

EVC 250-800 Main Contactor

- Limiting continuous current 250A at 85°C
- Suitable for voltage levels up to 900VDC
- High peak current carrying capability up to 6000A¹⁾

Typical applications

- DC high voltage high current applications
- Main contactors for hybrid, full battery electric vehicles and fuel-cell cars
- Battery charging systems

All data preliminary.

Contact Data

Contact arrangement	1 Form X (SPST NO DM)
Rated voltage	800VDC
Max. switching voltage	900VDC dep. on load characteristics ¹⁾
Rated current	
Forward load current direction, cable 50mm ²	250A
Limiting continuous current	
85°C, load cable 50mm ²	250A
Limiting short-time current	
85°C, load cable 50mm ²	400A 5min / 600A 1min / 6000A 20ms
Limiting make current	
resistive load, cable 50mm ² , 23°C, 50VDC	50000x250A
Limiting break current	
Forward load current direction	1x700A /
altitude max. 5500m, 800VDC	5000x100A / 50000x50A
Limiting break current	
Reverse load current direction	
resistive load, cable 50mm ² , 23°C	1x415A / 20x50A /
altitude max. 5500m	10000x20A, dep. on load voltage ¹⁾
Voltage drop (initial) at 100A	max. 40mV after 60s
Voltage drop (over lifetime) at 250A	typ. 50mV ²⁾
Operate/release time max.	25ms at 14VDC (coil voltage)
Mechanical endurance	>200000 ops.

1) Please contact TE Connectivity for details. 2) Max. 600mV with current >1A.

Coil Data³⁾

Un-economized: single coil version for external economization⁴⁾

Coil code	Rated voltage VDC	Operate voltage VDC	Max. cont. voltage VDC	Non-release voltage VDC	Coil resistance $\Omega \pm 10\%$
0101	12	5.3	6.7	2.0	3.9

Recommended parameters for external economization with PWM⁵⁾

Min. frequency kHz	Controlled current PWM Max. current A	Controlled voltage equivalent Min. current A	Max. voltage V	Min. voltage V
15	1.0	0.5	5.9	2.6

Economized: dual coil version with internal switch

Coil code	Rated voltage VDC	Operate voltage ⁶⁾ VDC	Nominal inrush current ADC	Non-release voltage VDC	Max. voltage VDC	Coil resistance $\Omega \pm 10\%$ ⁵⁾
0102	12	7.6	4.7	4.0	16.0	2.6/26 ⁷⁾
0112	24	13.0	4.8	8.0	29.2	5.0/79 ⁷⁾

3) All values valid for 23°C ambient temperature with no pre-energization if not noted otherwise. Refer to diagram for values at other temperatures.

4) Requires external coil economization that must start 100-300ms after coil activation. Avoid repetitive switching. Minimum clamp voltage 60V (see circuit recommendation).

5) Demagnetization voltage is clamped at 50V (coil 0102) / 70V (coil 0112). External coil suppression is not necessary and could reduce switching capability. Contact TE Connectivity for details.

6) Max. rise time 100ms.

7) 2.6 Ω coil / 5.0 Ω coil is switched off internally min. 120ms after pull-in.

