

AXL F UTH4 1H - Temperature module



2688598

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Axioline F, Temperature recording module, Analog inputs: 4 (4 inputs for thermocouples or linear voltage, plus 1 input -5 V to +5 V), connection technology: 2-conductor (shielded, twisted pair), transmission speed in the local bus: 100 Mbps, 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 standard thermocouples in industrial applications. The module supports various types of thermocouple conforming to DIN EN 60584-1 and DIN 46710 as well as linear voltages from -100 mV to +100 mV. It also offers a voltage input from -5 V to +5 V. Heating currents can be monitored here, for example, using a measuring transducer. Both Pt 100 inputs (CJ1 and CJ2) can each be used as a sensor input or as an external cold junction.

Your advantages

- 4 analog input channels to connect thermocouples or linear voltages from -100 mV to +100 mV
- 1 analog input channel for the connection of voltages from -5 V to +5 V
- Connection of sensors in 2-conductor technology
- Internal detection and compensation of cold junction temperature (can be parameterized)
- External connection of Pt 100 cold junction sensors possible
- Low tolerances (typically $\pm 0.01\%$ for sensor type K)
- Very low measuring tolerances, even in various mounting positions, due to built-in space compensation of the internal cold junction
- High temperature stability (typically 8 ppm/K)
- High resistance to electromagnetic interference (Class A)
- "Channel Scout" function
- Device rating plate stored
- Installation monitoring with indication via diagnostic LED for each channel

Commercial data

Item number	2688598
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR02
Product key	DRI243
Catalog page	Page 87 (C-6-2019)
GTIN	4046356780117
Weight per piece (including packing)	194.2 g
Weight per piece (excluding packing)	144 g
Customs tariff number	85389091
Country of origin	DE

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Technical data

Dimensions

Dimensional drawing	
Width	35 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).

Notes

Note on application	
Note on application	Only for industrial use

Interfaces

Axioline F local bus	
Number of interfaces	2
Connection method	Bus base module
Transmission speed	100 Mbps

System properties

Module	
Input address area	10 Byte
Output address area	10 Byte
Required parameter data	12 Byte
Required configuration data	7 Byte

Input data

Analog	
Input name	Analog inputs
Description of the input	Inputs for thermocouples or linear voltage
Number of inputs	4 + 1 (4 inputs for thermocouples or linear voltage, plus 1 input - 5 V to +5 V)
Connection method	Spring-cage connection with direct connector-in method
Connection technology	2-conductor (shielded, twisted pair)
A/D converter resolution	24 bit

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Sensor types (RTD) that can be used	Pt 100 (2 external cold junctions, can also be used as a sensor input)
Measuring principle	Sigma/Delta process
Measured value representation	16 bits (15 bits + sign bit)
Input filter time	40 ms
	60 ms
	100 ms
	120 ms (adjustable)
Protective circuit	Short-circuit protection, overload protection of the inputs
	Transient protection of inputs

Product properties

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

Data management status

Article revision	02
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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	1.75 W
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Potentials

Power consumption	typ. 1.05 W (entire device)
	max. 1.76 W (entire device)

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

Supply voltage	5 V DC (via bus base module)
Current draw	max. 160 mA
	typ. 112 mA
Power consumption	max. 0.8 W (logic)
	typ. 0.54 W (logic)

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. 40 mA
	typ. 23 mA
Power consumption	max. 0.96 W (Peripherals)
Protective circuit	Surge protection; electronic (35 V, 0.5 s)
	Reverse polarity protection; Polarity protection diode

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Transient protection; Suppressor diode

Electrical isolation/isolation of the voltage ranges

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.

