

I/O MODULES

Z-PC LINE

R LINE



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 density of up to 24 channels per module.

ModBUS RTU/TCP-IP models

Modbus

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 TCP/IP protocol and 10/100Mbps Ethernet interface are configurable via web server.

Profinet models

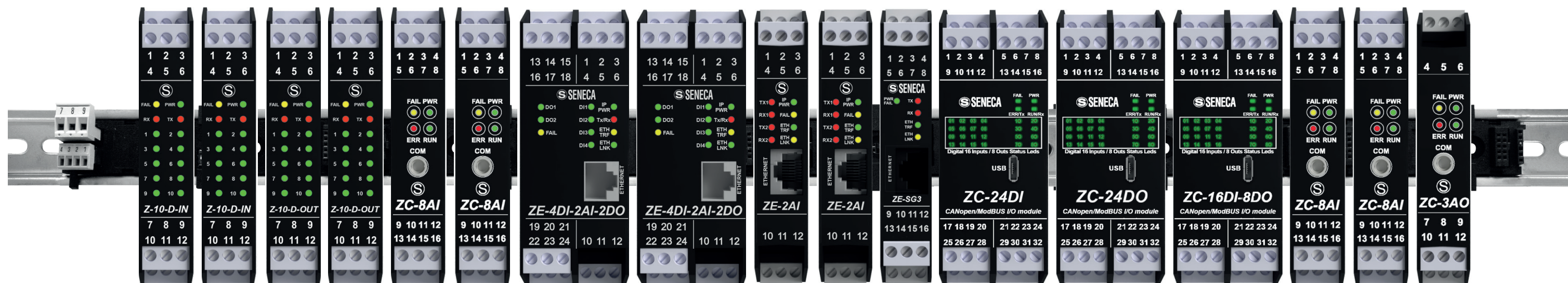


Z-PC Line I/O modules with Profinet IO RT Class 1 protocol are featured by a minimum cycle time of 2 ms and 100 Mbps Ethernet data rate. They support star, tree and ring network topology.

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



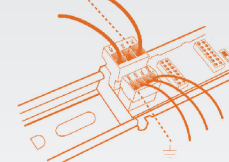
Z-PC Line I/O modules offer multiple configuration systems from single module to complex applications: plug&play software EASY SETUP, system design environment Z-NET4, SoftPLC IEC 61131-3, Web Server.

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 system



Power supply and data transmission are ensured by modular bus support (RS485) from DIN rail in 1, 2, 4, 8 slots. Alternatively, depending on 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 modules have 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

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

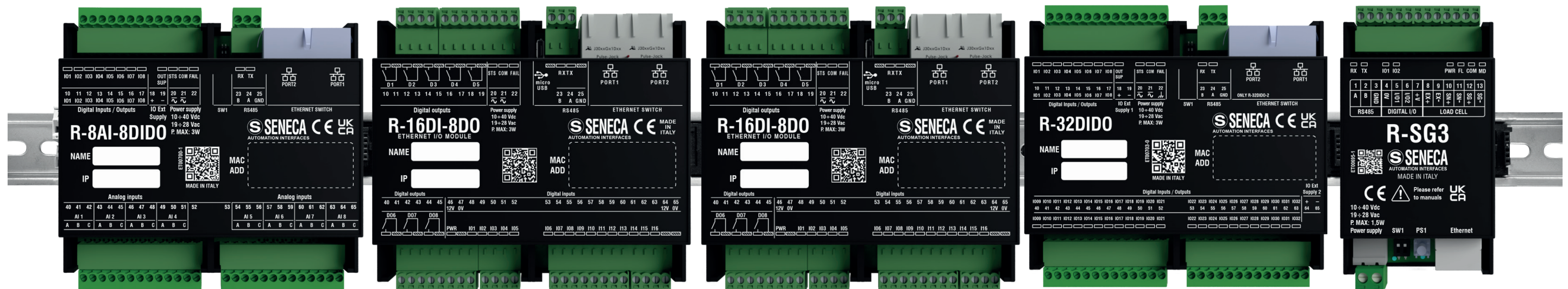
PROFINET

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



SELECTION TABLE / GENERAL DATA AND CONFIGURATION

									CONFIGURATION					
Model	Power supply	Power transducer	Isolation (max)	Line	Dimension	Operating temp.	UL	Special features	DIP Switch	EASY SETUP	EASY SETUP 2	Z-NET4	Web Server	EDS/GSDML
DIGITAL														
R-16DI-8DO	10..40 Vdc; 19..28 Vac	Si, 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	Si, 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	UL	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	UL	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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 12 V / 40 mA	1,5 kVac	Z-PC	17,5x102,5x111 mm	-25..+70°C	-	-	x	-	-	-		x
ANALOG/DIGITAL														
R-4RTD-8DIDO	10..40 Vdc; 19..28 Vac		1,5 kVac	R	106 x 90 x 32 mm	-25..+70°C		Daisy Chain, Fault-By-Pass, Pass-Through, Peer-To-Peer	x	-	-	-	x	
R-4RTD-8DIDO-P	10..40 Vdc; 19..28 Vac		1,5 kVac	R	106 x 90 x 32 mm	-25..+70°C		Fault-By-Pass, Pass	x	-	-	-		x
R-4AO-8DIDO	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-4AO-8DIDO-P	10..40 Vdc; 19..28 Vac		1,5 kVac	R	106 x 90 x 32 mm	-25..+65°C		Fault-By-Pass, Pass	x	-	-	-		x
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	Si, 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	10..40 Vdc; 19..28 Vac	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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	Si, 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		
DIGITAL																						
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	-	-	-	-	-	-	-	
ANALOG																						
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	
DIGITAL/ANALOG																						
R-4RTD-8DIDO	x	x	-	-	2	1 (RS485)	-	-	-	-	-	-	-	-	8	PNP, Mosfet	4	PT100, PT500, PT1000, NI100, CU50, CU100, NI120, NI1000			24 bits	
R-4RTD-8DIDO-P	-	-	-	x	2	-	-	-	-	-	-	-	-	-	8	PNP, Mosfet	4	PT100, PT500, PT1000, NI100, CU50, CU100, NI120, NI1000			24 bits	
R-4AO-8DIDO	x	x	-	-	2	1 (RS485)	-	-	-	-	-	-	-	-	8	PNP, Mosfet	8	-	4	mA, V	14 bits	
R-4AO-8DIDO-P	-	-	-	x	2		-	-	-	-	-	-	-	-	8	PNP, Mosfet	8	-	4	mA, V	14 bits	
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	
TEMPERATURE																						
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	
WEIGHT																						
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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