

I/O

R-LINE I/O MODULES



R-LINE - I/O MODULES



R Line I/O modules are designed for flexible wiring requirements, small installation spaces, and high I/O density applications with integrated ModBUS / Ethernet / Profinet IO communication. Configuration can be done via dedicated software, web server with HTML5 support and DIP-switch. Profinet IO versions provide configuration via CODESYS softPLC software and design environment Siemens TiA Portal / Step7.

Fit for powering external sensors and equipped with 1.500 Vac isolation between inputs, outputs, and other low voltage circuits. R Series modules can be daisy-chained with fault-bypass to ensure Ethernet connectivity even in the event of an Ethernet failure. Ethernet connection even if one module in the chain fails.

HIGHLIGHTS



FLEXIBLE AND SPACE-SAVING APPLICATIONS



HIGH I/O DENSITY



EMBEDDED NETWORKING



DAISY CHAIN

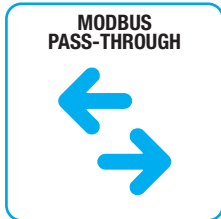
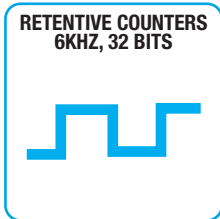
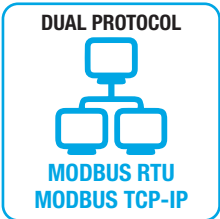


