FO converters - FL MC EF 1300 MM ST - 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.

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
- Data rates 10/100 Mbps
- Shipbuilding approval in accordance with DNV GL

Key Commercial Data

Packing unit	1 pc
GTIN	4 046356 689243
GTIN	4046356689243
Weight per Piece (excluding packing)	172.200 g
Custom tariff number	85176200
Country of origin	Germany

Technical data

Note

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

Dimensions

Caption	Slim design
Width	22.5 mm
Height	99 mm
Depth	114.5 mm

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Technical data

Ambient conditions

Ambient temperature (operation)	-40 °C ... 65 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	30 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	30 % ... 95 % (non-condensing)
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
	≤ 2000 m (With UL approval)
Degree of protection	IP20

General

Electrical isolation	according to IEEE 802.3
	VCC // FE // Ethernet
Latency	± 1.3 µs (Store&Forward mode, 10/100 Mbps, depending on the frame size)
Test voltage data interface/power supply	1.5 kV_{rms} (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Net weight	172.2 g
Housing material	PA 6.6-FR
Color	green
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))
MTTF	1400 Years (SN 29500 standard, temperature 25 °C, operating cycle 21 % (5 days a week, 8 hours a day))
	599 Years (SN 29500 standard, temperature 40 °C, operating cycle 34.25 % (5 days a week, 12 hours a day))
	101 Years (SN 29500 standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day))

Power 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)
Protective circuit	Reverse polarity protection
Connection method	Plug-in screw terminal block (COMBICON), redundancy possible
Conductor cross section flexible max.	2.50 mm²
Conductor cross section flexible min.	0.20 mm²
Conductor cross section solid max.	2.50 mm²
Conductor cross section solid min.	0.20 mm²
Max. AWG conductor cross section, flexible	14
Min. AWG conductor cross section, flexible	24
Conductor cross section AWG max.	14

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Power supply

Conductor cross section AWG min.	24

Serial interface

Interface 1	Ethernet interface, 10/100Base-T(X) in acc. with IEEE 802.3u
No. of ports	1
Connection method	RJ45 socket, shielded
Transmission medium	Copper
Transmission length	100 m (shielded twisted pair)
Auto-negotiation modes	Auto
Link through	Link fault pass through
Basic functions	Store-and-forward media converter
MDI-/MDI-X switchover	Auto-MDI(X)
Signal LEDs	Activity, link status, 10/100 Mbps

Optical interface 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))
Minimum receiver sensitivity	-31 dBm (dynamic in link mode (average))
Overrange receiver	-14 dBm (dynamic in link mode (average))
Wavelength	1300 nm
Transmission length incl. 3 dB system reserve	6.4 km (with F-G 50/125 0,7 dB/km F 1000)
	2.8 km (with F-G 50/125 1,6 dB/km F 800)
	10 km (with F-G 62,5/125 0,7 dB/km F 1000)
	3 km (with F-G 62.5/125 2.6 dB/km F 600)
Transmission medium	Multi-mode fiberglass
	GI-HCS fiber
Connection method	B-FOC (ST®)

Conformance/approvals

Designation	CE
Identification	CE-compliant
Designation	EAC
Identification	EAC
Designation	ATEX
Identification	# II 3 G Ex nA IIC T4 Gc X
Additional text	Please follow the special installation instructions in the documentation!
Designation	ATEX
Identification	# II (2) D [Ex op is Db] IIIC
	# II (2) G [Ex op is Gb] IIC
Certificate	PTB 06 ATEX 2042 U

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Conformance/approvals

Additional text	Please follow the special installation instructions in the documentation!
Designation	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
Designation	Corrosive gas test
Identification	ISA-S71.04-1985 G3 Harsh Group A
Designation	Shipbuilding
Identification	DNV GL
Temperature	B
Humidity	A
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Type of test	Free fall in acc. with IEC 60068-2-32
Test result	1 m
Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	5g, 10...150 Hz, 2.5 h, in XYZ direction
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	25g, 11 ms period, half-sine shock pulse
Free from substances that could impair the application of coating	according to P-VW 3.10.7 57 65 0 VW-AUDI-Seat central standard
Standards/regulations	EN 61000-4-2
Contact discharge	± 6 kV (Test Level 3)
Indirect discharge	± 6 kV
Standards/regulations	EN 61000-4-3
Frequency range	80 MHz ... 3 GHz (Test Level 3)
Standards/regulations	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-5
Signal	± 1 kV (Data line, asymmetrical)
Standards/regulations	EN 55032
	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz
Designation	Air clearances and creepage distances
Standards/regulations	EN 60950-1
Electrical isolation	according to IEEE 802.3

