

AXL F UTH4 1H - Temperature module



2688598

<https://www.phoenixcontact.com/us/products/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
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
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Material specifications

Color (Housing)	gray (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

Programming data (LocalbusSlave)

Input address area	10 Byte
Output address area	10 Byte

Fieldbus data telegram

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

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Number of inputs	4 + 1 (4 inputs for thermocouples or linear voltage, plus 1 input - 5 V to +5 V)
Connection method	Push-in connection
Connection technology	2-conductor (shielded, twisted pair)
A/D converter resolution	24 bit
Sensor types (RTD) that can be used	Pt 100 (2 external cold junctions, can also be used as a sensor input)
Sensor types that can be used (TC)	U, T, L, J, E, K, N, S, R, B, C, W, HK
Tolerance, relative	typ. 0.01 % (Thermocouple type K, NiCr-Ni) see tables for tolerance values
Tolerance, absolute	typ. ± 0.19 K (Thermocouple type K, plus tolerance of cold junction) see tables for tolerance values
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; Parameterize the mounting position using the object 0080 _{hex} ParaTable!)
Scope of supply	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

Maximum power dissipation for nominal condition	1.75 W
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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

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

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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	
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

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Mounting type	DIN rail mounting
Mounting position	any (no temperature derating; Parameterize the mounting position using the object 0080 _{hex} ParaTable!)

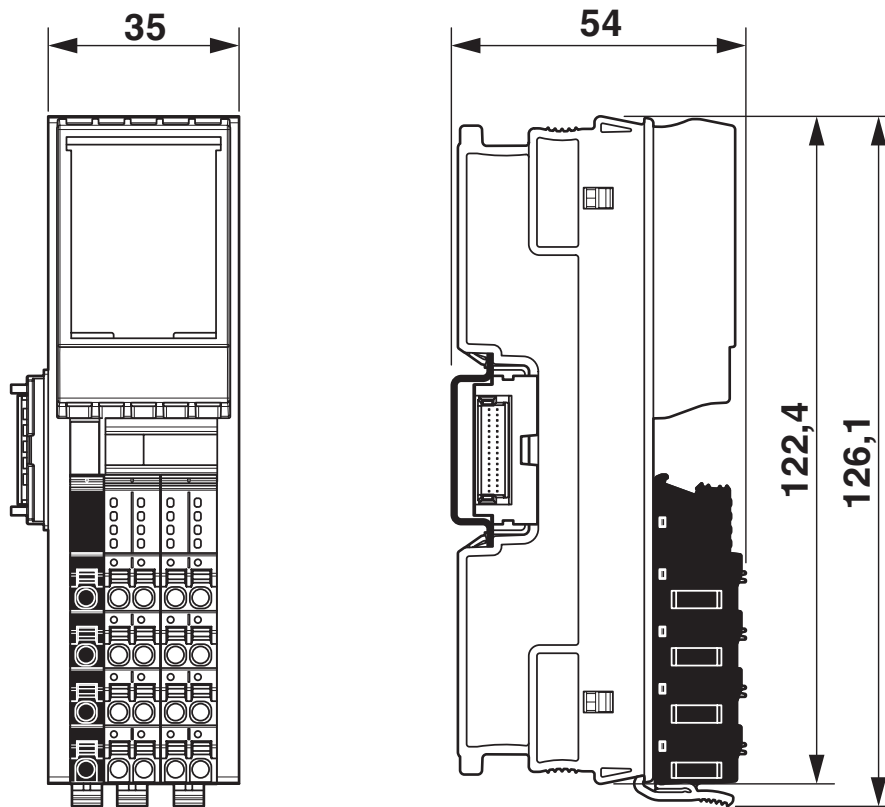
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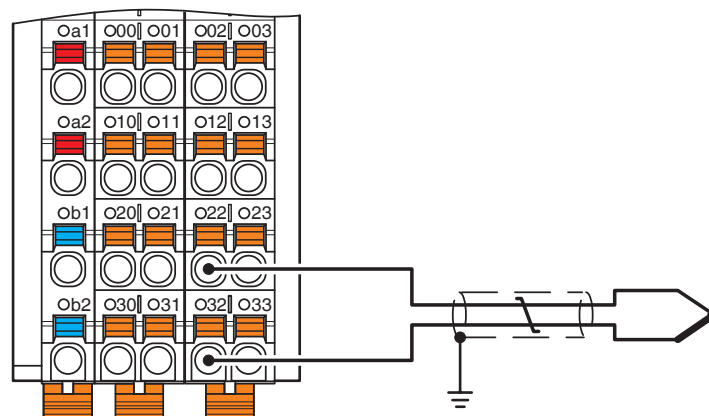
Drawings

