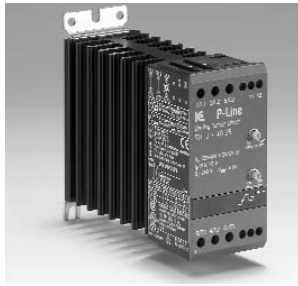


Starting Torque Limiter (Soft Starter for 1-phase motors)



- Rated operational voltage up to 600 VAC 50/60 Hz
- Rated operational current: 15/25A AC-3. AC-53a, AC58a
- Ramp Up adjustable from 0.5-5 sec
- Initial torque adjustable from 0-85%
- LED status indication
- Meets EN 60947-4-2 requirements
- Unlimited number of start/stop operation pr. hour

Item selection and technical specifications

Load ratings AC-53a without by-pass	Item number by 110-127VAC 50/60Hz Line Voltage	Item number by 208-480VAC 50/60Hz Line Voltage	Item number by 550-600VAC 50/60Hz Line Voltage	Ramp- Up adjustment	Torque adjustment	Module- width
15A AC-53a	STL 1 1215	STL 1 4015	STL 1 6015	Ramp-up time 0.5 - 5 sec.	0- 85% adjustable of nominal torque	45mm
25A AC-53a	STL 1 1225	STL 1 4025	STL 1 6025			45mm

Load specified with utilisation category AC-53a

STL 1 XX/15/25 AC-53a: No by-pass contactors is necessary during running

Output load specification

STL 1 XX15	More info. page 37	STL 1 XX25	More info. page 37
Overload current profile AC-53a	X-Tx:8-3 : 100-3000	Overload current profile AC-53a	X-Tx:8-3 : 100-3000
Overload relay trip class AC-53a	10 or 10A	Overload relay trip class AC-53a	10 or 10A
Min. operational current: 50mA		Min. operational current: 50mA	

Thermal specification

Power dissipation for continuous operation PD _{max}	1W/A	Operation in ambient temperatures exceeding 40°C is possible if the power dissipation is limited either by reducing the steady-state current or by reducing the duty-cycle of the soft starter as shown in the table. Max.cycle time 15min.		
Power dissipation for intermittent operation PD	1W/A x dutycycle			
Cooling method	Natural convection			
Mounting	Vertical +/-30°			
Operating temperature range EN 60947-4-2	-5°C to 40°C			
Storage temperature EN 60947-4-2	-20°C to 80°C			
Max. operating temperature with current derating	60°C			
		By 40°C (STL1XX25)	By 50°C (STL1XX25)	By 60°C (STL1XX25)
		100% load Duty-cycle 100%	100% load Duty-cycle 100%	80% load Duty-cycle max. 0.80
Environment				
Degree of protection		IP 20	Pollution degree	3

Insulation specifications

Rated insulation voltage	Ui 660 Volt
Rated impulse withstand voltage	Uimp. 4 kVolt
Installation category	III

Functional diagram



Approval

ULc Std No. 508

Mounting and cable wiring information

Mounting information see page 36 / Cable wiring see page 37

Dimensions (se also page 36)

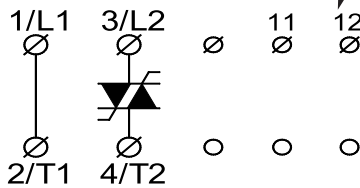
Type	H	D	W
45 mm module	94 mm	128.1 mm	45 mm

Starting Torque Limiter (Soft Starter for 1-phase motors)

