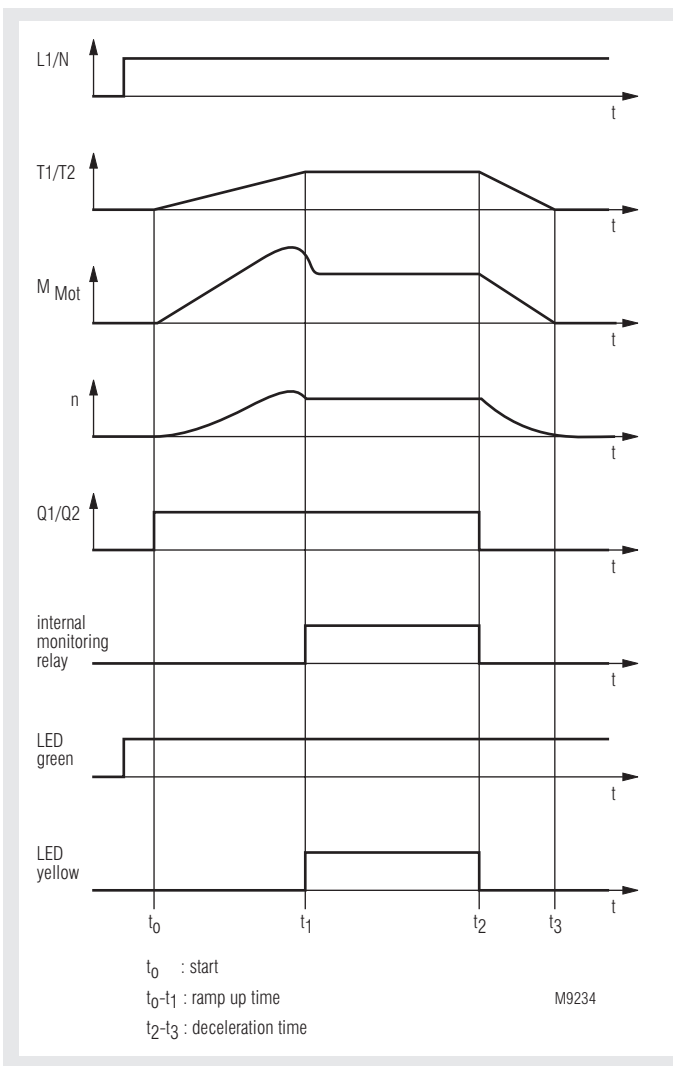


MINISTART
Softstarter With Softstop
IL 9017/300



- Increases life of 1-phase squirrel motors and mechanical drives
- For single phase motors up to 1.5 kW
- Adjustable ramp time/deceleration time and starting torque/ deceleration torque
- Semiconductors will be bridged after start up
- LED indication
- Width 35 mm

Function Diagram



Approvals and Marking



Applications

- Drives with gears, belts or chains
- Conveyor belts, fans
- Pumps, compressors

Function

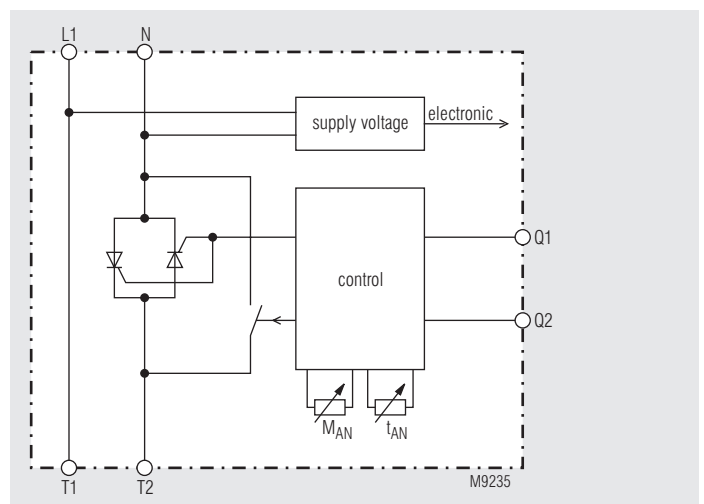
These softstart units are electronic devices designed to enable 1-phase induction motors to start and stop smoothly. By phase control the current is slowly ramped up and down allowing the motor torque to build up and decrease slowly. It provides shock free start and stop of the motor. Sudden changes of the torque as on direct start and stop do not appear any more. This feature allows an economic construction of the mechanical connected elements and prevents damage to conveyed material on conveyor systems.

