

AXL F RTD8 S 1F - I/O module

2702120

<https://www.phoenixcontact.com/us/products/2702120>

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Axioline F, Temperature recording module, Analog inputs: 8 (for resistance temperature detectors), connection technology: 2-, 4-conductor (shielded), transmission speed in the local bus: 100 Mbps, measuring dynamics up to 8 Hz, degree of protection: IP20, including bus base module and Axioline F connectors

Product description

The module is designed for use within an Axioline F station. It is used to acquire signals from resistive temperature sensors. The module supports all common platinum and nickel sensors in accordance with DIN EN 60751 and SAMA. Cu10, Cu50, and Cu53 sensors are also supported.

Your advantages

- 8 analog input channels for the connection of resistance temperature detectors (RTD)
- Linear inputs 500 Ω
- Connection of sensors in 2- and 4-conductor technology
- Integrated, digital sensor linearization
- Standardized measured value representation directly in $^{\circ}\text{C}$, $^{\circ}\text{F}$ or Ω
- Measured value display in 16-bit format or floating point format
- 8 Hz measuring dynamics per channel
- Programmable filters
- Short-circuit protected inputs
- Temperature stability
- Very high level of noise immunity
- Low noise emission
- Installation monitoring by means of "Channel scout" function
- Device rating plate stored

Commercial data

Item number	2702120
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to order (non-returnable)
Sales key	DR02
Product key	DRI243
GTIN	4046356977852
Weight per piece (including packing)	267.1 g
Weight per piece (excluding packing)	241.3 g
Customs tariff number	85389091

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Country of origin	DE
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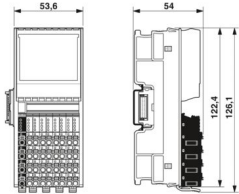
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Technical data

Dimensions

Dimensional drawing	
Width	53.6 mm
Height	126.1 mm
Depth	54 mm
Note on dimensions	The depth applies when a TH 35-7.5 DIN rail is used (in accordance with EN 60715).

Material specifications

Color	traffic gray A RAL 7042
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Interfaces

Axioline F local bus

No. of channels	2
Connection method	Bus base module
Transmission speed	100 Mbps

System properties

Programming data (LocalbusSlave)

Input address area	16 Byte
Output address area	16 Byte

Fieldbus data telegram

Required parameter data	20 Byte
Required configuration data	6 Byte

Input data

Analog:

Input name	Analog inputs
Description of the input	Inputs for resistive temperature sensors
Number of inputs	8 (for resistance temperature detectors)
Connection method	Push-in connection
Connection technology	2-, 4-conductor (shielded)
A/D converter resolution	24 bit
Sensor types (RTD) that can be used	Pt, Ni, Cu sensors

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Tolerance, relative	see tables for tolerance values
Tolerance, absolute	see tables for tolerance values
Data formats	IB IL, S7-compatible
Measured value representation	16 bits (15 bits + sign bit)
Input filter time	8 ms
	16 ms
	32 ms
	120 ms (adjustable)
Nominal value of the current sources	1 mA (Pt 100, Ni 100, R _{Lin} 500 Ω; pulse current, the specification is valid during the sampling phase)
Differential non-linearity	typ. 1 ppm / ±0.0001 % (in all areas, 120 ms filter)
Integral non-linearity	typ. 30 ppm / ±0.003 % (Pt 100, R _{Lin} 500 Ω, 120 ms filter)
Linear resistance measuring range	0 Ω ... 500 Ω
Protective circuit	Short-circuit protection, overload protection of the inputs
	Transient protection of inputs
	Transient protection of sensor supplies

Product properties

Product type	I/O component
Product family	Axioline F
Type	block modular
Mounting position	any (no temperature derating)
Scope of supply	including bus base module and Axioline F connectors
Special properties	measuring dynamics up to 8 Hz

Insulation characteristics

Overvoltage category	II (IEC 60664-1, EN 60664-1)
Pollution degree	2 (IEC 60664-1, EN 60664-1)

Electrical properties

Potentials: Axioline F local bus supply (U_{Bus})

Supply voltage	5 V DC (via bus base module)
Current draw	max. 180 mA
	typ. 115 mA

