#### **Features:**

- three-phase controlled soft starter
- controlled by microcontroller
- optimized soft start and current control
- current and torque reduction during acceleration
- easy mounting, for snap-mounting on 35mm standard rail
- integrated bypass relay
- parameterization by means of a potentiometer
- no mains neutral conductor (N) required
- economically priced substitute for star-delta starters
- spring-loaded terminals
- heat sink temperature monitoring
- compact design, 45mm up to 45A
- degree of protection IP20
- motor protection
- thermal device protection



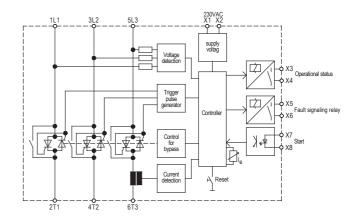
Soft Starters
VS III L B [9 − 45A]

### **Function:**

- soft acceleration and deceleration
- potential-free control input for soft acceleration and deceleration
- potential-free relay output for operating state failure

# **Typical Applications:**

heat pumps compressors



Typical designation (standard)		VS III 480L B						
	9	16	25	37	45			
rated device current	9A	16A	25A	37A	45A			
rated operational voltage U <sub>e</sub>		200V – 480V ±10% 50/60Hz						
control supply voltage U <sub>s</sub>		230V ±10% AC 50/60Hz						
motor rating at U <sub>e</sub> 400V	4kW	7,5kW	11kW	18,5kW	22kW			
order number	25511.48009	25511.48016	25511.48025	25511.48037	25511.48045			

Please observe supplementary sheet with dimensioning rules!

