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Development and production of electronical systems

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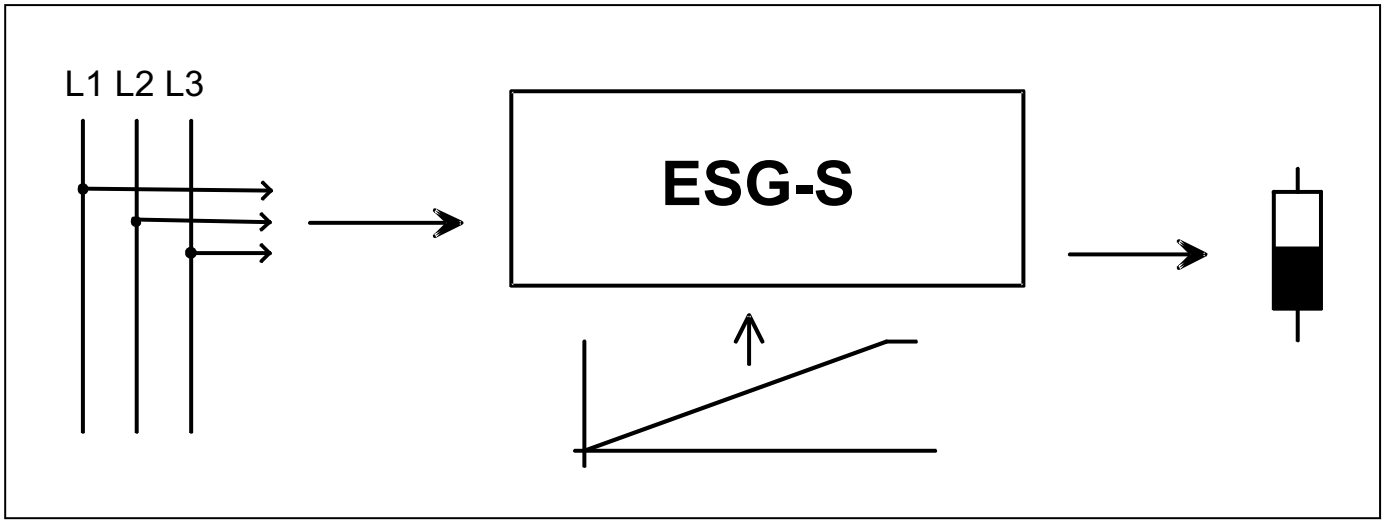
Start-up instructions

