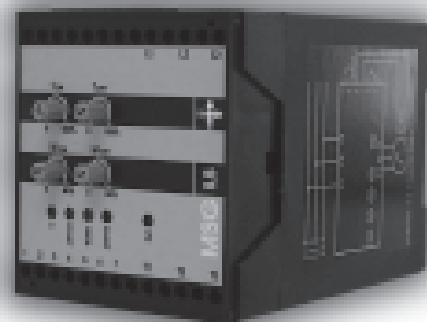


- Industrial design
- Softstarter
- 3-phase control
- Reduced mechanical stress on drives
- Reduced starting current compared with direct start
- Maintenance-free



► Technical data

► 1. Functions

Reducing mechanical stress on drives during the acceleration and the retardation phase of motors
 Temperature monitoring for both device as well as motor winding
 Monitoring of phase loss and phase sequence (MSG 5,5 and MSG 11 only)

► 2. Time ranges

| | Adjustment range | |
|-------------------|------------------|-----|
| Acceleration time | 0s | 30s |
| Retardation time | 0s | 30s |

3. Indicators

- Green LED ON: indication of control voltage
- Yellow LED "Start" ON: indication of activation
- Yellow LED "100%" ON: indication of max. output voltage
- Red LED "Fault" flashes: indication of overtemperature
- All red LEDs flashing: indication of phase loss or wrong phase sequence (MSG 5,5 and MSG 11 only)

► 4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
 Mounted on DIN-Rail TS 35 according to EN 50022
 Mounting position: any
 Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20

Master control unit:

Terminal capacity:

- 1 x 0.5 to 2.5mm² with/without multicore cable end
- 1 x 4mm² without multicore cable end
- 2 x 0.5 to 1.5mm² with/without multicore cable end
- 2 x 2.5mm² flexible without multicore cable end

Initial torque: 0.5Nm

Power circuit:

Terminal capacity: depends on selected unit

► 5. Input circuit

Supply voltage: internally generated
 Tolerance: -
 Rated frequency: -
 Duration of operation: 100%

► 6. Control contact 1-2

Function: activation of softstart
 Loadable: no
 Line length: max. 10m, twisted pair
 Control pulse length: min. 0.2s

► 7. Control contact 3-4

Function: input for PTC according to DIN 44081
 Line length: max. 10m, twisted pair

Note:

If no PTC is connected, terminals 3-4 have to be bridged !!!

► 8. Signaling contact 5-6-7

1 potential free change over contact
 Function: centralized alarm
 Switching capacity: 1500VA (6A / 250V AC)
 Fusing: 6A

Note:

Centralized alarm for MSG 5,5 and MSG 11 only

► 9. Power circuit

Control voltage: 3~ 400V terminals L1-L2-L3
 Tolerance: ±20%
 Rated frequency: 48 to 63Hz
 Starting torque: 0% to 80%
 Stopping torque: 0% to 80%
 Start-up cycles: max. 30/h at medium load
 Impulse series relay: internal
 Surge voltage: 2.5kV
 (according to IEC 60947-1 and DIN VDE 0110 Teil1)
 Insulation voltage: 345/600V
 (according to IEC60947-1, 4.3.1.2)

► 10. Power classes

See table (page 2)

► 11. Accessories

Sealable cover protecting unit against unconscious or unauthorized modification of adjusted parameters

► 12. Ambient conditions

Ambient temperature: -25 to +55°C (according to IEC 68-1)
 Storage temperature: -25 to +70°C
 Transport temperature: -25 to +70°C
 Relative humidity: 5% to 95% not condensing
 Pollution degree: 2 (according to IEC 664-1)