Conductor connection

Connection method	Push-in connection
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

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)

Standards and regulations

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

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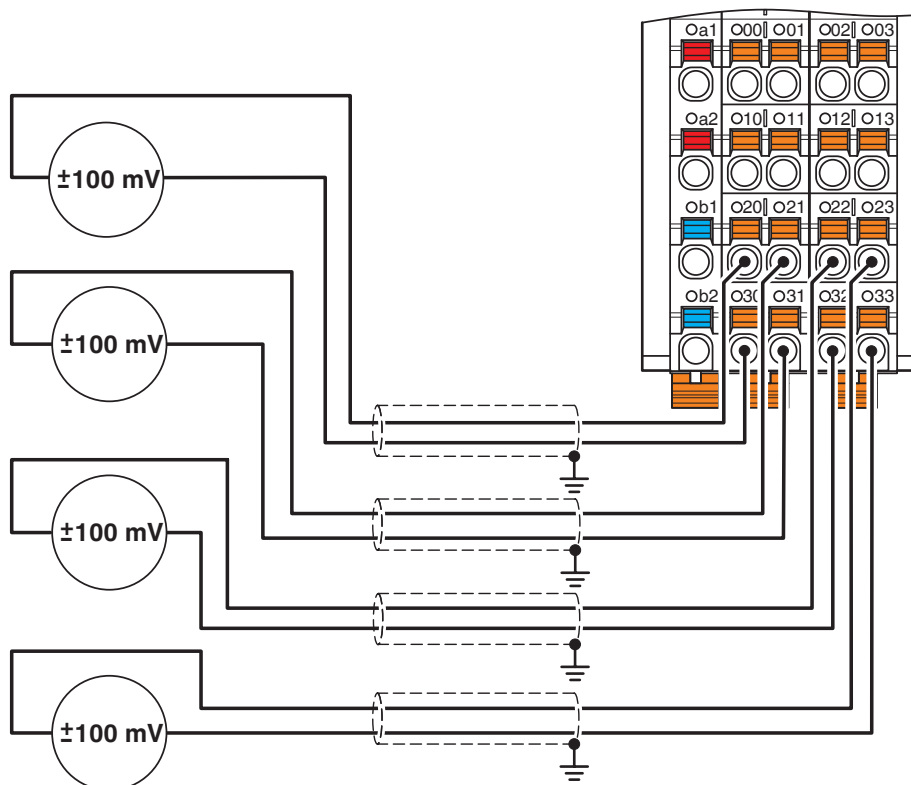
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Drawings

Connection diagram



Measurement of linear voltages ± 100 mV

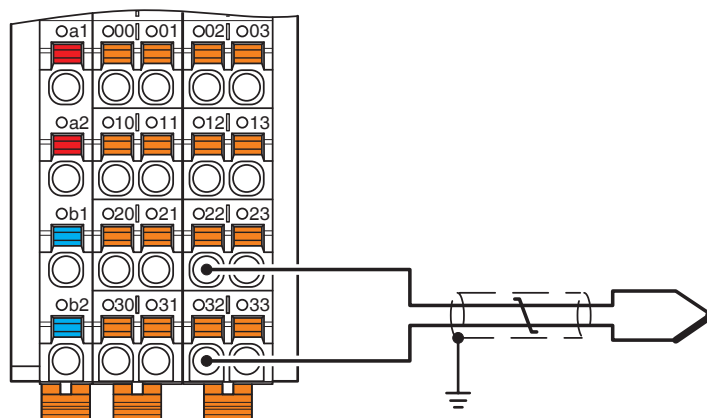
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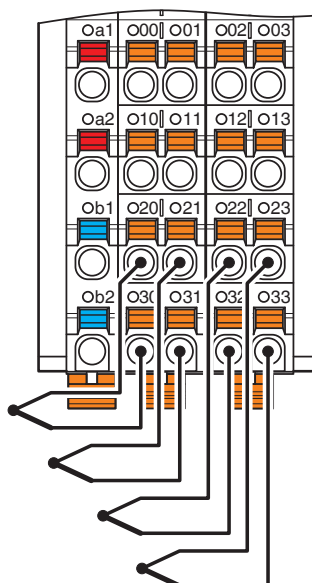