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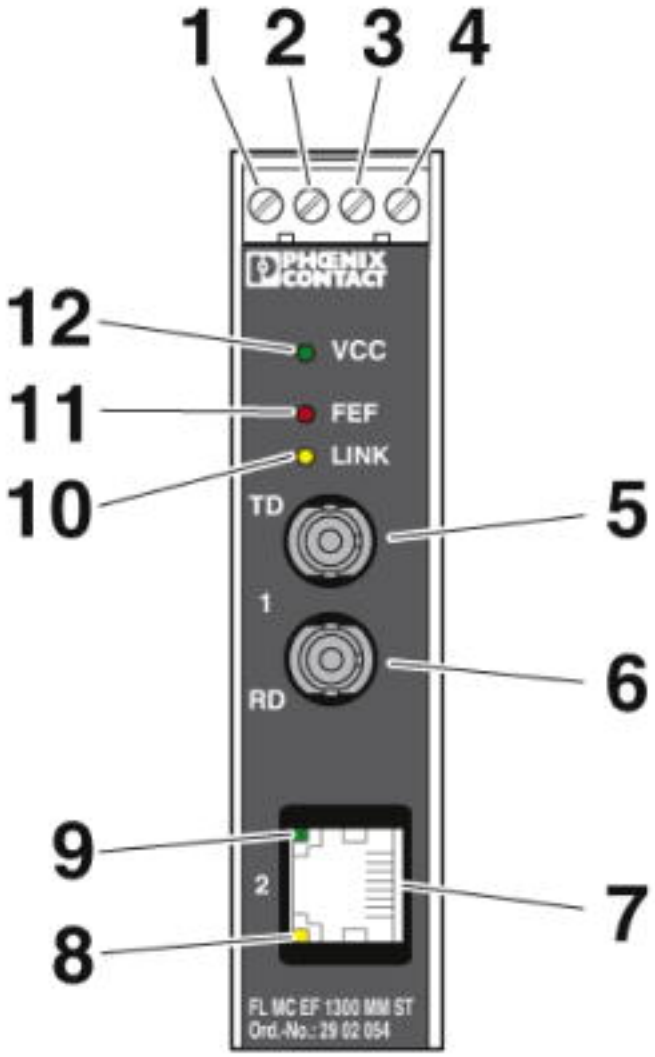
Environmental Product Compliance

REACh SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration”

Drawings

Schematic diagram



Front view

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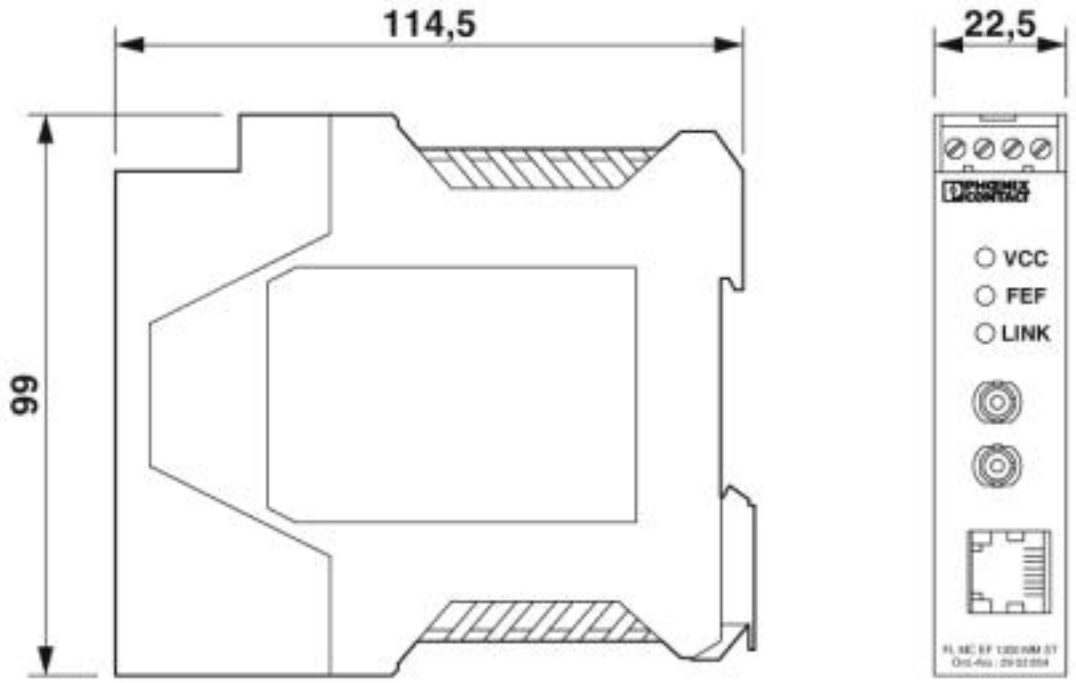
Dimensional drawing



