



Soft Starters

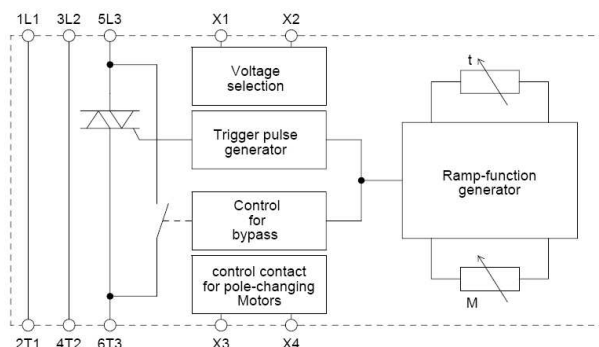
SAS 3 ... 11 SAS 11 PUST SAS 22 PUST

Function	Features	Typical Applications
- Soft start 2 separately adjustable parameters starting torque, starting time - Control contact for pole-changing motors	- Single-phase controlled soft starter - All devices for pole-changing motors - Dual-voltage, for 400V and 230V networks - Easy mounting, also for retrofitting into existing plants - Terminal arrangement suitable for switchgear connection - For snap-mounting on 35mm standard rail - Integrated bypass relay - No mains neutral conductor (N) required - Special voltages up to 640V - Also for single-phase applications - Degree of protection IP 20 (SAS 3 ... SAS 11) - Degree of protection IP 00 (SAS 11PUST, 22PUST)	- Packaging machinery - Sliding doors - Belt drives - Conveying machinery - Door drives of passenger and goods lifts - Limitation of starting current for transformers

Type	SAS					
	3	5,5	7,5	11	11PUST	22PUST
Mains / Motor Voltage X1-X2 jumpered	160 ... 240 V +/- 10%				400 V +/- 15%	
Voltage X1-X2 not jumpered	380 ... 480 V +/- 10%					
Device nominal current	6,5 A	12 A	16 A	25 A	25 A	45 A
Mains frequency	50/60 Hz					
Motor rating at 230V	1,5 kW	3 kW	4 kW	5,5 kW		
Motor rating at 400V	3 kW	5,5 kW	7,5 kW	11 kW	11 kW	22 kW
Min. Motor load	10% of the device power rating					
Starting torque	0 ... 50 %					
Starting time	0,5 ... 5 s					
Reset time	200ms					
Max. Switching cycle per hour	100/h	80/h	50/h	30/h	120/h	60/h
Ambient / Storage temperature	0° C ... 45° C / -25° C ... 75° C					
Weight	0,3 kg	0,3 kg	0,5 kg	0,5 kg	2,7 kg	3 kg
Order number	20700.40003	20700.40005	20700.40007	20700.40011	20800.38011	20800.38022
List price €						

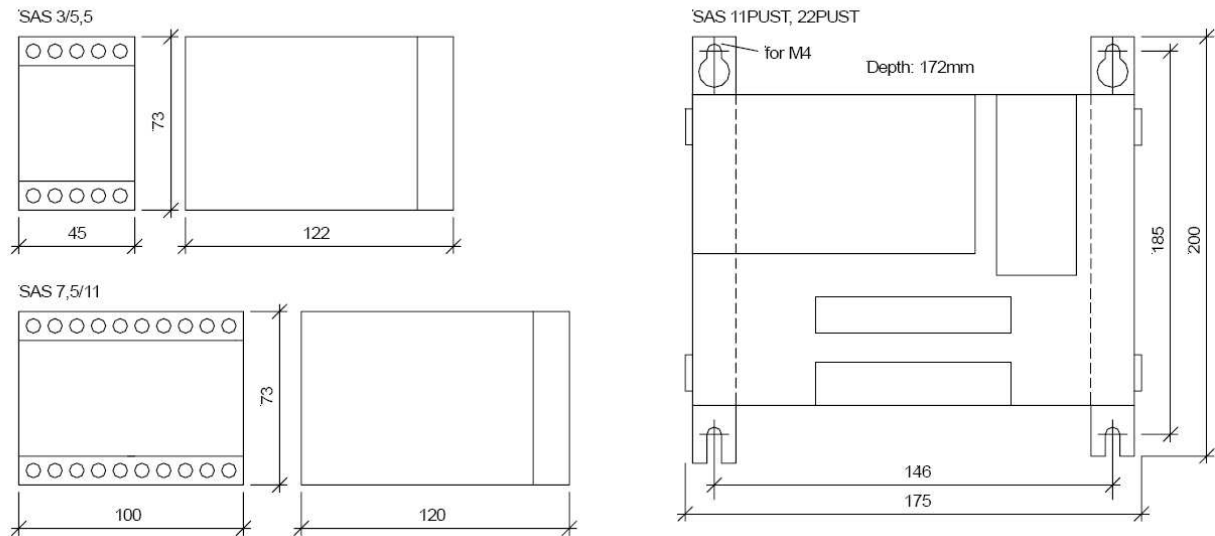
On request

- Input (potential-free) - Control voltage 10 ... 30 VDC
- SAS 3 ... SAS 11: Special voltages 500 ... 640 V
- 11PUST, 22PUST: Special voltages up to 690 V

