

Data sheet

CI-tronic™ Single-phase Soft Starters for commercial compressor applications

Types TCI CH-C



The TCI CH-C single-phase soft starters are designed for starting/stopping of single-phase CSR motor compressors for residential pumps, refrigeration and A/C units.

The controller is optimised to create softstart within 200 ms.

Features

- Control voltage 208 – 240 V AC
- SCR controlled soft cut-in and cut-out of the start capacitor
- LED status indication
- Automatic adaptation to 50/60 Hz
- Easy and quick installation
- Built in varistor protection
- IP20 protection
- Compact modular design
- DIN rail mountable
- Ramp-up time < 200 ms (factory set-up)
- EN 60947-4-2

Technical data
Output specifications

Type		TCI 25 CH-C
Operational voltage		208 – 240 V AC
Operational current (AC-58b)		max. 25 A
Ramp-up time (preset)		max. 0.2 s
Leakage current		max. 5 mA
Operational current		min. 50 mA
Overload relay trip class		Class 10
Semiconductor protection fusing Pt (t=10 ms)	Type 1 ¹⁾ co-ordination	63 A gL/gG
	Type 2 ²⁾ co-ordination	6300 A ² s
Rating index AC-58b: Hermetic refrigerant compressor ³⁾ motor with bypass		25 A: AC-58b: 6-2:600

¹⁾ Type 1 co-ordination require that, under short-circuit conditions, the device shall cause no danger to persons or installation and may not be suitable for further use without repair and replacement of parts.

²⁾ Type 2 co-ordination require that, under short-circuit conditions, the device shall cause no danger to persons or installation and shall be suitable for further use.

³⁾ 12A: AC-58b: 6-2:300 means max. load 6 × 12 A for 2 seconds: Min. 300 seconds between starts.

Control circuit specifications

Control voltage range	208 – 240 V AC
Pick-up voltage	max. 177 V AC
Drop-out voltage	min. 50 V AC
Control current for no operation	max. 1.5 mA AC
Control current / power	max. 3 VA
Response time	max. 100 ms
Fuse	max. 10 A gL/gG
EMC immunity	Tested acc. to Art. 9.3.5 EN 60947-4-2

Insulation

Rated insulation voltage [U _i]	660 V AC
Rated impulse withstand voltage [U _{imp}]	4 kV
Installation category	III

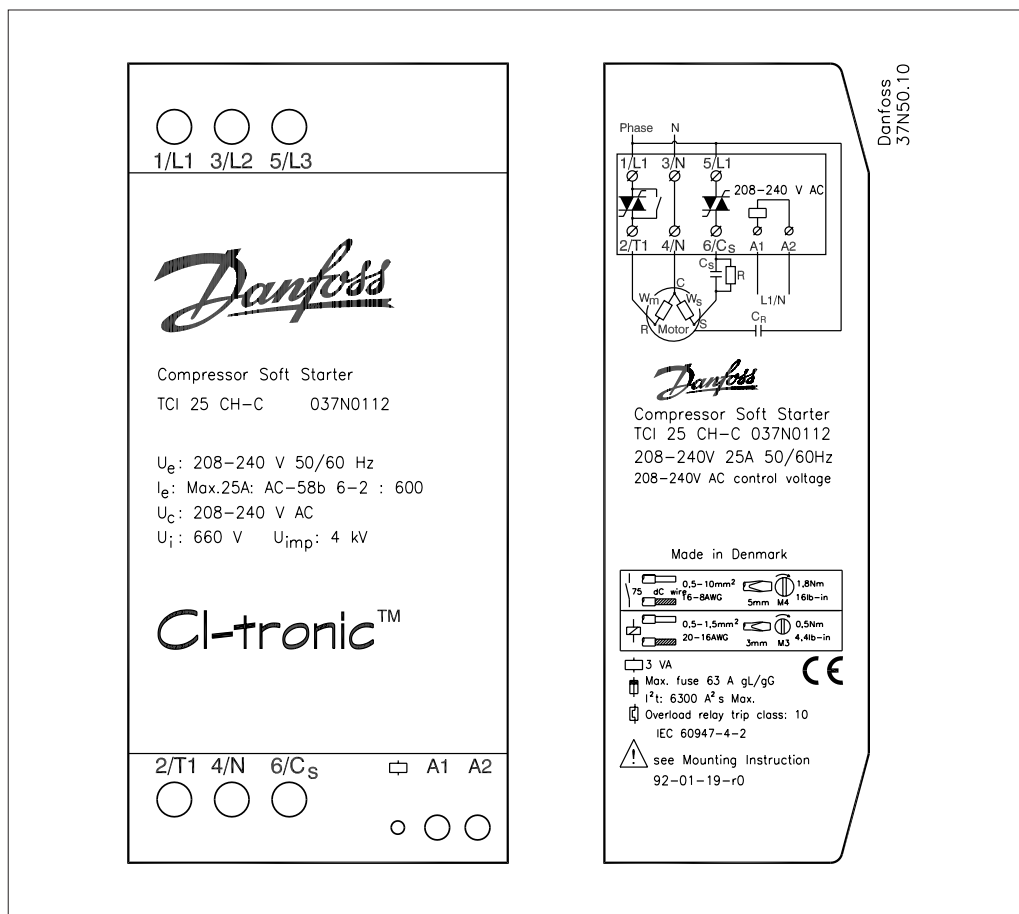
Thermal specification

Cooling method	Natural convection
Storage temperature range	-20 – 80 °C
Ambient temperature	-20 – 40 °C
Enclosure degree / pollution degree	IP20 / 3
Power dissipation, continuous duty	max. 4 – 5 W
Power dissipation, intermittent duty	max. 4 – 5 W × duty cycle

