

FL MC EF 1300 MM ST - FO converters



2902854
<https://www.phoenixcontact.com/us/products/2902854>

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FO converter with B-FOC (ST®) fiber optic connection (1300 nm), for converting 10/100Base-T(X) to multi-mode fiberglass (50/125 µm). Auto negotiation and auto MDI(X) function. Comprehensive link diagnostics. DIN-rail mountable, 18 ... 30 V DC supply.

Product description

Optical transmission with FO technology provides superior immunity to interference at maximum transmission ranges without restricting the transmission bandwidth.

Your advantages

- Transmission ranges up to 10 km
- Auto negotiation
- Auto MDI/MDI-X switch-over
- Link fault pass through (LFPT) and far end fault (FEF) functions for easy connection monitoring
- 10/100 Mbps
- Shipbuilding approval in accordance with DNV GL

Commercial data

Item number	2902854
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN06
Product key	DNC311
GTIN	4046356689243
Weight per piece (including packing)	169.2 g
Weight per piece (excluding packing)	116 g
Customs tariff number	85176200
Country of origin	TW

Technical data

Notes

Note on application

Note on application	Only for industrial use
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Utilization restriction

CCCex note	Use in potentially explosive areas is not permitted in China.
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Product properties

Product type	Media converter
MTTF	1400 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	599 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	101 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	492 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	132 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
Signal delay	± 1.3 µs (Store and Forward mode, 10/100 Mbps, depending on the frame size)
Basic functions	Store-and-forward media converter

Functions

Basic functions	Store-and-forward media converter
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Security functions

Basic functions	Store-and-forward media converter
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System properties

Functionality

Basic functions	Store-and-forward media converter
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Electrical properties

Electrical isolation	according to IEEE 802.3
	VCC // FE // Ethernet
Maximum power dissipation for nominal condition	2.4 W
Test voltage data interface/power supply	0.5 kV _{rms} (50 Hz, 1 min.)

Supply

Supply voltage range	18 V DC ... 30 V DC (Screw connection)
	18 V DC ... 30 V DC (as an alternative or redundant, via backplane bus contact and system current supply)
Typical current consumption	< 100 mA (24 V DC)

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Protective circuit	Reverse polarity protection
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Connection data

Supply

Connection method	Plug-in screw terminal block (COMBICON), redundancy possible
Single conductor/terminal point, rigid	0.2 mm² ... 2.5 mm²
Single-wire/terminal point, flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section, flexible [AWG]	24 ... 14
Stripping length	7.00 mm
Tightening torque	0.56 Nm ... 0.79 Nm

Interfaces

Signal	Ethernet
Basic functions	Store-and-forward media converter

Data: optical FO

Transmit capacity, minimum	≥ -23.5 dBm ((50/125 µm) dynamic in link mode (average))
	≥ -20 dBm ((62,5/125 µm) dynamic in link mode (average))
Transmit capacity, maximum	≤ -14 dBm ((50/125 µm) dynamic in link mode (average))
	≤ -14 dBm ((62,5/125 µm) dynamic in link mode (average))
Transmission length incl. 3 dB system reserve	6.4 km (F-G 50/125 0.7 dB/km F 1000)
	2.8 km (F-G 50/125 1.6 dB/km F 800)
	10 km (F-G 62.5/125 0.7 dB/km F 1000)
	3 km (F-G 62.5/125 2.6 dB/km F 600)
Connection method	B-FOC (ST®)
Wavelength	1300 nm
Minimum receiver sensitivity	-31 dBm (dynamic in link mode (average))
Maximum receiver sensitivity	-14 dBm (dynamic in link mode (average))
Transmission medium	Multi-mode fiberglass
	GI-HCS fiber

Data: Ethernet interface, 10/100Base-T(X) in accordance with IEEE 802.3

Transmission speed	10/100 Mbps
Connection method	RJ45 jack, shielded
No. of channels	1
Transmission length	100 m (shielded twisted pair)
Transmission medium	Copper
Signal LEDs	Activity, link status, 10/100 Mbps
Auto-negotiation modes	Auto
Link through	Link fault pass through
MDI-/MDI-X switchover	Auto-MDI(X)

