DC/DC converters - QUINT4-PS/24DC/24DC/20/SC/+ - 1046881

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Primary-switched DC/DC converter, QUINT POWER, DIN rail mounting, SFB Technology (Selective Fuse Breaking), Screw connection, input: 24 V DC , output: 24 V DC / 20 A

Your advantages

- Most powerful output side: easy system expansion, reliable heavy load startup and miniature circuit breaker tripping
- Most comprehensive signaling: preventive function monitoring reports critical operating states before errors occur
- Integrated decoupling MOSFET for 1+1 and n+1 redundancy

Key Commercial Data

Packing unit	1 pc
GTIN	4 055626 645629
GTIN	4055626645629
Weight per Piece (excluding packing)	1,200.000 g
Custom tariff number	85044030
Country of origin	Thailand
Sales Key	CMDI43

Technical data

Input data

Input voltage range	18 V DC ... 32 V DC
Electric strength, max.	35 V DC (60 s)
Typical current consumption	27 A (24 V DC)
Mains buffering	typ. 16 ms (24 V DC)
Switch-on time	< 1 s
Typical response time	300 ms (from SLEEP MODE)
Inrush current limitation typical	2.7 A (after 1 ms)
Inrush current integral (I^2t)	< 0.2 A^2s

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Insulation electric strength

Insulation voltage input/output	4 kV DC (type test)
	2 kV DC (routine test)
Type test (IEC/EN 60950-1) A	2 kV DC
Type test (IEC/EN 60950-1) B	4 kV DC
Type test (IEC/EN 60950-1) C	0.5 kV DC
Type test (IEC/EN 60950-1) D	0.5 kV DC
Production test A	2 kV DC
Production test B	2 kV DC
Production test C	0.5 kV DC
Production test D	0.5 kV DC

Input connection data

Connection method	Screw connection
Stripping length	18 mm
Conductor cross section solid	0.75 mm² ... 16 mm²
Conductor cross section flexible	0.75 mm² ... 16 mm²
Flexible conductor cross section (ferrule with plastic sleeve)	0.75 mm² ... 16 mm²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.75 mm² ... 16 mm²
Conductor cross section AWG	20 ... 6
Torque	1.4 Nm ... 1.7 Nm

Output data

Nominal output voltage (U_N)	24 V DC
Setting range of the output voltage (U_{Set})	24 V DC ... 28 V DC (> 24 V DC, constant capacity)
Nominal output current (I_N)	20 A
Static Boost ($I_{Stat.Boost}$)	25 A
Dynamic Boost ($I_{Dyn.Boost}$)	30 A (5 s)
Selective Fuse Breaking (I_{SFB})	120 A (15 ms)
Magnetic circuit breaker tripping	A1...A16 / B2...B13 / C1...C6 / Z1...Z16
System deviation, static	< 3 % (change in load, static 10 % ... 90 %)
System deviation, dynamic	< 3 % (Dynamic load change 10 % ... 90 %, 10 Hz)
System deviation, input voltage change	< 0.4 % (change in input voltage ±10 %)
Short-circuit-proof	yes
No-load proof	yes
Residual ripple	< 50 mV_{PP}
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	yes
Feedback voltage resistance	≤ 35 V DC
Protection against overvoltage at the output (OVP)	≤ 30 V DC
Rise time	< 1 s (U_{OUT} (10 % ... 90 %))

Output connection data

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Output connection data

Connection method	Screw connection
Stripping length	10 mm
Conductor cross section solid	0.2 mm² ... 6 mm²
Conductor cross section flexible	0.2 mm² ... 6 mm²
Flexible conductor cross section (ferrule with plastic sleeve)	0.2 mm² ... 4 mm²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.2 mm² ... 4 mm²
Conductor cross section AWG	24 ... 10
Torque	0.6 Nm ... 0.8 Nm