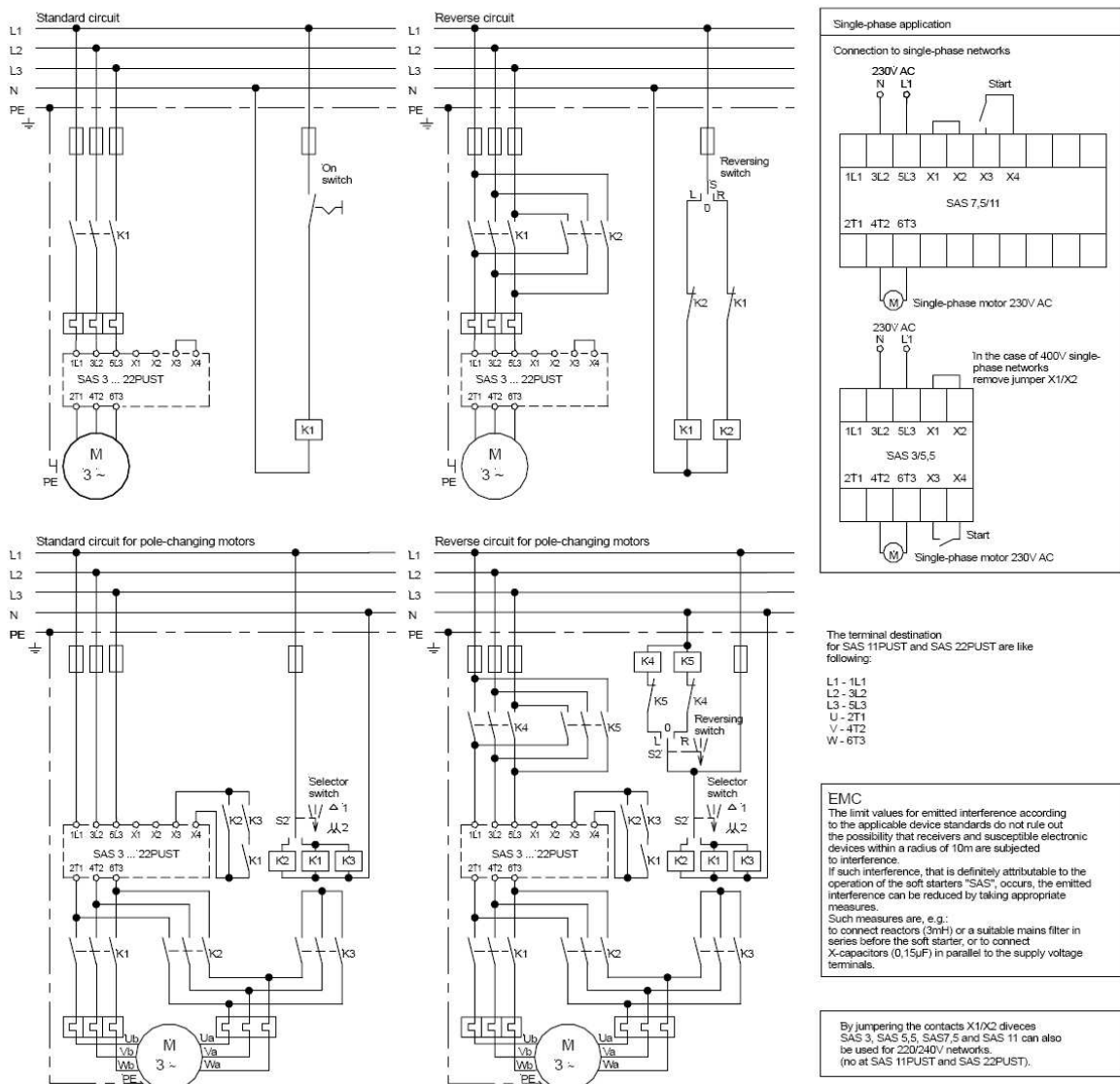


Soft Starters SAS 3 ... 11, SAS 11PUST, SAS 22PUST

Dimensions:



Connection Diagrams:





Soft Starters

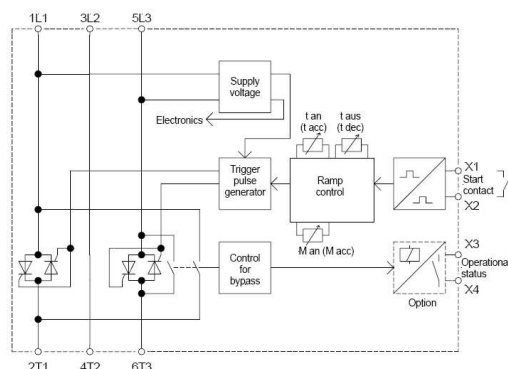
DUOSTART 1,5 ... 22

Function	Features	Typical Applications
- Soft start and soft stop - Potential-free control input for soft start and - Soft stop 3 separately adjustable parameters starting torque, acceleration time, deceleration time - Control (start/stop) with contact or voltage 10-42VDC	- Two-phase controlled soft starter - Easy mounting, also for retrofitting into existing plants - Integrated bypass relay - No mains neutral conductor (N) required - Parameterization by means of three potentiometers - Economically priced replacement for star/delta switches - For mounting on top hat rail - Current reduction during acceleration - Very compact design, overall width from 45mm on - Degree of protection IP20	- Door and gate drives - Pumps, ventilators - Conveyors - Packaging machinery - Transformer soft start

Type	DUOSTART					
	1,5	3	5,5	7,5	11	22
Mains / Motor voltage	400 V +/- 10% 50/60 Hz					
Device nominal current	3,5 A	6,5 A	12 A	15 A	25 A	45 A
Motor rating at 400V mains voltage	1,5 kW	3 kW	5,5 kW	7,5 kW	11 kW	22 kW
Min. Motor load	40% of the device power rating					
Starting torque	0 ... 80 %					
Acceleration time	0,5 ... 12 s					
Deceleration time	0,5 ... 12 s					
Reset time	200ms					
Max. switching cycle	90/h	60/h	30/h	60/h	30/h	20/h
Wire range solid stranded	2 x 2,5 mm ² 2 x 1,5 mm ²	2 x 2,5 mm ² 2 x 1,5 mm ²	2 x 2,5 mm ² 2 x 1,5 mm ²	6 mm ² 4 mm ²	6 mm ² 4 mm ²	16 mm ² 10 mm ²
External fuse "high-speed"	SILIZED					
Ambient / storage temperature	0° C ... 45° C / -25° C ... 75° C					
Weight	0,4 kg	0,4 kg	0,4 kg	0,8 kg	0,8 kg	1,6 kg
Special voltages	230 V	230 V 480 V	230 V 480 V	230 V 480 V	230 V 480 V	230 V 480 V
Order number/ List price €	21500.40001	21500.40003	21500.40005	21500.40007	21500.40011	21500.40022
Option „M“	21501.40001 on request	21501.40003 on request	21501.40005 on request	21501.40007 on request	21501.40011 on request	21501.40022 on request
Option „S“	21502.40001 on request	21502.40003 on request	21502.40005 on request	21502.40007 on request	21502.40011 on request	21502.40022 on request

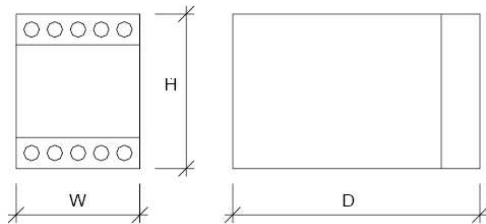
Options

- DUOSTART ... M**
potential-free output for operational status
- DUOSTART ... S**
control (start/stop) with voltage 10-42VDC
- external 24V supply voltage
(wide voltage range capability)

