



D.c. contactors for electrical vehicles LOGO series – TL 10

 **ravioli**™ 

90th
Years of experience

D.c. contactors

LOGO series – TL 10 100 A

Main features of the range

The range of LOGO series contactors type TL-10, which are very small and very powerful, has been designed to be suitable for the traction and material handling fields using direct current. Such contactors can be applied to lift trucks, industrial cleaning machines, various services on board of ships and boats, as well as to road and rail transport vehicles.



Coils

The d.c. coils feature terminals with 6 mm connections. Standard duty is in intermittent mode (50%). Maximum working time is 15 mins (temporary duty). Normalized voltage is: 12-24-36 V.

Please contact us for coils at 48 Vdc. Coils with reduced consumption with prolonged duty (**option S**) and continuous duty (**option P**) are available.

Main Contacts

The contactors have silver alloy double breaking contacts, resistant to arc, suitable for heavy duty. **NC contacts are not suitable for making or breaking current.**

Integral Protection

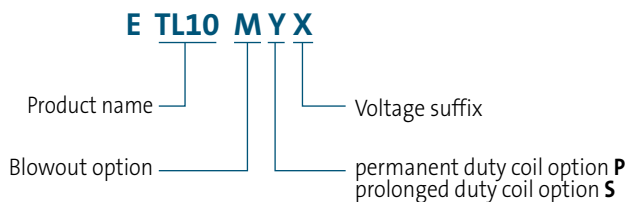
The cover is completely protected from oil, water and dust.

Option M - Magnetic blowouts

TL10 and TL11 contactors featuring permanent blowouts are recommended for voltage > 36 V d.c. In this case the cover is open, suitable for blowouts, and the polarities mentioned on the cover must be respected.

Codes for placing orders

The product code is composed as follows:



The numeric suffix identifying voltage is as follows:

Voltage(V)	12	24	36	48
Suffix	1	2	3	4

Single Pole Contactors

Type TL10

LOGO series single pole contactors type TL10 are suitable in the following versions:
 coil with intermittent duty 50%
 coil with prolonged duty (**option S**)
 coil with continuous duty (**option P**)
 additional blowout (**option M**)



Types and Part numbers

Types	Part numbers
TL10 int. 50%	E TL10
TL10 int. 50% and magnets	E TL10M
TL10 prolonged	E TL10S
TL10 prolonged and blowout	E TL10MS
TL10 int. 100%	E TL10P
TL10 int. 100% and magnets	E TL10MP

The voltage suffix X has to be added to these codes, see page 2.

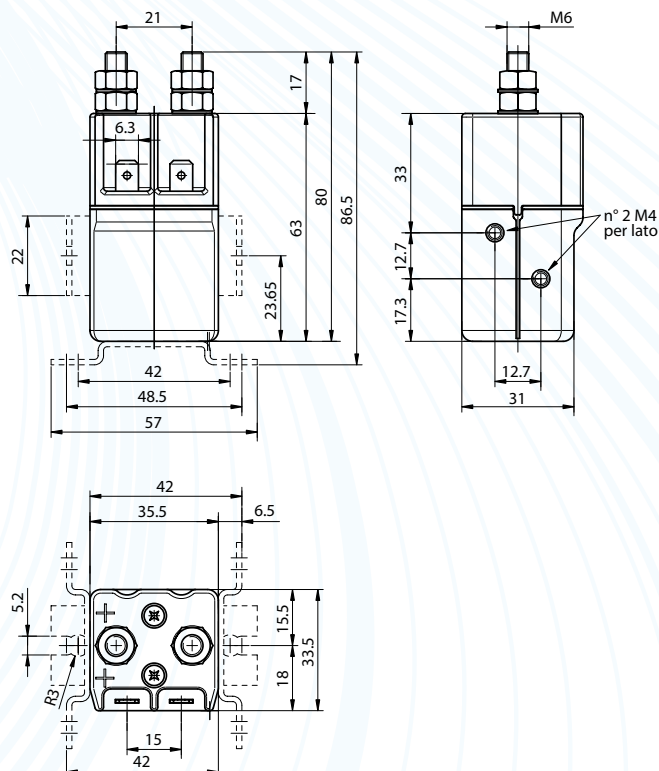
Accessories

The range of LOGO series contactors type TL 10 is available with a bracket, which can be assembled like the drawing below.

Bracket	E TL10ST-2
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Performances

Contactors	TL10	ETL10S	TL10P
Nominal operating current at 50% intermittent, 300 op/h	I_e 100A	100A	100A
Thermal current rating	I_{th} 72A	72A	72A
Nominal voltage	U_e 12V	12V	12V
	24V	24V	24V
Breaking capacity according to UL 583	36V	36V	36V
	400A	400A	400A
Category of usage	DC5	DC5	DC5
Working voltage limits	0,7-1,1Vn	0,85-1,1Vn	0,85-1,1Vn
Coil power dissipation	12W	7W	5W
Manoeuvre time	pull-in time	$\leq 20ms$	$\leq 20ms$
	drop-out time	$\leq 10ms$	$\leq 10ms$
Max clamps torque	4 Nm	4 Nm	4 Nm
Mechanical life	op.n. 3×10^6	3×10^6	3×10^6
Main contacts	1NA	1NA	1NA



Single Pole Contactors

Type TL11

LOGO series single pole contactors type TL11 are suitable in the following versions:

- 50 % intermittent coil
- 100 % intermittent - permanent coil (**option P**)
- application of magnetic blowouts (**option M**)

NC contacts are not suitable for making or breaking current.

