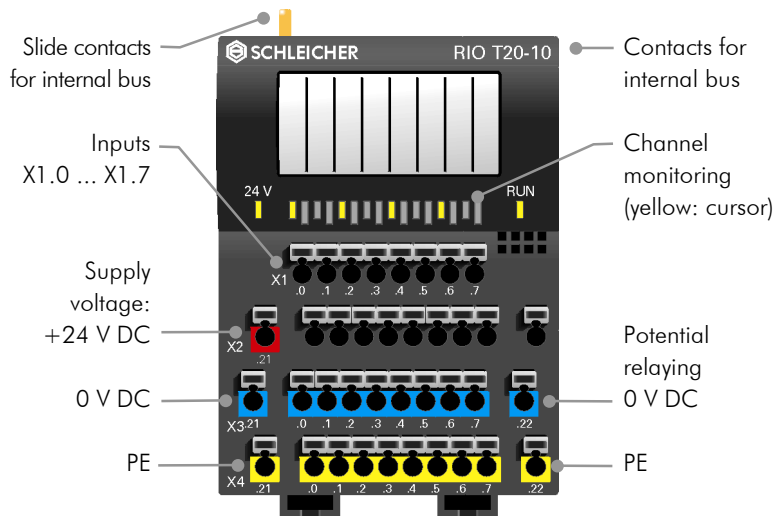
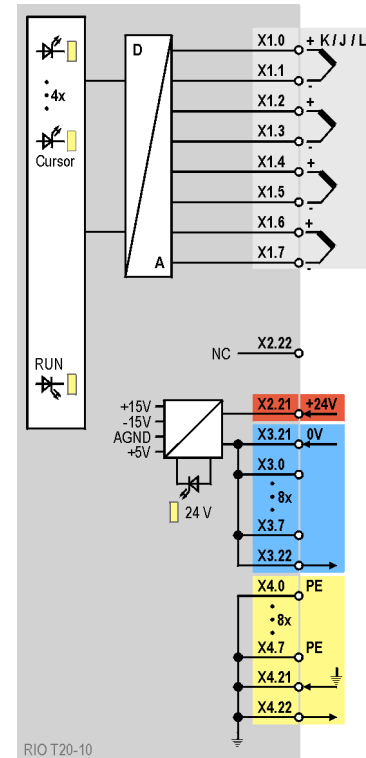


Temperature Module K, J, L

RIO T20-10



Block diagram



The RIO T20-10 expert module allows temperature measuring in the range of -200 to +1369 °C. It provides four inputs for type K, J and L thermoelements. In combination with the RIO KE 16 terminal extension it can be connected using two-wire, three-wire or four-wire systems.

Parameterization of characteristic curves, used channel number, required resolution and controller-specific numeric format are all handled via the bus coupler.

Digitalization via a 24-bit converter achieves a resolution of < 0.1 °C. Linearization of the resistance/temperature curve guarantees typical absolute precision of ±1 °C.

Technical Data	RIO T20-10
Article number	364 380 05
Number of inputs/outputs	4 inputs for thermoelements K, J, L
Data width	10 bytes per module
External supply voltage	DC 24 V (±20%, max. 5% residual ripple)
Power consumption	2.9 W from external 24 V supply 0.325 W from internal 5 V supply
Connection system	Two-wire (with RIO KE 16 terminal extension: four-wire)
Inputs	
Thermoelements (alloy)	K (NiCr-Ni), J (FeCu-Ni) and L (FeCu-Ni)
Measuring range	K: -200 ... +1369 °C J: -200 ... +1200 °C L: -199 ... +900 °C
Measuring accuracy	Typ. < ±1 °C, max. ±0.3 °C ±0.25% from measured value
Linearization	8-bit
A/D converter	24-bit
Resolution	0.1 °C
Measuring time	< 100 ms
Isolation	Each channel isolated from internal bus by optocouplers
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)

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