FAULT-BY-PASS

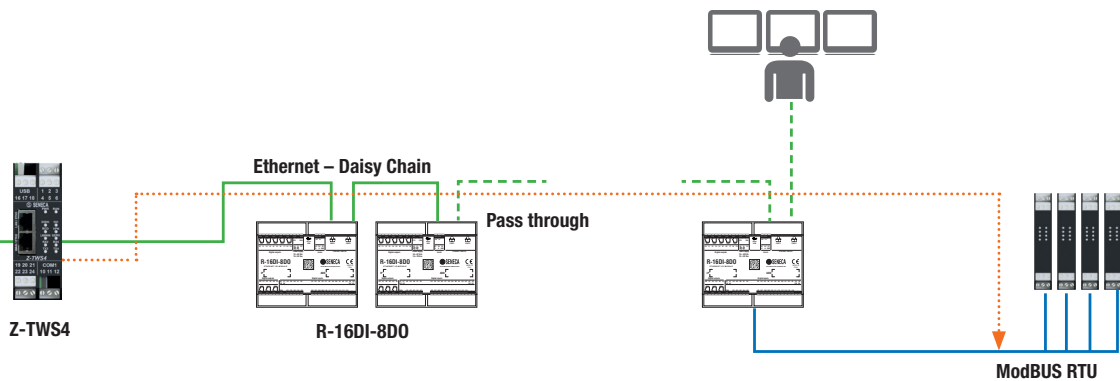


INDUSTRIAL STRENGTH

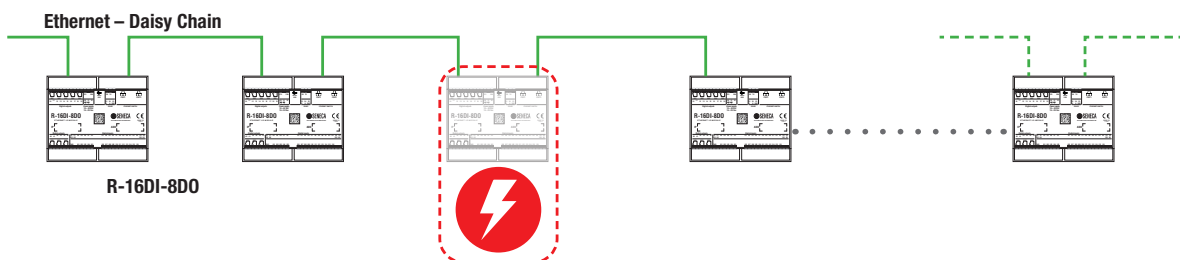
MODBUS RTU/ MODBUS TCP-IP MODULES



ETHERNET DAISY CHAIN, MODBUS PASS-THROUGH



FAULT BY-PASS

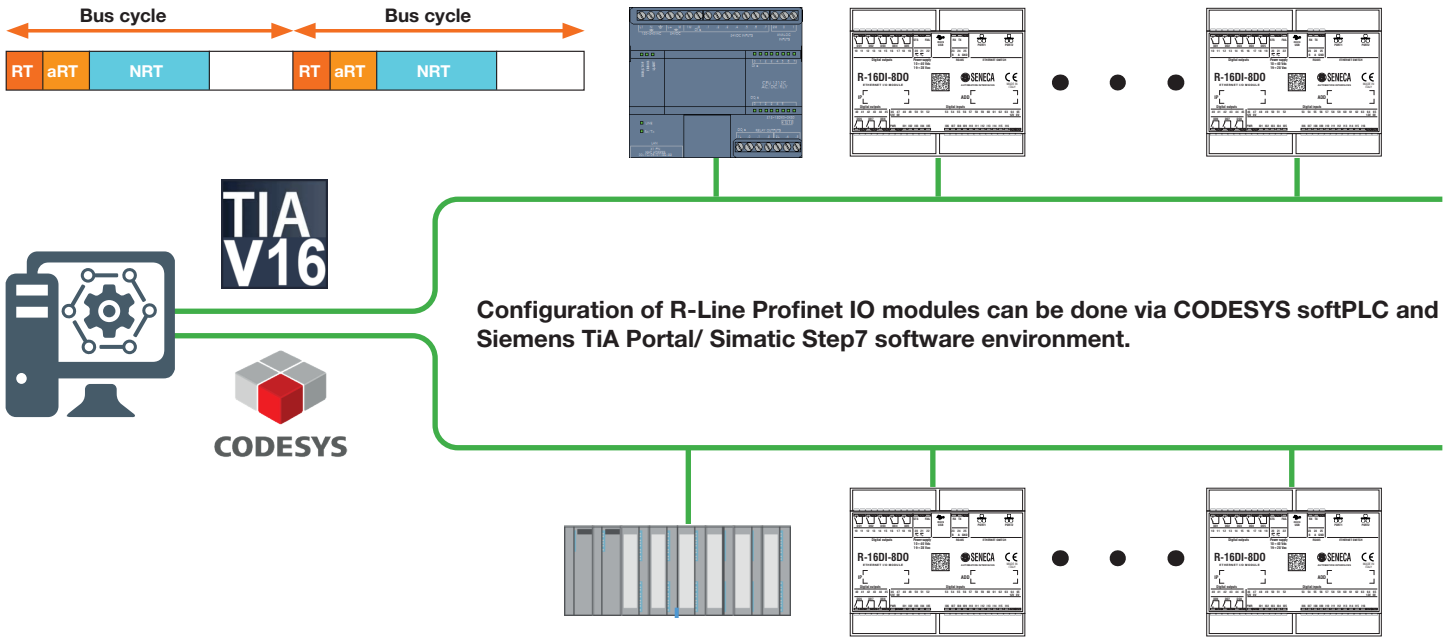


Ethernet connection and data transmission are active even in the event of failure or power failure of one module in the chain. In this way, availability and continuity of service are guaranteed.

PROFINET IO MODULES

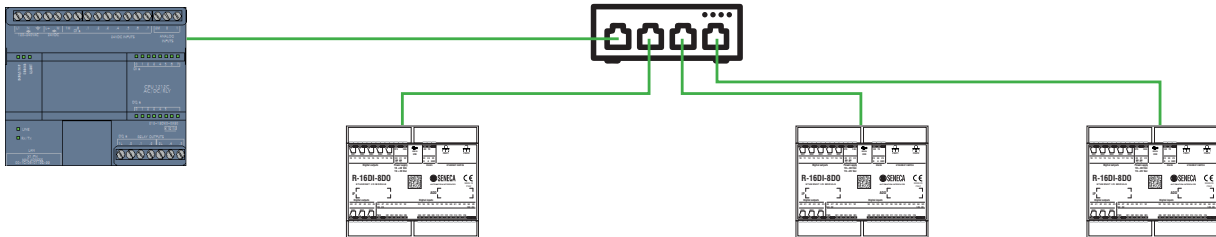
RT Class 1

R-Line modules support Profinet IO Class 1 (RT), a variant in which the various devices are not synchronized and each operates with its own cycle time. At first, cyclic RT data is transmitted, followed by acyclic RT data, such as alarms. At the end a portion of bandwidth is reserved for non-real-time communication that can coexist on the same physical network (e.g. TCP/IP based). In class 1, we try to achieve isochrony in a software manner, relying on Ethernet priorities, with Profinet packets defined as priority 6 and managed by standard switches.



