

Soft Starter (two controlled phases)



- Rated operational voltage up to 600 VAC 50/60Hz
- Rated operational current up to 25A/30A
- Output signal for By-Pass and Start/Stop SMC..BP
- Ramp Up and Down time adjustable
- Initial Torque adjustable with kick start
- Wide control voltage range
- Meets EN 60947-4-2 requirements
- Unlimited number of start/stop operations pr. hour

Item selection and technical specifications

Load ratings AC-53a without by-pass AC-53b with by-pass	Item number by 208-240VAC 50/60Hz Line Voltage	Item number by 400-480VAC 50/60Hz Line Voltage	Item number by 550-600VAC 50/60Hz Line Voltage	Ramp- Up / Down adjustment	Torque adjustment	Module- width
3.5A AC-53a	SMC 3 DA 2303	SMC 3 DA 4003 400-415V	SMC 3 DA 6003	Ramp-up time 0.5 - 10 sec.	0- 85% adjustable of nominal torque with selectable kick start 200ms (break losse funtion)	22.5mm
3.5A AC-53a		SMC 3 DA 4803 440-480V		Ramp-down time 0.5 - 10 sec.		22.5mm
15A AC-53a	SMC 3 DA 2315	SMC 3 DA 4015	SMC 3 DA 6015			45mm
25A AC-53a	SMC 3 DA 2325	SMC 3 DA 4025	SMC 3 DA 6025			90mm
25A AC-53a	SMC 3 DA 2325BP	SMC 3 DA 4025BP	SMC 3 DA 6025BP	Ramp-up time 0.5 - 20 sec.		90mm
30A AC-53b w. by-pass*		SMC 3 DA 4025BP		Ramp-down time 0.5 - 20sec.		90mm

Load specified with utilisation category AC-53a

SMC 3 DA XX03/15/25 AC-53a: No by-pass contactors is nessesary during running

Load specified with utilisation category AC53b

***SMC 3 DA 4025 BP** AC-53b: By-pass contactor shall be used for bypassing the soft starter during running of the motor by 30A/15kW 400V load

Output load specification

SMC 3 DA XX03		SMC 3 DA XX25 BP	
Overload current profile AC-53b (without by-pass contactor)	X-Tx:4-10 : 110	Overload current profile AC-53a (without by-pass contactor)	X-Tx:6-5 : 100-120
Overload relay trip class AC-53b	10 or 10A	Overload current profile AC-53b (with by-pass contactor)	X-Tx:5-5 : 5-30
SMC 3 DA XX15/25		Overload relay trip class AC-53b	10 or 10A
Overload current profile AC-53a (without by-pass contactor)	X-Tx:8-3 : 100-3000	General output data for SMC 3 DA XXXX	
Overload relay trip class AC-53a	10 or 10A	Leakage current: 5mA ACmax.	Min. operational current: 50mA

Control terminal specifications

Control voltage by line voltage 208-240VAC A1-A2	24 - 230 VAC/DC
Control voltage by line voltage 400-480VAC A1-A2	24 - 480 VAC/DC
Pick-up voltage max.	20.4 VAC/DC
Drop-out voltage min.	5 VAC/DC
Max. control current for no operation	1mA
Response time max.	70msec.
Control current / power max.	15mA / 2VA

Auxiliary contacts

Output specifications for SMC 3 DA XXBP

Terminal: 13-14, SCR Output for start/stop function,
Terminal: 23-24, SRC Output for connection of by-pass contactor.

Output specifications: SRC: 0.5A AC-14, AC15 24-230/480V AC 50-60Hz
Fusing:10 A gl/gG Max I^2t 72A²Sr

Terminal: 11-12, have no connection with the internal circuit. Can be used in conjunction with a thermal overload protection or for other wiring purposes. See under general technical information.

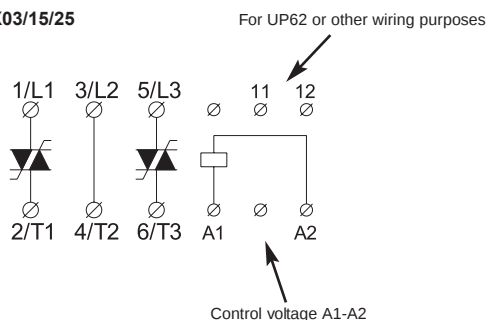
Thermal specification

Power dissipation for continuous operation PDmax	2 W/A without By-pass	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 with semiconductor by-passed	4 W Max.			
Cooling method	Natural convection			
Mounting	Vertical +/-30°			
Operating temperature range EN 60947-4-2	-5C° to 40°C			
Storage temperature EN 60947-4-2	-20C° to 80°C			
Max. operating temperature with current derating	60°C			
		By 40°C	By 50°C	By 60°C
		100% load Duty-cycle 100%	80% load Duty-cycle max. 0.8	70% load Duty-cycle max. 0.65