Dimensions

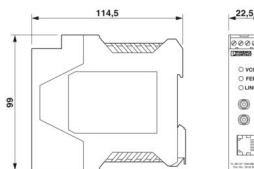
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Dimensional drawing



Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Color (Housing)	green (RAL 6021)
Material (Housing)	PA 6.6-FR

Cable/line

FO cable

Fiber types	50/125 µm
	62.5/125 µm
	Fiberglass

Mechanical tests

Free fall in accordance with IEC 60068-2-32	Free fall: 1 m
Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	Vibration (operation): 5g, 10...150 Hz, 2.5 h, in XYZ direction
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	Shock (operation): 25g, 11 ms period, half-sine shock pulse

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 65 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
	≤ 2000 m (in acc. with UL)
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant
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ATEX

Identification	Ex II 3 G Ex nA IIC T4 Gc X
Note	Please follow the special installation instructions in the

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	documentation!
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ATEX, FO interface

Identification	Ex II (2) D [Ex op is Db] IIC Ex II (2) G [Ex op is Gb] IIC
Certificate	PTB 06 ATEX 2042 U
Note	Please follow the special installation instructions in the documentation!

UL, USA/Canada

Identification	508 Listed Class I, Zone 2, AEx nA IIC T4 Class I, Zone 2, Ex nA IIC T4 Gc X Class I, Div. 2, Groups A, B, C, D
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KC approval for South Korea

Certificate	MSIP-REI-PCK-2902854
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Corrosive gas test

Identification	ISA-S71.04-1985 G3 Harsh Group A
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Shipbuilding

Identification	DNV GL
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Shipbuilding data

Temperature	B
Humidity	A
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
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Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Contact discharge	± 6 kV (Test Level 3)
Discharge in air	± 8 kV (Test Level 3)
Indirect discharge	± 6 kV
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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Electromagnetic HF field

Frequency range	80 MHz ... 3 GHz (Test Level 3)
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Field intensity	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4
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Fast transients (burst)

Input	± 2 kV (Test Level 3)
Signal	± 2 kV (Test Level 3)
Comments	Criterion B

Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Surge current load (surge)

Input	± 0.5 kV (DC supply)
Signal	± 1 kV (Data line, asymmetrical)
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6
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Conducted interference

Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V

Emitted interference

Standards/regulations	EN 55032
Comments	Class A, industrial applications

Criteria

Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

Standards and regulations

Free from substances that could impair the application of coating	VDMA 24364:2018-05
Electrical isolation	according to IEEE 802.3

Mounting

Mounting type	DIN rail mounting
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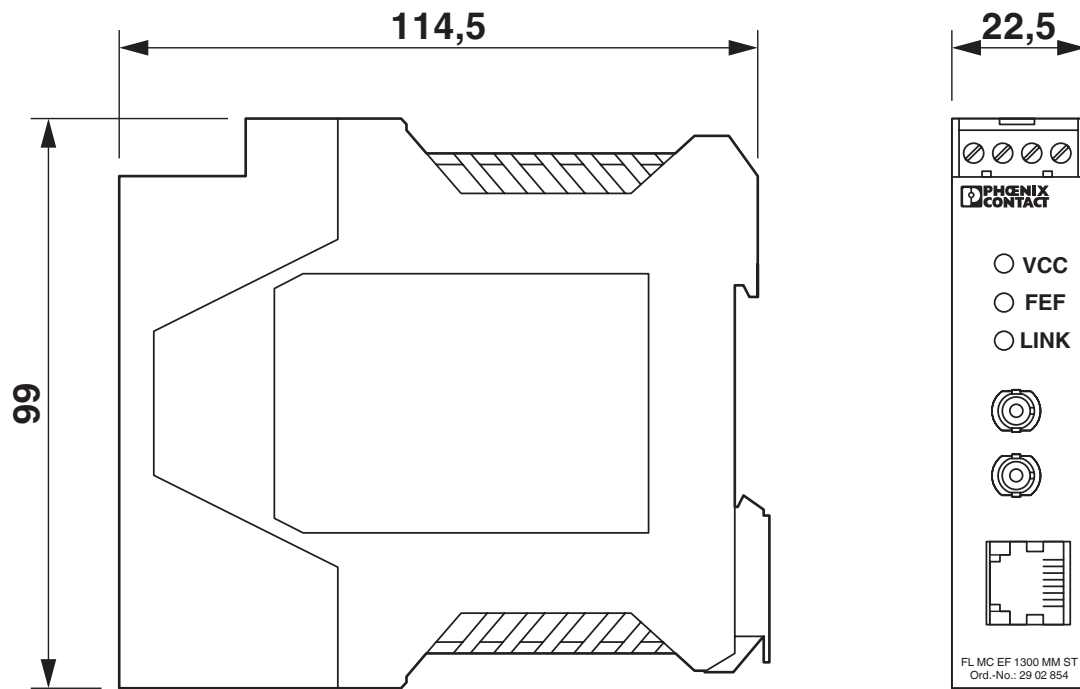
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Drawings

