

Temperature module - AXL F RTD8 XC 1F



2701235

<https://www.phoenixcontact.com/de/produkte/2701235>

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Axioline F, Temperature recording module, Analog inputs: 8 (for resistance temperature detectors), connection technology: 2-, 3-, 4-conductor (shielded), transmission speed in the local bus: 100 Mbps, Extreme conditions version, 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, Cu53 sensors as well as various KTY8x sensor types are also supported.

Your advantages

- 8 analog input channels for the connection of resistance temperature detectors (RTD)
- 500 Ω and 5 k Ω linear inputs
- Connection of sensors in 2-, 3-, 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
- 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
- Can be used under extreme ambient conditions
- Extended temperature range of $-40\text{ }^{\circ}\text{C}$... $+70\text{ }^{\circ}\text{C}$ (see "Tested successfully: use under extreme ambient conditions" in the data sheet)
- Partially coated PCBs
- Device rating plate stored

Commercial Data

Item number	2701235
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	O1 - Automatisierungssys.
Product Key	DRI243
Catalog Page	Page 86 (C-6-2019)
GTIN	4046356730471

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Weight per Piece (including packing)	263,58 g
Weight per Piece (excluding packing)	216,51 g
Customs tariff number	85389091
Country of origin	DE

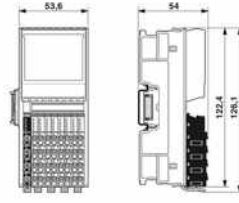
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Technical Data

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 grey A RAL 7042
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Interfaces

Axioline F local bus

Number of interfaces	2
Connection method	Bus base module
Transmission speed	100 Mbps

System properties

Module

Input address area	16 Byte
Output address area	16 Byte
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-, 3-, 4-conductor (shielded)
A/D converter resolution	24 bit
Sensor types (RTD) that can be used	Pt, Ni, KTY, Cu sensors
Data formats	IB IL, S7-compatible
Measured value representation	16 bits (15 bits + sign bit)

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Input filter time	40 ms
	60 ms
	100 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)
	210 μ A (Pt 1000, Ni 1000, R_{Lin} 5000 Ω ; pulse current, the specification is valid during the sampling phase)
Linear resistance measuring range	0 Ω ... 500 Ω
	0 k Ω ... 5 k Ω
Protective circuit	Short-circuit protection, overload protection of the inputs
	Transient protection of inputs
	Transient protection of sensor supplies

Product properties

Type	block modular
Product type	I/O component
Mounting position	any (no temperature derating)
Scope of delivery	including bus base module and Axioline F connectors

Insulation characteristics

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

Electrical properties

Potentials

Power consumption	typ. 0.94 W (at U_{Bus} and U_A (up to HW 01))
	typ. 0.59 W (at U_{Bus} and U_A (from HW 02))
	max. 1.5 W (at U_{Bus} and U_A (up to HW 01))
	max. 1.03 W (at U_{Bus} and U_A (from HW 02))

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

Supply voltage	5 V DC (via bus base module)
Current draw	max. 180 mA (up to HW 01)
	max. 85 mA (from HW 02)
	typ. 115 mA (up to HW 01)
	typ. 60 mA (from HW 02)
Power consumption	max. 900 mW (up to HW 01)
	max. 425 mW (from HW 02)
	typ. 580 mW (up to HW 01)
	typ. 300 mW (from HW 02)

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)
	max. 25 mA

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Current draw	typ. 15 mA (up to HW 01)
	typ. 12 mA (from HW 02)
Power consumption	max. 0.6 W
Protective circuit	Surge protection; electronic (35 V, 0.5 s)
	Reverse polarity protection; Polarity protection diode
	Transient protection; Suppressor diode

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.

Conductor connection

Connection method	Push-in connection
Conductor cross section solid	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

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 (Standard)
	-40 °C ... 70 °C (Extended, see section "Tested successfully: use under extreme ambient conditions" in the data sheet.)
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)