Slim design

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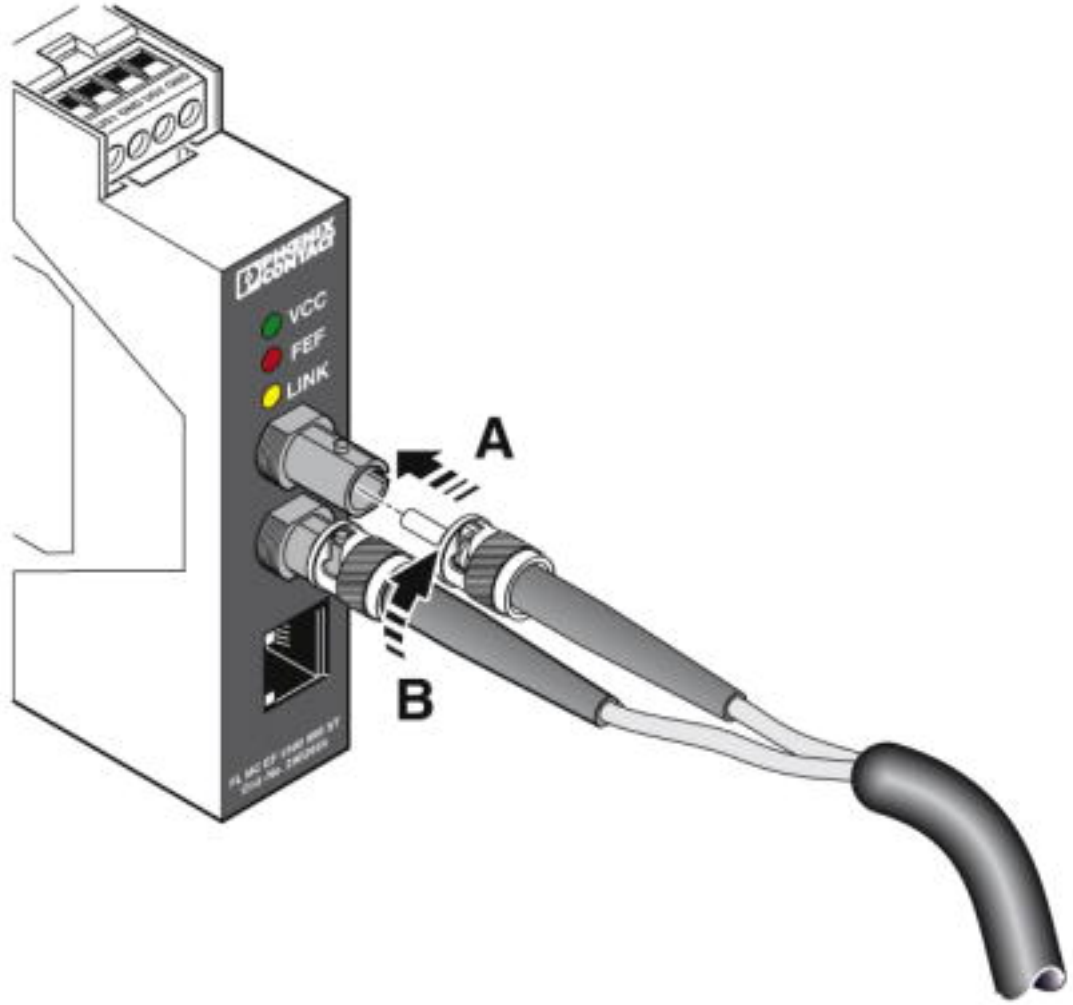
Schematic diagram



