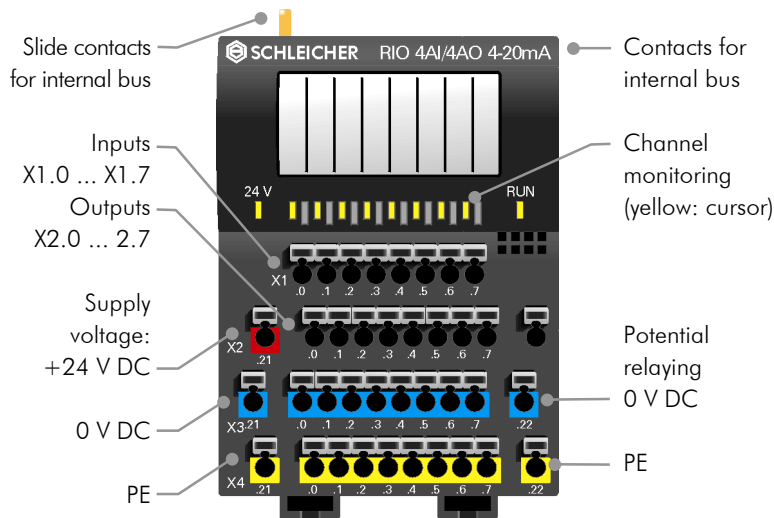


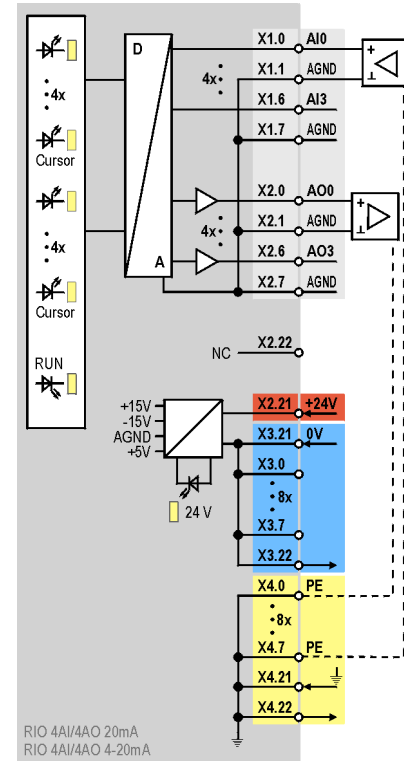
Analog 4 Inputs 4 Outputs 0...20 mA
Analog 4 Inputs 4 Outputs 4...20 mA

RIO 4AI/4AO 20mA
RIO 4AI/4AO 4-20mA



The RIO 4AI/4AO 20mA and RIO 4AI/4AO 4-20mA analog modules provide 4 single-ended input channels for input currents of 0 to 20 mA and 4 to 20 mA, and 4 output channels. The 4 mA system allows reliable detection of cable breaks. The data format of the modules can be set for use with a S5/S7 controller using a service code via the bus coupler or PLC. The inputs and outputs are isolated from the internal bus.

Block diagram



Technical Data	RIO 4AI/4AO 20mA	RIO 4AI/4AO 4-20mA
Article number	364 141 02	364 380 08
Number of inputs/outputs	4 inputs (single-ended), 4 outputs	
Data width	2 bytes per channel I/O	
External supply voltage	DC 24 V (±20%, max. 5% residual ripple)	
Power consumption	3.6 W from external 24 V supply 0.325 W from internal 5 V supply	
Connection system	Three-wire (with RIO KE 16 terminal extension: four-wire)	
Inputs		
Input range	0 ... 20 mA	4 ... 20 mA
Resolution	12-bit / 4.88 µA	11-bit / 7.81 µA
Conversion time	2 ms	
Input load	100 Ω, acceptable continuous load 200 mW	
Permissible continuous input current	±40 mA	
Permissible continuous input voltage	±4 V	
Channel crosstalk	−74 dB (f < 100 Hz)	
Outputs		
Output range	0 ... 20 mA	0 mA; 4 ... 20 mA
Resolution	12-bit / 4.88 µA	10-bit / 15.625 µA
Refresh rate	2 ms	
Output load	0 ... 500 Ω	
Short-circuit current / duration	20 mA / ∞	
Output voltage	0 ... 10 V	
For general technical data see next page		

For general technical data see next page

Technical Data RIO IP20

Electrical data

Supply voltage	24 V DC \pm 20% max. 5% residual ripple
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Connection system

Sensors / actuators	Spring terminal
Field bus	Profibus-DP: Subminiature, 9-pin
Supply voltage	Interbus: Screw terminals
	CAN DeviceNet / CANopen: Open style connector
	Spring terminal
Cable cross-section	Finely stranded 0.14 – 1.5 mm ² , single-core 0.5 – 2.5 mm ²

Housing and installation

Type of protection	IP 20 to EN 60529
Dimensions (W x H x D)	RIO microLine PLC: 74.5 x 93 x 51 mm RIO BC Bus Couplers: 74.5 x 93 x 51 mm RIO EC Bus Couplers: 63 x 93 x 51 mm RIO Expansion Modules: 69 x 93 x 51 mm RIO Compact I/Os: 69 x 93 x 51 mm RIO Terminal Extensions: 69 x 36 x 45 mm
Rail	DIN rail EN 50022-35
Installation position	Vertical, free air circulation

Climatic Conditions

Ambient operating temperature	0 ... +55°C (category KV to DIN 40040)
Storage temperature	–25 ... +70°C (category HS to DIN 40040)
Relative humidity	30 ... 95% (category F to DIN 40040), no condensation
Air pressure in operation	860 ... 1060 hPa

Mechanical strength

Vibration	10 ... 57 Hz constant amplitude 0.075 mm 57 ... 150 Hz constant acceleration 1 g (to DIN IEC 68-2-6)
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Electromagnetic compatibility

Electrostatic discharge	EN 61000-4-2: 4 kV contact discharge
Electromagnetic fields	EN 61000-4-3: field intensity 10 V/m, 80 ... 1000 MHz
Burst	EN 61000-4-4: 2 kV on DC supply lines, 1 kV on I/O signal and serial interface lines
Interference emissions	EN 55011: Limit Category A, Group 1