x	-	x	x	x	x		
Z-4AI	10..40 Vdc; 19..28 Vac	Sì, 20 Vdc, 40 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	x	-	x	x	x	x		
Z-8AI	10..40 Vdc; 19..28 Vac	Sì, 13 Vdc / 90+90 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	-	x	x	x	x		
ZC-3AO	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	-	x	x	x	-		x
ZC-8AI	10..40 Vdc; 19..28 Vac	Sì, 22 mA / 16 V	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	-	x	x	x	-		x
Z-DAQ-PID	10..40 Vdc; 19..28 Vac	Sì, 17 Vdc / 25 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	PID regulation	x	x	x	x		
ZE-2AI	10..40 Vdc; 19..28 Vac	Sì, 12 V / 40 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+70°C	-	-	x	x	x	-	x	
ZE-2AI-P	10..40 Vdc; 19..28 Vac	Sì, 12 V / 40 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+70°C	-	-	x	-	-	-		x
ANALOG/DIGITAL														
R-8AI-8DIDO-2	10..40 Vdc; 19..28 Vac	-	1,5 kVac	R	106 x 90 x 32 mm	-25..+65°C	-	Daisy Chain, Fault-By-Pass, Pass-Through, Peer-To-Peer, n.1 PT100 available inputt	x	-	-	-	x	
R-8AI-8DIDO-2-P	10..40 Vdc; 19..28 Vac	-	1,5 kVac	R	106 x 90 x 32 mm	-25..+65°C	-	Daisy Chain, Fault-By-Pass, n.1 PT100 available inputt	x	-	-	-		x
Z-4DI-2AI-2DO	10..40 Vdc; 19..28 Vac	Sì, 12 V / 40 mA, 12 V / 20 mA	3 kVac	Z-PC	35x102,5x111 mm	-25..+70°C	-	-	x	x	x		x	
ZE-4DI-2AI-2DO-P	10..40 Vdc; 19..28 Vac	Sì, 12 V / 40 mA, 12 V / 20 mA	3 kVac	Z-PC	35x102,5x111 mm	-25..+70°C	-	-	x	-	-	-		x
TEMPERATURE														
Z-4RTD2	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-20..+70°C	x	-	x	x	x	x		
Z-4RTD2-SI	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+70°C	-	-	x	x		x		
Z-4TC	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+65°C	-	-	x	x	x	x		
Z-8NTC	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-20..+70°C	-	-	x	x	x	x		
Z-8TC-1	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-20..+65°C	-	-	x	x	x	x		
Z-8TC-LAB	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-20..+65°C	-	Morsetti interscambiabili	x	x	-	-		
Z-8TC-SI	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+70°C	-	-	x	x	-	-		
Z-8TC-SI-LAB	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+70°C	-	Morsetti interscambiabili	x	x	-	-		
ZC-4RTD	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	-	x	x	x	-		x
ZC-8TC	10..40 Vdc; 19..28 Vac	-	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	-	x	x	x	-		x
WEIGHT														
R-SG3	10..40 Vdc; 19..28 Vac	Sì, 5 Vdc / 60 mA	1,5 kVac	R	53,3x90x32,2 mm	-25..+65°C	-	Tare acquisition, stable weighing, predictive filtering, piece counter	x	-	-	-	x	
R-SG3-P	10..40 Vdc; 19..28 Vac	Sì, 5 Vdc / 60 mA	1,5 kVac	R	53,3x90x32,2 mm	-25..+65°C	-	Tare acquisition, stable weighing, Daisy Chain, Fault-By-Pass, Predictive filter, piece counter	x	-	-	-		x