Connect B-FOC (ST®) plug

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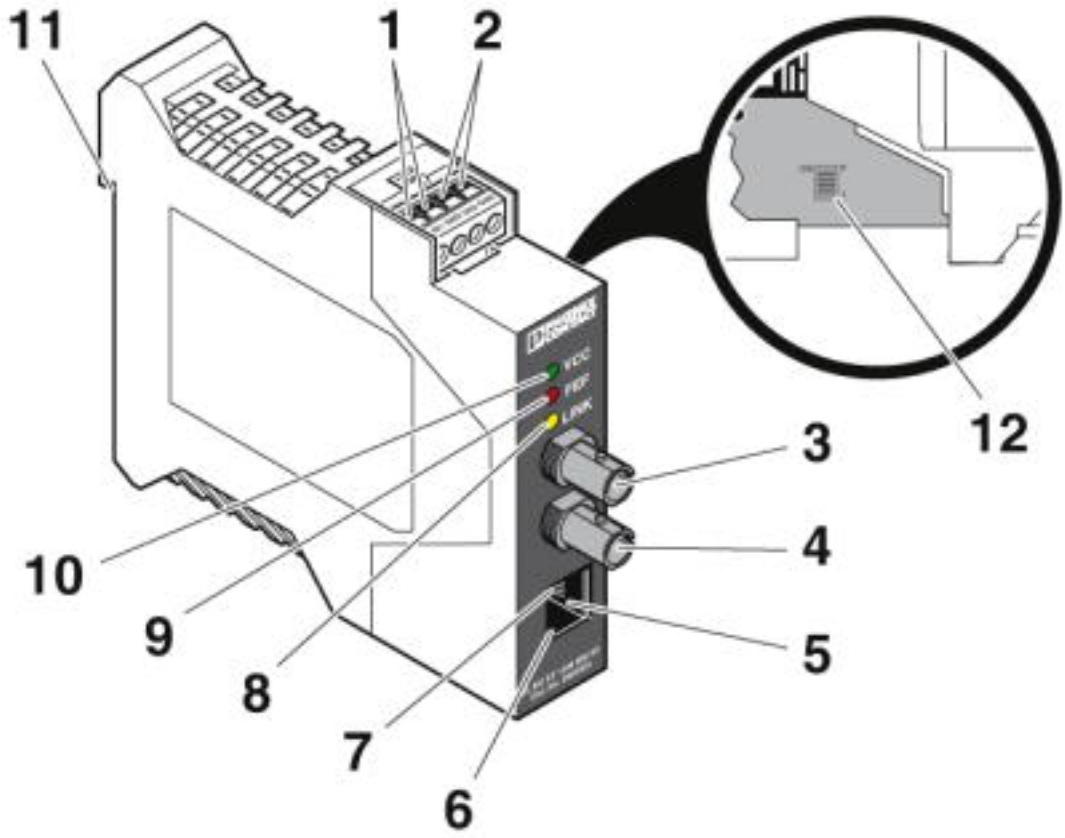
Schematic diagram



Function elements

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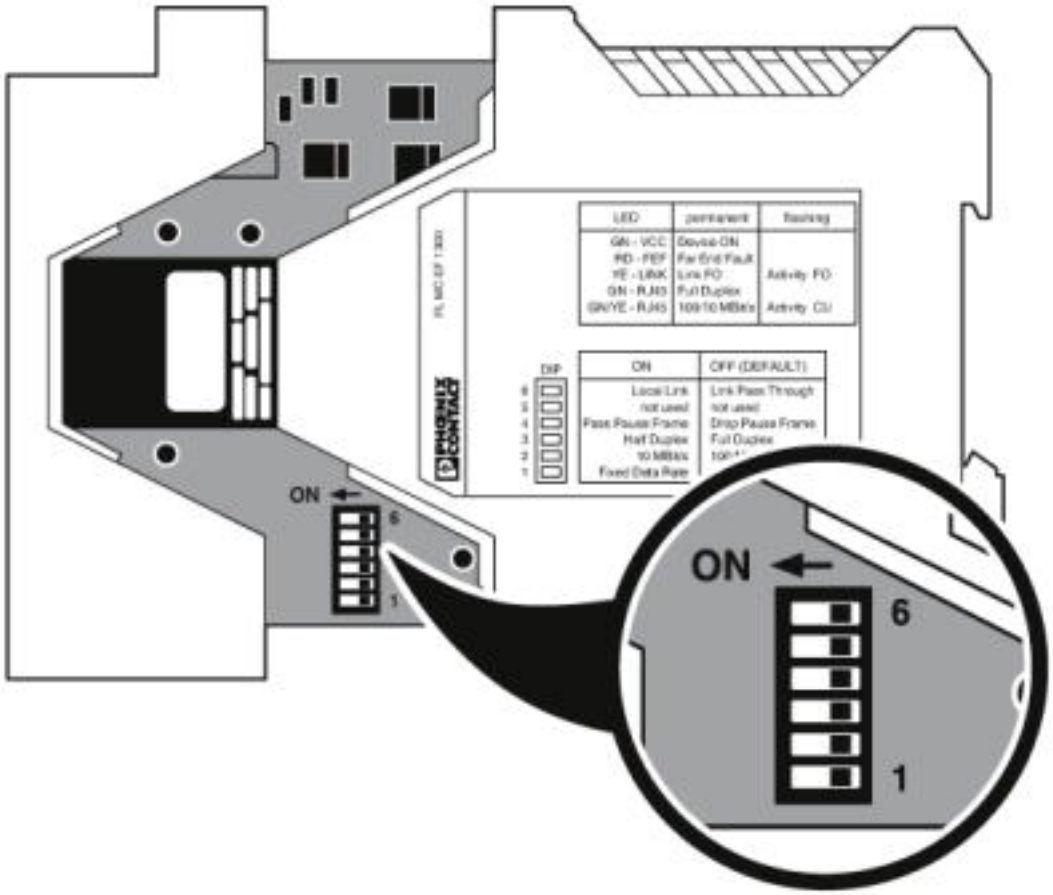
Schematic diagram