Electronic soft-starter
Type: ESG-S

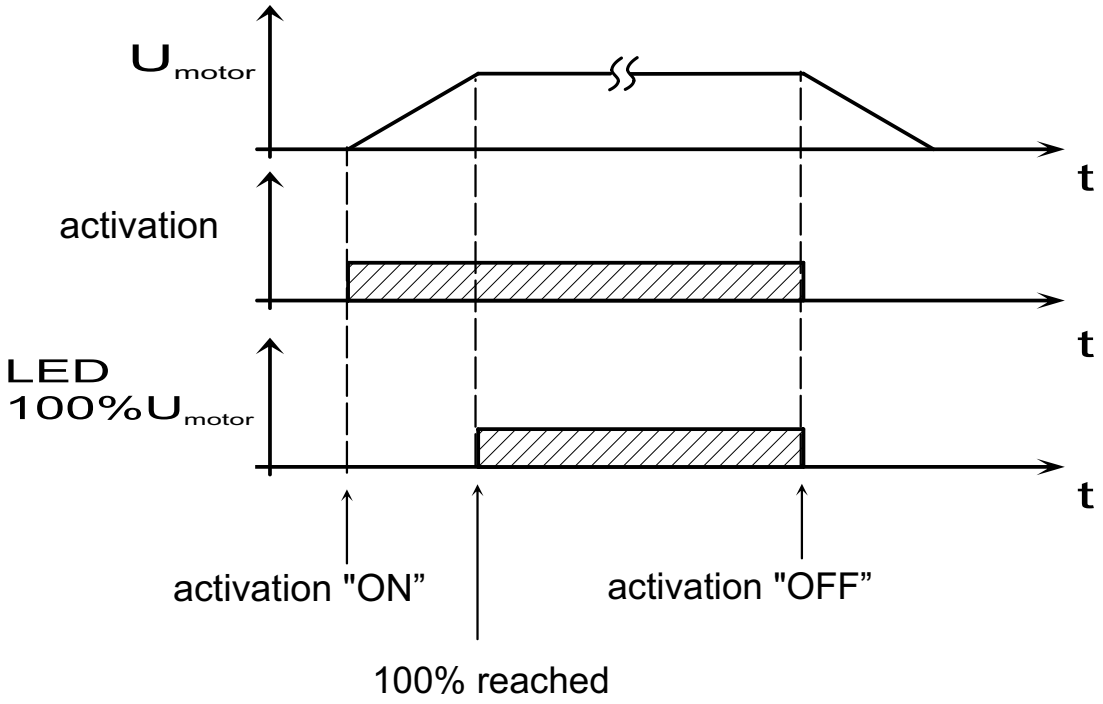


Contents

1. General information

The electronic motor-control devices ESG-S... were developed for smooth and gentle start-up and running of three-phase slip-ring or squirrel-cage induction motors.

Ramp-up and -down is controlled by changing the motor voltage within a special period of time that can be set by the user.



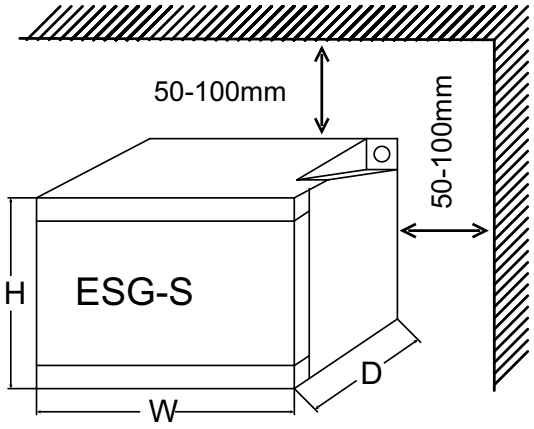
2. Installation of the soft-starter ESG-S

The built-in device according to IP 40 must be mounted in a housing or switchboard panel. Take care that cooling is adequate (using separate ventilation, for example). The temperature must not exceed 50° C. The device is to be mounted on a vertical surface so that the ventilation duct from the cooler is also vertical. The devices should be installed in a relatively dry and dust-free space in order for them to function without any difficulties.

Further conditions for the operating area:

- protection from dust and moisture
- protection from aggressive atmosphere
- free from vibration

No other components or construction units should be placed closer than 50 to 100mm from the device, so that airflow ventilation is not affected.



Wiring the Device:

Make mains connections (L1, L2, L3) via fused circuit breakers with the usual safeguards. Simply connect the device to the motor supply lines; it desn't matter whether the motor is star or delta wired. The wiring for power supply and the wiring for control must be laid in separate conduits or shielded ducts. It is essential that the electrical installation comply with general stipulations of the VDE (German Electrical Engineers Association), specifically (VDE 0100, VDE 0113, VDE 160).

3. Operation

To begin with, all electrical connections are to be made according to the accompanying wiring diagrams: L1, L2, L3, T1 (U), T2 (V), T3 (W). The electronic smooth-starting devices must be connected to the power supply in accord with VDE specifications so that they can be disconnected from the mains using a suitable switching means (i. e., master switch, contactor, protective power switch).

Conduit installation:

The mains power supply and motor power supply, as well as the control wiring, are to be in separate ducts or conduits. In order to avoid malfunctions it is advisable to install the electronic signal wiring separate from the power supply and/or protective control wiring and either to twist the feed and return signal lines or to use shielded control lines.

Fuses:

The mains fuse protection is dependent on the recommended or employed power-transmission cross-section, and must be carried out in accordance with DIN 57100, Part 430/VDE 0100 and part 430/6.81.