LED signaling

Types of signaling	LED
	Floating signal contact
	Active signal output Out1 (digital, configurable)
	Active signal output Out2 (analog, configurable)
	Remote contact
	Signal ground SGnd
P_{Out}	> 100 % (LED lights up yellow, output power > 480 W)
	> 75 % (LED lights up green, output power > 360 W)
	> 50 % (LED lights up green, output power > 240 W)
U_{Out}	> 0.9 x U_{Set} (LED lights up green)
	< 0.9 x U_{Set} (LED flashes green)
U_{In}	> 0.8 x U_{InNom} (LED off)
	< 0.8 x U_{InNom} (LED lights up yellow)

Signal contacts – signal output Out 1 (configurable)

Connection labeling	3.5 +
Digital	0 V DC
	24 V DC
	20 mA
Default	U_{IN} input voltage OK
Signal option	Output voltage
	Output current
	Output power
	Operating hours
	Early warning of high temperatures
	OVP voltage limitation active

Signal contacts – signal output Out 2 (configurable)

Connection labeling	3.6 +
Digital	0 V DC
	24 V DC
	20 mA

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Signal contacts – signal output Out 2 (configurable)

Default	Output power
Signal option	Output voltage
	Output current
	Operating hours
	Early warning of high temperatures
	OVP voltage limitation active
Analog	4 mA ... 20 mA ±5 % (Load ≤400 Ω)
Signal option	Output voltage
	Output current
	Output power

Signal contacts – signal output relay 13/14 (configurable)

Connection labeling	3.1, 3.2
Switch contact	floating
Maximum contact load	24 V DC
	1 A
	30 V AC
	0.5 A
Default	Output voltage
Signal option	Output current
	Output power
	Operating hours
	Early warning of high temperatures
	OVP voltage limitation active
	U_{IN} input voltage OK

Signal contacts – remote signal input (configurable)

Connection labeling	3.3 +
Function	Output power ON/OFF (remote)
Default	Output power ON (>40 kΩ/24 V DC/open bridge between REM and SGnd)

Signal contacts – signal ground SGnd

Connection labeling	3.4 +
Function	Signal ground
Reference potential	to OUT1, OUT2, REM

Signal connection data

Connection method	Push-in connection
Conductor cross section solid	0.2 mm² ... 1 mm²
Conductor cross section flexible	0.2 mm² ... 1.5 mm²
Flexible conductor cross section (ferrule with plastic sleeve)	0.2 mm² ... 0.75 mm²
Flexible conductor cross section flexible (ferrule, w/o plastic sleeve)	0.2 mm² ... 1.5 mm²

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Signal connection data

Conductor cross section AWG	24 ... 16
Stripping length	8 mm

Reliability

MTBF (IEC 61709, SN 29500)	> 1034000 h (25 °C)
	> 577000 h (40 °C)
	> 229000 h (60 °C)

Life expectancy (electrolytic capacitors)

Output current	10 A
Temperature	40 °C
Time	413707 h
Voltage	24 V DC
Output current	20 A
Temperature	40 °C
Time	139340 h
Voltage	24 V DC
Output current	20 A
Temperature	30 °C
Time	278680 h
Voltage	24 V DC

Switching frequency

Auxiliary converter stage	190 kHz ... 220 kHz (Auxiliary converter stage)
Main converter stage	67 kHz ... 135 kHz (Main converter stage)

General data

Degree of protection	IP20
Protection class	Special with SELV input and output
Inflammability class in acc. with UL 94 (housing / terminal blocks)	V0
Side element version	Aluminum
Hood version	Stainless steel X6Cr17
Width	70 mm
Height	130 mm
Depth	125 mm
Width with alternative assembly	122 mm
Height with alternative assembly	130 mm
Depth with alternative assembly	73 mm
Weight	1.2 kg
Efficiency	typ. 94.7 % (24 V DC)

Power dissipation

Maximum power dissipation in no-load condition	< 4 W

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Power dissipation

Power dissipation SLEEP MODE	< 2 W
Power loss nominal load max.	< 26.6 W

Ambient conditions

Ambient temperature (operation)	-40 °C ... 70 °C (> 60 °C Derating: 2,5 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Maximum altitude	≤ 5000 m (> 2000 m, observe derating)
Vibration (operation)	5 Hz ... 100 Hz resonance search 2.3g, 90 min, resonance frequency 2.3g, 90 min
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Degree of pollution	2
Climatic class	3K3 (EN 60721)