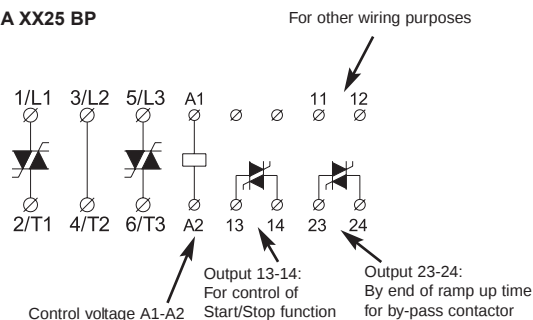
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Wiring specifications

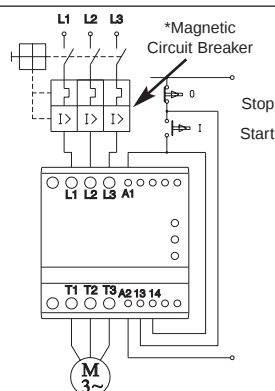
SMC 3 DA XX03/15/25



SMC 3 DA XX25 BP



Wiring example: Start-stop function terminal 13-14

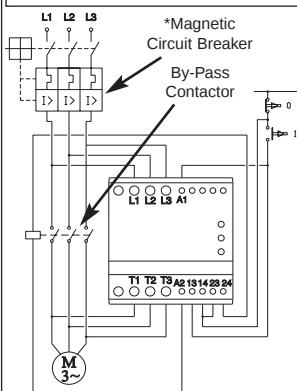


SMC 3 DA XX25BP

Auxiliary SCR output contact 13 & 14 is used in connection with standard motors where the output contact can be used for controlling a Start-Stop function directly wired to the soft starter.

*Use UL approved Magnetic Circuit Breaker or UL specified back-up fuse type K5 or H Class

Wiring example: By-pass function terminal 23-24



SMC 3 DA XX25BP

Auxiliary SRC output contact 23-24 is activated when the ramp-up time has elapsed. Can be used either for by-passing the soft starter with an external connected electromechanical contactor or signalling to a PLC or similar that the motor voltage has reach its nominal value.

*Use UL approved Magnetic Circuit Breaker or UL specified back-up fuse type K5 or H Class

Short-circuit protection by circuit breaker or fuses

Two type of short-circuit protection can be used:

- Short-circuit protection by circuit breaker.
- 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 3-Phase motor with correctly installed and adjusted overload relay will not short circuit totally to earth or between the 3 phases. 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. A short-circuit coordination test has been made with the Danfoss CTI 25.

b) Short-circuit protection by fuses

Type 1: SMC 3 DA XX03	Protection max. 25 A. gI/gL/gG.
Type 1: SMC 3 DA XX15	Protection max. 50 A. gI/gL/gG. 63A T
Type 1: SMC 3 DA XX25	Protection max. 80 A. gI/gL/gG. 63A T
Type 1: SMC 3 DA XX25 BP	Protection max. 80 A. gI/gL/gG. 63A T

Type 2: SMC 3 DA XX03	Protection max. I _{2t} of the fuse 72 A2S
Type 2: SMC 3 DA XX15	Protection max. I _{2t} of the fuse 1800 A2S
Type 2: SMC 3 DA XX25	Protection max. I _{2t} of the fuse 6300 A2S
Type 2: SMC 3 DA XX25 BP	Protection max. I _{2t} of the fuse 6300 A2S

Recommended fuse :	Ferraz	Siemens
SMC 3 DA XX03	66 GRB 10-10	Silized 5SD4 20A
SMC 3 DA XX15	6,600 CP URG 14.51/50	Silized 5SD4 80A
SMC 3 DA XX25	6,600 CP URG 22x58/80	Silized 5SD5 100A
SMC 3 DA XX25 BP	6,600 CP URG 22x58/80	Silized 5SD5 100A

Approval

ULc Std No. 508 / CAN/CSA-C22.2

Application, adjustment hints and general specifications

See page 10-11 / 36-37

Dimensions (se also page x)

Type	H	D	W
22.5 mm module	94 mm	123.8 mm	22.5 mm
45 mm module	94 mm	128.1 mm	45 mm
90 mm module	94 mm	128.1 mm	90 mm