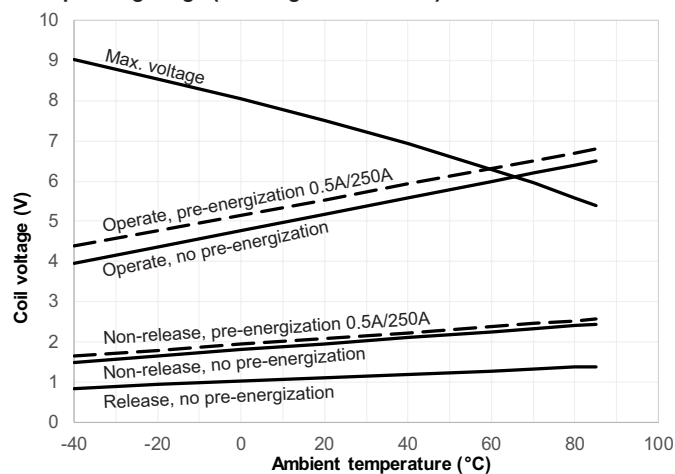


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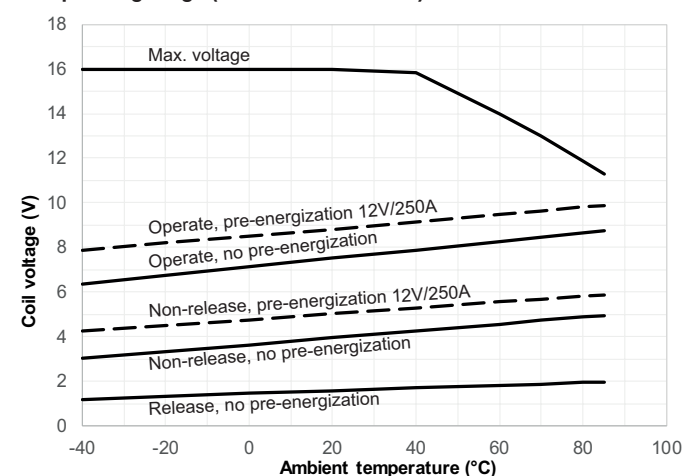
Insulation Data

Initial dielectric strength	
between open contacts	4000VDC / 3mA
between contact and coil	4000VDC / 3mA
max. altitude	5500m
Insulation resistance after 2000A abuse test	
between open contacts	>200M Ω
between contact and coil	>200M Ω
Clearance/creepage	
acc. IEC 60664-1 (2007) for	over voltage category I, pollution degree 2

Coil operating range (12V single coil version)

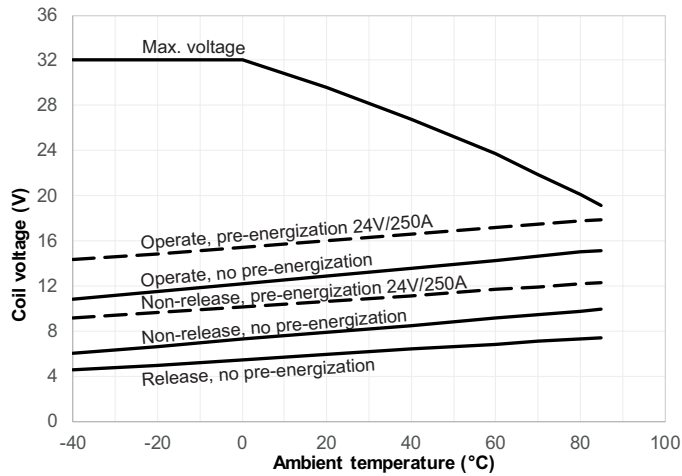


Coil operating range (12V dual coil version)



EVC 250-800 Main Contactor (Continued)

Coil operating range (24V dual coil version)