Standards

EMC requirements for noise immunity	EN 61000-6-1
	EN 61000-6-2
EMC requirements, power plant	IEC 61850-3
	EN 61000-6-5
Standard designation	Electrical safety (of control and regulation devices)
Standards/regulations	IEC 61010-1
Standard designation	Protective extra-low voltage
Standards/regulations	EN 61010-1 (SELV)
	IEC 61010-2-201 (PELV)
Standard designation	Explosive atmospheres
Standards/regulations	IEC 60079-0
	IEC 60079-7
	IEC 60079-11
	IEC 60079-15
Standard designation	Mains variation/undervoltage
Standards/regulations	EN 61000-4-29
Standard designation	Railway applications
Standards/regulations	EN 50121-3-2
	EN 50121-4
	IEC 62236-3-2
	IEC 62236-4

Conformance/approvals

Designation	UL
Identification	UL Listed UL 61010-1
Designation	UL
Identification	UL Listed UL 61010-2-201
Designation	UL

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Conformance/approvals

Identification	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location)
Designation	CSA
Identification	CAN/CSA-C22.2 No. 61010-1-12
Designation	CSA
Identification	CAN/CSA-IEC 61010-2-201:14
Designation	SIQ
Identification	Type tested (type approved)
Designation	SIQ
Identification	CB scheme (IEC 61010-1, IEC 61010-2-201)
Designation	ATEX
Identification	BVS 20 ATEX E 028 X
	# II 3 G Ex ec ic nC IIC T4 Gc
Designation	IECEx
Identification	IECEx SIQ 20.0002X
	Ex ec ic nC IIC T4 Gc

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Conducted noise emission	EN 55016
	EN 61000-6-3 (Class B)
Noise emission	EN 55016
	EN 61000-6-3 (Class B)
DNV GL conducted interference	Class B
Additional text	Bridge and deck area
DNV GL noise radiation	Class B
Additional text	Bridge and deck area
Electrostatic discharge	EN 61000-4-2
Contact discharge	8 kV (Test Level 4)
Discharge in air	15 kV (Test Level 4)
Electromagnetic HF field	EN 61000-4-3
Frequency range	80 MHz ... 1 GHz
Test field strength	20 V/m (Test Level 3)
Frequency range	1 GHz ... 6 GHz
Test field strength	10 V/m (Test Level 3)
Comments	Criterion A
Fast transients (burst)	EN 61000-4-4
Input	2 kV (Test Level 3 - asymmetrical)
Output	2 kV (Test Level 3 - asymmetrical)
Signal	2 kV (Test Level 4 - asymmetrical)

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EMC data

Comments	Criterion A
Surge voltage load (surge)	EN 61000-4-5
Input	1 kV (Test Level 3 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Output	1 kV (Test Level 3 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Signal	2 kV (Test Level 3 - asymmetrical)
Comments	Criterion A
Conducted interference	EN 61000-4-6
I/O/S	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Voltage	10 V (Test Level 3)
Comments	Criterion A
Power frequency magnetic field	EN 61000-4-8
Frequency	16.7 Hz
	50 Hz
	60 Hz
Test field strength	100 A/m
Additional text	60 s
Comments	Criterion A
Frequency	50 Hz
	60 Hz
Frequency range	50 Hz ... 60 Hz
Test field strength	1 kA/m
Additional text	3 s
Comments	Criterion A
Frequency	0 Hz
Test field strength	300 A/m
Additional text	DC, 60 s
Comments	Criterion A
Voltage dips	EN 61000-4-29
Voltage	24 V DC
Voltage dip	70 %
Additional text	Test Level 2
Comments	Criterion A
Voltage dip	40 %
Additional text	Test Level 2
Comments	Criterion B
Voltage dip	0 %
Additional text	Test Level 2