Potentials: Supply for analog modules (U_A)

Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current draw	max. 25 mA
	typ. 15 mA
Protective circuit	Surge protection; electronic (35 V, 0.5 s)
	Reverse polarity protection; Polarity protection diode
	Transient protection; Suppressor diode

Electrical isolation/isolation of the voltage ranges

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Test voltage: 5 V supply of the local bus (U_{BUS}) / 24 V supply (I/Os)	500 V AC, 50 Hz, 1 min
Test voltage: 5 V supply of the local bus (U_{BUS}) / functional ground	500 V AC, 50 Hz, 1 min
Test voltage: 24 V supply (I/O) / functional ground	500 V AC, 50 Hz, 1 min

Connection data

Connection technology

Connection name	Axioline F connector
Note on the connection method	Please observe the information provided on conductor cross-sections in the "Axioline F: system and installation" user manual.

Axioline F connector

Connection method	Push-in connection
Note on the connection method	Please observe the information provided on conductor cross-sections in the "Axioline F: system and installation" user manual.
Conductor cross-section, rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross-section, flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

Environmental and real-life conditions

Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C
Degree of protection	IP20
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % ... 95 % (non-condensing)

Mechanical test

Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	5g
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	30g
Continuous shock in accordance with EN 60068-2-27/IEC 60068-2-27	10g

Standards and regulations

Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
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Mounting

Mounting type	DIN rail mounting
Mounting position	any (no temperature derating)

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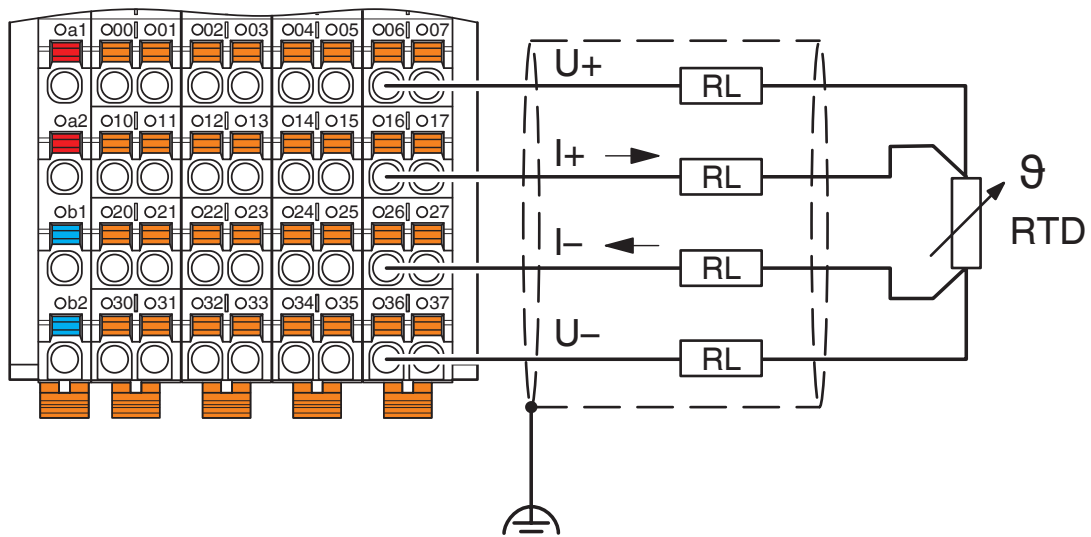
Drawings