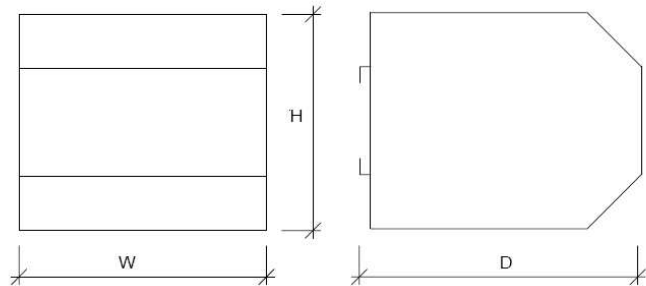


Soft Starters DUOSTART 1,5 ... 22

DUOSTART 1.5 ... 5.5

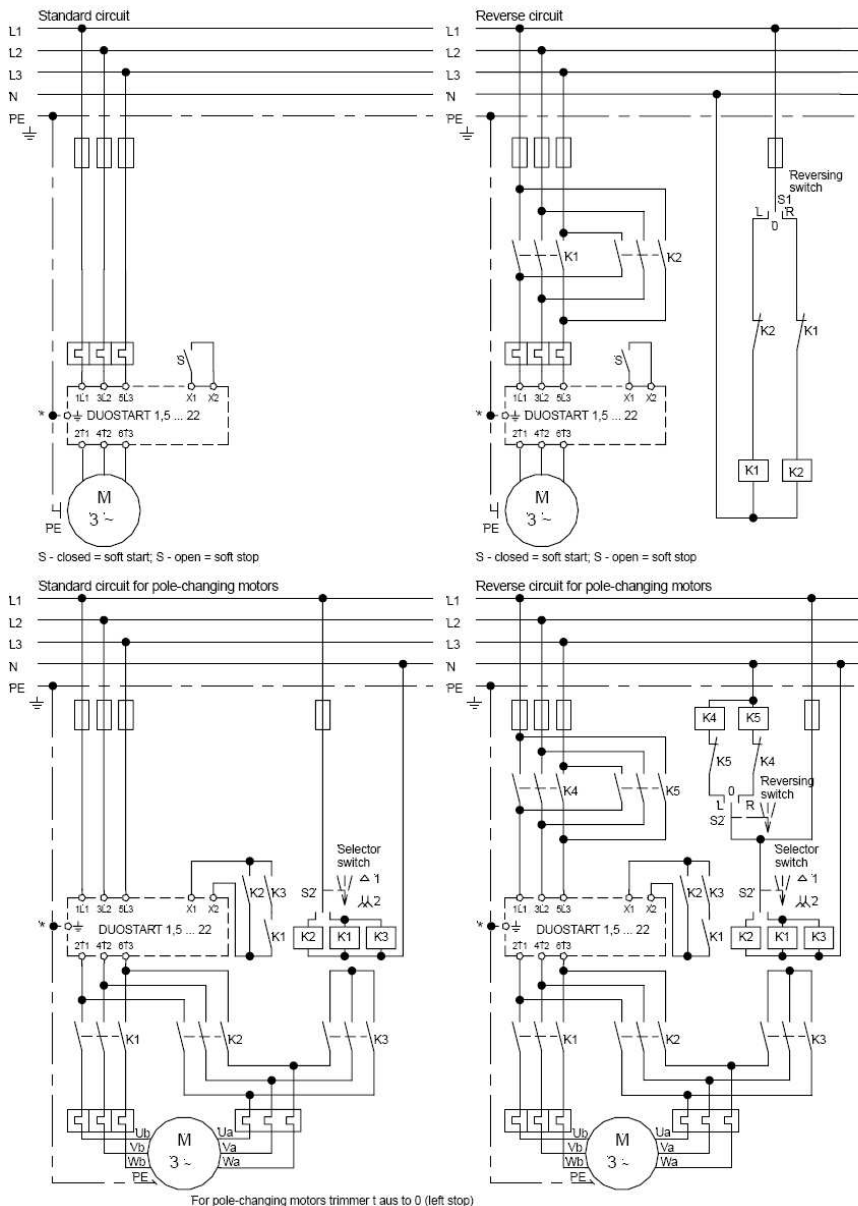


DUOSTART 7.5 / 11 / 22



Mounting dimensions	W	H	D
DUOSTART 1.5 ... 5.5	45mm	73mm	122mm
DUOSTART 7.5 / 11	90mm	105mm	105mm
DUOSTART 22	165mm	105mm	105mm

Connections Diagrams:



EMC
The limit values for emitted interference according to the applicable device standards do not rule out the possibility that receivers and susceptible electronic devices within a radius of 10m are subjected to interference.
If such interference, that is definitely attributable to the operation of the soft starters "DUOSTART", occurs, the emitted interference can be reduced by taking appropriate measures.
Such measures are, e.g.:
to connect reactors (3mH) or a suitable mains filter in series before the soft starter, or to connect X-capacitors (0,15μF) in parallel to the supply voltage terminals.

* PE connection only 7.5 and 22kW



Soft Starters

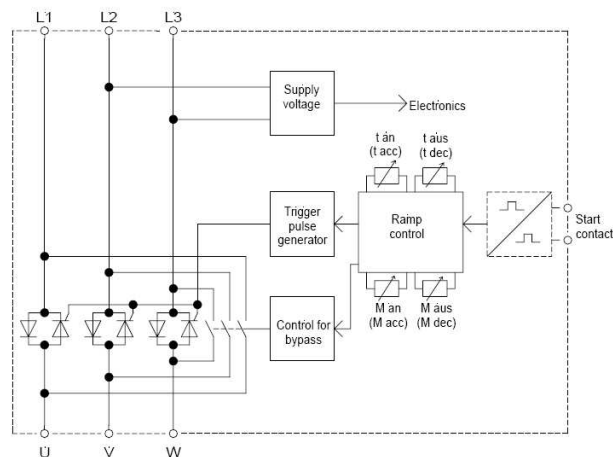
MICROSTART 1,5 / 3

Function	Features	Typical Applications
- Soft start - soft stop 4 separately adjustable parameters starting torque, acceleration time, soft stop torque, deceleration time - Soft start and soft stop via control contact possible	- Three-phase controlled soft starter - Easy mounting, also for retrofitting into existing plants - Terminal arrangement suitable for switchgear connection - For snap-mounting on 35mm standard rail - Integrated bypass relay - No mains neutral conductor (N) required - Functional peak current reduction - Degree of protection IP 20	- Pumps, ventilators - Belt drives, driving pulleys / coil winders - Conveying machinery - Compressors

Type	MICROSTART			
	1,5		3	
Mains / Motor voltage	400 V +/- 15%, 50/60 Hz			
Device nominal current	4 A		6,5 A	
Motor rating at 400V mains voltage	1,5 kW		3 kW	
Min. Motor load	10% of the device power rating			
Adjustment range of starting torque	0 .. 80%			
Adjustm. range of acceleration time	1 .. 20s			
Adjustm. range of soft stop torque	20 .. 80%			
Adjustm. range of deceleration time	0 .. 20s			
Reset time	200 ms			
Max. Switching cycle	120/h		60/h	
External fuse "high-speed"	SILIZED			
Ambient / storage temperature	0°C ... 45°C / -25°C ... 75°C			
Dimensions	166 x 106 x 55 mm			
Mains / Motor voltage	0,75 kg		0,75 kg	
Order number/ List price €	21300.38001		21300.38003	
Option „SST“	21304.38001		21304.38003	

Option:

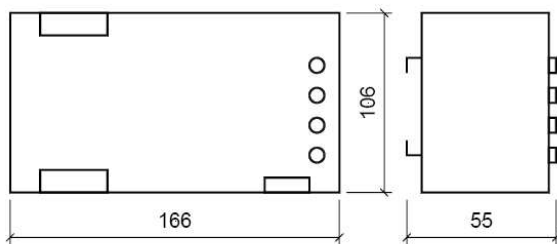
SST – pluggable terminals



Soft Starters MICROSTART 1,5 / 3

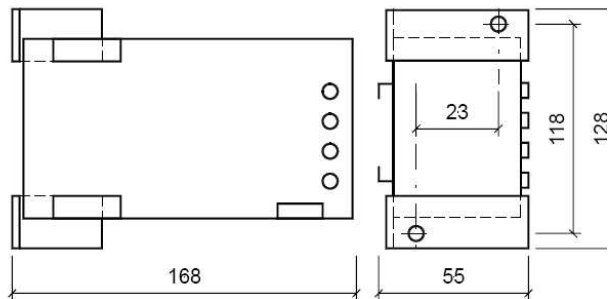
Dimensions:

MICROSTART 1,5/3

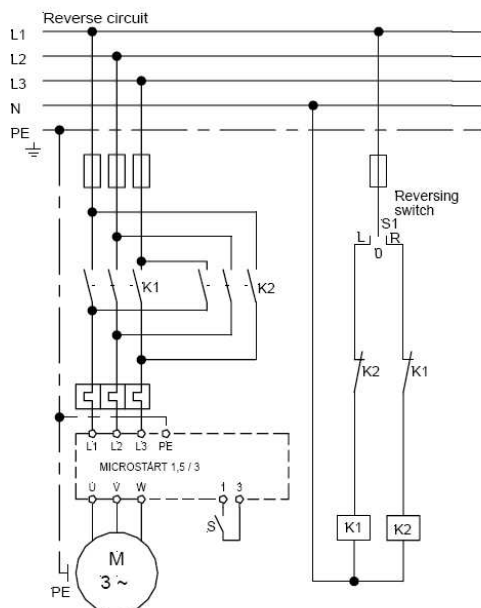


All dimensions in mm!

Option "SST"



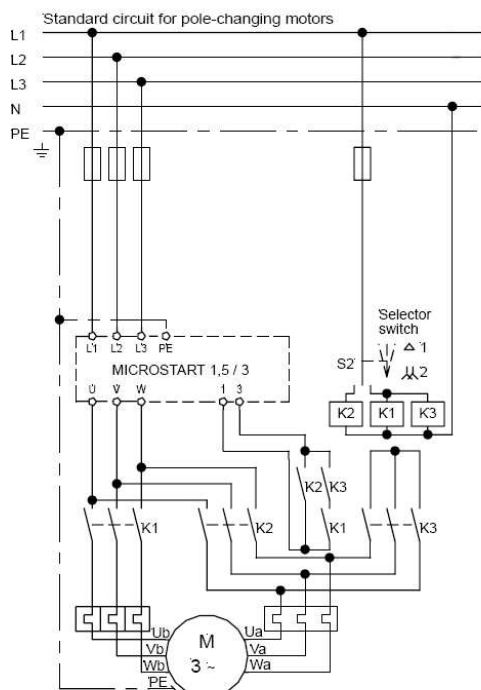
Connection Diagram:



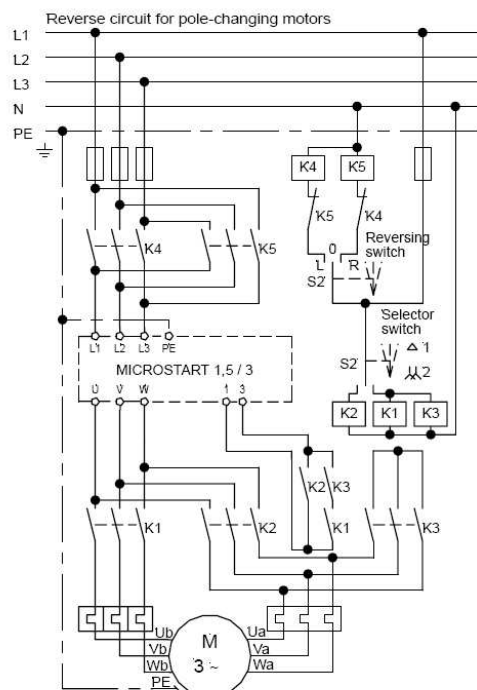
S - closed = soft start; S - open = soft stop

EMC

The limit values for emitted interference according to the applicable device standards do not rule out the possibility that receivers and susceptible electronic devices within a radius of 10m are subjected to interference. If such interference, that is definitely attributable to the operation of the soft starters "MICROSTART", occurs, the emitted interference can be reduced by taking appropriate measures. Such measures are, e.g.:
to connect reactors (3mH) or a suitable mains filter in series before the soft starter, or to connect X-capacitors (0,15μF) in parallel to the supply voltage terminals.



For pole-changing motors trimmer t aus to 0 (left stop)





Soft Starters

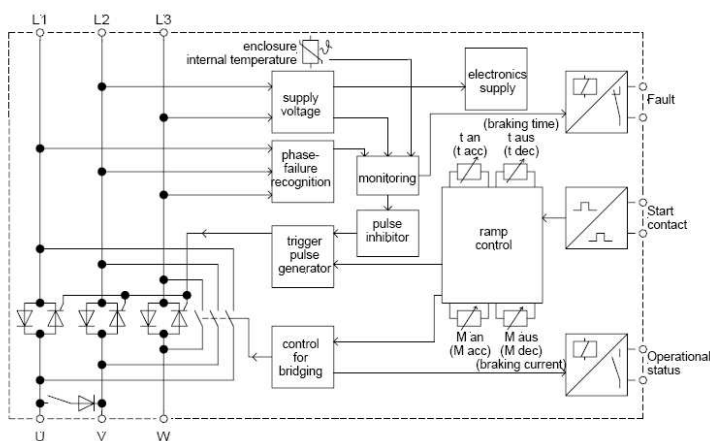
MINISTART 1,5 ... 11

Function	Features	Typical Applications
- Soft start - soft stop 4 separately adjustable parameters starting torque, acceleration time, soft stop torque, deceleration time - Potential-free input for soft start or soft Stop -control voltage 10 ... 30VDC - Potential-free output for fault indication - Potential-free output for operational status * - loadable with 250V/8A each - Temperature monitoring - Phase-failure monitoring during ramp-up	- Three-phase controlled soft starter - Easy mounting, also for retrofitting into existing plants - Terminal arrangement suitable for switchgear connection - For snap-mounting on 35mm standard rail - Integrated bypass relay - Extensive monitoring functions - Robust metal housing - No mains neutral conductor (N) required - Special voltages up to 600V - Functional peak current reduction - Degree of protection IP 20	- pumps, ventilators - cranes - traveling and rotary operating mechanisms - conveying machinery - washing machines, linen dryers