When the motor is up to full speed the semiconductors in IL 9017 are bridged to prevent internal power losses and heat build up.

Indication

LED green: softstart active
 LED yellow: softstart is finished, short flashing when mains frequency is outside limits

Block Diagram



Notes

The 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 U_N:	AC 230 V -15 % +10 %
Nominal frequency:	50 / 60 Hz
Nominal motor power P_N:	1.5 kW
Min. motor power:	approx. 10 % of rated motor power
Nominal current:	10 A
External fuse (optional) superfast:	20 A
Starting torque/ deceleration torque:	20 ... 70 %
ramp-up time/ deceleration time:	0.1 ... 10 s
Recovery time:	200 ms
Switching frequency:	10/h at $3 \times I_r / t_{an} = 10$ s, $\vartheta_U = 20$ °C
Power consumption:	1.4 VA

General Data

Operating mode:	continuous operation
Temperature range:	0 ... + 55 °C
Storage temperature:	- 25 ... + 75 °C
Clearance and creepage distances	
rated impuls voltage / pollution degree:	4 kV / 2 IEC 60 664-1
EMC	
Electrostatic discharge:	8 kV (air) IEC/EN 61 000-4-2
HF irradiation:	10 V / m IEC/EN 61 000-4-3
Fast transients:	2 kV IEC/EN 61 000-4-4
Surge voltages 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
Interference suppression:	Limit value class B EN 55 011
Degree of protection	
Housing:	IP 40 IEC/EN 60 529
Terminals:	IP 20 IEC/EN 60 529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94
Vibration resistance:	Amplitude 0.35 mm, IEC/EN 60 068-2-6 frequency 10 ... 55 Hz
Climate resistance:	0 / 055 / 04 IEC/EN 60 068-1
Terminal designation:	EN 50 005
Wire connection:	2 x 2.5 mm ² solid or 2 x 1.5 mm ² stranded ferruled DIN 46 228-1/-2/-3
Wire fixing:	Flat terminals with self-lifting clamping piece IEC/EN 60 999-1
Mounting:	DIN rail IEC/EN 60 715
Weight:	135 g

Dimensions

Width x height x depth: 35 x 90 x 61 mm

Standard Type

IL 9017/300 AC 230 V 1.5 kW	
Article number:	0058831
• Nominal voltage U_N :	AC 230 V
• For motors up to 1.5 kW	
• Width:	35 mm

Adjustment Facilities

Ramp up/deceleration time: With potentiometer $t_{on,off}$ the ramp up and deceleration time can be adjusted within the range 0.1 to 10 s.

Starting and deceleration torque: With potentiometer $M_{on,off}$ the starting torque and the deceleration torque can be adjusted in the range of 20 to 70 % of the max. value.

Set-up Procedure

1. Set potentiometer " $M_{on,off}$ " fully anti-clockwise
Set potentiometer " $t_{on,off}$ " fully clockwise
2. Start motor by closing contact input Q1-Q2. If the motor does not start, interrupt the process and adjust " $M_{on,off}$ " to a higher value. New start.
3. Adjust potentiometer " $t_{on,off}$ " to give the desired ramp time.
Stop and restart the motor, readjusting the potentiometers until the desired starting characteristics are achieved.

Attention: If the ramp-up time is adjusted to short, the internal bridging contact closes before the motor is on full speed. This may damage the bridging relay. Changes on potentiometer settings are only accepted in the waiting for start status.



Safety instruction

- Never clear a fault when the device is switched on
- 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

