

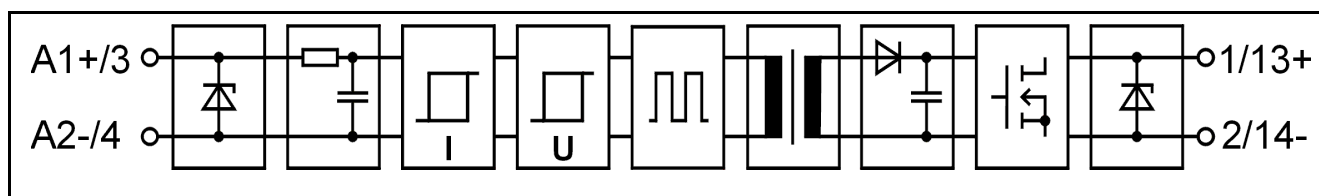
EXO 5CHXSN

EXO-series DIN-rail output relay for hazardous locations

Main features

- DIN-rail solid state output relay for hazardous locations
- Non-sparking device, type of protection nA
- cULus Listed HazLoc, ATEX, IECEx, CE (EMC and LVD)
- Integrated status LED
- For high currents with resistive and slightly inductive loads

Functional block diagram



Main specifications

Breakdown voltage I/O	minimum	4300	VAC rms
Air/creepage distances I/O	minimum	8	mm
Capacitance I/O	typical	3	pF
Screw terminals:			
Torque	range	0,5...0,6 Nm	3,5 in/lb.
Solid wire	maximum	4 mm ² (AWG 12) (range 12...22 AWG)	
Stranded	maximum	2,5 mm ² (AWG 14) (range 14...22 AWG)	
Materials:			
Relay casing	PBT	UL 94V-0 (Sabic Innovative Plastics, Valox 420SEO)	
DIN-rail socket	ABS/PC	UL 94V-0 (Bayer, Bayblend KU2-1514)	
Colour of the relay casing		Gray	
Weight	typical	55	g
Temperature range:			
Storage	range	-40...+70	°C
Operation	range	-25...+70	°C

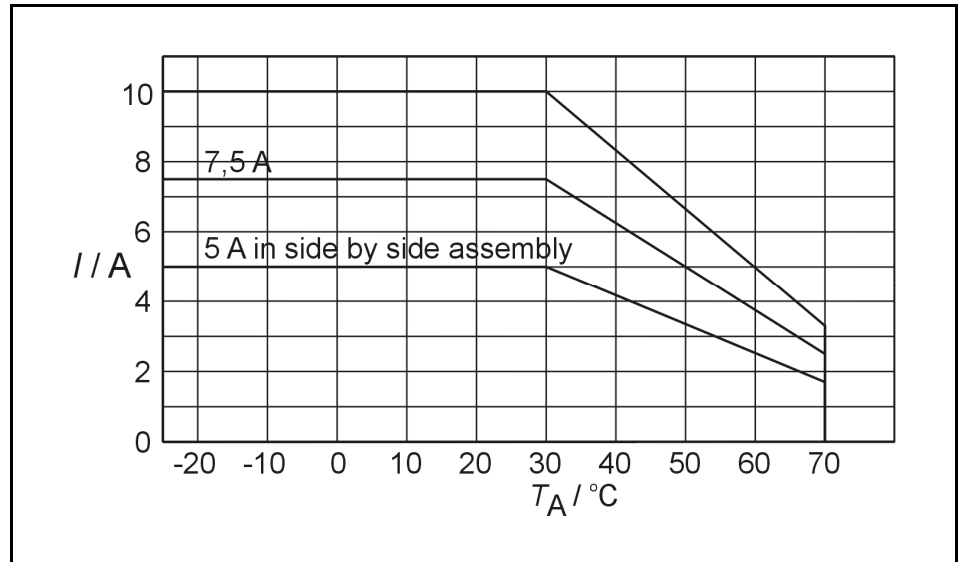
Electrical specifications ($T_A = 25\text{ °C}$)