Standards and regulations

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

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

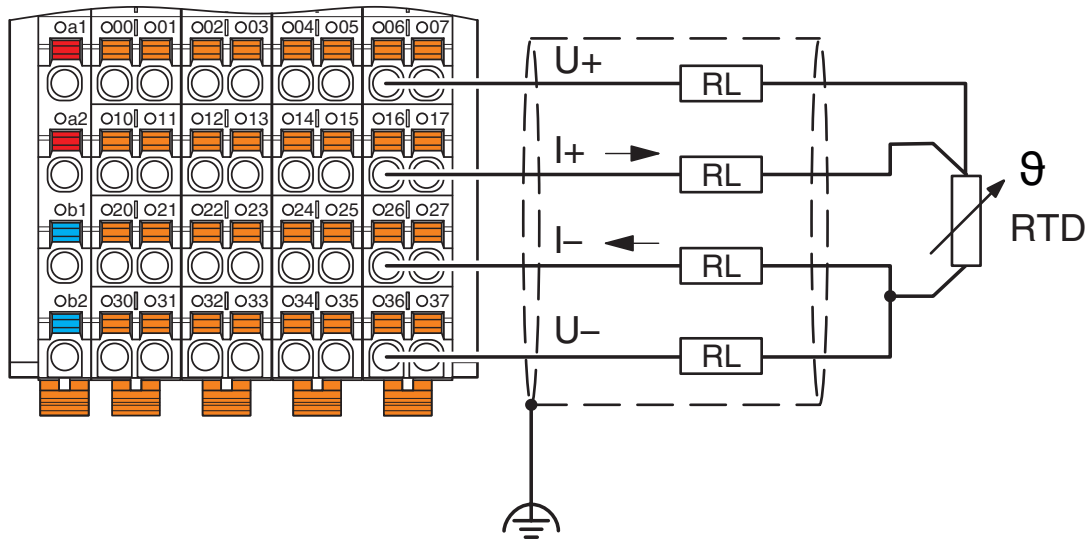
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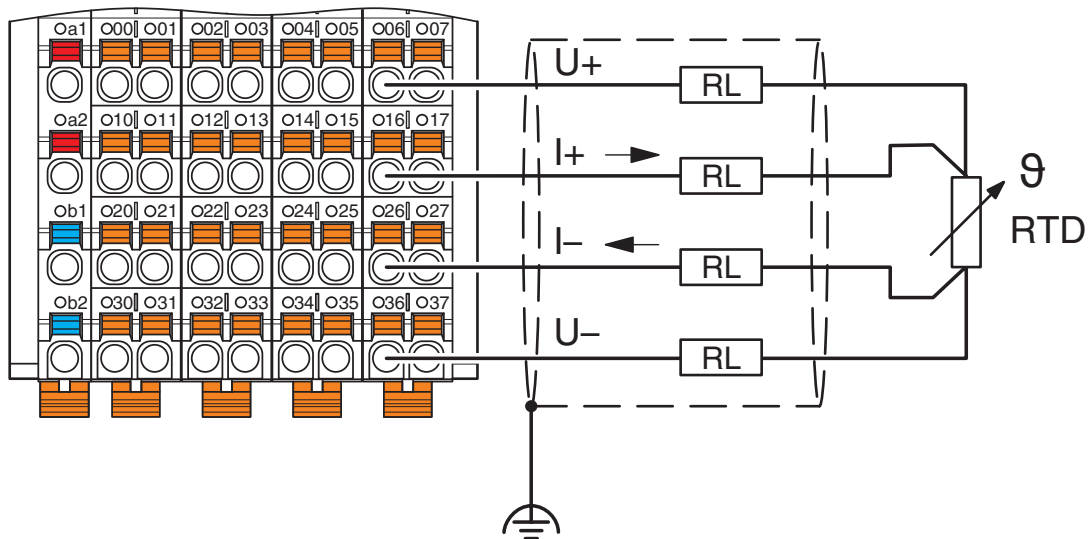
Drawings

Connection diagram



Connection example: 4-conductor connection for 3-conductor sensor with very long supply lines (> 100 m)

Connection diagram



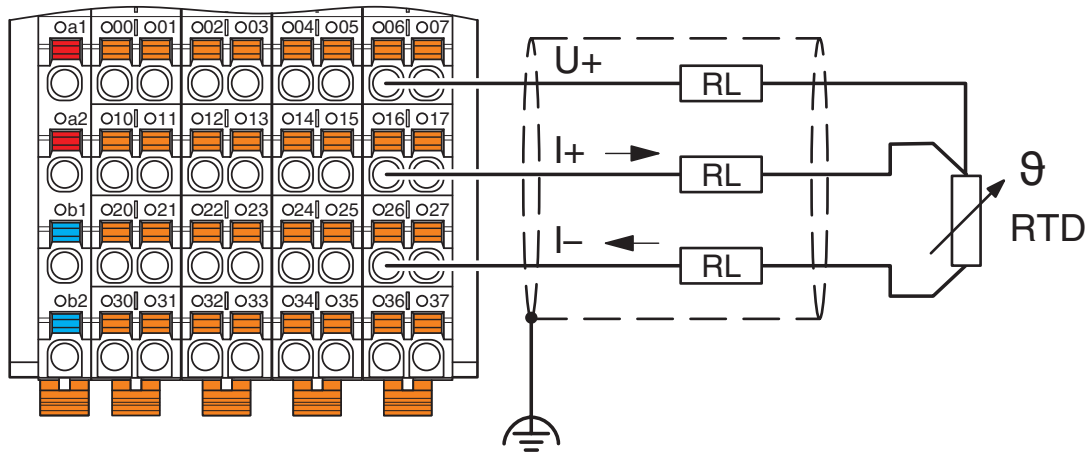
Connection example: 4-conductor connection