Materials

Housing self extinguishing: PC/ ABS

Product marking



TCI CH-C single-phase soft starter selection

Type	Capacitor starting facility	Max. load Amp	Code no. ¹⁾
TCI 25 CH-C	Build-in	25	037N0112

¹⁾ Final product code number to be established individually for customer's application.

Functional description

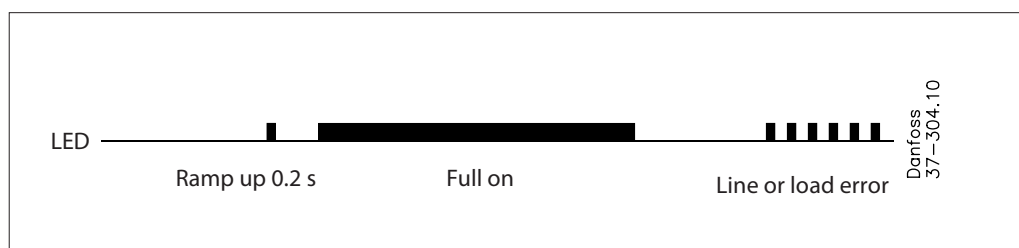
Start

During ramp-up the controller will gradually increase the voltage to the motor. The soft cut-in and cut-out of the start capacitor is possible by means of SCR technology and is controlled exactly to avoid current or voltage transients on main supply. The soft cut-in and cut-out of the start capacitor can also increase lifetime of it.

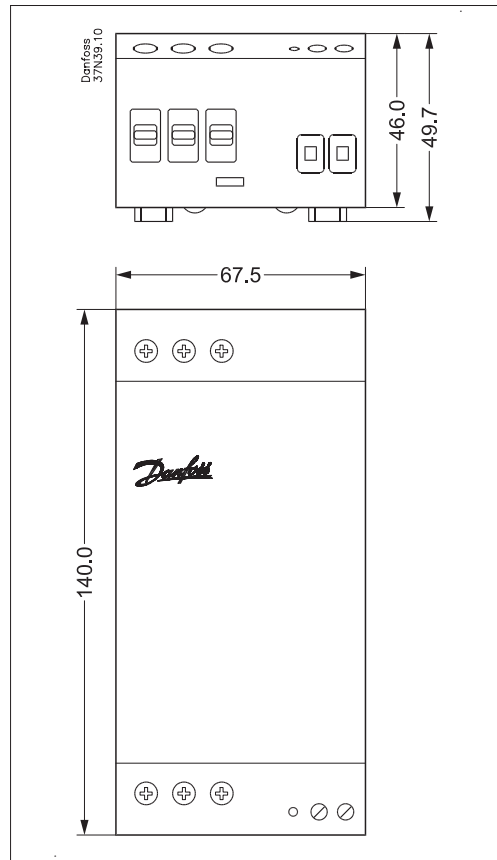
Capacitors

The run capacitor should be chosen according to the motor specifications. The start capacitor value should be chosen in relation to the winding resistance and with respect to the start current and/or torque, typical value is 2 – 6 times the run capacitor. To discharge the start capacitor when disconnected, power resistor has to be mounted in parallel. Recommended value is 18 kΩ...270 kΩ, 500 V and 1 W minimum.

LED status indication

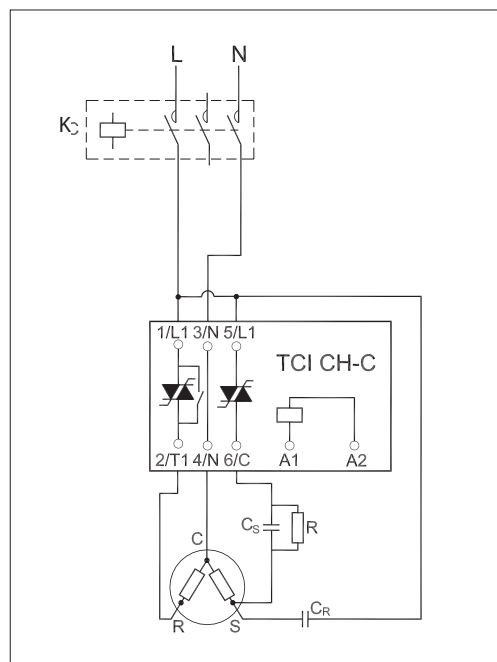


Dimensions [mm]



Application examples

TCI CH-C



It is mandatory to use contactor
in front of the soft starter

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