4. Meaning of the clamp connections

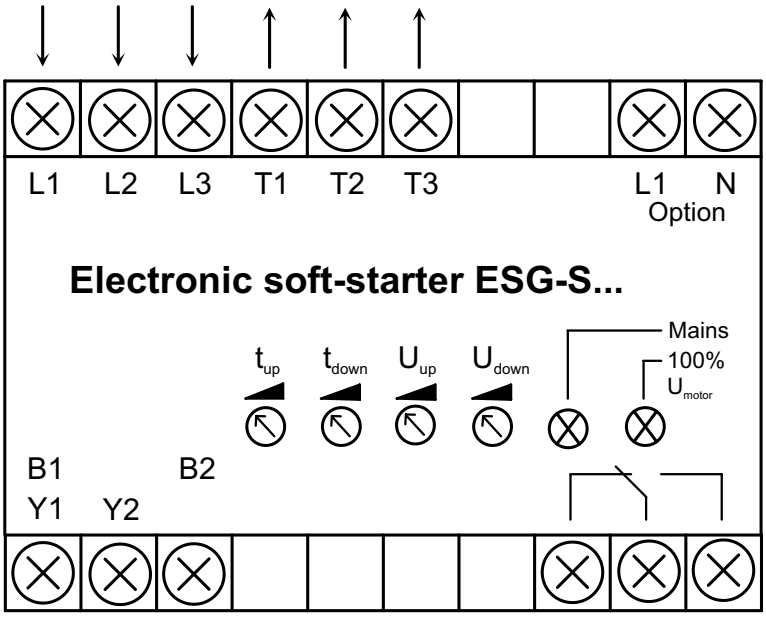
Control voltage:	
L1, L2, L3	connection of 400V/50Hz

Power output:	
T1, T2, T3	ohm or inductive load

Option:	
L1, N	in case of external power supply

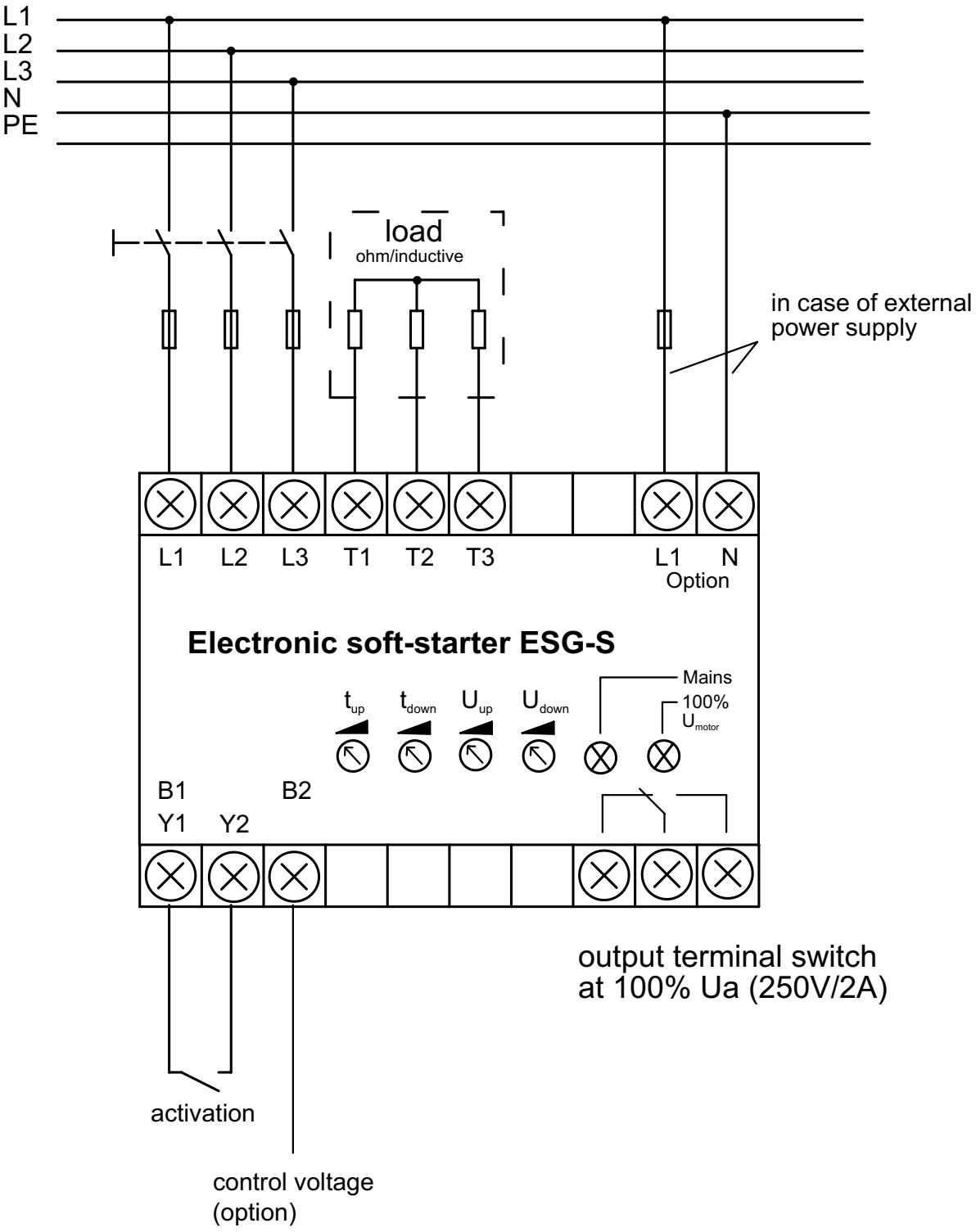
Activation:		
Y1, Y2	ramp-up and continuous operation:	closed
	ramp-down:	open
Option: B1, B2	activation with PLC-signal (B1 = GND)	