Primary				Secondary			
Input voltage	nominal	5	VDC	Load voltage	nominal	28	VDC
Input current at nominal voltage	typical	12	mA	Load current	maximum	10	A
	maximum	15	mA	Load current	maximum	80	A (10 ms)
Switch-on voltage	typical	2,7	VDC	Voltage drop at 10 A	typical	0,3	V
	maximum	3	VDC		Switch-on delay	typical	0,3
Switch-off voltage	typical	2,5	VDC	Switch-off delay		maximum	0,5
	minimum	2	VDC		typical	0,3	ms
				Inductive load, L/R	maximum	0,5	ms (24 V, 10 A)
					maximum	2	ms (24 V, 5 A)
				Leakage current (off-state)	maximum	1	mA

Ambient temperature (T_A) means the temperature immediate in vicinity of relays, where the air flow meets the relays.

Deratings

Allowed load is derated to 1/3 linearly from +30 °C to +70 °C ambient temperature. When relays are mounted together as a bank, there should be also a gap in both sides at least 12,5 mm. In side by side assembly the load current should be restricted to 50 % of the maximum current. These deratings apply to the horizontal rail assembly. In vertical rail assembly the current must be derated to 7,5 A and in side by side assembly to 5 A.



Derating curve for EXO 5CHXSN.

Derating when switching inductive loads

This relay is meant for resistive and slightly inductive loads. A clamp diode with the load must be used when switching inductive loads. The surge current is not allowed to exceed the specification. For reasons of heat dissipation, when the load will be switched frequently, the average current over a reasonable time should not exceed the specification for continuous operation.

Fusing

To protect relay against short circuit and overload a fast fuse with the correct rating for the load and the capacity of the relay should be chosen. Note that when overload current is not large it is possible that the fuse will not protect the relay because of the tolerance on the fuse rating.

Hazardous area installation

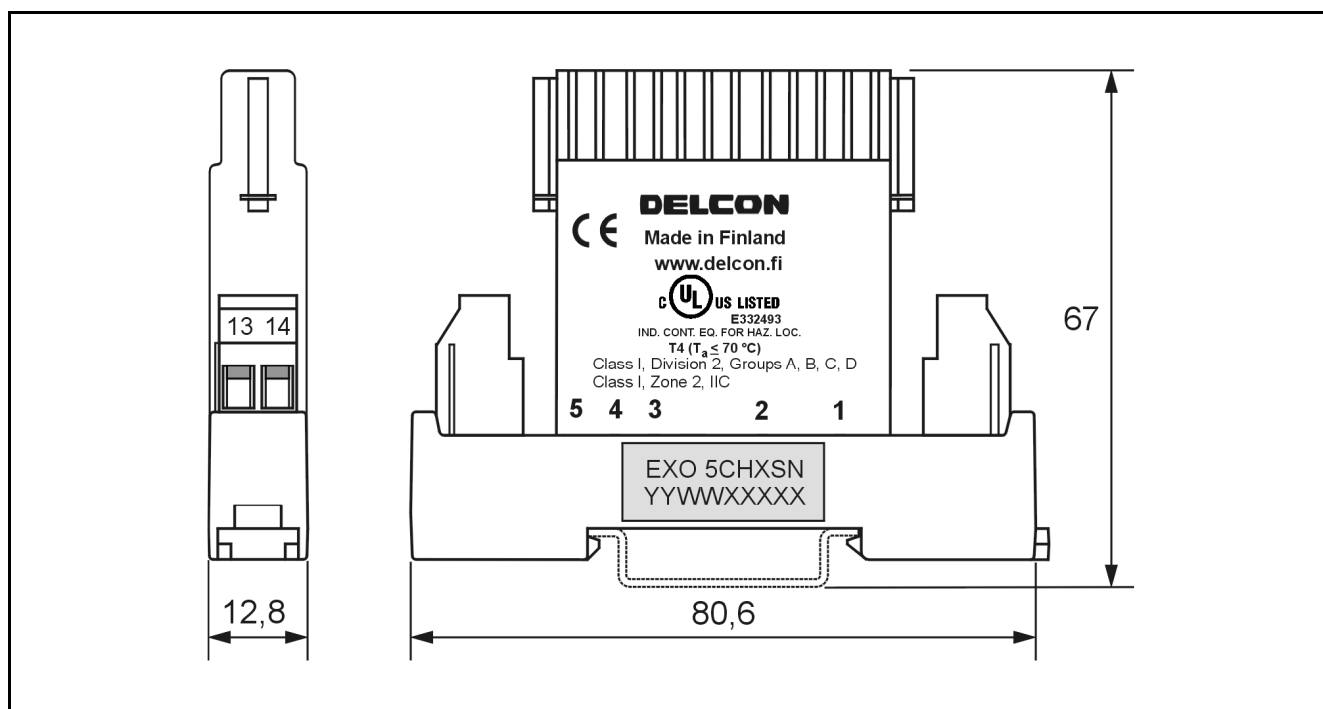
The Solid State Relays shall be installed in accordance with the ATEX directive 94/9/EC and this specification. The relay shall be installed within a suitable Ex-certified enclosure providing protection from impact, light, solid foreign objects and water ingress to a level of at least IP54. The relays shall be derated in accordance with the relay specification. The relay can be assembled to standard 35 mm DIN-rail. Use proper tool size to tighten the screws. Over-torqueing may cause screw terminal breakage. Use 60/75 °C copper wire only. Do not make connections or disconnections while circuit is live unless area is known to be non-hazardous. The recommended installation is to the horizontal rail for better cooling of the relays.

