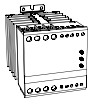
Soft Starter with Auxiliary Contacts (By-Pass)

* Rated operational voltage up to 600 VAC 50/60Hz
* Rated operational current: 30A, AC-53b (15 kW / 20Hp@400V) Semiconductors by-passed during running
* Rated operational current: 25A, AC-53a, AC58a (11 kW / 15Hp 400V) (Without by-pass)
* Output signal for By-Pass (0.5A 24-480 AC)
* Output signal for Start / stop (0.5A 24-480 AC)
* Ramp Up/Down time adjustable from 0.5-20 sec
* Initial torque adjustable from 0-85% (Kick-start)
* Control voltage range from: 24 to 480 VAC/DC
* Meets IEC 947-4-2 requirements



Product Description and Item Selection

Soft Starter designed to control acceleration and deceleration of 3 Phase motors. Has built-in auxiliary contacts for by-pass for full-on state and start /stop function. Ramp-up /down time adjustable from 0.5 to 20 sec. Torque is adjustable from 0 to 85% of nominal start torque, With kick start function.

Line Voltage	Control Voltage	Item No.
208 - 240 VAC	24 - 230 VAC/DC	SMC 3 DA 2325BP (By-Pass)
400 - 480 VAC	24 - 480 VAC/DC	SMC 3 DA4025BP (By-Pass)
550 - 600 VAC	24 - 480 VAC/DC	SMC 3 DA 6025BP (By-Pass)
Ramp-Up time		Adjustable from 0.5 - 20 Sec.
Ramp-Down time		Adjustable from 0.5 - 20 Sec.
Initial Torque with optional Kick Start		Adjustable from 0 - 85 % of nominal. torque

Output Specifications	SMC3BP with By-Pass		SMC3BP without By-Pass
Operational current max.	With semiconductor by-passed during full-on	30A AC-53b,	25A AC-53a
Leakage current		5 mA AC max.	5 mA AC max.
Minimum operational current		50 mA	50 mA
Overload current profile		X-Tx: 6 - 5	X-Tx: 5 - 5
Overload relay trip class		10 or 10 A	10 or 10 A
Motor size by 208 - 240 VAC		0.1-7.5 kW/10HP with BP	0.1-7.5 kW/10HP
Motor size by 400 - 480 VAC		0.1-15 kW/20HP with BP	0.1-11 kW/15HP
Motor size by 550 - 600 VAC		0.1-18.5 kW/25HP with BP	0.1-18.5 kW/25HP

Control specifications

Control voltage range	24 - 480 V AC/DC	Max. control current for no operation	1 mA
Pick-up voltage max.	20.4 V AC/DC	Response time max.	70 ms
Drop out voltage min..	5 V AC/DC	Control current/power max.	15 mA / 2 VA
Control Output (SCR) Terminal 23-24 for Full-On after Ramp-Up function (By-Pass function)	0.5A AC-14, AC15 24-480V AC 50-60Hz Fusing:10 A gl/gG Max I^2t:72 A^2S	Control Output (SCR) Terminal 13-14 for control of direct wired start-stop function	0.5A AC-14, AC15 24-480V AC 50-60Hz Fusing:10 A gl/gG Max I^2t:72 A^2S

Current Derating by different ambient temperature

Current derating in high temperature applications

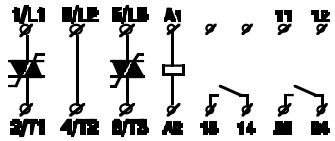
Operation in ambient temperatures exceeding 40°C is possible if the power dissipation is limited either by reducing the steady-state current or by reducing the duty-cycle of the Soft Starter as shown in the table.