Connection diagram



Connection example

Connection diagram



Connection example: absolute temperature measurement

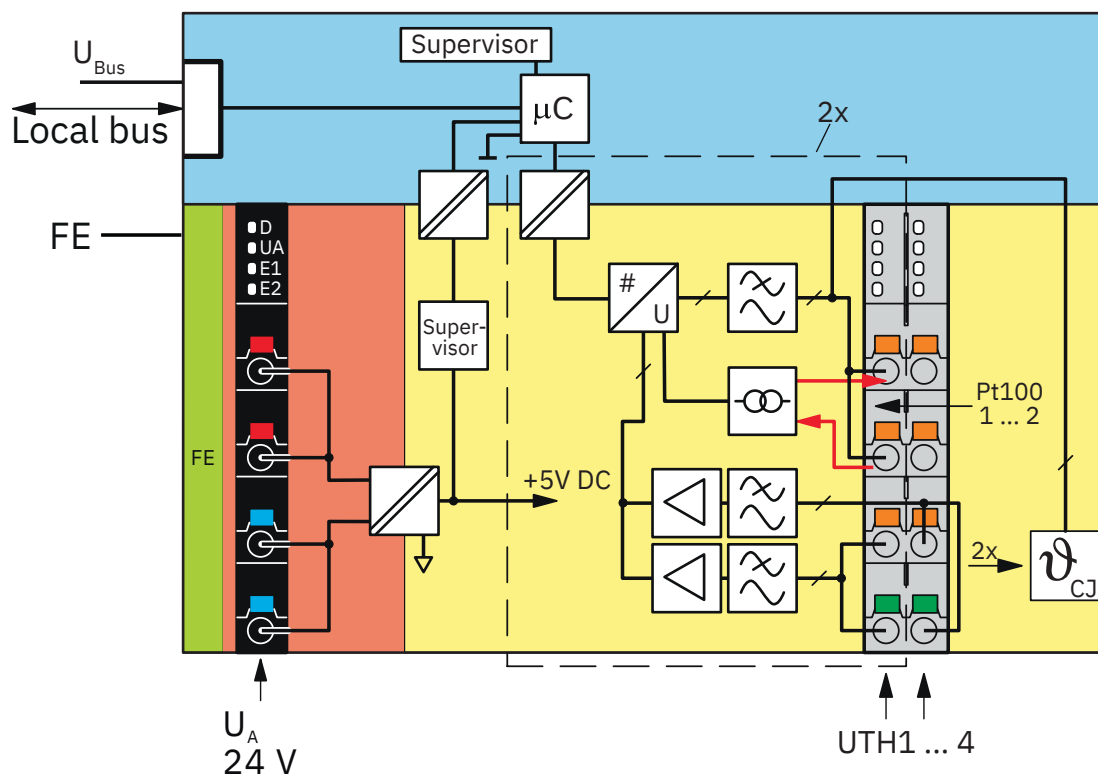
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Block diagram



Internal wiring of the terminal points

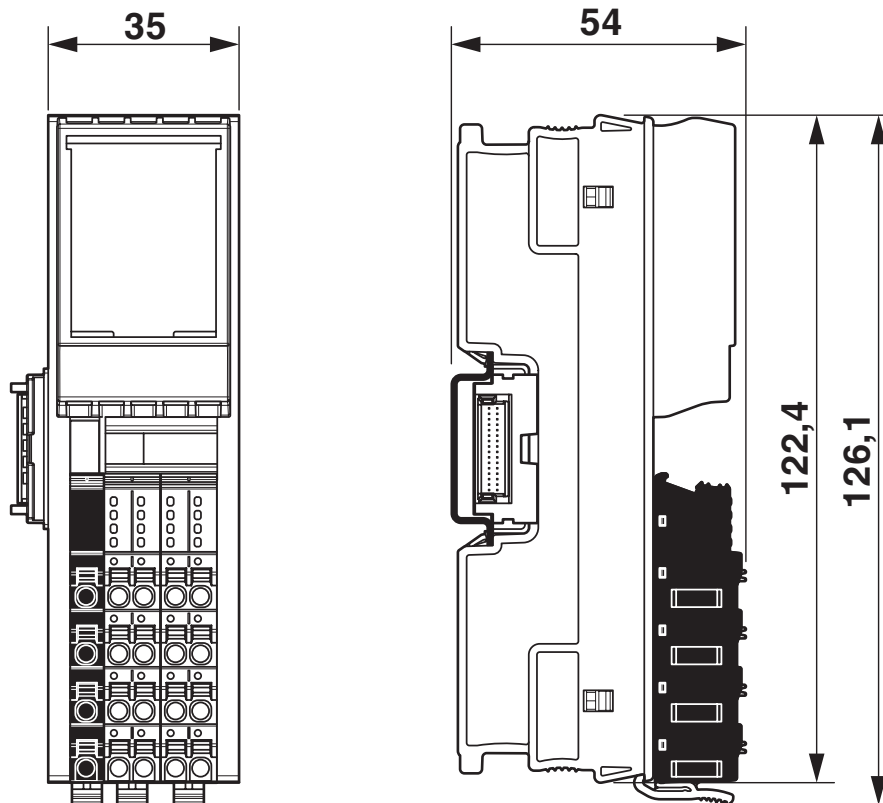
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Dimensional drawing