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EMC data

Comments	Criterion B
Pulse-shape magnetic field	EN 61000-4-9
Test field strength	1000 A/m
Comments	Criterion A
Damped oscillating magnetic field	EN 61000-4-10
Test field strength	100 A/m
Test level 1	100 kHz
Test field strength	100 A/m
Test level 2	1 MHz
Comments	Criterion A
Asymmetrical conducted disturbance variables	EN 61000-4-16
Test level 1	15 Hz 150 Hz (Test Level 3)
Voltage	10 V 1 V
Test level 2	150 Hz 1.5 kHz (Test Level 3)
Voltage	1 V
Test level 3	1.5 kHz 15 kHz (Test Level 3)
Voltage	1 V 10 V
Test level 4	15 kHz 150 kHz (Test Level 3)
Voltage	10 V
Test level 5	16.7 Hz 50 Hz 60 Hz 150 Hz 180 Hz (Test Level 3)
Voltage	10 V (Permanent)
Test level 6	0 Hz 16.7 Hz 50 Hz 60 Hz (Test Level 3)
Voltage	100 V (1 s)
Comments	Criterion A
Alternating component of DC voltage	EN 61000-4-17
Attenuated oscillating wave	EN 61000-4-18
Input, output (test level 1)	1 MHz (Test Level 2 - symmetrical)
Voltage	0.5 kV
Input, output (test level 2)	1 MHz (Test Level 2 - asymmetrical)
Voltage	1 kV
Input, output (test level 3)	10 MHz (Test Level 2 - asymmetrical)
Voltage	0.5 kV
Signals (test level 1)	1 MHz (Test Level 2 - symmetrical)
Voltage	0.5 kV
Signals (test level 2)	1 MHz (Test Level 2 - asymmetrical)
Voltage	1 kV
Comments	Criterion A
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

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EMC data

Criterion C	Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by actuating the operating elements.