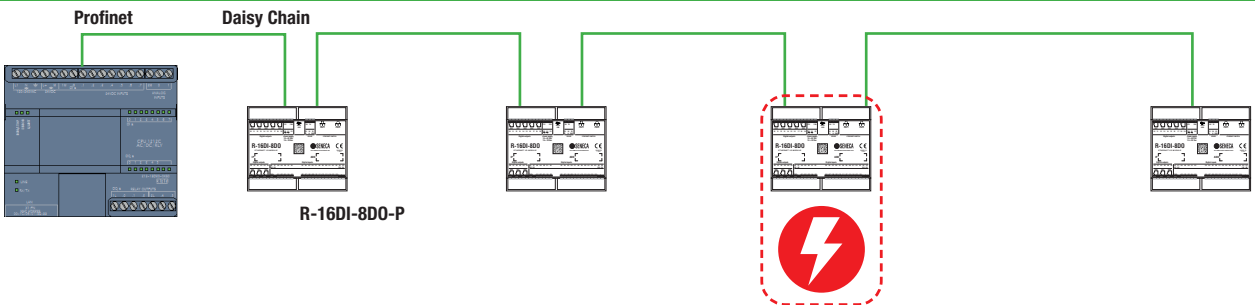
<p>PROFINET IO REAL-TIME CLASS1</p>	<p>TIA PORTAL CONFIGURATION</p>	<p>CODESYS CONFIGURATION</p>	<p>SHORT SCAN TIME</p> <p>Tbus=1ms</p>	<p>MACHINE AUTOMATION</p>	<p>DECENTRALIZED PERIPHERAL</p>
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EXAMPLE OF STAR ARCHITECTURE (WITH SWITCH)



By connecting the communication nodes to a switch with several PROFINET ports, a network topology with a star structure is automatically created, thanks to which the entire network is not lost if a single device fails.

EXAMPLE OF DAISY CHAIN ARCHITECTURE WITH LAN FAULT BY-PASS







Ethernet connection and data transmission are active even in the event of failure or power failure of one module in the chain. In this way, availability and continuity of service are guaranteed.

R-LINE - I/O MODULES

Modbus

PROFI[®]
NET

ETHERNET

DIGITAL I/O MODULES		MIXED I/O MODULES	
MODBUS	PROFINET IO	MODBUS	PROFINET IO
R-16DI-8DO	R-16DI-8DO-P	R-8AI-8DIDO	R-8AI-8DIDO-P
			
16-CH digital inputs / 8-CH digital relay outputs Modbus TCP-IP / Modbus RTU module	16-CH digital inputs / 8-CH digital relay outputs Profinet IO module	8-CH analog inputs, 8-CH digital inputs/ outputs Modbus TCP-IP / Modbus RTU module	8-CH analog inputs, 8-CH digital inputs/ outputs Profinet IO