DIP switches

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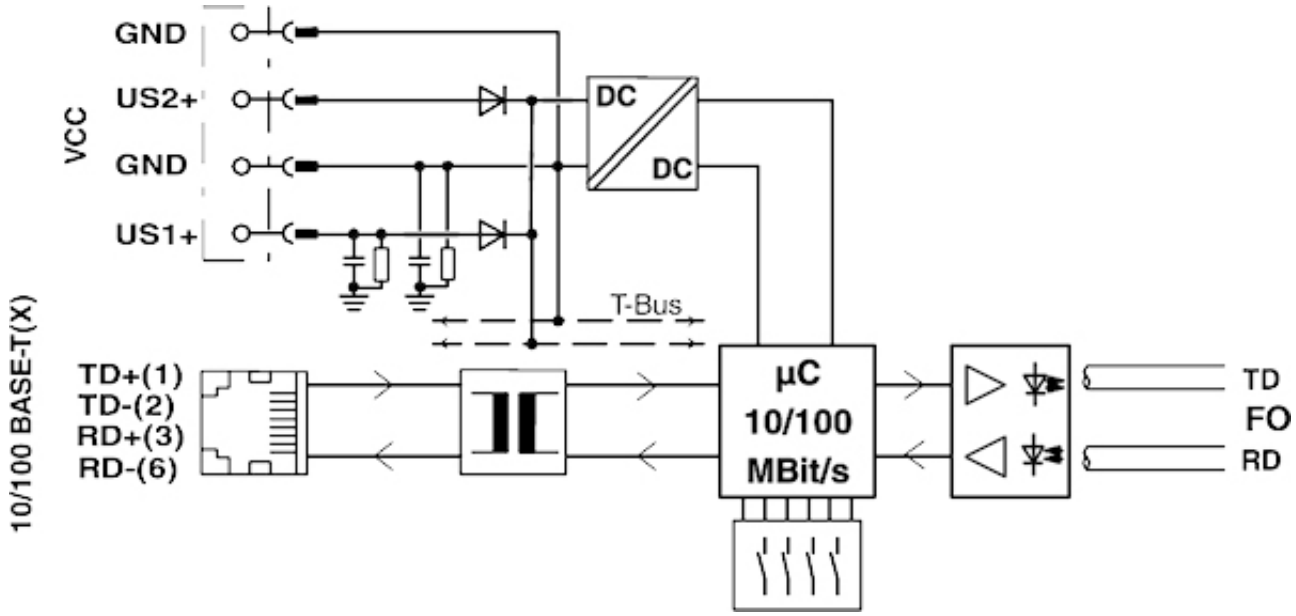
Block diagram



Classifications

eCl@ss

eCl@ss 4.0	27230200
eCl@ss 4.1	27230200
eCl@ss 5.0	27230200
eCl@ss 5.1	27230200
eCl@ss 6.0	19179200
eCl@ss 7.0	19179290
eCl@ss 8.0	19179290
eCl@ss 9.0	19170114