Types and Part numbers

Types	Part numbers
TL11 int. 50%	E TL11
TL11 int. 50% and magnets	E TL11M
TL11 int. 100%	E TL11P
TL11 int. 100% and magnets	E TL11MP

The voltage suffix X has to be added to these codes, see page 2.



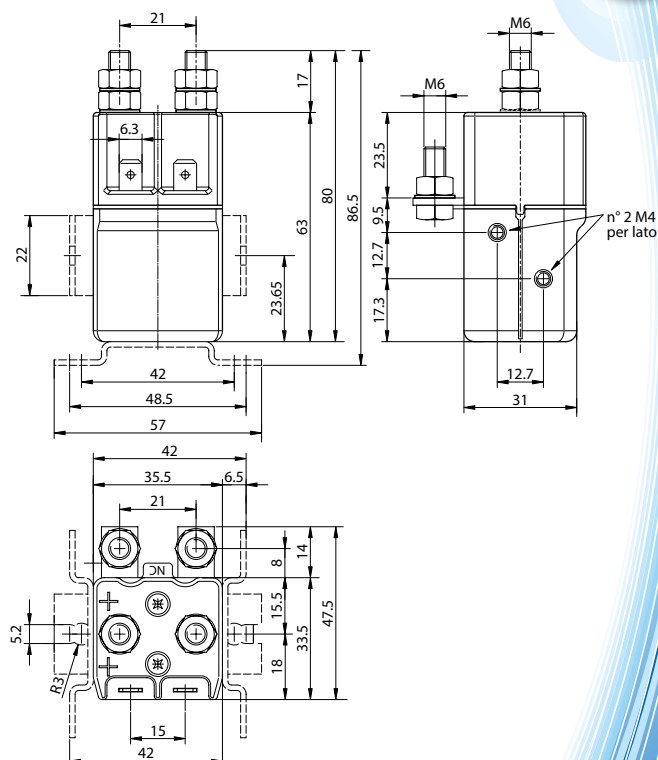
Accessories

The range of LOGO series contactors type TL 11 is available with a bracket, which can be assembled like the drawing below .

Bracket	E TL10ST-2
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Performances

Contactor	TL11	TL11P
Nominal operating current at 50% intermittent, 300 op/h	I_e 100A	100A
Thermal current rating	I_{th} 72A	72A
Nominal voltage	U_e 12V 24V	12V 24V
Breaking capacity according to UL 583	450A	450A
Category of usage	DC5	DC5
Working voltage limits	0,7-1,1Vn	0,85-1,1Vn
Coil power dissipation	12W	5W
Manoeuvre time	pull-in time ≤ 20 ms	≤ 20 ms
	drop-out time ≤ 10 ms	≤ 10 ms
Max clamps torque	4 Nm	4 Nm
Mechanical life	op.n. 3×10^6	3×10^6
Main contacts	1NA 1NC	1NA 1NC



D.C. Motor Reverser COMBI type TLD18

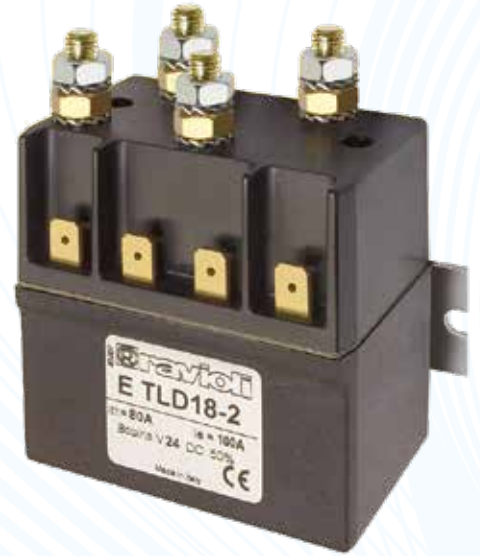
Main Features

The COMBI type TLD18A (two single pole contactors with 1 NO 1 NC) and TLD18B (two single pole contactors with 1 NO) include internal electric connections. The result is a compact product completely protected from oil, water and dust. Standard duty is in intermittent mode (50 %) with a maximum working time of 15 minutes (temporary service).

The NC contacts are not suitable for making or breaking current.

Performances: see corresponding models TL10 on page 3.

The TLD18 COMBI motor reverser is suitable with 50 % at 12 Vdc and 24 Vdc. TLD18 is not available with UL Certification.