Dimensional drawing



Dimensions (in mm)

Connection diagram



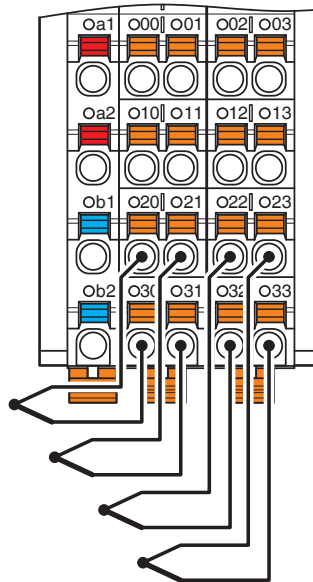
Connection example

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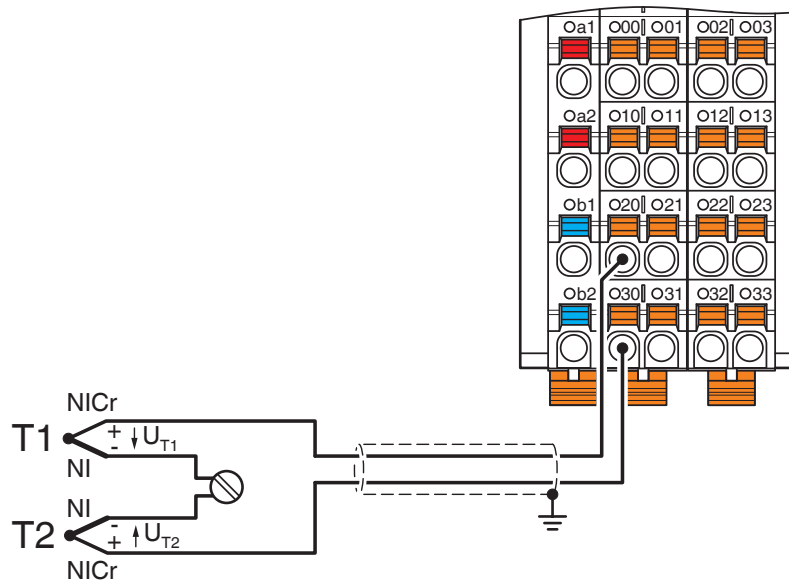
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Connection diagram