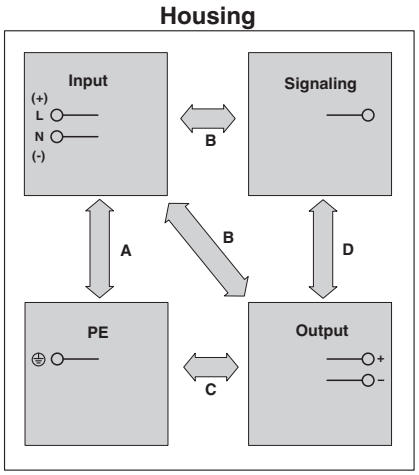
Environmental Product Compliance

REACh SVHC	Lead 7439-92-1

Drawings

Pictogram

Schematic diagram



Diagram

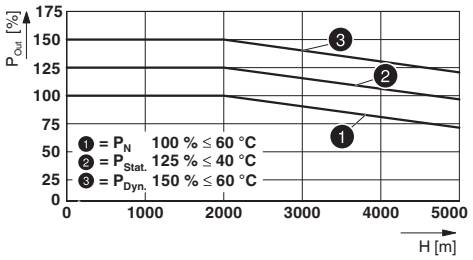


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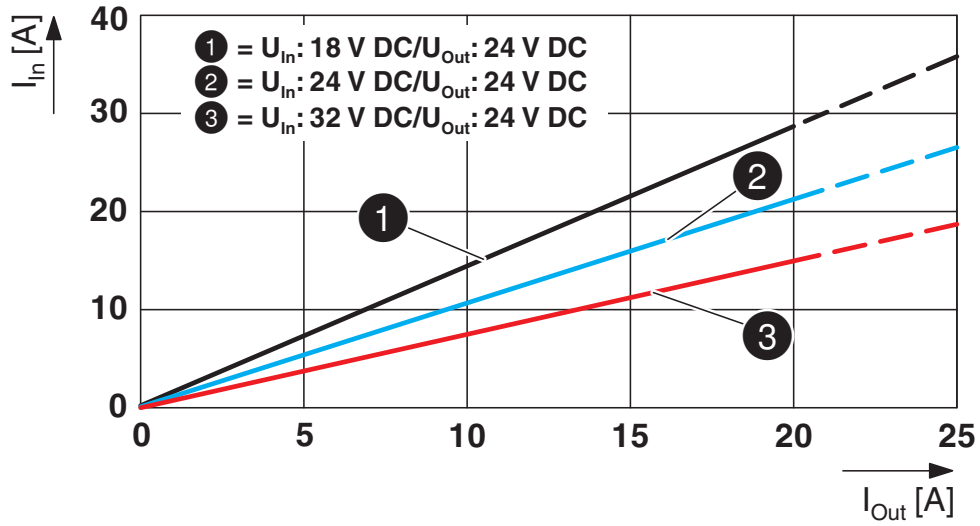
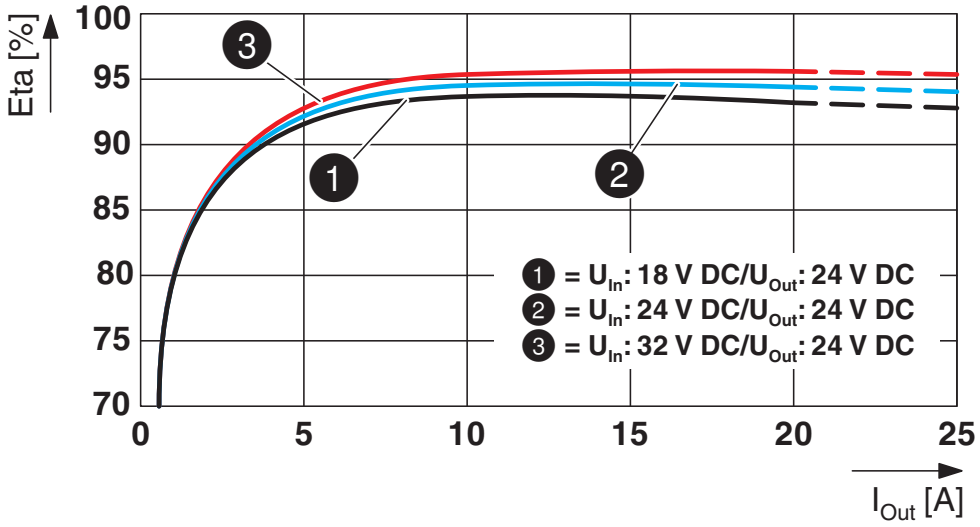
Diagram



Diagram



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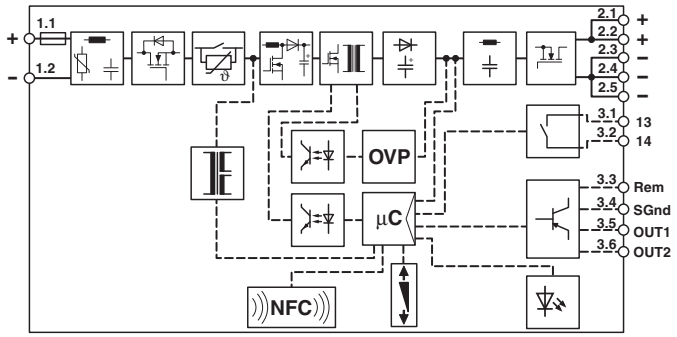
Block diagram



Classifications

eCl@ss

eCl@ss 10.0.1	27210901
eCl@ss 11.0	27210901
eCl@ss 9.0	27210901

ETIM

ETIM 7.0	EC002046

Approvals

Approvals

Approvals

Type approved / cULus Listed / CSA / IECEE CB Scheme / DNV GL / IECEE CB Scheme / CSA / Type approved / cULus Listed / ABS / NK / LR

Ex Approvals

IECEx / NEPSI / ATEX / cULus Listed / CCC / IECEx / NEPSI / cULus Listed / ATEX / CCC

Approval details

Type approved	SI Type Approved Bauart Geprüft	SI-SIQ BG 005/076

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Approvals

cULus Listed	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
CSA	http://www.csagroup.org/services-industries/product-listing/	80031630
IECEE CB Scheme	http://www.iecee.org/	SI-7748
DNV GL	https://approvalfinder.dnvgl.com/	TAA000027S
IECEE CB Scheme	http://www.iecee.org/	SI-7748
CSA	http://www.csagroup.org/services-industries/product-listing/	80031630
Type approved		SI-SIQ BG 005/076
cULus Listed	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
ABS	http://www.eagle.org/eagleExternalPortalWEB/	21-2073195-PDA
NK	http://www.classnk.or.jp/hp/en/	TA21182M
LR	http://www.lr.org/en	17-20107-03