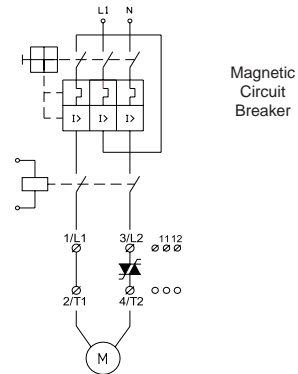
Wiring specifications

STL 1 XX15/25

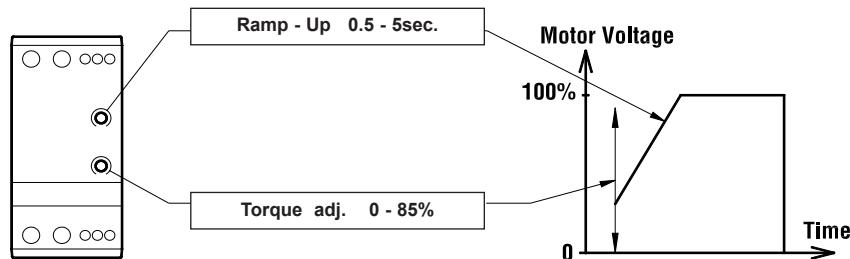
For UP62 or other wiring purposes



1-phase configuration



How to adjust ramp times and initial torque



A. Ramp-Up time and initial torque (standard load) Use screwdriver 2 mm x 0.5 mm for adjustment

- 1) Set the *Ramp-Up* switch to maximum
- 2) Decrease the *Ram-Up* time until desired start is achieved
- 3) Set the *Initial Torque* switch to minimum
- 4) Switch the contactor ON for a short time. If the load does not rotate immediately increment the *Initial Torque* and try again. Repeat until the load starts to rotate immediately on start-up

NOTE:

- a) Control of the motor torque is achieved by acting on the motor voltage. The motor speed depends on the torque produced by the motor and the load on the motor shaft.
- b) A motor with little or no load will reach full speed before the voltage has reached its maximum value.
- c) Repeated starts may trip the motor protection relay.

Short-circuit protection by circuit breaker or fuses

Two type of short-circuit protection can be used:

- a) Short-circuit protection by circuit breaker.
- b) Short-circuit protection by fuses.

Short-circuit protection is divided into 2 levels **Type 1** or **Type 2**

Co-ordination Type 1: Short-circuit protects the installation

Co-ordination Type 2: Short-circuit protects the installation and the semiconductors inside the motor controller

a) Short-circuit protection by circuit breaker

A 1-Phase motor with correctly installed and adjusted overload relay will not short circuit totally to earth or between the neutral and phase. Part of the winding will normally limit the short circuit current to a value that will cause instantaneous magnetic tripping of the circuit breaker without damage to the soft starter. The magnetic trip response current is approx. 11 times the max. adjustable current.

b) Short-circuit protection by fuses

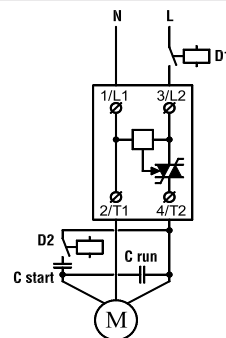
Type 1: STL1 XX15 Protection max. 50 A gL/gG
Type 1: STL 1 XX25 Protection max. 80 A gL/gG 63A T

Type 2: STL 1 XX15 Protection max. 1.2t of the fuse 1800 A2S
Type 2: STL 1 XX25 Protection max. 1.2t of the fuse 6300 A2S

Fuses from e.g. Ferraz, Siba, Busmann can be used as short-circuit protection Type 2

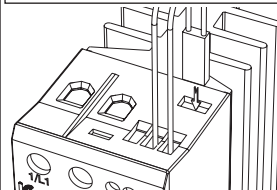
More information concerning Co-ordination Type 2 see page 37

Start of single phase motor (application example)



- By start D1 and D2 shall be switched On
- The STL starts to Ramp-Up the motorvoltage
- When the motor has reached its maximum speed, the D2 shall be switched off
- When the motor has to stop, D1 shall be switched off
- The STL 1 is now ready for a new start
- D2 could be a centrifugal contact inside the motor or a current monitoring relay.

Thermal overload protection (see also page 36)



Optional thermal overload protection is possible by inserting a thermostat in a slot on the right hand side of the soft starter. Type number UP62

EMC

This component meets the requirements of the product standard EN60947-4-2 and is CE marked according to this standard.