Dimensional drawing

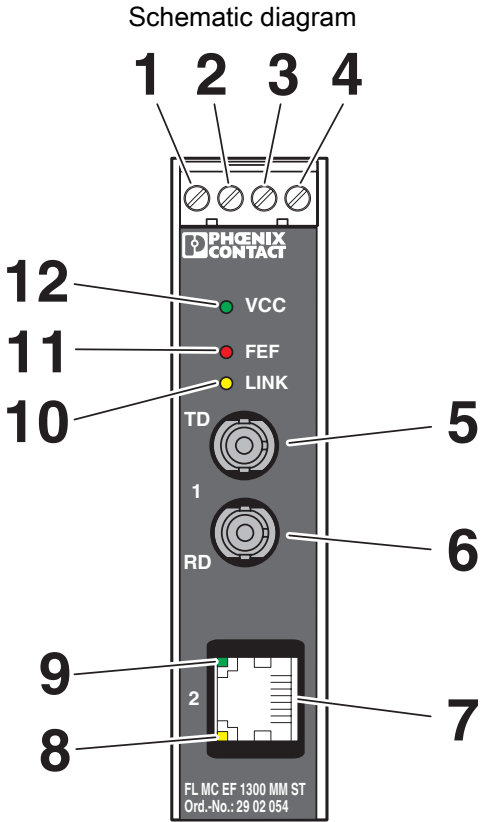


Slim design

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Front view

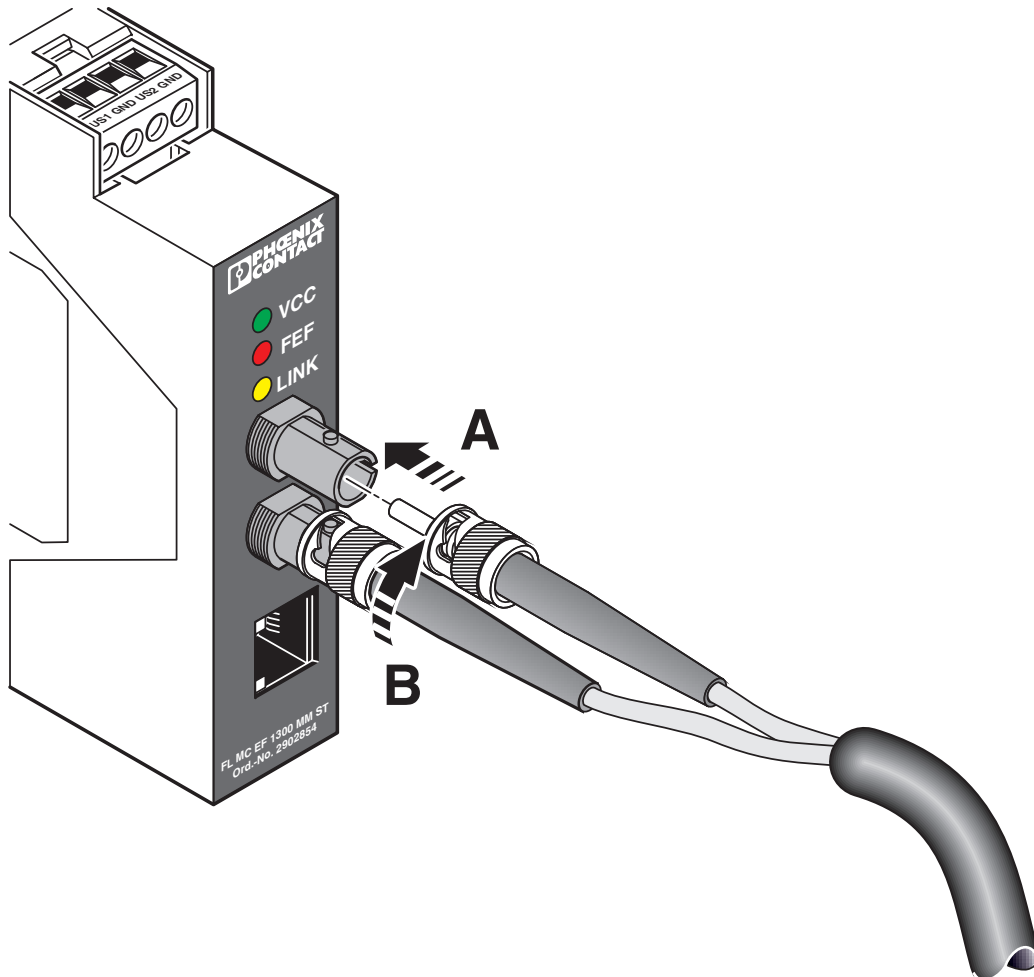
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Schematic diagram