Type	MINISTART				
	1,5	3	5,5	7,5	11
Mains / Motor voltage	400 V +/- 15% 50/60 Hz				
Device nominal current	4 A	6,5 A	12 A	16 A	25 A
Motor rating	1,5 kW	3 kW	5,5 kW	7,5 kW	11 kW
Min. Motor load	10% of the device power rating				
Starting torque	0 ... 80 %				
Acceleration time	1 ... 20 s				
Soft stop torque	20 ... 80 %				
Deceleration time	0 ... 20 s				
Reset time	200ms				
Max. switching cycle	120/h			60/h	20/h
External fuse "high speed"	SILIZED				
Ambient / storage temperature	0° C ... 45° C / -25° C ... 75° C				
Weight	1,2 kg	1,2 kg	1,35 kg	1,5 kg	1,5 kg
Order number / List price €	21200.38001	21200.38003	21200.38005	21200.38007	21200.38011

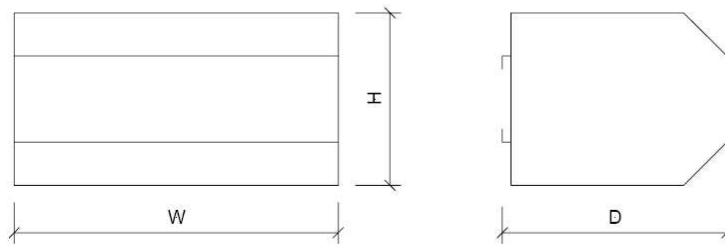
*

- with standard devices closed, when power semiconductors are bridged
- with option "S" closed from the beginning of the start until the end of soft stop



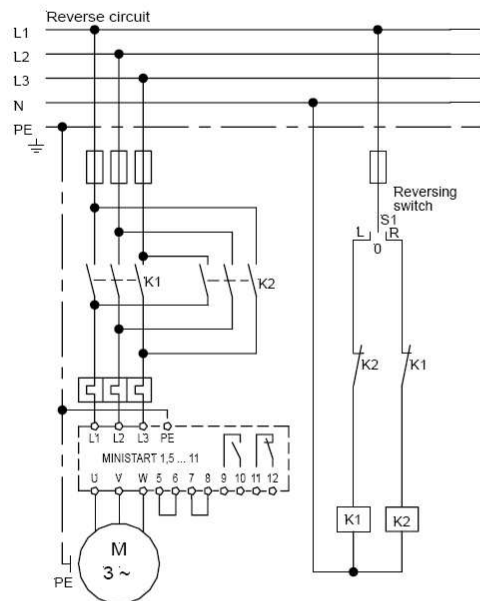
Soft Starters MINISTART 1.5 ... 11

Dimensions:



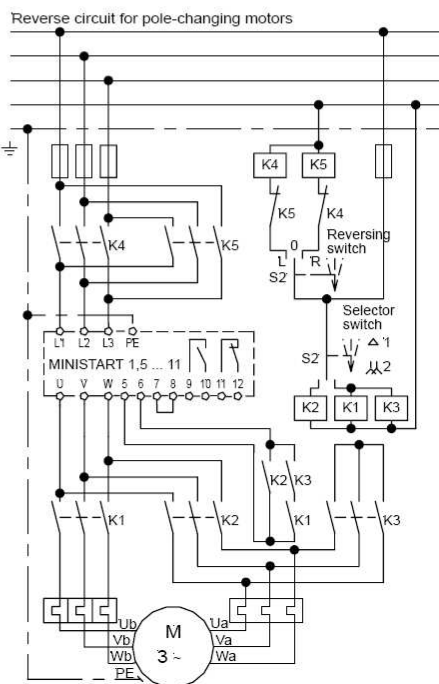
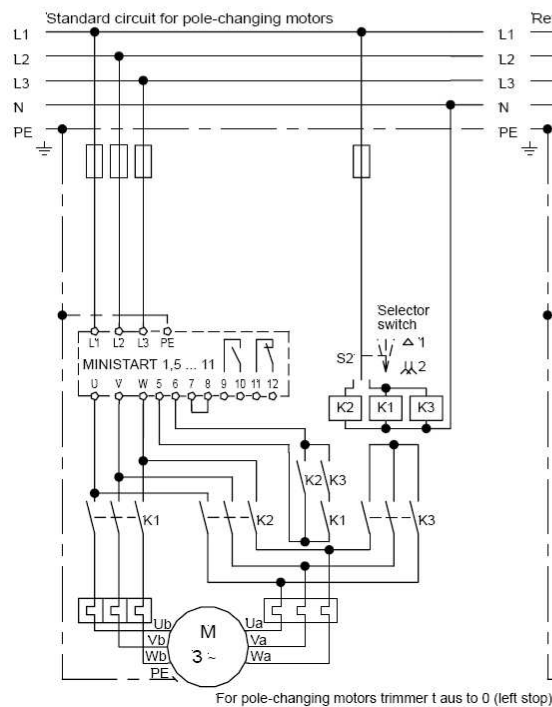
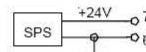
	W	H	D
Mounting dimensions	166mm	106mm	117mm

Connection Diagram:



EMC
The limit values for emitted interference according to the applicable device standards do not rule out the possibility that receivers and susceptible electronic devices within a radius of 10m are subjected to interference.
If such interference, that is definitely attributable to the operation of the soft starters "MINISTART", occurs, the emitted interference can be reduced by taking appropriate measures.
Such measures are, e.g.:
to connect reactors (3mH) or a suitable mains filter in series before the soft starter, or to connect X-capacitors (0,15µF) in parallel to the supply voltage terminals.

Wiring of the potential-free control input



For pole-changing motors trimmer t aus to 0 (left stop)



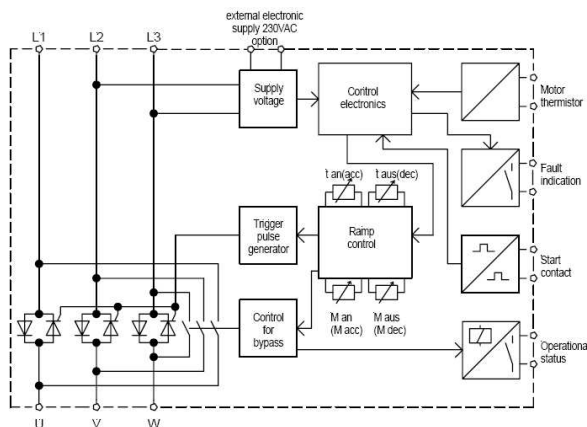
Soft Starters

DAS-T 7,5 ... 55

Function	Features	Typical Applications
- Soft start - soft stop - Acceleration/deceleration via control contact or control voltage 10 ... 42VDC (selectable) 4 separately adjustable parameters starting torque, acceleration time, soft stop torque, deceleration time - Potential-free output for operational status* 250VAC/8A - Fault signalling contact (250VAC/8A) - Input for motor thermistor - For special voltages higher than 500V an external electronic supply (230VAC) is necessary.	- Three-phase controlled soft starter - Easy mounting, also for retrofitting into existing systems - Terminal arrangement suitable for switchgear connection - Integrated bypass contactor - No mains neutral conductor (N) required - Functional peak current reduction - Monitoring of heat sink temperature - Monitoring of motor temperature via motor thermistor - Potential-free control inputs and outputs - Special voltages up to 690V - Robust metal enclosure - Degree of protection IP 20	- Pumps - Ventilators - Conveying machinery - Dryers, washing machines - Compressors - Cranes, trolleys