COMING SOON

GENERAL DATA				
Power supply	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac
Auxiliary voltage output	12 Vdc / 40 mA	12 Vdc / 40 mA	12 Vdc / 40 mA	12 Vdc / 40 mA
Max power consumption	3 W	3 W	3 W	3 W
Max Isolation	1,5 kVac	1,5 kVac	1,5 kVac	1,5 kVac
LED Status Indicators	Power supply Input / Output Status STS (IP address / DHCP) RX / TX (Receive / transmit data over RS485) Ethernet TRF / LNK (Transit packets / Ethernet connection)	Power supply Input / Output Status STS (IP address / DHCP) Profinet IO communication	Power supply Input / Output Status STS (IP address / DHCP) RX / TX (Receive / transmit data over RS485) Ethernet TRF / LNK (Transit packets / Ethernet connection)	Power supply Input / Output Status STS (IP address / DHCP) Profinet IO communication
Protection Grade	IP20	IP20	IP20	IP20
Operating temperature	-25..+65°C	-25..+65°C	-25..+65°C	-25..+65°C
Dimension (lxhxp)	106 x 90 x 32 mm	106 x 90 x 32 mm	106 x 90 x 32 mm	106 x 90 x 32 mm
Weight	170 g	170 g	170 g	170 g
Case	C / ABS self-extinguishing UL94-V0, black color	C / ABS self-extinguishing UL94-V0, black color	C / ABS self-extinguishing UL94-V0, black color	C / ABS self-extinguishing UL94-V0, black color
Connections	Terminals 3.5 mm pitch, Micro USB connector and double RJ45 connector	Terminals 3.5 mm pitch, Micro USB connector and double RJ45 connector	Terminals 3.5 mm pitch, Micro USB connector and double RJ45 connector	Terminals 3.5 mm pitch, Micro USB connector and double RJ45 connector
Mounting	On DIN EN 60715 rail, wall-mounted / panel-mounted	On DIN EN 60715 rail, wall-mounted / panel-mounted	On DIN EN 60715 rail, wall-mounted / panel-mounted	On DIN EN 60715 rail, wall-mounted / panel-mounted
Programming	Configuratore EASY SETUP2 Embedded Web Server	CoDeSys TIA Portal	Configuratore EASY SETUP2 Embedded Web Server	CoDeSys TIA Portal
Special functions	Ethernet Daisy Chain dual connection LAN fault bypass Max 32 Peer to Peer Rules (I/O Mirror) Counters with frequency, TON, TOFF, Period measurement Modbus Passthrough (TCP-IP to RS485) FeRAM for backup counters	Ethernet Daisy Chain dual connection LAN fault bypass	Ethernet Daisy Chain dual connection LAN fault bypass Max 32 Peer to Peer Rules (I/O Mirror) Counters with frequency, TON, TOFF, Period measurement Modbus Passthrough (TCP-IP to RS485) FeRAM for backup counters	Ethernet Daisy Chain dual connection LAN fault bypass
COMMUNICATION				
Interfaces	Nr.2 Ethernet ports (with LAN fault-bypass function) 100 baseT on RJ45 Nr.1 RS485 port on terminals M23-M24-M25	Nr.2 Ethernet ports (with LAN fault-bypass function) 100 baseT on RJ45	Nr.2 Ethernet ports (with LAN fault-bypass function) 100 baseT on RJ45 Nr.1 RS485 port on terminals M23-M24-M25	Nr.2 Ethernet ports (with LAN fault-bypass function) 100 baseT on RJ45
Data rate	Nr.1 Micro USB (programming) Up to 115.200 bps (RS485) / 100 Mbps (TCP-IP)		Nr.1 Micro USB (programming) Up to 115.200 bps (RS485) / 100 Mbps (TCP-IP)	
Protocols	ModBUS RTU, ModBUS TCP-IP, http	Profinet IO	ModBUS RTU, ModBUS TCP-IP, http	Profinet IO
ModBUS communication	Up to 128 nodes without repeater and max speed 115 kbps		Up to 128 nodes without repeater and max speed 115 kbps	
INPUT DATA				
Number of Channels	16 Digital	16 Digital	8 Analog	8 Analog
Type and Range	PNP, NPN	PNP, NPN	V (±30V), mV (±120mV), mA (±24mA), TC: J, K, T, E, N, R, S, B, L, Pt100 (±200°C)	V (±30V), mV (±120mV), mA (±24mA), TC: J, K, T, E, N, R, S, B, L, Pt100 (±200°C)
Max Frequency	5 kHz, contatori ritentivi 32 bit			
Current Consumption	2,25 mA	2,25 mA		
Compliance	IEC 6113-2 Type 1 & 3	IEC 6113-2 Type 1 & 3		
OUTPUT DATA				
Number of Channels	8 Digital, Isolated	8 Digital, Isolated		
Type	SPST Dry Contact Relays	SPST Dry Contact Relays		
Response Time	20 ms (P2P)	20 ms (P2P)		
Contact Duration	5*106 op. mec. / 105 op. with load	5*106 op. mec. / 105 op. with load		
INPUT/OUTPUT DATA				
Number of Channels			8 Digital inputs/outputs	8 Digital inputs/outputs
Type and Range			Input: OFF: > 9 V; < 4 V; Vmax: 24 V Output MOSFET, PNP; voltage / current max.: 0,2 A / 24 V	Input: OFF: > 9 V; < 4 V; Vmax: 24 V Output MOSFET, PNP; voltage / current max.: 0,2 A / 24 V
STANDARDS				
Approvals	CE	CE	CE	CE
Norms	EN61000-6-4, EN61000-6-2, EN61010-1	EN61000-6-4, EN61000-6-2, EN61010-1	EN61000-6-4, EN61000-6-2, EN61010-1	EN61000-6-4, EN61000-6-2, EN61010-1