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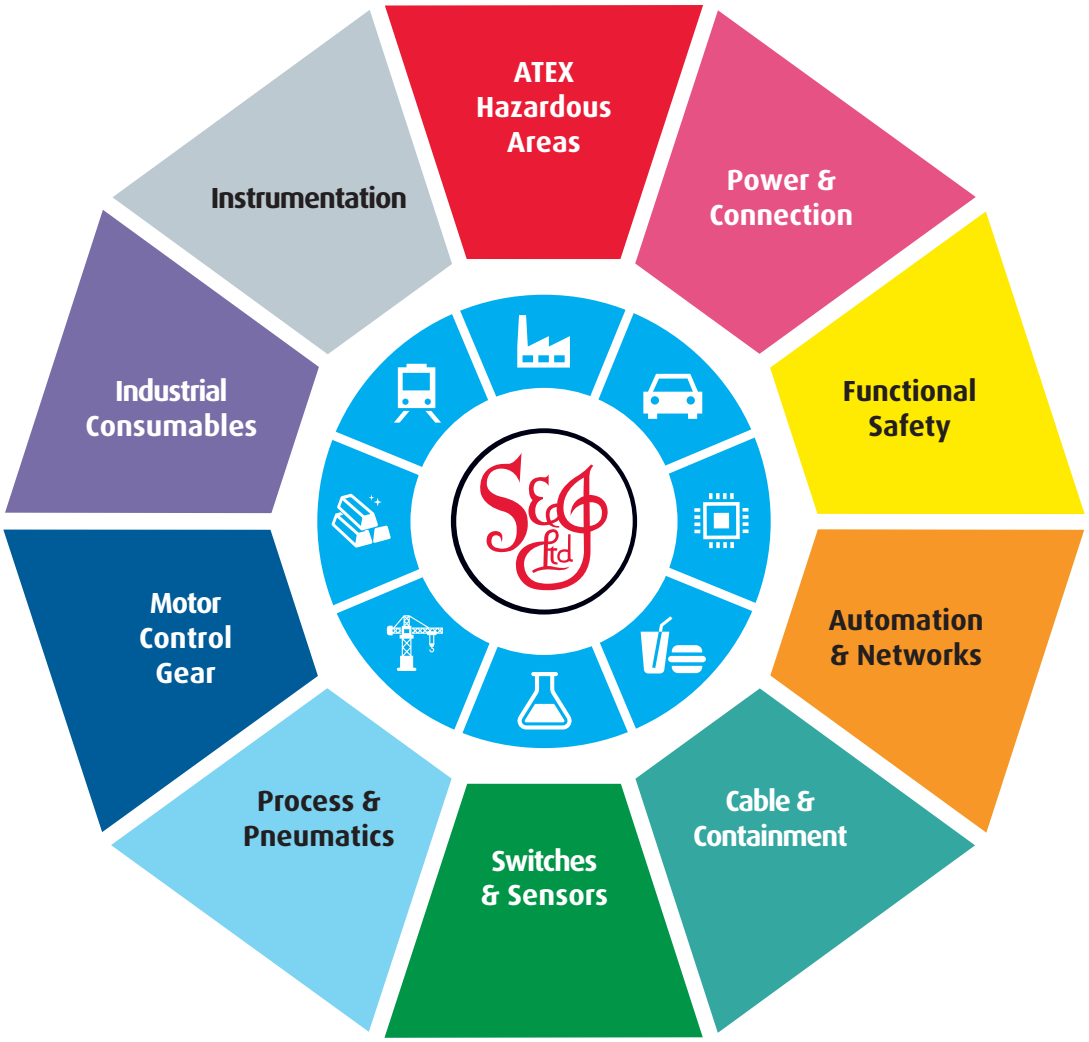

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