Dimensions

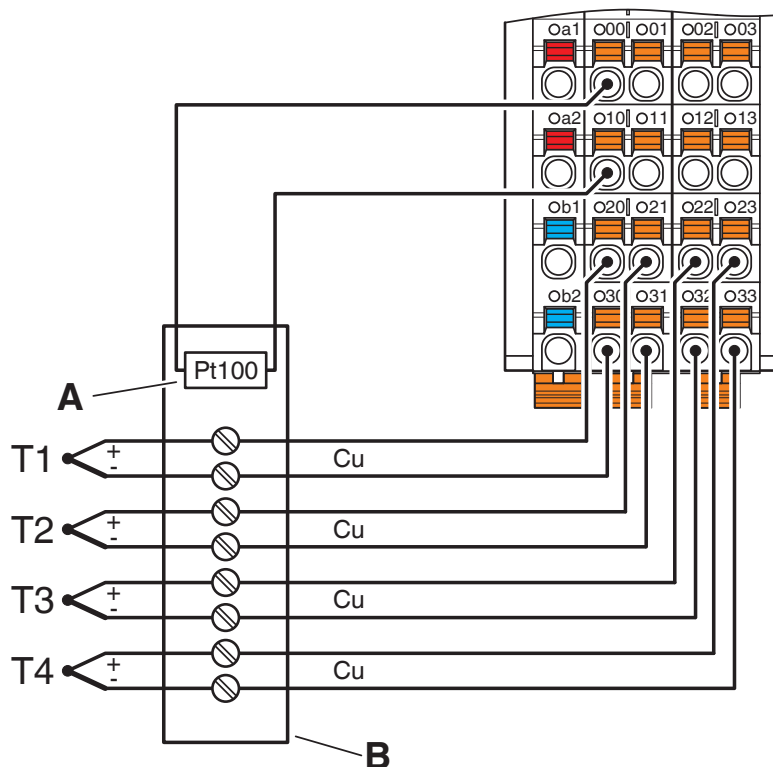
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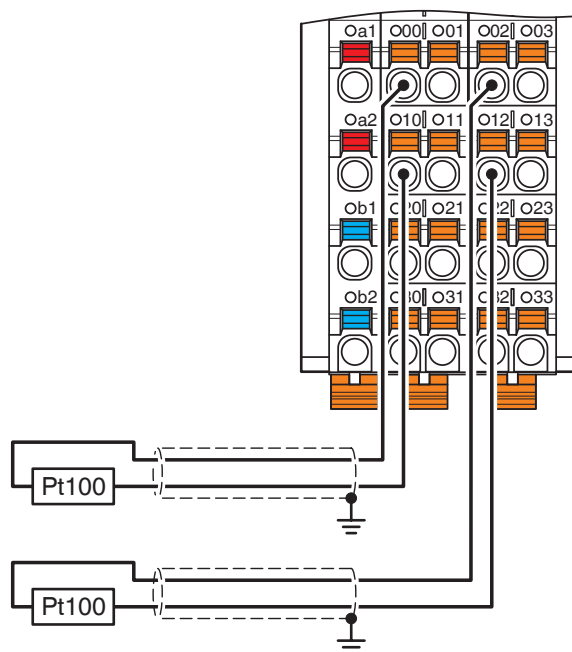