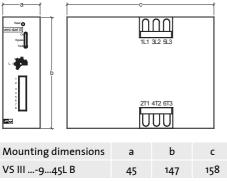
Technical data									
switch, frequency/hour at 2,5xl <sub>N</sub> and t <sub>m</sub> =5s 2,5xl <sub>N</sub> and t <sub>m</sub> =1s 40 24 16 12 8 utilization category 9A:AC-53b:6-3:360 16A:AC-53b:6-3:597 25A:AC-53b:6-3:870 37A:AC-53b:6-3:1797 45A:AC-53b:6-3:1797 45A:AC-53b:6-3:597 45A:AC-53b:6-3:597 45A:AC-53b:6-3:597 45A:AC-53b:6-3:597 45A:AC-53b:6-3:597 45A:AC-53b:6-3:597 45A:AC-53b:6-3:597 45A:AC-53b:6-3:597 45A:AC-53b:6-3:1797 45A:AC-53b:A	Technical data VS III	480- LB	9	16	25	37	45		
2,5xl <sub>k</sub> and t <sub>sm</sub> =1s   40   24   16   12   8	rated device current		9A	16A	25A	37A	45A		
utilization category  parace proper dissipation - in operation related to max. starting frequency - standby - standb	switch. frequency/hour at	t 2,5xI <sub>N</sub> and t <sub>an</sub> =5s	10	6	4	3	2		
max, power dissipation - in operation related to max. starting frequency - standby  5W		2,5xI <sub>N</sub> and t <sub>an</sub> =1s	40	24	16	12	8		
- in operation related to max. starting frequency 5W	utilization category		9A:AC-53b:6-3:360	16A:AC-53b:6-3:597	25A:AC-53b:6-3:870	37A:AC-53b:6-3:1197	45A:AC-53b:6-3;1797		
- standby  SW S	max. power dissipation								
Pt - power semiconductors in A2s min. motor load starting time stopping	- in operation related to max. starting frequency		9W	9W	9W	9W	9W		
min. motor load  starting time  o,6s  stopping time  o,25s  restart time  input resistance control inputs  control voltage U <sub>4</sub> contact rating of relay outputs RA1/RA2  installation class  overvoltage category / pollution degree:  control and auxiliary circuit  main circuit  rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  rated insulation voltage U <sub>4</sub> :  main circuit  control and auxiliary circuit  main circuit  strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  spoov  control and auxiliary circuit  max. cross-sectional area for connection:  control terminals  power teminals  power teminals  max. tightening torque:  control terminals  main circuit  - spring-loaded terminals  main circuit  - spring-loaded terminals  amin circuit  o°C 45°C up to an altitude of 1000m / -25°C 75°C	- standby		5W	5W	5W	5W	5W		
starting time  stopping time  restart time  200ms  input resistance control inputs  80kOhm  control voltage U  contact rating of relay outputs RA1/RA2  installation class  overvoltage category / pollution degree:  control and auxiliary circuit  main circuit  rated impulse strength U  main circuit  rated insulation voltage U  control and auxiliary circuit  main circuit  rated insulation voltage U  control and auxiliary circuit  main circuit  control and auxiliary circuit  main circuit  strength U  control and auxiliary circuit  main circuit  control and auxiliary circuit  main circuit  control and auxiliary circuit  max. cross-sectional area for connection:  control terminals power terminals power terminals max. tightening torque:  control terminals main circuit  control terminals main ci	I <sup>2</sup> t – power semiconductor	rs in A <sup>2</sup> s	390	720	4000	9100	16200		
stopping time 0,255  restart time 200ms  input resistance control inputs 80kOhm  control voltage U <sub>c</sub> 24VDC 230VAC  contact rating of relay outputs RA1/RA2 2A/ 250VAC / 30VDC  installation class 3  overvoltage category / pollution degree:  control and auxiliary circuit III / 2  main circuit III (TT / TN-systems) / 2  rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit 4kV  rated insulation voltage U <sub>c</sub> :  main circuit 550V  control and auxiliary circuit 250V  max. cross-sectional area for connection:  control terminals power teminals power teminals main circuit spring-loaded terminals main circuit	min. motor load		20% of the device rated current						
restart time input resistance control inputs control voltage U <sub>c</sub> contact rating of relay outputs RA1/RA2 installation class overvoltage category / pollution degree: control and auxiliary circuit main circuit lil (TT / TN-systems) / 2 rated impulse strength U <sub>imp</sub> : control and auxiliary circuit main circuit  rated insulation voltage U <sub>i</sub> : main circuit control and auxiliary circuit sincircuit sincircuit spowy control and auxiliary circuit spowy sp	starting time		o,6s						
input resistance control inputs  control voltage U <sub>c</sub> contact rating of relay outputs RA1/RA2  installation class  overvoltage category / pollution degree:  control and auxilliary circuit  main circuit  rated impulse strength U <sub>imp</sub> :  control and auxilliary circuit  main circuit  rated insulation voltage U <sub>i</sub> :  main circuit  rated insulation voltage U <sub>i</sub> :  main circuit  max. cross-sectional area for connection:  control and auxilliary circuit  max. cross-sectional groue:  control terminals  power teminals  max. tightening torque:  control terminals  main circuit  control terminals  main circuit  control terminals  power teminals  max. tightening torque:  control terminals  main circuit  control terminals  power teminals  main circuit  control terminals  ambient / storage temperature  o°C 45°C up to an altitude of 1000m / -25°C 75°C	stopping time		0,25s						
control voltage U <sub>c</sub> contact rating of relay outputs RA1/RA2  installation class  overvoltage category / pollution degree:  control and auxiliary circuit  main circuit  rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  rated insulation voltage U <sub>c</sub> :  main circuit  sooV  control and auxiliary circuit  main circuit  sooV  control and auxiliary circuit  sooV  control and auxiliary circuit  main circuit  sooV  control and auxiliary circuit  max. cross-sectional area for connection:  control terminals  power teminals  power teminals  amax. tightening torque:  control terminals  main circuit  control terminals  power teminals  main circuit  o°C 45°C up to an altitude of 1000m / -25°C 75°C	restart time		200ms						
contact rating of relay outputs RA1/RA2  installation class  overvoltage category / pollution degree:  control and auxiliary circuit  main circuit  rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  main circuit  sooV  control and auxiliary circuit  max. cross-sectional area for connection:  control terminals power teminals power teminals main circuit  auxiliary circuit  control terminals power teminals power teminals amain circuit  auxiliary circuit  control terminals power teminals amin circuit  - spring-loaded terminals amin circuit  auxiliary circuit  control terminals power teminals amin circuit  - spring-loaded terminals amin circuit  - spring-loaded terminals amin circuit  co°C 45°C up to an altitude of 100 om / -25°C 75°C	input resistance control in	puts	8okOhm						