Output switch terminal:
potential-free relay contact: activation at 100% voltage, e.g. useable for the operation of a bridging contact



Meaning of the LEDs:	
Mains	leuchtet bei korrekter Versorgungsspannung
100% U_{motor}	lights when motor voltage has reached 100%

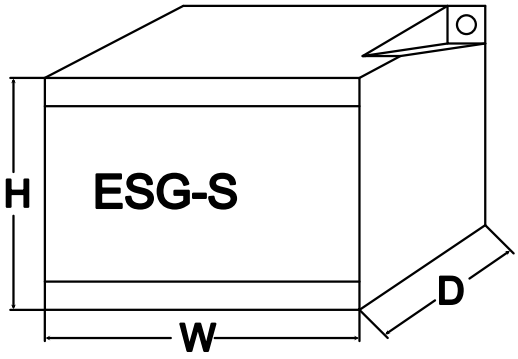
5. Switching suggestion, basic circuit



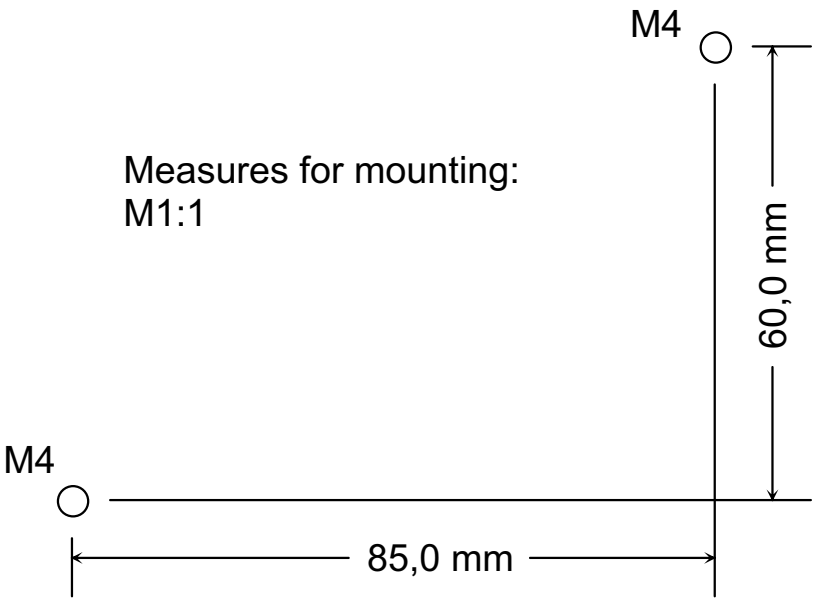
6. Survey of the individual types

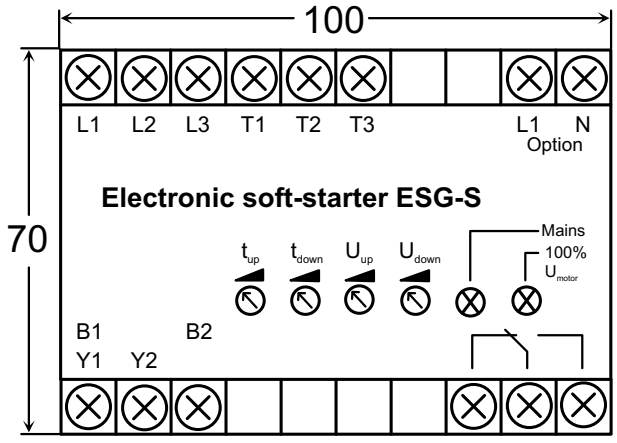
Type	Motor power [kW]	Max. starting current [A]	Rec. semi-conductor fuses [A]	Mains fuse [A]	Rec. cross-section [mm²]	Weight [kg]	Dimensions WxHxD [mm]
ESG-S 0,37	0,37	3,5	6	16	1,5	0,35	100x70x110
ESG-S 0,55	0,55	5,5	8	16	1,5	0,35	100x70x110
ESG-S 0,75	0,75	6,0	8	16	1,5	0,35	100x70x110
ESG-S 1,5	1,5	12,0	15	25	2,5	0,35	100x70x110
