

EVC 250 Main Contactor

- Limiting continuous current 250A at 85°C
- Suitable for voltage levels up to 450VDC
- High peak current carrying capability up to 6000A

Typical applications

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

Contact Data	
Contact arrangement	1 Form X (SPST NO DM)
Rated voltage	450VDC
Max. switching voltage	500VDC, 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	300A 7min/
	600A 1min/6000A 25ms
Limiting make current	
resistive load, cable 50mm ² , 23°C, 5	0VDC 50000x250A
Limiting break current	
Forward load current direction	1x2000A/
altitude max 5500m, 400VDC	5000x200A/50000x100A
Limiting break current	
Reverse load current direction	
resistive load, cable 50mm ² , 23°C	20x200A
altitude max 5500m	10000x100A, dep. on load voltage ¹⁾
Voltage drop (initial) at 100A	max. 40mV after 60s ²⁾
Voltage drop (over lifetime) at 250A	typ. 50mV ³⁾
Operate/release time max.	25ms at 14VDC (coil voltage)
Mechanical endurance	>200000 ops.
1) Please contact TE Connectivity for details.	
0) Management and difference of the optimized	- Louis 100 A fair 00-

2) Measurement condition: 370A for 2s followed by 100A for 60s

3) Max. 600mV with current >1A.

Coil Data⁴⁾

Un-economized: single coil version for external economization ⁵⁾										
Coil	Rated	Operate	Max. cont.	Non-release	Coil					
code	voltage	voltage	voltage	voltage	resistance					
	VDC	VDC	VDC	VDC	Ω±10%					
0001	12	6.0	5.0	1.4	3.9					

Recommended parameters for external economization with PWM⁶⁾

Min.	Controlled c	urrent PWM	Controlled voltage equivalent			
frequency	Max. current	Min. current	Max. voltage	Min. voltage		
kHz	A	А	V	V		
15	1.0	0.5	5.0	2.0		

Economized: dual coil version with internal switch

Coil	Rated	Operate	Nominal inrush	Non-release	Max.	Coil
code	voltage	voltage	current	voltage	voltage	resistance
	VDC	VDC	ADC	VDC	VDC	Ω±10%
0002	12	7.07)	4.0	4.0	16.0	3.6/36 ⁸⁾

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

 Requires external coil economization that must start 100-300ms after coil activation. Avoid repetitive switching. Minimum clamp voltage 60V (see circuit recommendation).
Valid over ambient temperature range from -40°C to +85°C. Values include the specified

shock and vibration resistance.

7) Max. rise time 100ms.

 3.6Ω coil is switched off internally max. 250ms after pull-in. Demagnetization voltage is clamped at 60V. No external coil suppression necessary. External coil suppression could reduce switching capability. Please contact TE Connectivity for details.

06-2020, Rev. 0620-A www.te.com © 2020 TE Connectivity. Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.



Insulation Data

		_
Initial dielectric strength		_
between open contacts	2800VDC / 3mA	
between contact and coil	2800VDC / 3mA	
max. altitude	5500m	
Insulation resistance after 2000A abu	se test	
between open contacts	>200MΩ	
between contact and coil	>200MΩ	
Clearance/creepage		_
acc. IEC 60664-1 (2007) for	over voltage category I,	
	pollution degree 2	

Coil operating range (for coil 0002 only)



Typical release time (coil switch-off until contact opens) versus clamp voltage for 12VDC energization



The values for switching capability are only valid for coil termination of minimum 60VDC. For other termination voltages please contact TE Connectivity application engineering.

Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at https://relays.te.com/definitions

Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change. 1



EVC 250 Main Contactor (Continued)

Other Data	
Ambient temperature	-40°C to +85°C
Degree of protection	
dustproof:	IP54 ⁹⁾ (IEC 60529),
	RT I (IEC 61810)
Vibration resistance (functional)	
IEC 60068-2-6 (sine sweep)	10 to 500Hz, min. 10g.
Shock resistance (functional) ¹⁰⁾	
IEC 60068-2-27 (half sine)	
	closed: 11ms, min. 100g
	open: 11ms, min. 20g
Terminal type	connector (coil) and
	screw (load)
Weight	approx. 520 to 605g (18.3 to 21.2oz),
	depending on version
Packaging unit	20 pcs.
0) Brotaction class applicable for all mou	nting orientations avaant load terminals upwards

Protection class applicable for all mounting orientations except load terminals upwards. 10) No change in the switching state ${>}10\mu s.$

Dimensions



Terminal Assignment



1 2 (-) (+) 720 TA2

Circuit recommendation for coil 0001





Mounting Conditions







1) Permitted torque 6Nm max. One-time mounting only, no recurring screw fastening permitted.

- 2)
- Socket Housing TE Interface 2 pos. MQS code A, appropriate for socket housing 2 pos. MQS, TE part no. 1-967644-1 Prescribed wire cross section = 0.35mm² min.
- 3) Mount load connections first.

Tolerances ISO8015 / ISO2768-cL. Consult TE Connectivity for detailed mounting instructions.

2

Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.

a screw

max. Am

Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at https://relays.te.com/definitions

Datasheets, product data, 'Definitions' sec-tion, application notes and all specifications are subject to change.



EVC 250 Main Contactor (Continued)

Prod	uct co	de structure	Typical product code V23720 -A			-A	0001	-A	0	0	1
Desig	nator V2372	0 EVC 250 Main Contactor									
Relay	versior A	n Side mount fixation									
Coil	0001	12V single coil for external economization	0002	12V dual coil wi	ith internal s	witch					
Rated	voltag A	e 450VDC						1			
Conta	ct mate 0	erial Silver based]		
Specia	al featu 0	res None									
Coil c	onnect 1	or MQS sealed									

Production in Europe (only)

Product code	Cont. arrang.	Coil	Circuit	Coil suppr.	Relay type	Resistance	Part number
V23720-A0001-A001	SPDT-NO-DM	12VDC	No economizer	External ≥60V	450VDC	3.9Ω	2-1904070-2
V23720-A0002-A001			Coil switch	Internal		Double coil 3.6/36Ω	4-1904065-7

Production in Asia (only)

Product code	Cont. arrang.	Coil	Circuit	Coil suppr.	Relay type	Resistance	Part number
V23720-A0001-A001	SPDT-NO-DM	12VDC	No economizer	External ≥60V	450VDC	3.9Ω	2328528-1
V23720-A0002-A001			Coil switch	Internal		Double coil 3.6/36Ω	2306649-1

3