By 40°C	30 A with By-Pass Contactor 25 A continuos without By-Pass Contactor
By 50°C	30 A with By-Pass Contactor Max. 25 Starts/Hour. 20 A continuous without By-Pass Contactor Limited duty-cycle rating by 25 A. On time max.15 min duty-cycle max. 0.8
By 60°C	30 A with By-Pass Contactor Max. 20 Starts / Hour 17 A continuous without By-Pass Contactor Limited duty-cycle rating by 25 A. On time max.15 min duty-cycle max. 0.65

Specifications are subject to change without notice

Soft Starter with Auxiliary Contacts (By-Pass)

Wiring Diagram



Output: for control of Start / Stop function

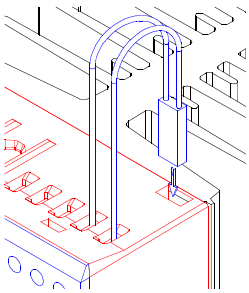
Output: by end of ramp up time

Terminal 11 and 12 have no connection with the internal circuit. Can be used in conjunction with a thermal overload protection or for other wiring purposes. See application hints for further details page 26

Thermal Specifications

Power dissipation for continuous operation PDmax.	2 W/A without By-pass
Power dissipation with semiconductor By-Passed	5 W Max. withBy-pass
Cooling method.	Natural convection
Mounting	Vertical +/-30º
Operating temperature range EN 947-4-2	-5Cº to 40ºC
Storage temperature EN 947-4-2	-20Cº to 80ºC
Max. operating temperature with current derating according to table	60ºC

Thermal Overload Protection



Optional thermal overload protection is possible by inserting a thermostat in the slot on the right hand side of the Soft starter.
Type number UP62-100

See application hints for further details page 27

Insulation Specifications

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

EMC

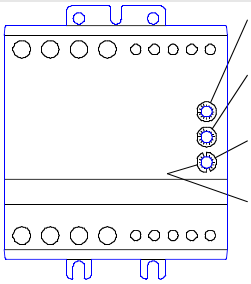
This component meets the requirements of the product standard EN60947-4-2 and is CE marked according to this standard.

*Approvals

UL Std No. 508

How to adjust time and torque (See adjustment hints page 27)

NB: Make sure NOT to set the switches in between positions as this corrupts the time and torque adjustments. The Soft Starter will read time and torque settings in the off state. Repeated starts may trip the motor protection relay.

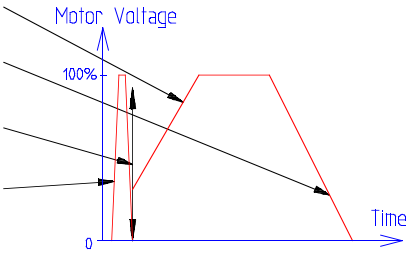


Ramp-Up 0.5 - 20 sec.

Ramp-Down 0.5 - 20 sec.

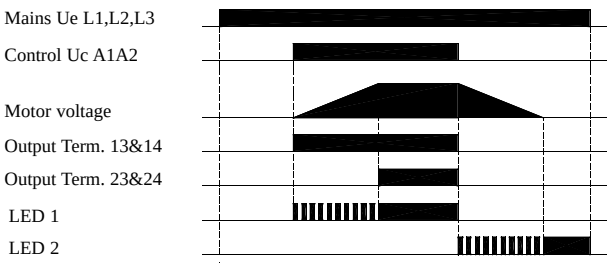
Torque adj. 0 - 85%

200 ms kick start with adj. torque 0 - 85%



Control of the motor torque is achieved by acting on the motor voltage. The motor speed depends on the load on the motor shaft. A motor with little or no load will reach full speed before the voltage has reached its maximum value.

Functional Diagram



Output: Terminal 23 & 24 By-Pass
For signalling Full-On state. By-Pass in AC-53b operation

Output: Terminal 13 & 14 Start -Stop
For control of Start-Stop function directly wired to the soft starter

Cable Wiring Hints

See page 57

Dimension and Mounting Instruction

See page 57

Overload Protection

See page 26-27

Environment

Degree of protection / Pollution degree	IP 20 / 3

Application Hints

See page 26-27

UL:Use thermal overload protection as required by the National Electric Code. When protected by a non-time delay K5 or H Class fuse, rated 266% of motor FLA, this device is rated for use on a circuit capable of delive ring not more than 5,000 rms. symmetrical amperes, 600 V maxi-mum.Maximum surrounding temperature 40°C.

* This product has been designed for class A equipment. Use of the product in domestic environments may cause radio interference, in which case the user may be required to employ additional mitigation methods.