AXL P RTD8 1F - Temperature module

1397156

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Axioline P, 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, RTD functionality, degree of protection: IP20, including bus base module and Axioline P connectors

Product description

The module is an Axioline P I/O module for use in the Axioline P modular I/O system. The module is a modular I/O device that can be affixed to the Axioline P local bus, to communicate I/O data up to the Axioline P bus coupler, which forms the head of the 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. The module is fully hot-swappable and may be removed while under power.

Your advantages

- 8 analog input channels for the connection of resistance temperature detectors (RTD)
- 500 Ω, 5 kΩ, and 10 kΩ linear inputs
- Connection of sensors in 2-, 3-, and 4-conductor technology
- Integrated, digital sensor linearization
- Standardized measured value representation directly in °C, °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
- Can be used under extreme ambient conditions
- Extended temperature range of -40°C ... +70°C
- Hot-swappable
- Device rating plate stored

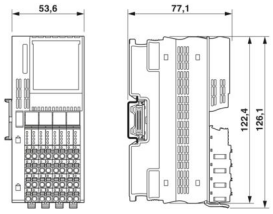
Commercial data

Item number	1397156
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR06
Product key	DRIP43
GTIN	4063151781156
Weight per piece (including packing)	388 g

Weight per piece (excluding packing)	267 g
Customs tariff number	85176200
Country of origin	US

Technical data

Dimensions

Dimensional drawing	
Width	53.6 mm
Height	126.1 mm
Depth	77.1 mm
Note on dimensions	The depth applies when a TH 35-7.5 DIN rail is used (in accordance with EN 60715).

Notes

Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area

Material specifications

Color (Housing)	gray (RAL 7042)

Interfaces

Axioline P local bus

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

System properties

Programming data (LocalbusSlave)

Input address area	16 Byte
Output address area	0 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
Tolerance, relative	see tables for tolerance values
Tolerance, absolute	typ. ± 0.1 K (Pt 100 with 3-wire connection)
	see tables for tolerance values
Data formats	Inline, S7-compatible, standard formatting
Measured value representation	16 bits (15 bits + sign bit)
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 µA (Pt 1000, Ni 1000, R_{Lin} 5000 Ω; pulse current, the specification is valid during the sampling phase)
	10 µA (R_{Lin} 10000 Ω; pulse current, the specification is valid during the sampling phase)
Differential non-linearity	typ. 1 ppm ±0.0001 % (in all ranges)
Integral non-linearity	typ. 30 ppm ±0.003 % (Pt 100)
	typ. 20 ppm ±0.02 % (R_{Lin} 500 Ω)
	typ. 200 ppm ±0.02 % (R_{Lin} 5000 Ω)
	typ. 800 ppm ±0.08 % (R_{Lin} 10000 Ω)
Linear resistance measuring range	0 Ω ... 500 Ω
	0 kΩ ... 5 kΩ
	0 kΩ ... 10 kΩ
Process data update	1 ms
Protective circuit	Short-circuit protection

Product properties

Product type	I/O component
Product family	Axioline P
Type	block modular
Mounting position	any (no temperature derating)
Scope of supply	including bus base module and Axioline P connectors
Special properties	RTD functionality

Insulation characteristics

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

Electrical properties

Maximum power dissipation for nominal condition	1.44 W

Potentials: Supply voltage (U_L)

Supply voltage	24 V DC (via bus base module)
Supply voltage range	19.2 V DC ... 30 V DC
Current draw	max. 40 mA (via bus base module)

	typ. 30 mA (via bus base module)
Protective circuit	Surge protection; electronic (35 V, 0.5 s)
	Reverse polarity protection; Polarity protection diode
	Transient protection; Suppressor diode

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

Supply voltage	5 V DC (via bus base module)
Current draw	max. 135 mA
	typ. 110 mA

Electrical isolation/isolation of the voltage ranges

Test voltage: 5 V supply of the local bus (U_{Bus}) / functional ground	500 V AC, 60 Hz, 1 min
Test voltage: 5 V supply of the local bus (U_{Bus}) / analog inputs	500 V AC, 60 Hz, 1 min
Test voltage: 24 V supply (I/O) / functional ground	500 V AC, 60 Hz, 1 min
Test voltage: 24 V supply (I/O) / analog inputs	500 V AC, 60 Hz, 1 min
Test voltage: Analog inputs / functional ground	500 V AC, 60 Hz, 1 min

Connection data

Connection technology

Connection name	Axioline P connector
Note on the connection method	Please observe the information provided on conductor cross-sections in the “Axioline P: System and installation” user manual.