Connection example: absolute temperature measurement

Connection diagram



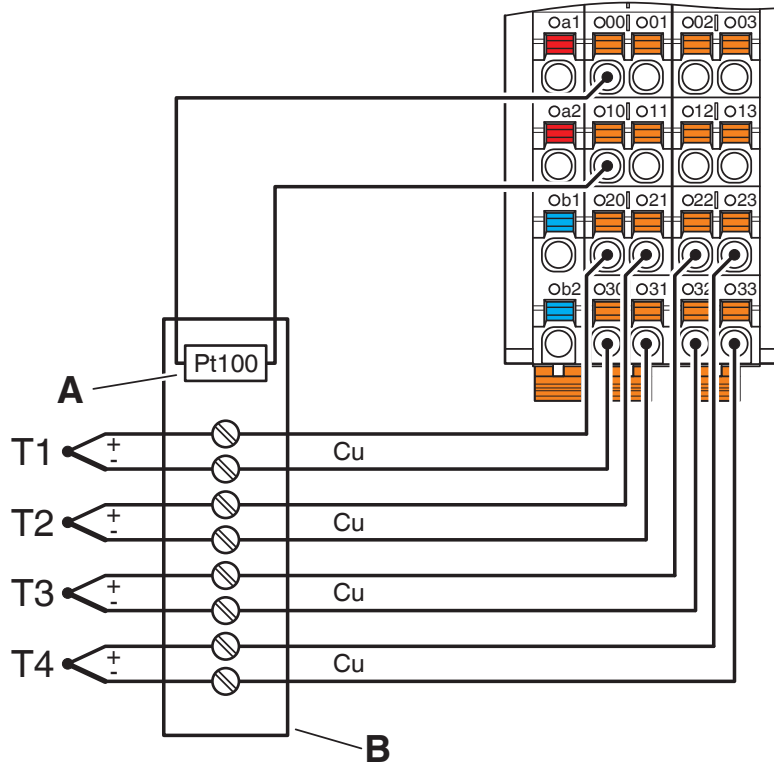
Differential temperature measurement

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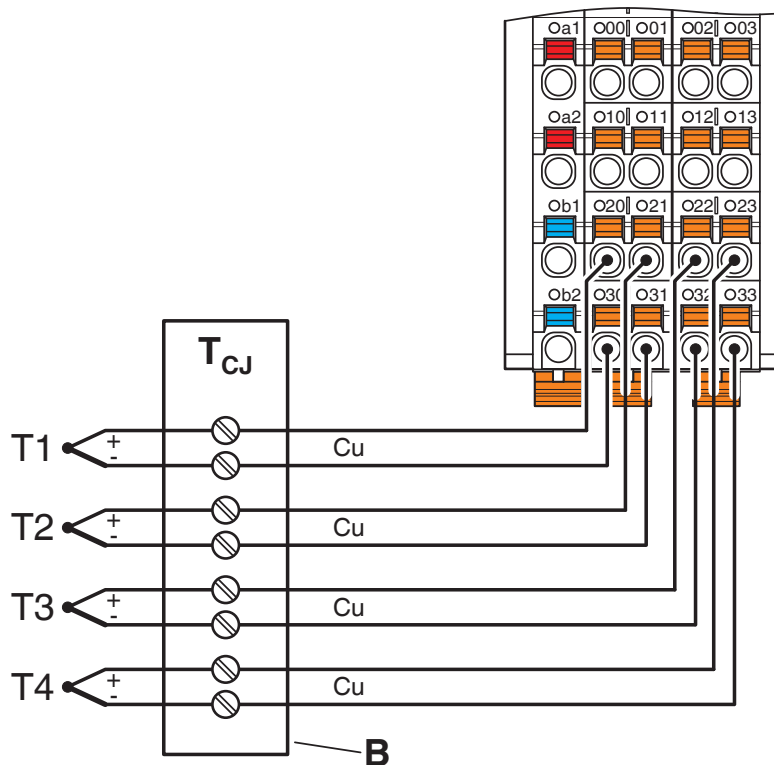
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Connection diagram



Thermocouple detection with external cold junction compensation at channel 1

Connection diagram



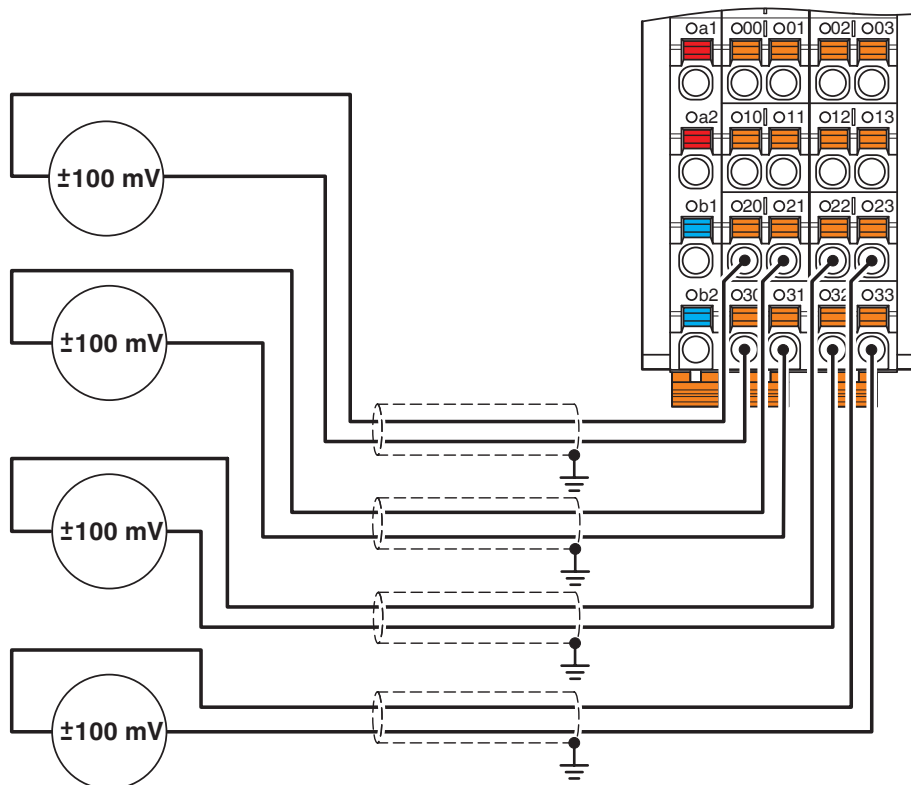
Thermocouple detection with cold junction temperature specification via process data