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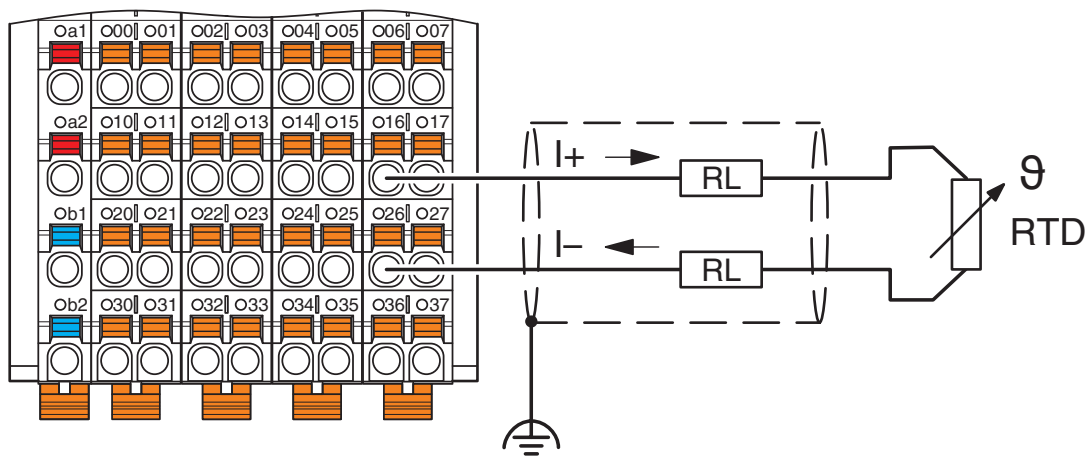
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Connection diagram



Connection example: 3-conductor connection

Connection diagram



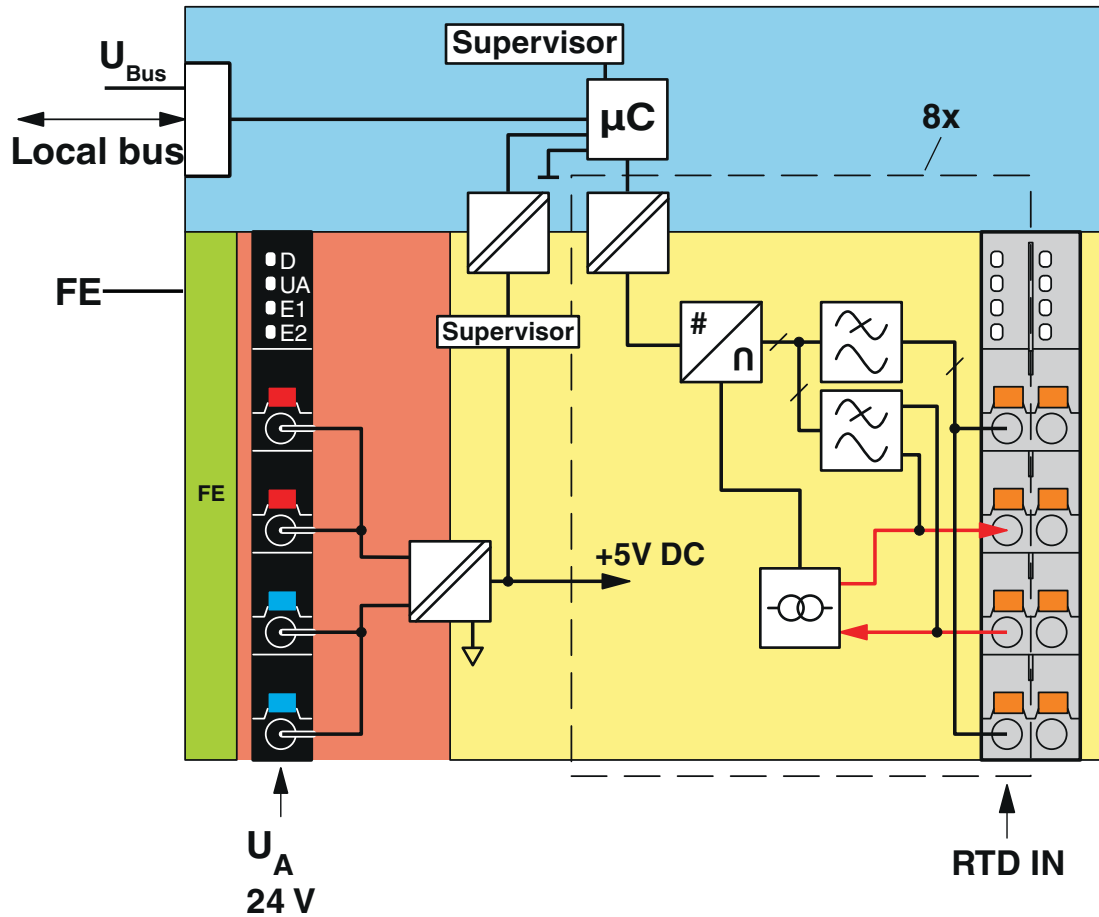
Connection example: 2-conductor connection