ZC-SG	10..40 Vdc; 19..28 Vac	Sì, 5 Vdc	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	Tare acquisition, stable weighing	x	x	x	-		x
ZE-SG3	10..40 Vdc; 19..28 Vac	Sì, 5Vdc / 60 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+70°C	-	Tare acquisition, stable weighing, predictive filtering, counting pieces	x	-	-	-	x	
ZE-SG3-P	10..40 Vdc; 19..28 Vac	Sì, 5Vdc / 60 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+70°C	-	Tare acquisition, stable weighing, predictive filter, piece counter	x	-	-	-		x
Z-SG	10..40 Vdc; 19..28 Vac	Sì, 5Vdc / 60 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	Tare acquisition, stable weighing	x	x	x	x		
Z-SG2	10..40 Vdc; 19..28 Vac	Sì, 5Vdc / 60 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-10..+65°C	-	Acquiring tare, stable weighing, predictive filter, piece counter	x	x	x	x		
Z-SG3	10..40 Vdc; 19..28 Vac	Sì, 5Vdc / 60 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+70°C	-	Acquiring tare, stable weighing, predictive filter, piece counter	x	-	x	-		

SELECTION TABLE / COMMUNICATION AND I/O CHANNELS

Modello	Protocols				Interfaces					DI			DO		DI/DO		AI		AO		Resolution (AI/AO)
	ModBUS RTU	ModBUS TCP-IP	CANopen	Profinet IO	Ethernet	Serial	USB	Jack	CAN	Nr.	Type	Counters	Nr.	Type	Nr.	Type	Nr.	Type	Nr.	Type	
DIGITALI																					
R-16DI-8DO	x	x	-		2	1 (RS485)	-	-	-	16	PNP, NPN	16, 5kHz, 32bit	8	SPST relay	-	-	-	-	-	-	-
R-16DI-8DO-P	-	-	-	x	2	-	-	-	-	16	PNP, NPN	-	8	SPST relay	-	-	-	-	-	-	-
R-32DIDO-2	x	x	-		2	1 (RS485)	-	-	-	-	-	32, 500Hz, 32 bit	-	-	32	PNP, Mosfet	-	-	-	-	-
R-32DIDO-2-P	-	-	-	x	2	-	-	-	-	-	-	-	-	-	32	PNP, Mosfet	-	-	-	-	-
Z-10-D-OUT	x	-	-	-	-	1 (RS485)	-	-	-	-	-	-	10	Mosfet	-	-	-	-	-	-	-
Z-10-D-IN	x	-	-	-	-	1 (RS485)	-	-	-	10	Reed, Contact, Proximity, PNP, NPN	10, 2,5kHz, 32 bit	-	-	-	-	-	-	-	-	-
Z-5DI-2DO	x	-	-	-	-	1 (RS485)	1	-		5	Reed, Contact, Proximity, PNP, NPN	5, 5kHz, 32bit	2	SPST relay		-	8	-	-	-	-
ZC-16DI-8DO	x	-	x	-	-	1 (RS485)	1	-	1	16	PNP	8, 10kHz, 32bit	8	Mosfet		-		-	-	-	-
ZC-24DI	x	-	x	-	-	1 (RS485)	1	-	1	24	PNP	8, 10kHz, 32bit	-		-	-	-	-	-	-	-
ZC-24DO	x	-	x	-	-	1 (RS485)	1	-	1		-	-	24	Mosfet	-	-	-	-	-	-	-
Z-D-IN	x	-	-	-	-	1 (RS485)	-	-	-	5	Reed, Contact, Proximity, PNP, NPN	4, 100Hz, 16bit; 1, 10 kHz, 32bit			-	-	-	-	-	-	-
Z-D-IO	x	-	-	-	-	1 (RS485)	-	-	-	6	Reed, Contact, Proximity, PNP, NPN	-	2	SPST relay	-	-	-	-	-	-	-
Z-D-OUT	x	-	-	-	-	1 (RS485)	1	-	-	-	-	-	5	SPST relay	-	-	-	-	-	-	-
ANALOGICI																					
Z-3AO	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-		-	3	mA, V	12 bit
Z-4AI	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	4	mA, V	-	-	16 bit
Z-8AI	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	8	mA, V	-	-	16 bit