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Connection diagram



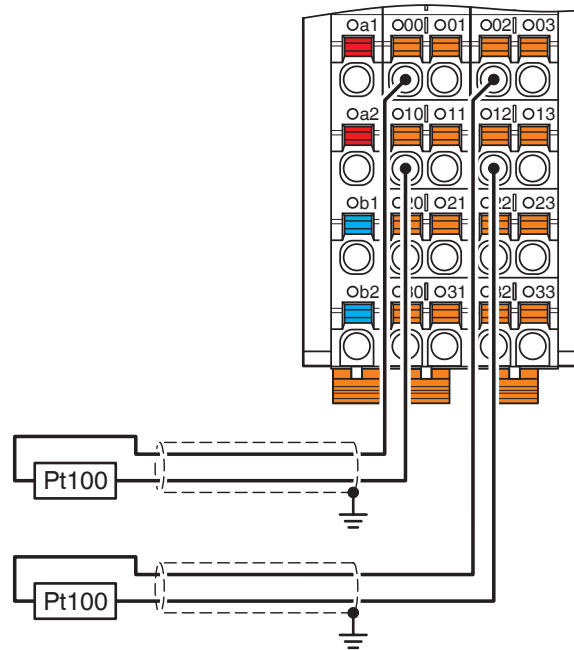
Measurement of linear voltages $\pm 100 \text{ mV}$

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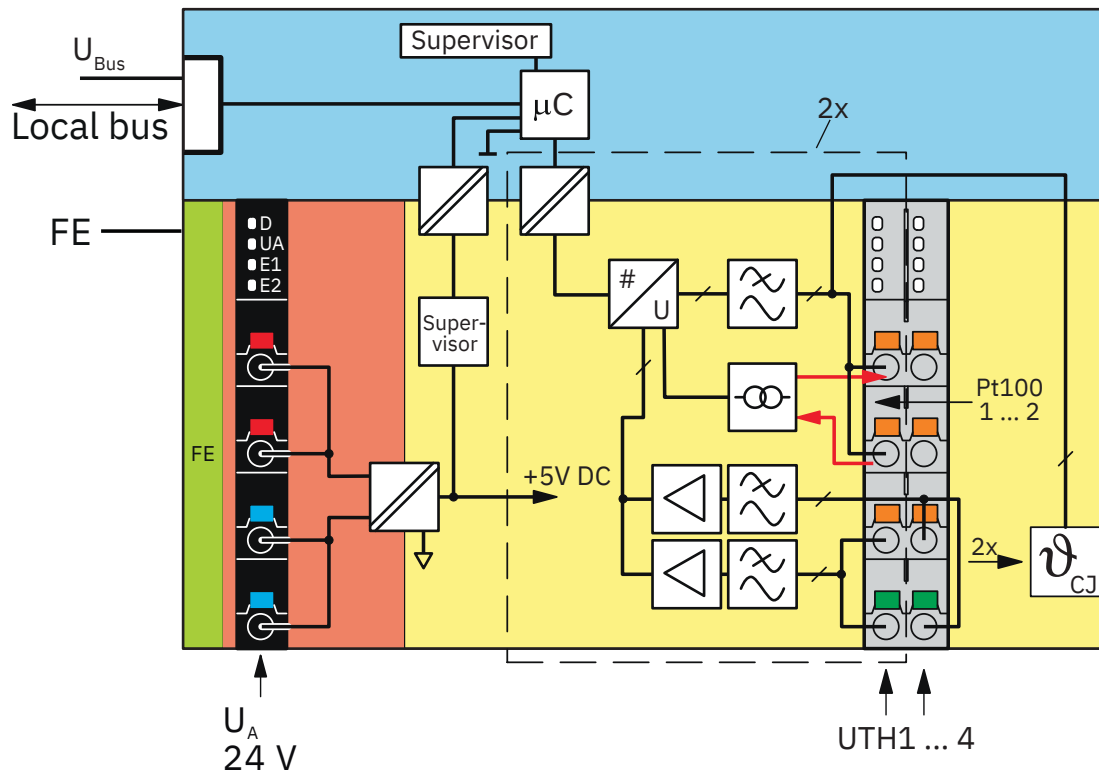
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Connection diagram



Pt 100 detection

Block diagram



Internal wiring of the terminal points

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Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2688598>



DNV GL

Approval ID: TAA00000DF



LR

Approval ID: LR2480202TA-02



PRS

Approval ID: TE/1020/880590/21

BSH

Approval ID: 840



RINA

Approval ID: ELE008423XG001

ABS

Approval ID: 23-2449604-PDA



cULus Listed

Approval ID: E238705

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Classifications

ECLASS

ECLASS-13.0	27242601
ECLASS-15.0	27242601

ETIM

ETIM 10.0	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)
	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol(CAS: 119-47-1)
SCIP	a5ee3d70-01ec-429f-9e3a-fb4b5e9ba999

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