ETIM

ETIM 3.0	EC000310
ETIM 4.0	EC000310
ETIM 5.0	EC001467
ETIM 6.0	EC001467
ETIM 7.0	EC001467

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008

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Classifications

UNSPSC

UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	43222604

Approvals

Approvals

Approvals

DNV GL / UL Listed / cUL Listed / EAC / EAC / KC / cULus Listed

Ex Approvals

UL Listed / cUL Listed / cULus Listed

Approval details

DNV GL	https://approvalfinder.dnvgl.com/	TAA00001KR
UL Listed	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
cUL Listed	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
EAC		EAC-Zulassung
EAC		RU *-DE.A*30.B.01735
KC	http://eng.kcc.go.kr/user/ehpMain.do	MSIP-REI-PCK-2902854

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Approvals

cULus Listed	

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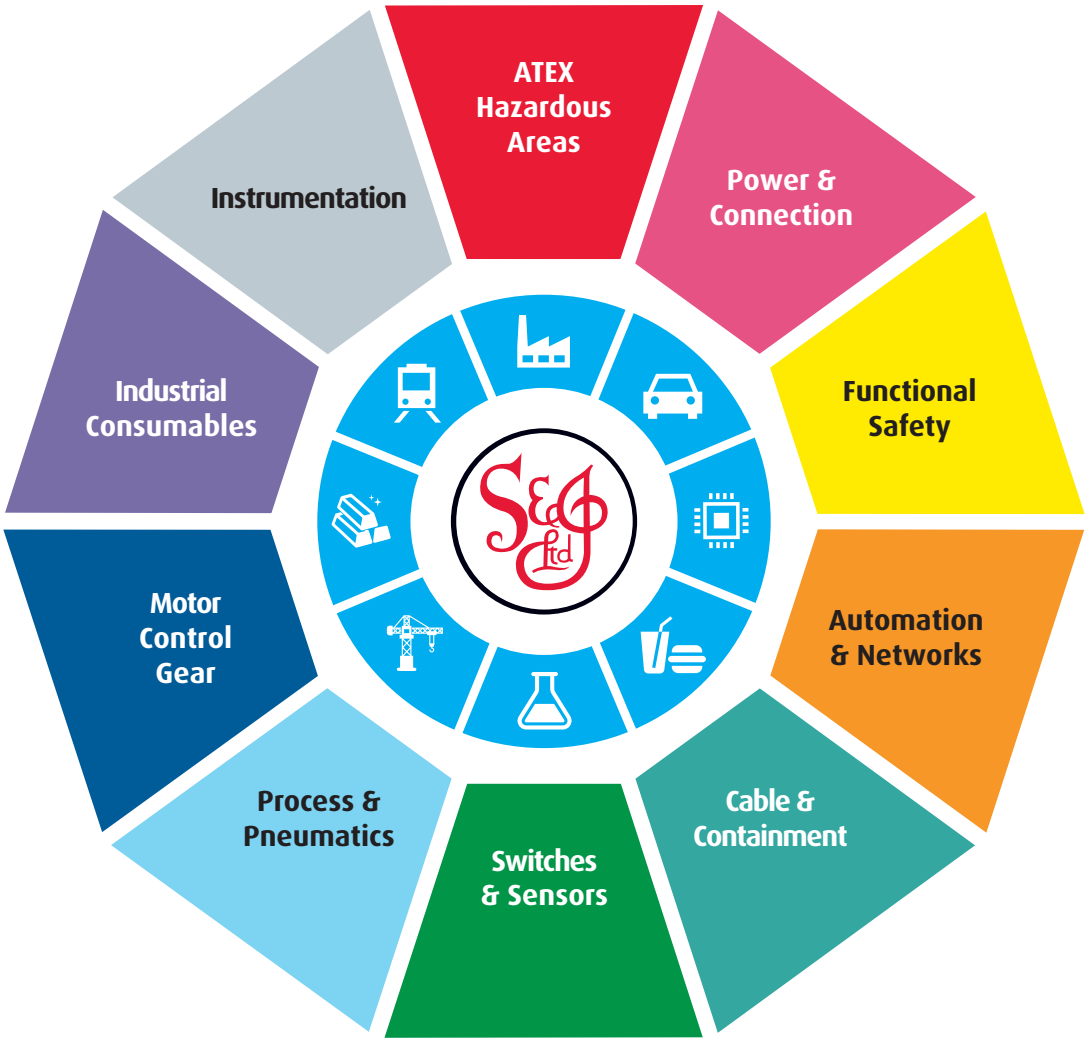

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