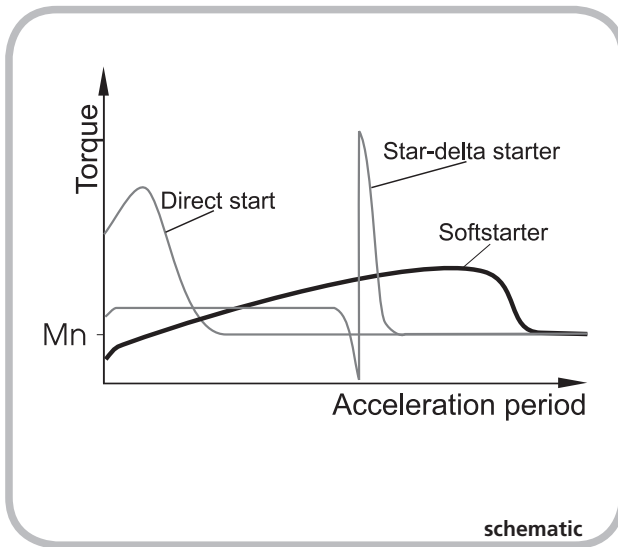
9. Power classes

| Type | Max. motor power at 3x400V (kW) | Maximum motor current (A) | Max. permissible start-up current (A) | Recommended semiconductor fuse (optional) (A) | Line fuse (A) | Recommended line cross section (mm ²) | Weight (g) | Width B (mm) |
|---------|---------------------------------|---------------------------|---------------------------------------|---|---------------|---|------------|--------------|
| MSG 3 | 3.0 | 6 | 18 | 16 | 16A | 1.5 | 330 | 45 |
| MSG 5,5 | 5.5 | 11 | 30 | 35 | 20A | 2.5 | 410 | 70 |
| MSG 11 | 11.0 | 22 | 60 | 63 | 32A | 4 | 620 | 100 |

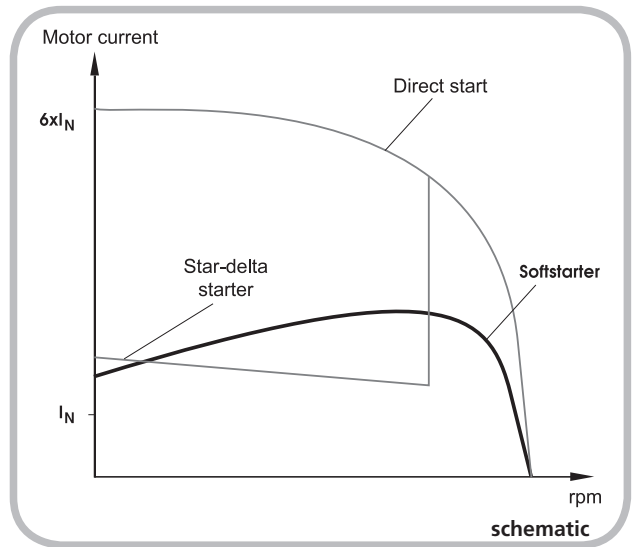
All values refer to standardized motors according to IEC 72 und UNE 20106