Connect B-FOC (ST®) plug

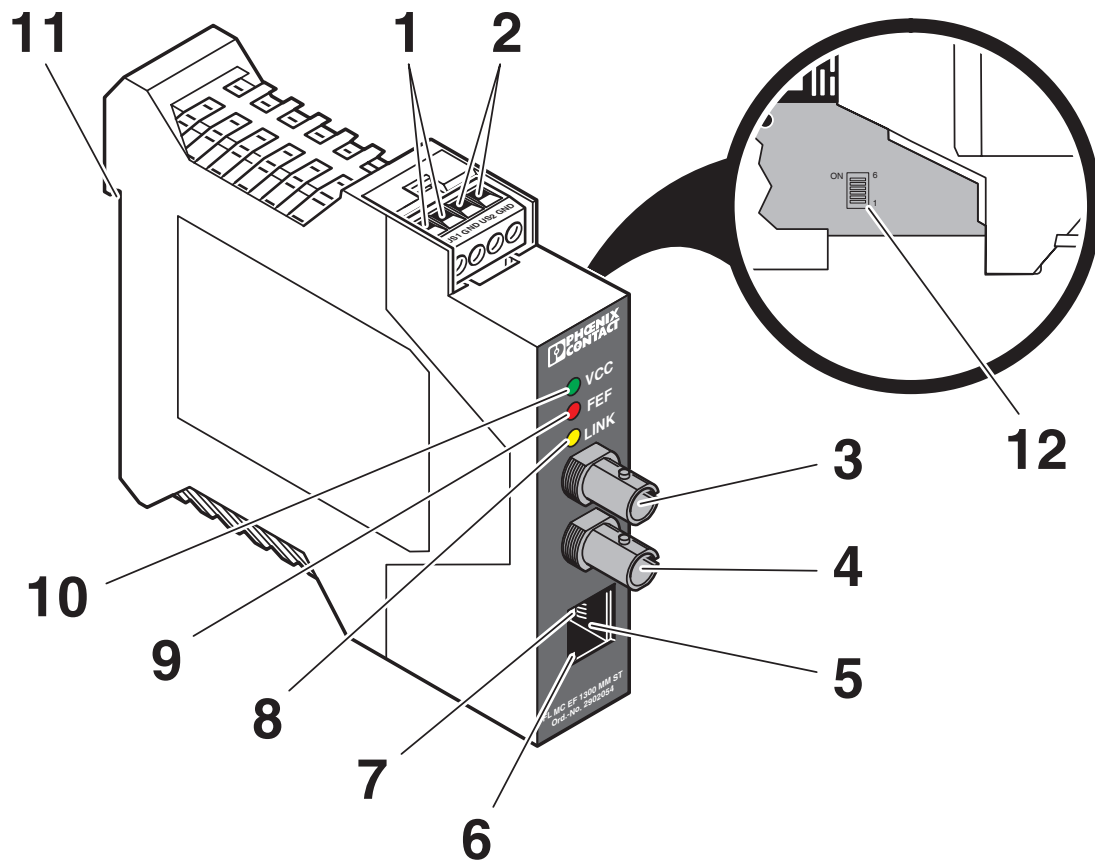
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Schematic diagram