Correct use of the motor reverser

The used contactors have fast drop-out times (10 msec) and relatively long pull-in times (approx. 20 msec). In this way, safe reversals can be carried out without the risk of the contacts being closed at the same time. The use of suppressor diodes, however, increases drop-out times, and therefore it is important to choose the most suitable type of suppressor (diode+resistor).

Types and Part numbers

Types

TLD18A 2x1NO 1 NC 4 poles 50% coil

TLD18B 2x1NO 3 poles 50% coil

Part numbers

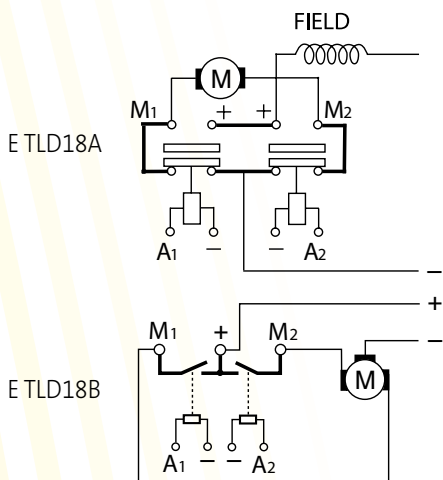
E TLD18A

E TLD18B

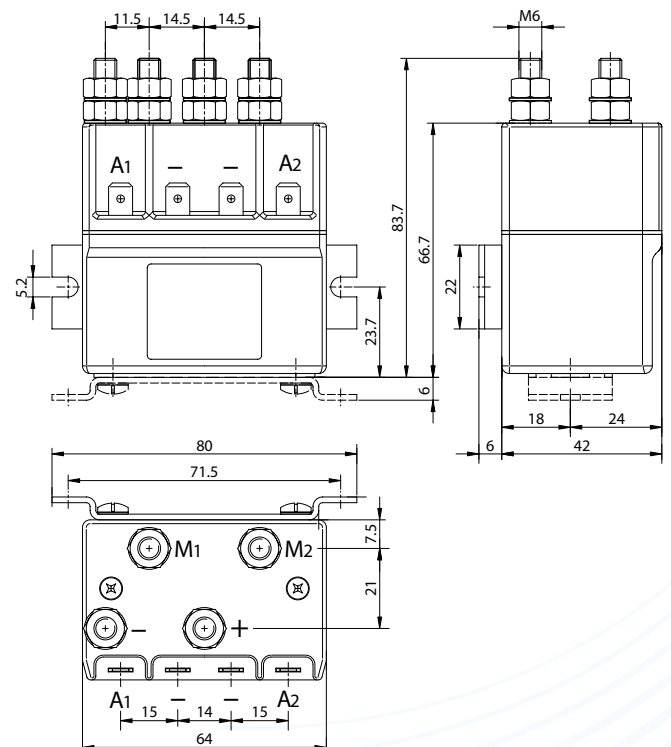
The voltage suffix X has to be added at the end of the part number, see page 2.

TLD18 is not available with any prolonged or permanent duty.

Diagrams of functioning



The lines — indicate the internal connections.



For Your own Safety

The range of LOGO series type TL 10 comply with the current safety rules, and in particular:

2006/42/CE	Machine Directive
2014/35/UE	Low voltage Directive
2014/30/UE	EMC Directive
2011/65/UE	RoHS
EN 1175-1	Safety of industrial trucks
CEI EN 60947-4-1	Low voltage switch gear and control gear
CEI EN 60204-1	Safety of machinery - electrical equipment of machines
CEI EN 61000-6-4 EMC	Emission
CEI EN 61000-6-2 EMC	Immunity
UL 583	Electric battery powered industrial trucks



The range of LOGO series contactors type TL 10 is guaranteed by our EC Certificate of Conformity, available upon request, in which it is declared that such product was created by RAVIOLI in accordance to defined and recognised Safety Regulations, and in compliance with the Quality standards stated in our ISO 9001:2015 Quality System Certificate.

In respect for People and Environment

Ravioli is actively involved in the full observance of People and Environment respect, manufacturing products according the Company's standards defined in its Code of Ethic Behaviour. All our products are projected in order to increase Occupational Safety for final users and are completely free of harmful substances for the Environment.

Installation and cabling instructions

The LOGO TL 10 contactors must be installed by a qualified staff, according to current safety law . Electrical current must be switched off before wiring. For better loss of heat use proof cables according to the usage current. Assure that the terminal power cables are locked with nut at max clamps torque of 4 Nm. The assembling can be made by screws (max depth 7 mm.) or by the optional bracket. Recommended working positions: either horizontal or vertical with poles set upwards.

Operating position: in horizontal and vertical axis. If assembled in vertical axis, poles must be compulsory upwards oriented.

Operating Temperature -25°C+40°C

RAVIOLI S.p.A. declines any responsibility for damages deriving from incorrect installation or improper use of the product.

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Ravioli S.p.A.
Via Passo Pordoi, 4 - 20139 Milan, Italy
Tel. +39 02 53.63.01 - Fax +39 02 53.63.05
E-mail: raviolispa@raviolispa.com - www.raviolispa.com