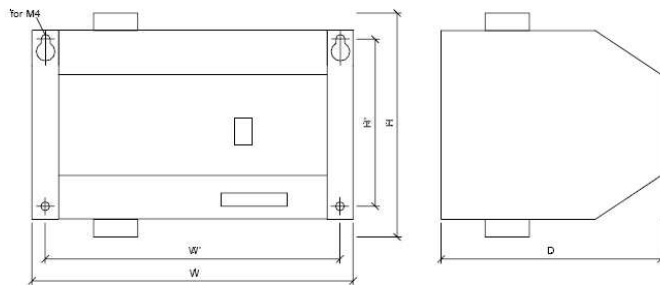
Type	DAS-T						
	7,5	11	15	22	30	37	55
Mains / Motor voltage (Standard)	400 V +/- 15% 50/60 Hz (up to 690 V on request)						
Device rated current	16 A	25 A	32 A	48 A	63 A	75 A	105 A
Motor rating	7,5 kW	11 kW	15 kW	22 kW	30 kW	37 kW	55 kW
min. Motor load	10% of the device power rating						
Starting torque	0 ... 80 %						
Acceleration time	05. ... 25 s						
Soft stop torque	20 ... 80 %						
Deceleration time	0 ... 15 s						
Reset time	200ms						
Max. Switching cycle	100/h	100/h	80/h	60/h	60/h	40/h	20/h
Cross-sectional area Control Power	1,5 mm²						
	16 mm²				35 mm²		
External semiconductor fuse „high-speed“	SILIZED						
Ambient / storage temperature	0° C ... 45° C/ -25° C ... 75° C						
Weight	3,8 kg	3,8 kg	4 kg	4 kg	7,8 kg	8 kg	8,2 kg
Order number	20900. 40007	20900. 40011	20900. 40015	20900. 40022	20900. 40030	20900. 40037	20900. 40055
List price €							

* closed when power semiconductors are bridged, or closed from start of acceleration to end of deceleration



Soft Starters DAS-T 7,5 ... 55

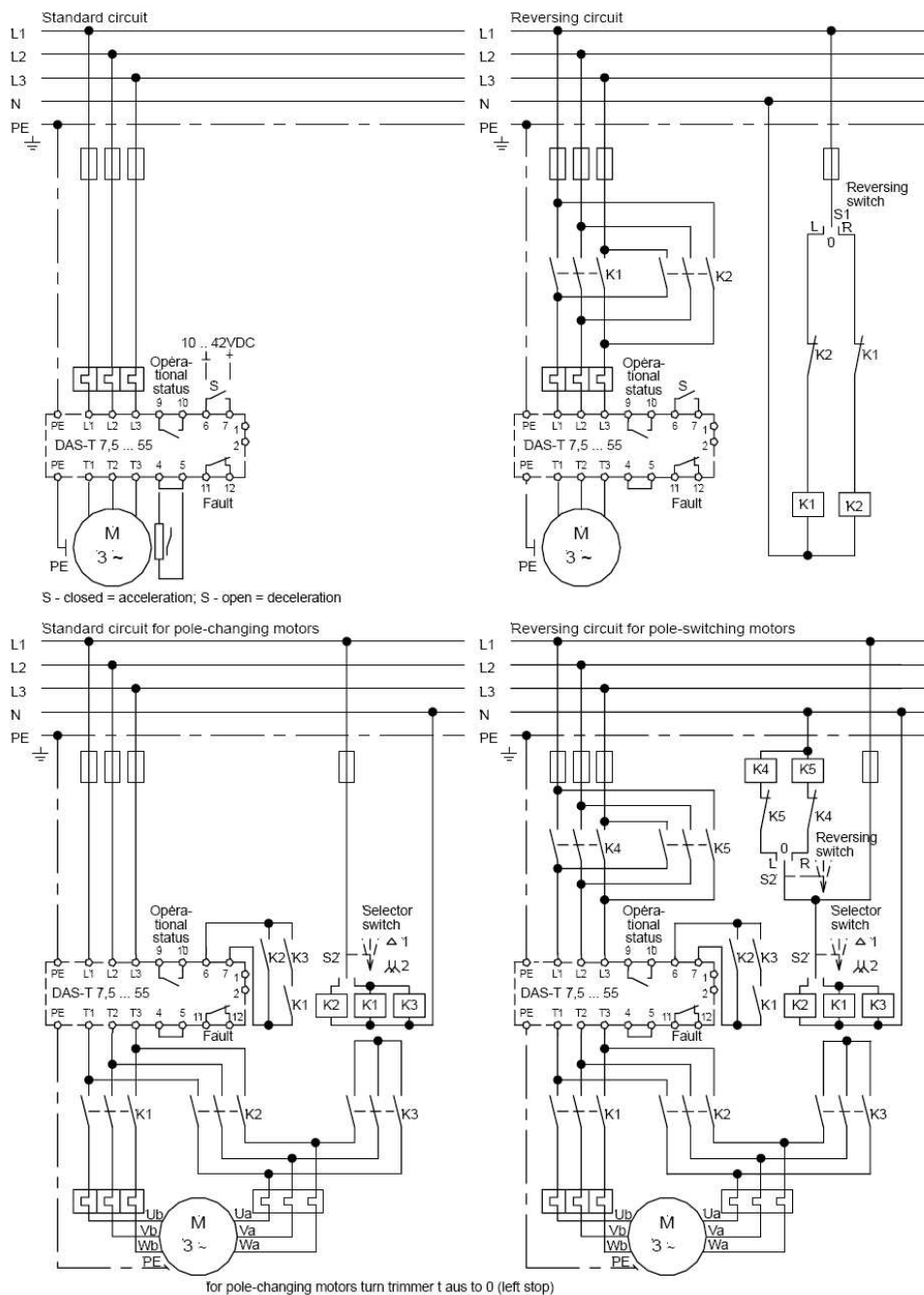
Dimensions:



	W [mm]	W' [mm]	H [mm]	H' [mm]	D [mm]
DAS-T 7.5	235	218	245	170	140
DAS-T 11	235	218	245	170	140
DAS-T 15	235	218	245	170	140
DAS-T 22	235	218	245	170	140
DAS-T 30	335	318	245	170	170
DAS-T 37	335	318	245	170	170
DAS-T 55	335	318	245	170	170

Connection Diagrams:

Subject to change without notice.