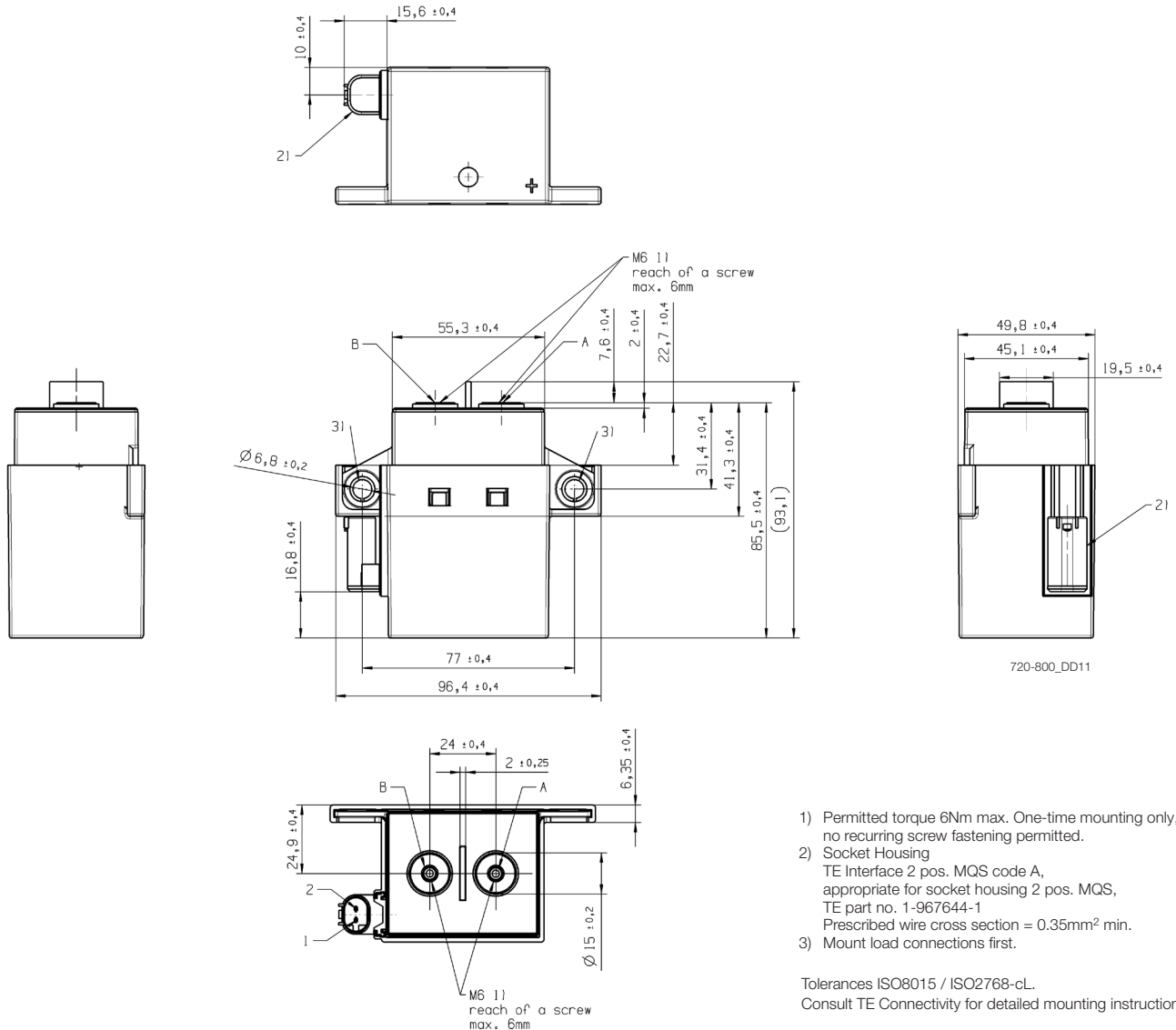


Other Data

Ambient temperature	-40°C to +85°C
Degree of protection	IP54 ⁸⁾ (IEC 60529), RT I (IEC 61810)
Vibration resistance (functional)	IEC 60068-2-6 (sine sweep) 10 to 500Hz, min. 10g.
Shock resistance (functional) ⁹⁾	IEC 60068-2-27 (half sine) closed: 11ms, min. 40g open: 11ms, min. 20g
Terminal type	connector (coil) and screw (load)
Weight	approx. 525 to 580g (18.5 to 20.5oz) depending on version
Packaging unit and delivery	20 pcs.

8) Protection class applicable for all mounting orientations except load terminals upwards.
9) No change in the switching state >10µs.

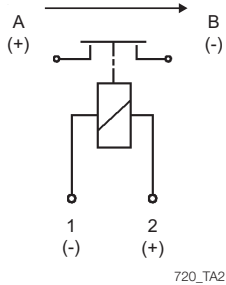
Dimensions



EVC 250-800 Main Contactor (Continued)

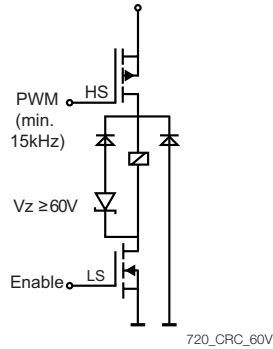
Terminal Assignment

Forward load current direction



Circuit recommendation for coil 0101

Always use low-side switch "Enable"
for switch off



Product code structure

Typical product code

V23720 -A 0101 -B 0 0 1

Designator

V23720 EVC 250-800 Main Contactor

Relay Version

A Side mount fixation

Coil

0101 12V single coil for external economization
0102 12V dual coil with internal switch
0112 24V dual coil with internal switch

Rated voltage

B 800VDC

Contact material

0 Silver based

Special features

0 None

Coil connector

1 MQS sealed

Product code	Cont. arrang.	Coil	Circuit	Coil suppl.	Relay type	Resistance	Part number
V23720-A0101-B001	SPDT-NO-DM	12VDC	No economizer	External ≥60V	800VDC	3.9Ω	2-1904136-5
V23720-A0102-B001			Coil switch	Internal		Double coil 2.6/26Ω	7-1904137-6
V23720-A0112-B001		24VDC				Double coil 5.0/79Ω	2-2317670-1