Function elements

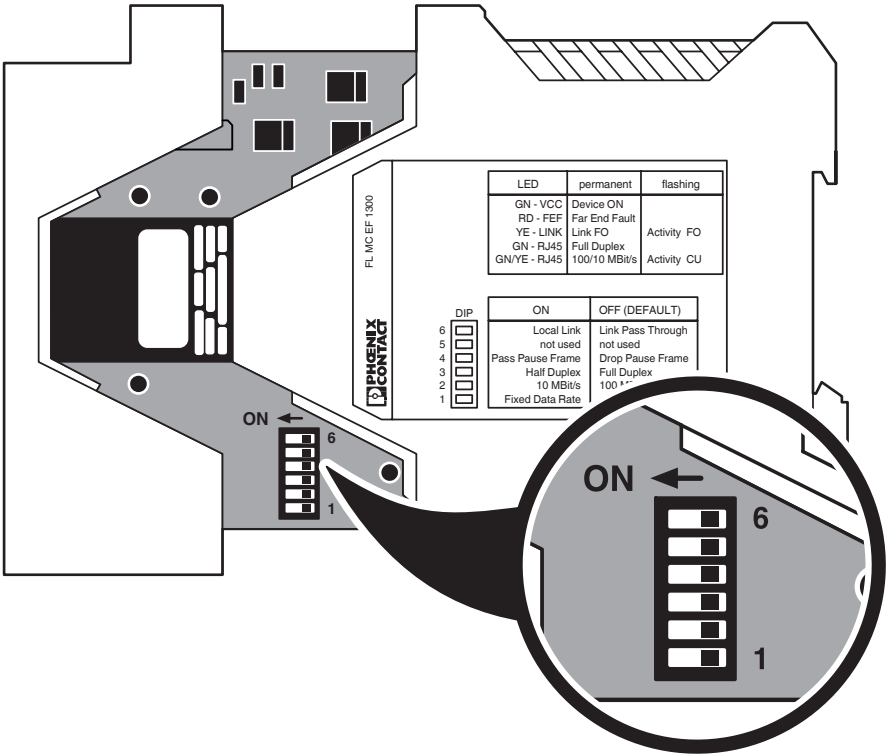
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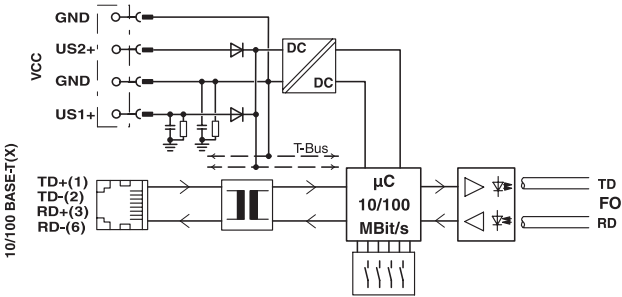
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Schematic diagram



DIP switches

Block diagram



Basic circuit diagram

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Approvals

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	KC Approval ID: MSIP-REI-PCK-2902854
	UL Listed Approval ID: E238705
	cUL Listed Approval ID: E238705
	cUL Listed Approval ID: E238705
	UL Listed Approval ID: E238705
	KC Approval ID: MSIP-REI-PCK-2902854
	cUL Listed Approval ID: E199827
	UL Listed Approval ID: E199827
	UL Listed Approval ID: E199827
	cUL Listed Approval ID: E199827
	IECEx Approval ID: IECEx ULD 24.0009X

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ATEX

Approval ID: UL 24 ATEX 3197X

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Classifications

ECLASS

ECLASS-13.0	19170411
ECLASS-15.0	19170411

ETIM

ETIM 9.0	EC001467
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UNSPSC

UNSPSC 21.0	43201500
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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	073c5d43-346e-4dc1-8da5-0f7f654cdf29