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Block diagram



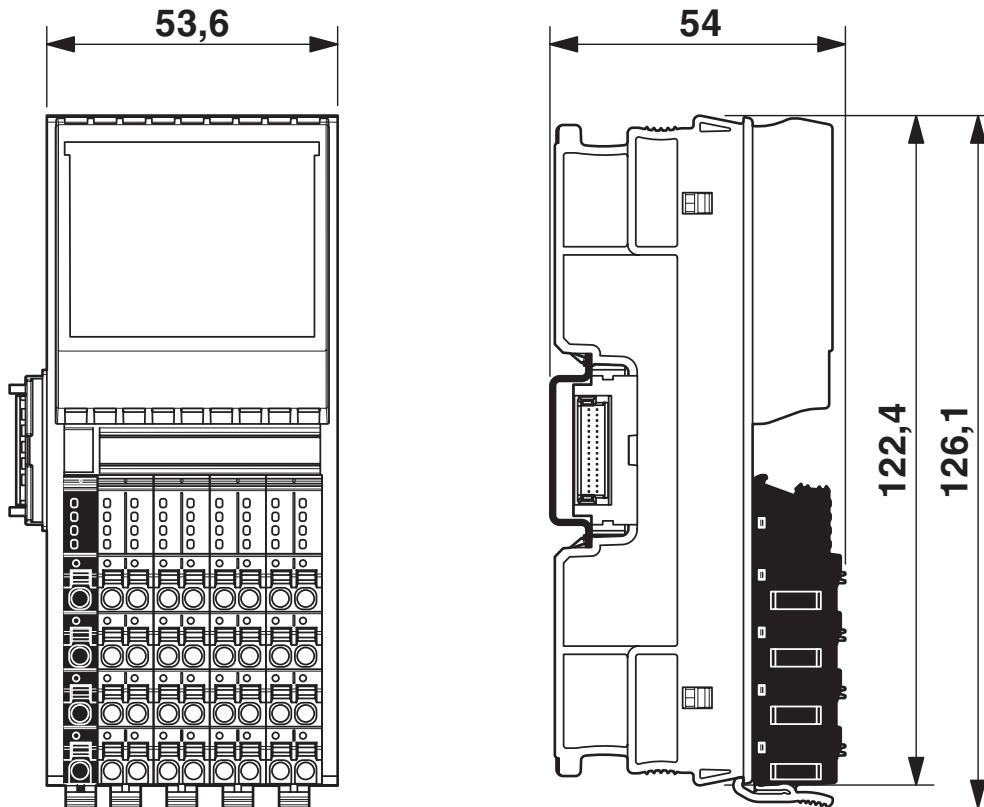
Internal wiring of the terminal points

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Dimensional drawing



Dimensional drawing

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Approvals



DNV GL

Approval ID: TAA00000DF



LR

Approval ID: LR2001902TA



NK

Approval ID: 14A006



BV

Approval ID: 36433/B4 BV



PRS

Approval ID: TE/1020/880590/21



UL Listed

Approval ID: FILE E 238705



cUL Listed

Approval ID: FILE E 238705

BSH

Approval ID: 840



RINA

Approval ID: ELE283021XG

ABS

Approval ID: 21-2187864-PDA

cULus Listed

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Classifications

ECLASS

ECLASS-9.0	27242601
ECLASS-10.0.1	27242601
ECLASS-11.0	27242601
ECLASS-12.0	27242601

ETIM

ETIM 8.0	EC001596
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UNSPSC

UNSPSC 21.0	32151600
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Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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