Advantages of softstarters

Reduced starting torque

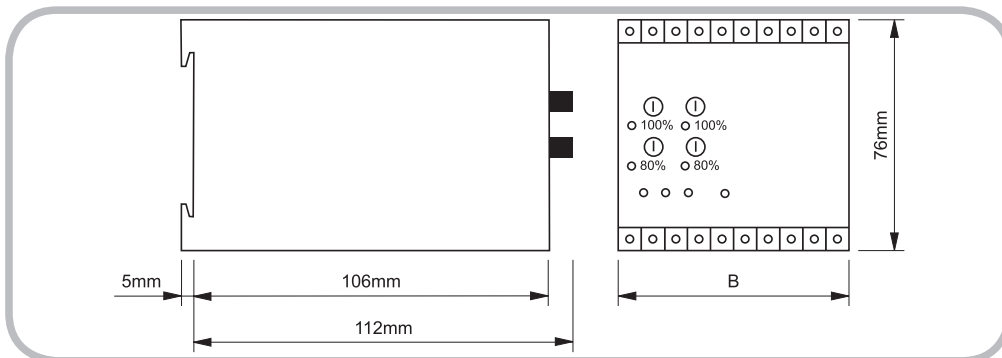


Reduced starting current

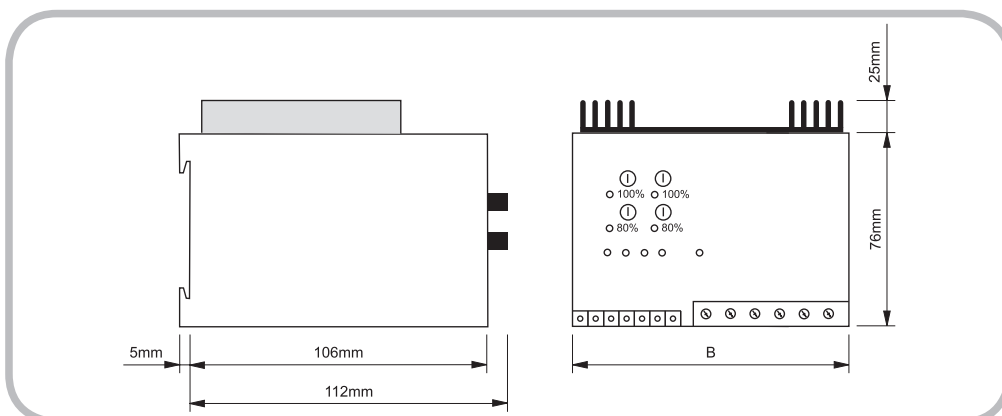


Dimensions

MSG 3 und 5,5



MSG 11



Functions

Controllable softstart and retardation of a motor

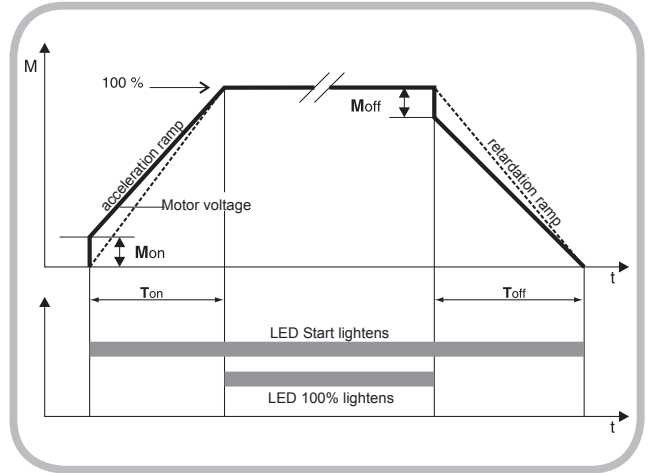
Inside the softstarters of the MSG series the main circuit is not controlled by mechanical switching elements but by semiconductor elements (thyristor modules).

Each phase contains a thyristor and an antiparallel diode which are partially or wholly conducting during a half-period. The conducting period is determined by the firing angle of the thyristor, which in turn is determined by the internal control electronics. Because of this, the device can be operated in a star circuit only without a neutral conductor.

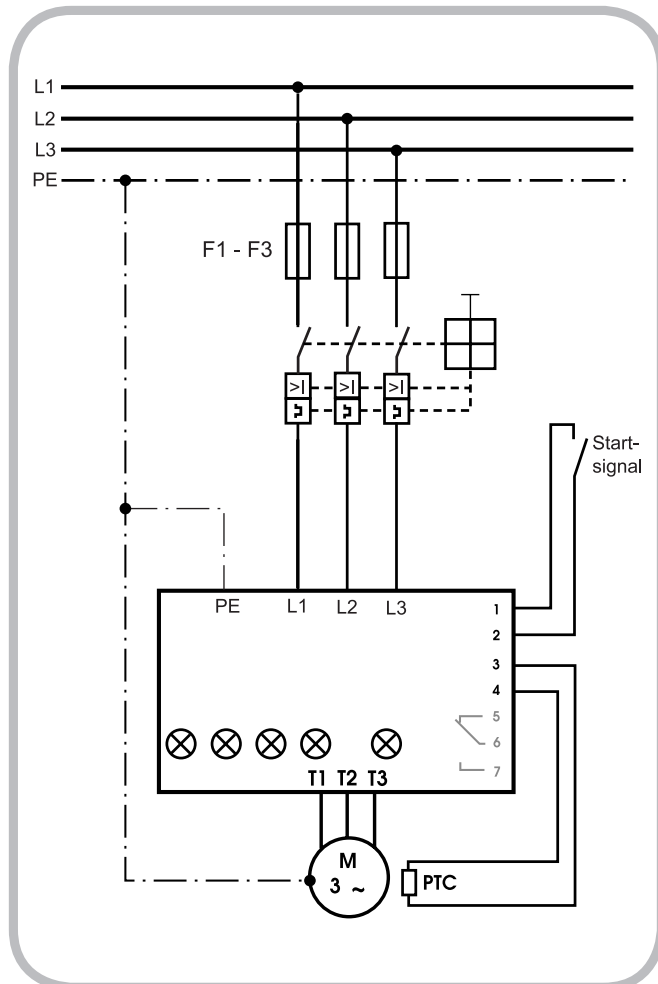
Every time before the softstarter is activated the MSG checks the supply system for phase failure and phase sequence. If there is no fault, voltage monitoring is deactivated and the softstarter is activated.

The MSG now increases the voltage at the motor linearly over the entire interval of the acceleration time (T_{ON}) to full control voltage. As the voltage increases, so too does the torque, just rising above the load moment. The motor therefore starts with slow acceleration.

By specifying a motor-specific startup moment the voltage (torque) increases rapidly when the softstarter is activated, until the startup torque set on the M_{ON} controller is reached. Only then does the voltage start increasing slowly for the remaining acceleration time until full system voltage is reached (100% LED illuminated). In this way, more effective use is made of the acceleration time and wear and tear is kept to a minimum. If the start key is opened, the retardation is activated (LED "100%" not illuminated). The torque is immediately reduced by the value set on the M_{OFF} controller (0 to 80%) and uniformly reduced over the set interval of the retardation time (0 to 30s) to zero (LED "Start" not illuminated).



Connections



MSG

 **Comments**