ZC-3AO	-	-	x	-	-	1 (RS232)		1	1	-	-	-	-	-	-	-		-	3	mA,V	14 bit
ZC-8AI	-	-	x	-	-	1 (RS232)		1	1	-	-	-	-	-	-	-	8	mA, V	-	-	15 bit
Z-DAQ-PID	x	-	-	-	-	1 (RS232/RS485)		1		-	-	-	-	-	-	-	1	mA, V, mV, Ohm, TC J,K,T,E,N,R,S,B,L, PT100, PT500, PT1000, NI100	1	mA, V	14 bit
ZE-2AI	x	x	-	-	1	1 (RS485)				-	-	-	-	-	-	-	2	mA, V	-	-	16 bit
ZE-2AI-P	-	-	-	x	1					-	-	-	-	-	-	-	2	mA, V	-	-	16 bit
MISTI																					
R-8AI-8DIDO-2	x	x	-		2	1 (RS485)	-	-	-	-	-	-	-		8	PNP, Mosfet	8	mA, V, mV, TC J,K,T,E,N,R,S,B,L, PT100	-	-	24 bit
R-8AI-8DIDO-2-P	-	-	-	x	2		-	-	-	-	-	-	-		8	PNP, Mosfet	8	mA, V, mV, TC J,K,T,E,N,R,S,B,L, PT100	-	-	24 bit
Z-4DI-2AI-2DO	x	-	-	-	-	1 (RS485)	1	-	-	4	PNP, NPN	4, 5kHz, 32bit	2	SPDT relay		-	2	mA, V	-	-	16 bit
ZE-4DI-2AI-2DO	x	x	-	-	1	1 (RS485)	-	-	-	4	PNP, NPN	4, 5kHz, 32bit	2	SPDT relay		-	2	mA, V	-	-	16 bit
ZE-4DI-2AI-2DO-P	-	-	-	x	1		-	-	-	4	PNP, NPN	-	2	SPDT relay		-	2	mA, V	-	-	16 bit
TEMPERATURA																					
Z-4RTD2	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	4	PT100, PT500, PT1000, NI100	-	-	14 bit
Z-4RTD2-SI	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	4	PT100, PT500, PT1000, NI100, CU50, CU100, NI120, NI1000	-	-	24 bit
Z-4TC	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	4	TC J,K,R,S,T,B,E,N, mV	-	-	16 bit
Z-8NTC	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	8	NTC	-	-	16 bit
Z-8TC-1	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	8	TC J, K, E, N, S, R, B, T	-	-	16 bit
Z-8TC-LAB	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	8	TC J, K, E, N, S, R, B, T	-	-	16 bit
Z-8TC-SI	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	8	TC J,K,R,S,T,B,E,N,L mV	-	-	24 bit
Z-8TC-SI-LAB	x	-	-	-	-	1 (RS485)	1			-	-	-	-	-	-	-	8	TC J,K,R,S,T,B,E,N,L mV	-	-	24 bit
ZC-4RTD	-	-	x	-	-	1 (RS232)		1	1	-	-	-	-	-	-	-	4	Pt100, Ni100, Pt500, Pt1000	-	-	14 bit
ZC-8TC	-	-	x	-	-	1 (RS232)		1	1	-	-	-	-	-	-	-	8	TC J,K,E,N,S,R,B,T, mV	-	-	15 bit
PESATURA																					
R-SG3	x	x	-	-	1	1 (RS485)	1	-	-	-	-	-	-	-	2	PNP, NPN, Mosfet	1	Load cell (mv)	-	-	24 bit
R-SG3-P	-	-	-	x	1	-	-			-	-	-	-	-	2	PNP, NPN, Mosfet	1	Load cell (mv)	-	-	24 bit
ZC-SG	-	-	x	-	-	1 (RS232)	-	1	1	-	-	-	-	-	1	PNP, Mosfet	1	Load cell (mv)	-	-	15 bit
ZE-SG3	x	x	-		1	1 (RS485)	-	-	-	-	-	-	-	-	2	PNP, Mosfet	1	Load cell (mv)	1	mA, V	24 bit
ZE-SG3-P	-	-	-	x	1	-	-	-	-	-	-	-	-	-	2	PNP, Mosfet	1	Load cell (mv)	-	-	24 bit
Z-SG	x	-	-	-	-	1 (RS485)	1	-	-	-	-	-	-	-	1	PNP, Mosfet	1	Load cell (mv)	1	mA, V	24 bit
Z-SG2	x	-	-	-	-	1 (RS485)	1	-	-	-	-	-	-	-	1	PNP, Mosfet	1	Load cell (mv)	1	mA, V	24 bit
Z-SG3	x	-	-	-	-	1 (RS485)	1	-	-	-	-	-	-	-	2	PNP, Mosfet	1	Load cell (mv)	1	mA, V	24 bit

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