Dimensional drawing



Dimensional drawing

Connection diagram



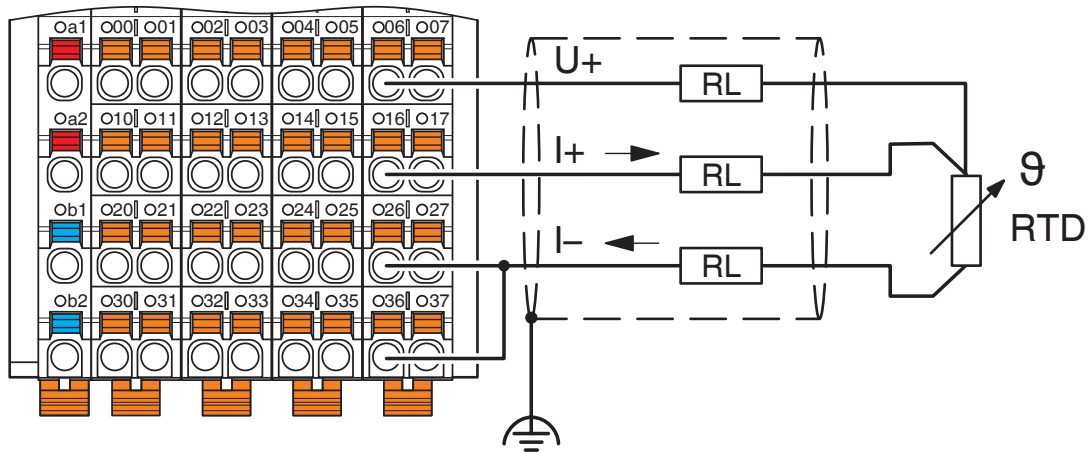
Connection example: 4-conductor connection

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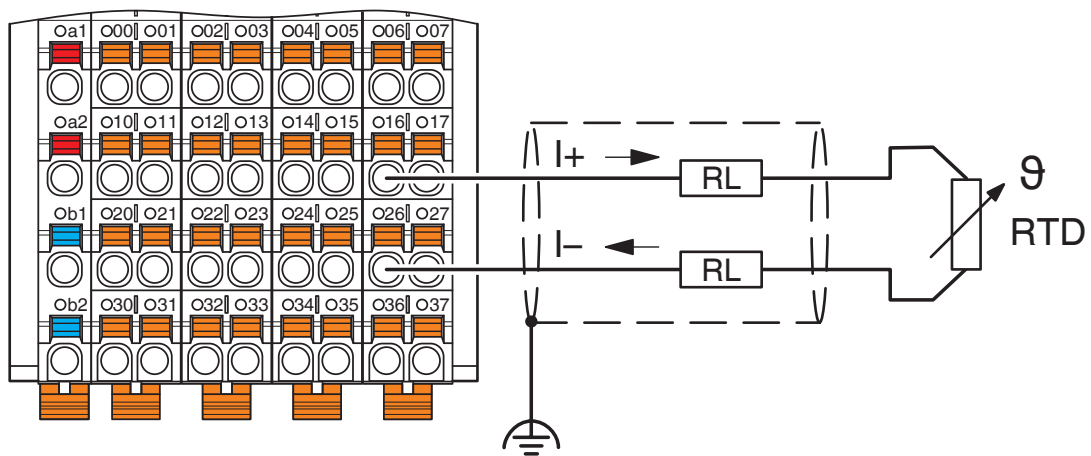
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Connection diagram



Connection example: 3-conductor connection with external bridge

Connection diagram



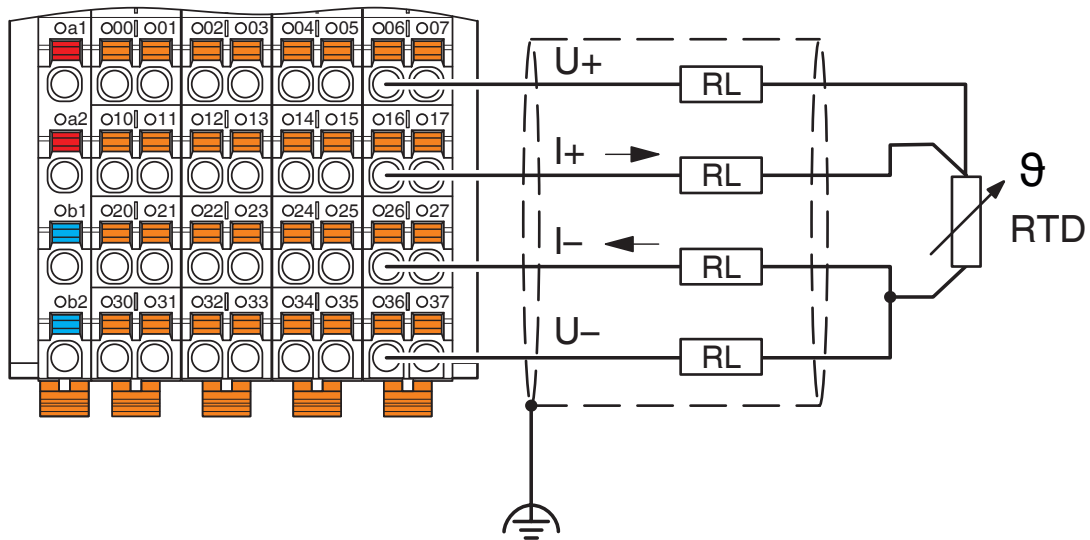
Connection example: 2-conductor connection