Connection diagram



Thermocouple detection with external cold junction compensation at channel 1

Connection diagram



Pt 100 detection

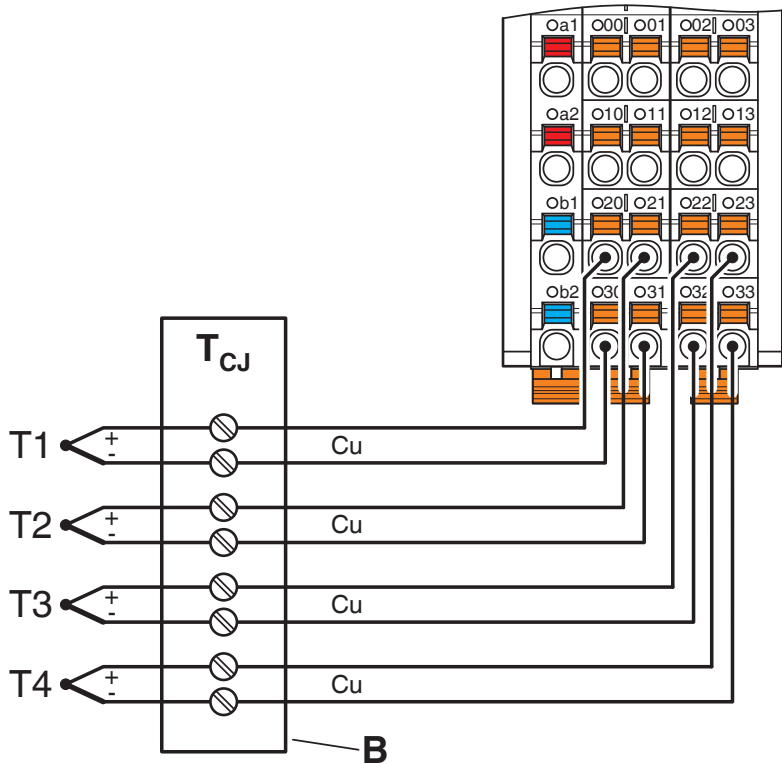
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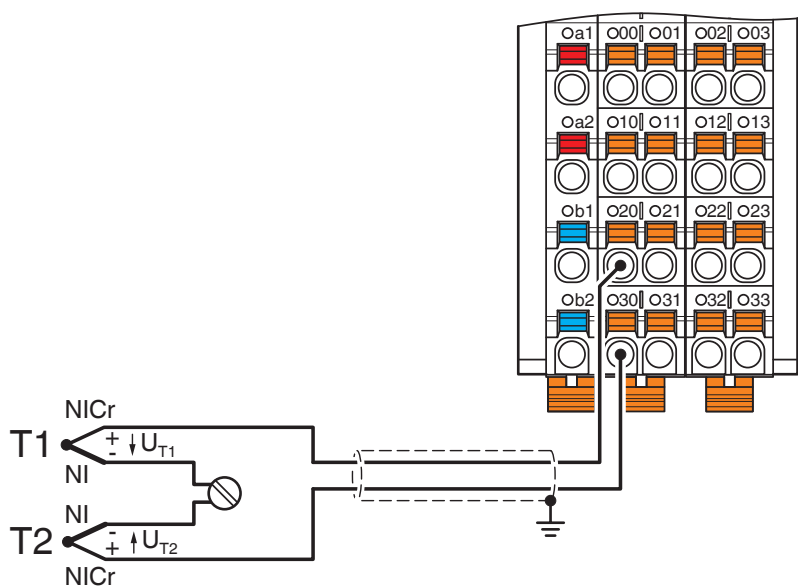
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Connection diagram



Thermocouple detection with cold junction temperature specification via process data

Connection diagram



Differential temperature measurement

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Approvals

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DNV GL

Approval ID: TAA00000DF



LR

Approval ID: LR2480202TA



NK

Approval ID: 14A006



BV

Approval ID: 36433/B4 BV



PRS

Approval ID: TE/1020/880590/21

BSH

Approval ID: 840



RINA

Approval ID: ELE008423XG

ABS

Approval ID: 23-2449604-PDA

UAE-RoHS

Approval ID: 23-02-63242



cULus Listed

Approval ID: E238705

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Classifications

ECLASS

ECLASS-11.0	27242601
ECLASS-12.0	27242601
ECLASS-13.0	27242601

ETIM

ETIM 9.0	EC001596
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UNSPSC

UNSPSC 21.0	32151600
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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-50
	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)
SCIP	a5ee3d70-01ec-429f-9e3a-fb4b5e9ba999

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