installation class  overvoltage category / pollution degree:  control and auxiliary circuit  main circuit  rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  rated insulation voltage U <sub>i</sub> :  main circuit  rated insulation voltage U <sub>i</sub> :  main circuit  sooV  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  sooV  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  sooV  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  sooV  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  sooV  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  smain circuit  sooV  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  spooV  control and auxiliary circuit  sooV  sooV  control and auxiliary circuit  sooV  sooV  control and auxiliary circuit  sooV  sooV	control voltage U <sub>c</sub>		24VDC 230VAC						
overvoltage category / pollution degree:  control and auxiliary circuit  main circuit  rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit  rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  spoov  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  spoov  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  spoov  control and auxiliary circuit  rated impulse  spoov  control and auxiliary circuit  rated impulse  spoov  control and auxiliary circuit  rated impulse  1,5mm²  1,5mm²  6mm²  1,5mm²  16mm²  16mm²  rated impulse  spring-loaded terminals  ambient / storage temperature  o°C 45°C up to an altitude of 1000m / -25°C 75°C	contact rating of relay out	tputs RA1/RA2	2A / 250VAC / 30VDC						
control and auxiliary circuit  main circuit  rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  sooV  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  sooV  control and auxiliary circuit  rated impulse strength U <sub>imp</sub> ;  sooV  control and auxiliary circuit  sooV  so	installation class		3						
main circuit  rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit  rated insulation voltage U <sub>i</sub> :  main circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  max. cross-sectional area for connection:  control terminals power teminals power teminals  max. tightening torque:  control terminals main circuit  control terminals power teminals  main circuit  ambient / storage temperature  o°C 45°C up to an altitude of 100 om / -25°C 75°C	overvoltage category / po	llution degree:							
rated impulse strength U <sub>imp</sub> :  control and auxiliary circuit  main circuit  trated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  max. cross-sectional area for connection:  control terminals  power teminals  max. tightening torque:  control terminals  main circuit  control terminals  power teminals  control terminals  ambient / storage temperature  o°C 45°C up to an altitude of 1000m / -25°C 75°C	control and auxiliary circu	it	II / 2						
control and auxiliary circuit  main circuit  rated insulation voltage U <sub>i</sub> :  main circuit  control and auxiliary circuit  power terminals  max. tightening torque:  control terminals  main circuit  control terminals  power terminals  main circuit  control terminals  power terminals  main circuit  control terminals  power terminals  ambient / storage temperature  control terminals  control te	main circuit		III (TT / TN-systems) / 2						
main circuit  rated insulation voltage U <sub>i</sub> :  main circuit  500V  control and auxiliary circuit  250V  max. cross-sectional area for connection:  control terminals power teminals  max. tightening torque:  control terminals power teminals  main circuit  - spring-loaded terminals ambient / storage temperature  o°C 45°C up to an altitude of 1000m / -25°C 75°C	rated impulse strength U <sub>ir</sub>	mp <b>:</b>							
rated insulation voltage U <sub>1</sub> : main circuit  control and auxiliary circuit  max. cross-sectional area for connection: control terminals power teminals  max. tightening torque: control terminals main circuit  control terminals power teminals  - spring-loaded terminals ambient / storage temperature  o°C 45°C up to an altitude of 1000m / -25°C 75°C	control and auxiliary circuit 2,5kV								
main circuit  control and auxiliary circuit  max. cross-sectional area for connection:  control terminals power teminals power teminals max. tightening torque: control terminals main circuit  - spring-loaded terminals main circuit  - spring-loaded terminals ambient / storage temperature  o°C 45°C up to an altitude of 1000m / -25°C 75°C			4kV						
control and auxiliary circuit  max. cross-sectional area for connection:  control terminals power teminals power teminals  max. tightening torque: control terminals power teminals  main circuit  ambient / storage temperature  control terminals co	_	J <sub>i</sub> :							
max. cross-sectional area for connection:  control terminals power teminals  max. tightening torque: control terminals  main circuit  ambient / storage temperature  1,5mm² 1,5mm² 16mm² 16mm²  - spring-loaded terminals - spring-loaded terminals - spring-loaded terminals - spring-loaded terminals			500V						
control terminals power teminals  max. tightening torque: control terminals  main circuit  ambient / storage temperature  control terminals  - spring-loaded terminals  - spring-loaded terminals  - spring-loaded terminals  o°C 45°C up to an altitude of 1000m / -25°C 75°C	_		250V						
control terminals power teminals forme  max. tightening torque: control terminals main circuit  ambient / storage temperature  control terminals o°C 45°C up to an altitude of 1000m / -25°C 75°C			1,5mm <sup>2</sup> 1 cmm <sup>2</sup>						
max. tightening torque: control terminals main circuit - spring-loaded terminals - spring-loaded terminals - spring-loaded terminals  ambient / storage temperature  o°C 45°C up to an altitude of 1000m / -25°C 75°C				6mm²					
main circuit - spring-loaded terminals  ambient / storage temperature o°C 45°C up to an altitude of 1000m / -25°C 75°C		•							
ambient / storage temperature o°C 45°C up to an altitude of 1000m / -25°C 75°C	max. tightening torque:		· -						
weight / kg 0,95									
	weight / kg		0,95						

#### Note:

Please pay attention and consider for the operation of IE3 motors while dimensioning of softstarters and dc brakes the resulting higher starting and braking currents.

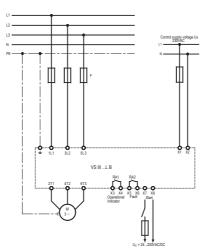
For the use of IE3 motors we highly recommend to dimension and design the needed softstarters and braking devices one size higher.

### **Dimensions:**



## All dimensions indicated in mm.

# **Connection Diagram:**



Subject to change without notice.