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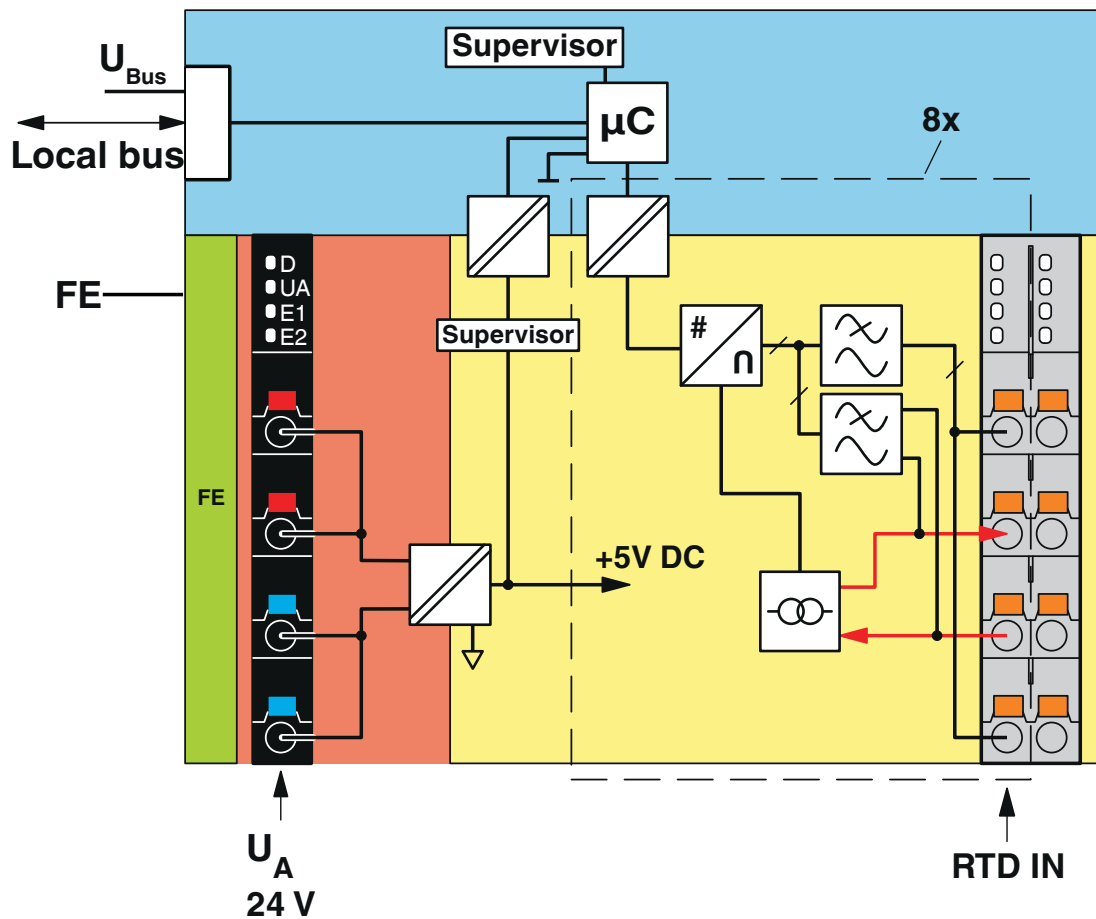
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Connection diagram



Connection example: 4-conductor connection for 3-conductor sensor with long supply lines

Block diagram



Internal wiring of the terminal points

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Classifications

UNSPSC

UNSPSC 21.0	32151602
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
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