For ambient temperatures below -10 °C and above +60 °C use field wiring suitable for both minimum and maximum ambient temperature.

Assembling in non-hazardous locations




See the assembly instructions and derating from SL-relay specifications.

Mechanical dimensions



EXO 5CHXSN (dimensions in mm, nominal). Markings can be located differently by production lot. Parts of the markings are backside of the relay. Production lot number is marked to the socket (YY = year, WW = week, XXXXX = lot number).

Approvals

 IND. CONT. EQ. FOR HAZ. LOC.	Class I, Division 2, Groups A, B, C, D Class I, Zone 2, IIC Certificate: E332493
ATEX	 II 3G Ex nA IIC Gc Certificate: DEMKO 13 ATEX 1041005U
IECEX	Ex nA IIC Gc Certificate: IECEX ULD 13.0006U
	Fulfils main requirements of the EMC-directive 2004/108/EC. Fulfils requirements of the low voltage directive (LVD) 2006/95/EC.

Standards for Ex-approvals:

IEC 60079-0 - ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES. PART 0: GENERAL REQUIREMENTS - Edition 5 - Revision Date 2010/12/01

IEC 60079-15 - 2010-01 Edition: 4. Electrical apparatus for explosive gas atmospheres. Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus

CENELEC EN 60079-0 2009.08.01 Explosive atmospheres - Part 0: Equipment - General requirements

CENELEC EN 60079-15 2010.05.01 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"

CSA C22.2 NO. 213 - NON-INCENDIVE ELECTRICAL EQUIPMENT FOR USE IN CLASS I, DIVISION 2 HAZARDOUS LOCATIONS (1987 EDITION) - Edition 1 - Issue Date 1987/03/01

ISA 12.12.01 - NONINCENDIVE ELECTRICAL EQUIPMENT FOR USE IN CLASS I AND II, DIVISION 2, AND CLASS III, DIVISIONS 1 AND 2 HAZARDOUS (CLASSIFIED) LOCATIONS – Issue date 2011-08-08

Guarantee

This Ex -solid state I/O relay type made by Delcon Oy is guaranteed free from design and manufacturing defects for a period of 10 years from the manufacturing date. The guarantee liability is limited to replacement of defective material and related shipping charges. Defective products must be returned to the manufacturer for evaluation. This guarantee does not cover damage due to incorrect use or electrical overload.