ESG-S 2,2	2,2	15,0	20	25	2,5	0,35	100x70x110
ESG-S 3,0	3,0	24,0	25	25	2,5	0,55	100x95x110
ESG-S 4,0	4,0	32,0	30	25	2,5	0,55	100x95x110

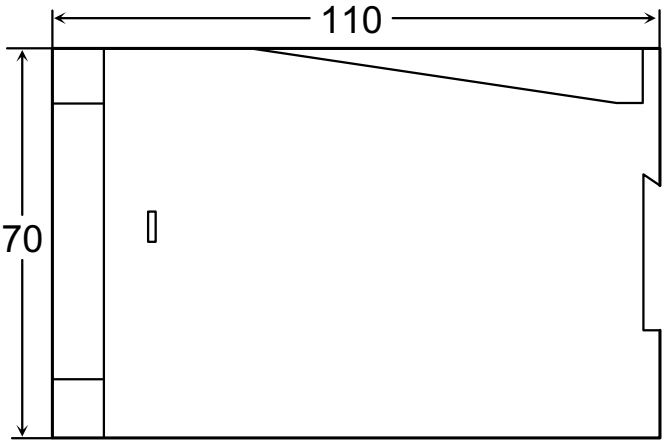
Errors and technical modifications excepted (Date: 2008/08)



Measures for mounting:
M1:1







7. Technical Data

Power supply	400V/50-60Hz	
Control voltage:	400V/50-60Hz or 230V/50Hz optional	
Rated frequency:	50Hz-60 Hz	
Rotary field:	self-synchronizing	
Ambient temperature:	0-40°C	
Kind of protection:	IP 40 clamps IP20 (VBG 4) arbitrary	
Klimafestigkeit:	F according to DIN 40040	
Rüttelfestigkeit:	4g	
Housing:	ABS (Terulan) 877 T, UL 94 HB	
Weight:	0,35kg (0,37-2,2kW)	0,55kg (3,0-4,0kW)
CE-regulations	EMC Directive 2004/108/EC LVD 2006/95/EC	

Errors and technical modifications excepted (Date: 2013/04)