Axioline P connector

Connection method	Push-in connection
Note on the connection method	Please observe the information provided on conductor cross-sections in the “Axioline P: System and installation” user manual.
Conductor cross-section, rigid	0.2 mm² ... 1.5 mm²
Conductor cross-section, flexible	0.2 mm² ... 1.5 mm²
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

Environmental and real-life conditions

Ambient conditions

Ambient temperature (operation)	-40 °C ... 70 °C
Degree of protection	IP20
Air pressure (operation)	70 kPa ... 106 kPa (up to 2000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 2000 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)

Approvals

ATEX

Identification	II 3G Ex ec IIC T4 Gc
Certificate	DEMKO 20 ATEX 2334X

IECEx

Identification	Ex ec IIC T4 Gc
Certificate	IECEx UL 20.0002X

UL, USA/Canada

Identification	cULus
Certificate	E238705

UL Ex, USA / Canada

Identification	Class I, Division 2, Groups A, B, C, D, T4
	Class I, Zone 2, IIC T4
Certificate	E196811

CCC / China-Ex

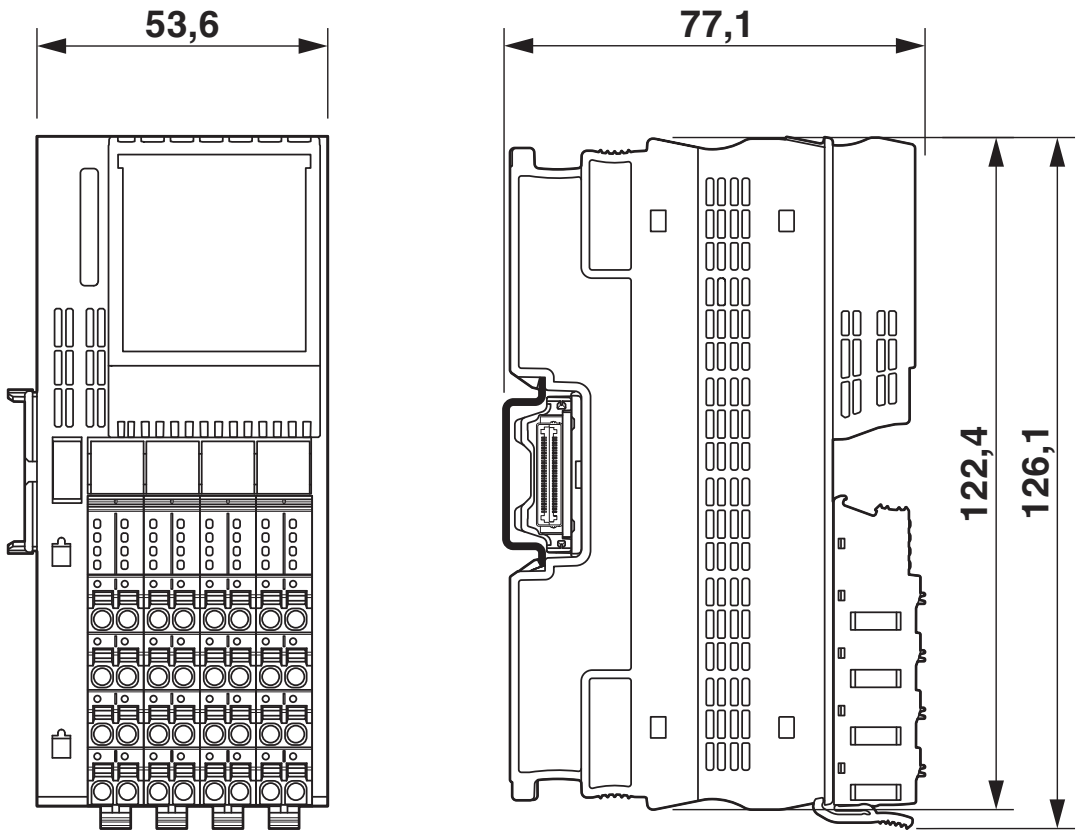
Identification	Ex ec IIC T4 Gc

Mounting

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

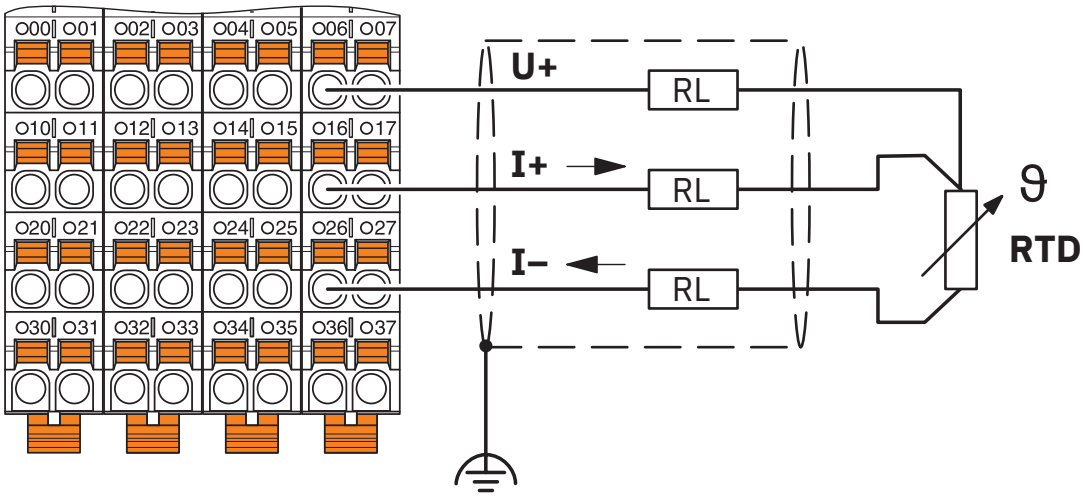
Drawings

Dimensional drawing



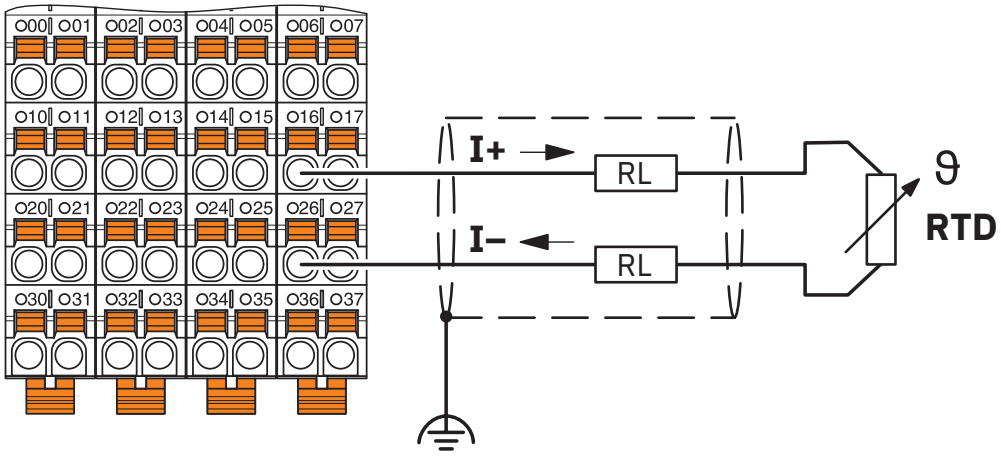
Dimensional drawing

Connection diagram



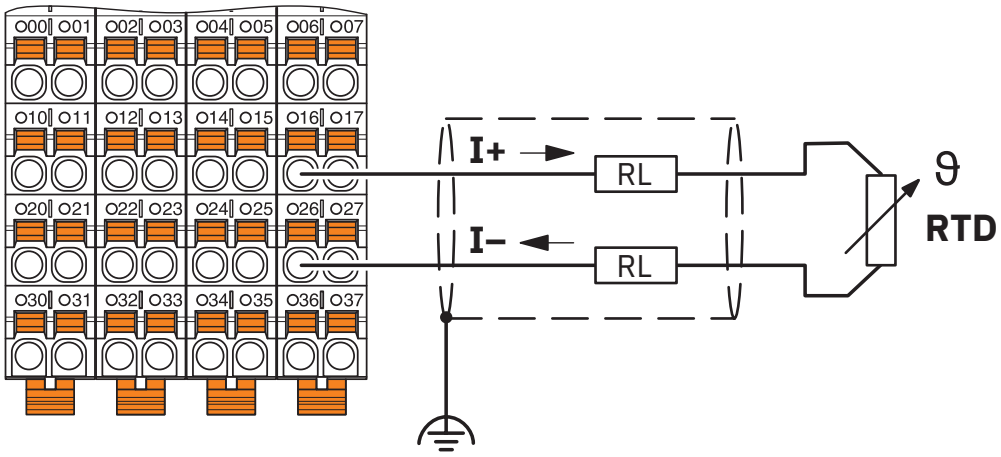
Connection example: 4-conductor connection

Connection diagram



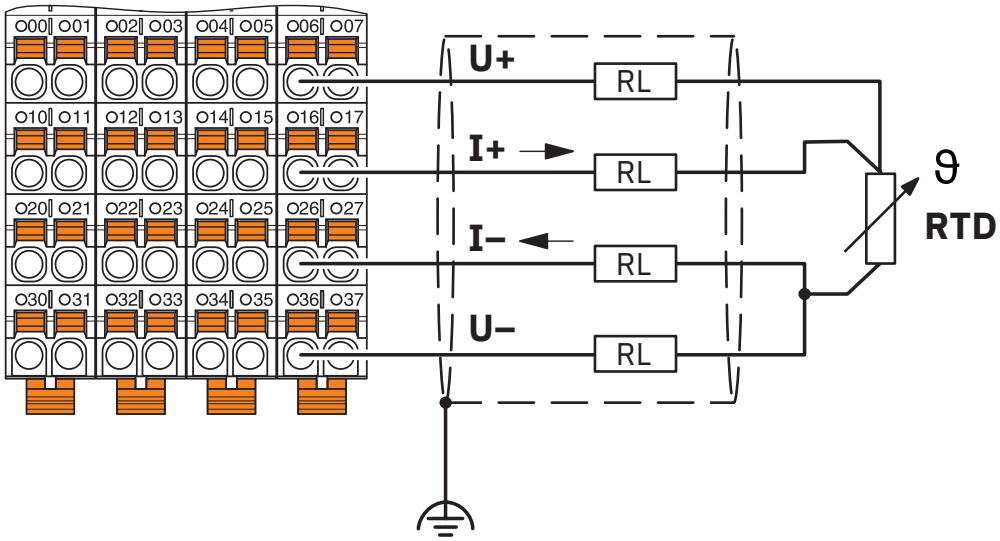
Connection example: 3-conductor connection

Connection diagram



Connection example: 2-conductor connection

Connection diagram



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

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1397156

cULus Listed
Approval ID: E238705

IECEx
Approval ID: IECEx UL 20.0002X

cUL Listed
Approval ID: E196811

UL Listed
Approval ID: E196811

ATEX
Approval ID: DEMKO 20 ATEX 2334X

CCC
Approval ID: 2024122310121527

cULus Listed
Approval ID: E196811

Classifications

ECLASS

ECLASS-13.0	27242601
ECLASS-15.0	27242601

ETIM

ETIM 10.0	EC001596

UNSPSC

UNSPSC 21.0	32151600

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-25
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

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

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