EMC

The limit values for emitted interference according to the applicable device standards do not rule out the possibility that receivers and susceptible electronic devices within a radius of 10m are subjected to interference. If such interference, that is definitely attributable to the operation of the soft starters "DAS", occurs, the emitted interference can be reduced by taking appropriate measures. Such measures are, e.g.:
To connect reactors (3mH) or a suitable mains filter in series before the soft starter, or to connect X-capacitors (0.15µF) in parallel to the supply voltage terminals.

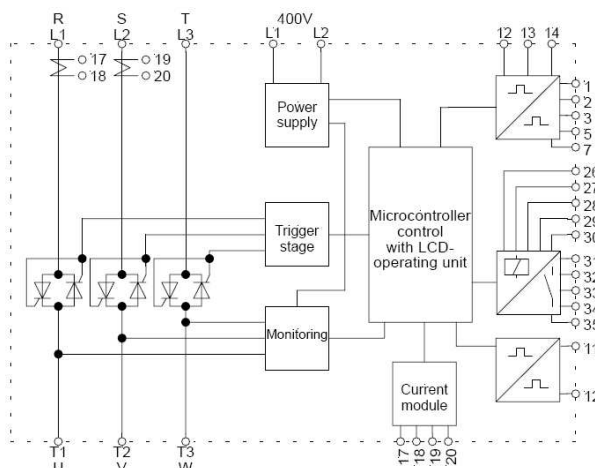


Soft Starters

DIGISTART 11 ... 450TQM

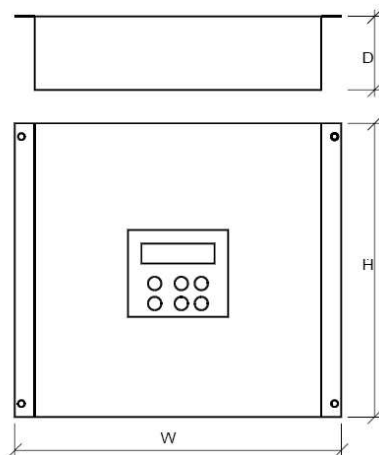
Function	Features	Typical Applications
- Soft start and soft stop alternatively either via voltage ramp or current - Adjustable kick start for high breakaway torques - Motor temperature monitoring with thermostatic switch - Programming via plain-text display and three keys - Control with keypad or via control terminals	- Three-phase fully controlled soft starter - With microcontroller - Current-controlled acceleration possible - Parameterization by means of LCD operating unit - Potential-free control inputs and outputs - Phase and thyristor monitoring - Special voltages up to 500V - Degree of protection IP 00	- Pumps - Ventilators - mills/grinders - Conveying systems - Machines with high mass moments of inertia - Machinery with gearing, belt or chain drives

Type	DIGISTART ... TQM																		
	11	15	22	30	37	45	55	75	90	110	132	160	186	225	250	280	336	400	450
Mains / Motor voltage	400 V +/- 15% 50/60 Hz																		
Device rated current	21	29	42	60	70	82	100	140	170	200	240	280	325	385	425	480	555	650	750
Rating at 400V in kW	11	15	22	30	37	45	55	75	90	110	132	160	186	225	250	280	336	400	450
Min. Motor load	10% of the device power rating																		
Acceleration time/deceleration time in case of current control	1 s ... 240s 1 s ... 10 s																		
Starting torque	25% ... 70%																		
Soft stop torque	25% ... 100 %																		
Max. current limit	600%																		
Start pulse time	100ms ... 2s																		
Max. Switching cycle per 1/h	10																		
Ambient / storage temperature	0° C ... 45° C/ -25° C ... 75° C																		
Weight kg	10	10	10	10	12	12	12	18	18	25	25	25	25	30	30	30	30	35	35
Order number 21420.40...	011	015	022	030	037	045	055	075	090	110	132	160	186	225	250	280	336	400	450
List price €																			



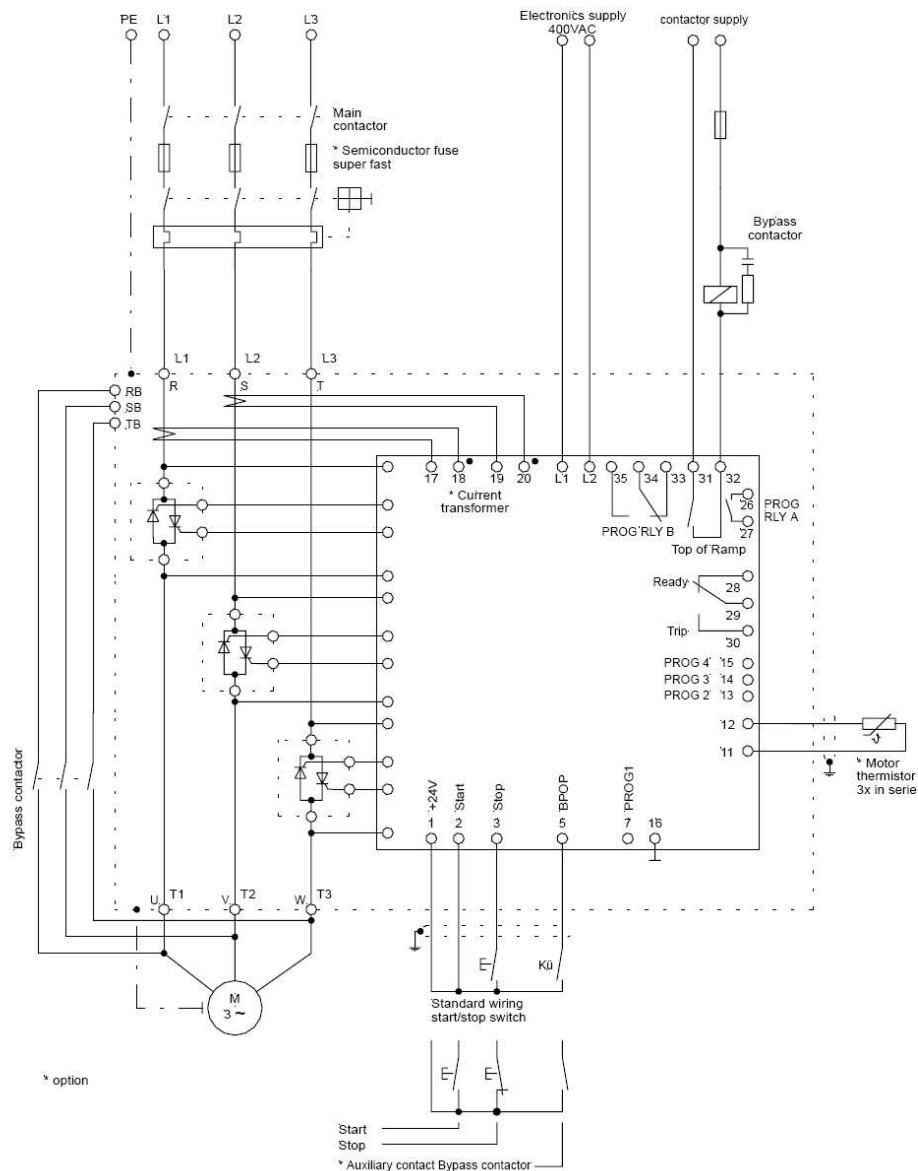
Soft Starters DIGISTART 11 ... 450 TQM

Dimensions:



	W	H	D
DIGISTART 11 TQM	270mm	300mm	190mm
DIGISTART 15 TQM	270mm	300mm	190mm
DIGISTART 22 TQM	270mm	300mm	190mm
DIGISTART 30 TQM	270mm	300mm	190mm
DIGISTART 37 TQM	270mm	300mm	190mm
DIGISTART 45 TQM	270mm	300mm	190mm
DIGISTART 55 TQM	270mm	300mm	190mm
DIGISTART 75 TQM	340mm	400mm	220mm
DIGISTART 90 TQM	340mm	400mm	220mm
DIGISTART 110 TQM	430mm	430mm	270mm
DIGISTART 132 TQM	430mm	430mm	270mm
DIGISTART 160 TQM	430mm	430mm	270mm
DIGISTART 186 TQM	430mm	430mm	270mm
DIGISTART 225 TQM	430mm	430mm	270mm
DIGISTART 250 TQM	430mm	430mm	270mm
DIGISTART 280 TQM	550mm	550mm	370mm
DIGISTART 336 TQM	550mm	550mm	370mm
DIGISTART 400 TQM	550mm	550mm	370mm
DIGISTART 450 TQM	550mm	550mm	370mm

Connection Diagram:



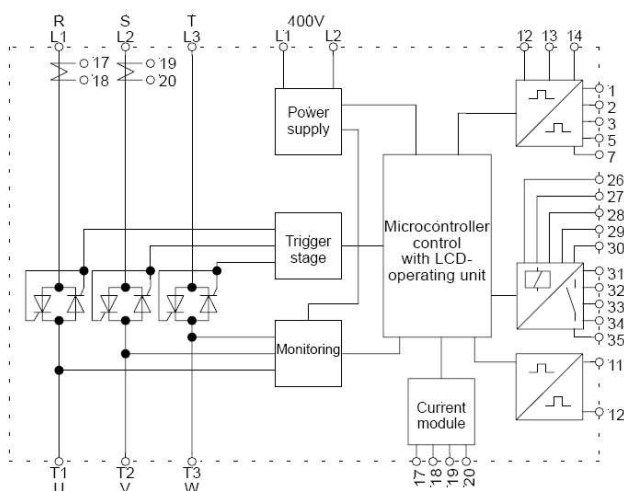


Soft Starters

DIGISTART 11 ... 336TQMB

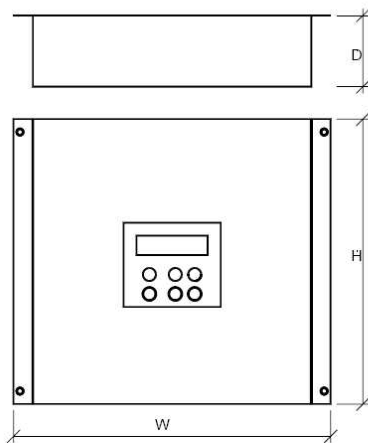
Function	Features	Typical Applications
- Soft start or soft stop alternatively either via voltage ramp or current - Adjustable kick start for high breakaway torques - Motor temperature monitoring with thermostatic switch - Programming via plain-text display and three keys - Control with keypad or via control terminals	- With integrated bypass contactor - Three-phase fully controlled soft starter - With microcontroller - Current-controlled acceleration possible - Parameterization by means of LCD operating unit - Potential-free control inputs and outputs - Phase and thyristor monitoring - Degree of protection IP 00	- Pumps - Ventilators - Mills/grinders - Conveying systems - Machines with high mass moments of inertia - Machinery with gearing, belt or chain drives

Type	DIGISTART ... TQMB																
	11	15	22	30	37	45	55	75	90	110	132	160	186	225	250	280	336
Mains / Motor voltage	400 V +/- 15% 50/60 Hz																
Device rated current	21	29	42	60	70	82	100	140	170	200	240	280	325	385	425	480	555
Rating at 400V in kW	11	15	22	30	37	45	55	75	90	110	132	160	186	225	250	280	336
Min. Motor load	10% of the device power rating																
Acceleration time/deceleration time in case of current control	1 s ... 240s 1 s ... 10 s																
Starting torque	25% ... 70%																
Soft stop torque	25% ... 100 %																
Max. current limit	600%																
Start pulse time	100ms ... 2s																
Max. Switching cycle per 1/h	12																
Ambient / storage temperature	0° C ... 45° C/ -25° C ... 75° C																
Weight kg	15	15	15	15	15	15	15	25	25	25	30	30	30	35	35	35	35
Order number 21430.40...	011	015	022	030	037	045	055	075	090	110	132	160	186	225	250	280	336
List price €																	



Soft Starters DIGISTART 11 ... 450 TQMB

Dimensions:



	W	H	D
DIGISTART 11 TQMB	340mm	365mm	250mm
DIGISTART 15 TQMB	340mm	365mm	250mm
DIGISTART 22 TQMB	340mm	365mm	250mm
DIGISTART 30 TQMB	340mm	365mm	250mm
DIGISTART 37 TQMB	340mm	365mm	250mm
DIGISTART 45 TQMB	340mm	365mm	250mm
DIGISTART 55 TQMB	340mm	365mm	250mm
DIGISTART 75 TQMB	350mm	600mm	270mm
DIGISTART 90 TQMB	350mm	600mm	270mm
DIGISTART 110 TQMB	350mm	600mm	270mm
DIGISTART 132 TQMB	350mm	750mm	320mm
DIGISTART 160 TQMB	350mm	750mm	320mm
DIGISTART 186 TQMB	350mm	750mm	320mm
DIGISTART 225 TQMB	350mm	750mm	320mm
DIGISTART 250 TQMB	350mm	750mm	320mm
DIGISTART 280 TQMB	550mm	850mm	370mm
DIGISTART 336 TQMB	550mm	850mm	370mm

Connection Diagram:

