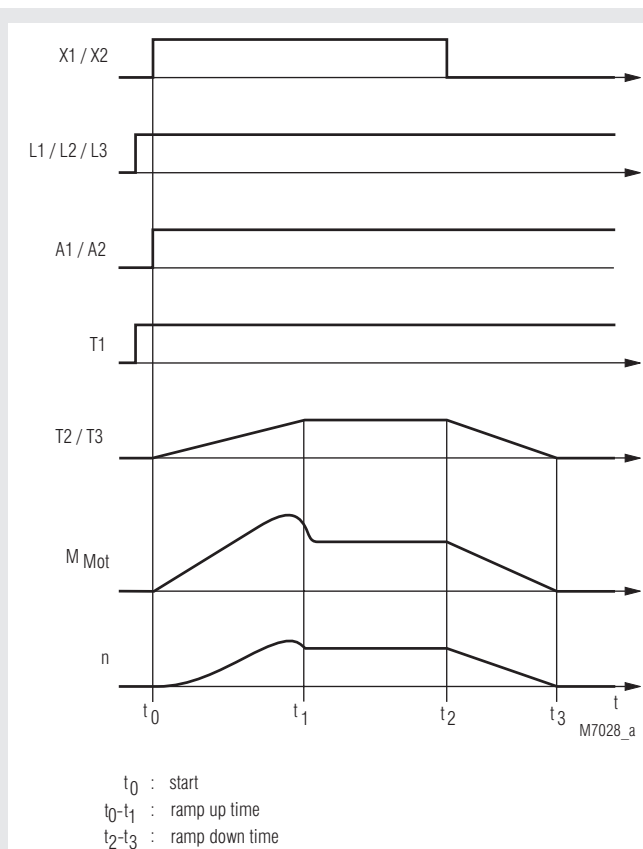


MINISTART Softstarter With Softstop BA 9019



- According to IEC/EN 60 947-4-2
- Softstart and softstop function
- 2-phase motor control
- For motors up to 5.5 kW
- Adjustable ramp time, starting torque and deceleration time
- Wide motor voltage range
- Galvanic separation of control input
- Galvanic separation of auxiliary power supply
- Integrated overtemperature monitoring
- Width: 45 mm

Function Diagram



Approvals and Markings



* see variant

Applications

- Motors with gear, belt or chain drive
- Fans, pumps, conveyor systems, compressors
- Woodworking machines, centrifuges
- Packaging machines, door drives
- Start current limiting on 3 phase motors

Function

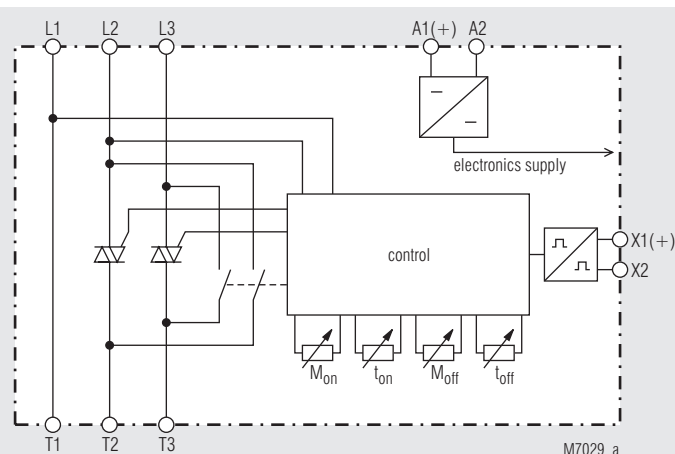
Softstarters are electronic devices designed to enable 3-phase induction motors to start smoothly. The BA 9019 slowly ramps up the current on two phases, therefore allowing the motor torque to build up slowly. This reduces the mechanical stress on the machine and prevents damage to conveyed material.

When the motor is up to full speed the semiconductors in BA 9019 are bridged to prevent internal power losses and heat build up. In addition BA 9019 allows a softstop function prolonging the stop time of the motor, preventing high counter torques from abruptly stopping the motor.

Indication

- | | |
|-------------|--|
| LED green: | on, when power connected |
| LED yellow: | on, when power semiconductors bridged |
| LED red: | on, when temperature monitoring active |
| BA 9019/100 | |
| LED green: | on, when auxiliary supply connected |
| LED yellow: | flashing, during ramp up or down |
| | continuously on, when power semiconductors bridged |

Block Diagram



Notes

Motor load must always be connected as continuous operation of the softstart with no load may cause overheating of the motor and softstart. It is recommended that the softstart is protected by superfast semiconductor fuses rated as per the current rating of the softstart or motor. However, standard line and motor protection is acceptable, but for high starting frequencies motor winding temperature monitoring is recommended.

Technical Data			
Nominal voltage L1/L2/L3:	3 AC 200 V -10% ... 460 V +10%		
Nominal frequency:	50 / 60Hz		
Nominal motor power P _N at 400 V:	3 kW	5.5 kW	
200 V:	1.5 kW	2.2 kW	
Rated current:	8 A	12 A	
Switching frequency			
up 3 x I _N , 5 s, ϑ _U = 20 °C:	20 / h	10 / h	
Min. motor power:	approx. 10 % of rated motor power		
Start torque:	50 ... 80 %		
Ramp time:	0.5 ... 5 s		
Deceleration torque:	30 ... 80 %		
Deceleration time:	0.5 ... 5 s		
Recovery time:	200 ms		
Auxiliary voltage A1 + / A2:	DC 24 V	± 20 %	
Power consumption:	3 W		
Residual ripple:	5 %		
Control Input			
Voltage range X1/X2:	DC: 0 ... 28.8 V		
Softstart:	> 13 V		
Softstop:	< 5 V		
General Data			
Operating mode:	Continuous operation		
Temperature range:			
Operation:	0 ... + 55 °C		
Storage:	- 25 ... + 75 °C		
Relative air humidity:	93 % at 40 °C		
Altitude:	< 1,000 m		
Clearance and creepage distance			
Rated insulation voltage:	AC 500V		
Overtoltage category:	III		
Rated impuls voltage / pollution degree between auxiliary voltage/control circuit nominal voltage:	4 kV / 2	IEC/EN 60 664-1	
EMC			
Interference resistance			
Electrostatic discharge (ESD):	8 kV (air)	IEC/EN 61 000-4-2	
HF-irradiation			
80 Mhz ... 1.0 Ghz:	10 V / m	IEC/EN 61 000-4-3	
1.0 GHz ... 2.5 GHz:	3 V / m	IEC/EN 61 000-4-3	
2.5 GHz ... 2.7 GHz:	1 V / m	IEC/EN 61 000-4-3	
Fast transients:	2 kV	IEC/EN 61 000-4-4	
Surge voltage between wires for power supply:	1 kV	IEC/EN 61 000-4-5	
between wire and ground:	2 kV	IEC/EN 61 000-4-5	
HF-wire guided:	10 V	IEC/EN 61 000-4-6	
Voltage dips	IEC/EN 61 000-4-11		
Interference emission			
Wire guided:	Limit value class A*) IEC/EN 60 947-4-2		
	*) The device is designed for the usage under industrial conditions (Class A, EN 55011). When connected to a low voltage public system (Class B, EN 55011) radio interference can be generated. To avoid this, appropriate measures have to be taken.		
Radio irradiation:	Limit value class B	IEC/EN 60 947-4-2	
Degree of protection:			
Housing:	IP 40	IEC/EN 60 529	
Terminals:	IP 20	IEC/EN 60 529	
Vibration resistance:	Amplitude 0.35 mm frequency 10 ... 55 Hz, IEC/EN 60 068-1		
	0 / 055 / 04 IEC/EN 60 068-1		
Climate resistance:	2 x 2.5 mm² solid or 1 x 1.5 mm² stranded wire with sleeve		
Wire connection:	DIN 46 228-1/-2/-3/-4		
	10 mm		
Stripping length:	0.8 Nm		
Fixing torque:	Flat terminals with self-lifting clamping piece IEC/EN 60 999-1		
Wire fixing:	DIN rail		
Mounting:	300 g		
Weight:			
Dimensions			
Width x height x depth:	45 x 74 x 121 mm		

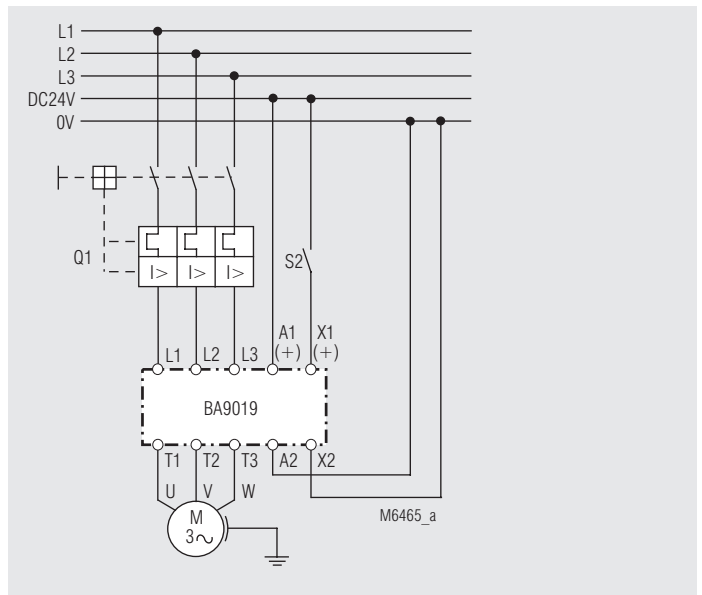
Standard Type				
BA 9019 3 AC 200 ... 460 V 50/60 Hz 3 kW				
Article number:		0051284		
• Nominal voltage:		3 AC 200 ... 460 V		
• Nominal motor power:		3 kW		
• Width:		45 mm		
Variant				
BA 9019/60:		with CSA-approval for 3 AC 200 V - 10 % ... 400 V + 10 % 10 A nominal current		
BA 9019/100:		eceleration time from 0 ... 5 s adjustable		
Ordering example for variant				
BA 9019 /60 3AC 200 ... 460 V 50/60 Hz 3 kW				
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Safety Notes

- Never clear a fault when the device is switched on
- **Attention:** This device can be started by potential-free contact, while connected directly to the mains without contactor (see application example). Please note, that even if the motor is at rest, it is not physically separated from the mains. Because of this the motor **must** be disconnected from the mains via the corresponding manual motor starter.
- The user must ensure that the device and the necessary components are mounted and connected according to the locally applicable regulations and technical standards.
- Adjustments may only be carried out by qualified specialist staff and the applicable safety rules must be observed.



Application Example



Softstart and softstop

