

6.0 Softstarters



Performance electronics on the highest level

- Reduces wear in the entire drive train through soft start-up
- Optimal starting torque through intelligent current control during start-up
- Protects the engine through integrated, adjustable motor protection with I²t-monitoring
- Minimises wiring effort and component costs: integrated bypass and motor protection
- Safe to use: comprehensive self-monitoring

Three phase AC motors have proven themselves for the operation of pumps, conveyor belts, compressors and countless other drive technology applications. The direct start or the star-delta starter cause impact on the mechanical components in the drive train. This leads to signs of wear, damage and premature failures. On the other hand, abrupt starts lead to voltage drops which burden the power supply network and affect the surrounding components.

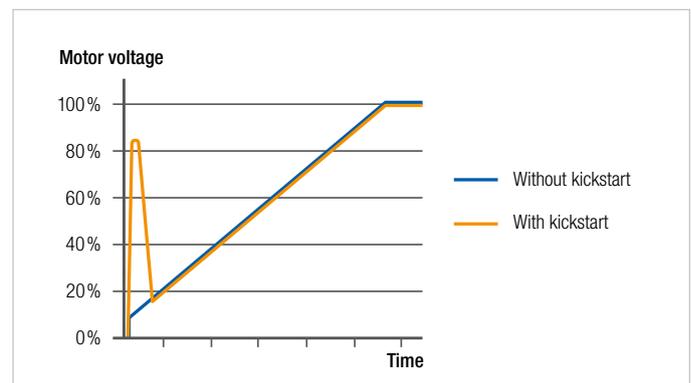
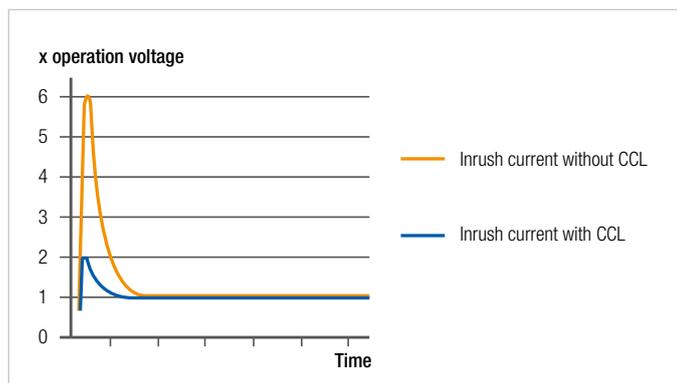
Softstarter by Comat Releco prevents disruptions and ensures a smooth start-up with a reduced starting torque and slow breaking sequences without loading the drive system. Thanks to modern semiconductor power amplifiers and fanless design, you can enjoy absolutely wear-free. The compact construction with integrated cooling element only requires little space in the control cabinet.

Softstarter by Comat Releco is available in four series:

The CCL range has been developed for the operation of heat pumps and compressors. Intelligent current limitation during start-up reduces the drive power by up to 65%. The integrated motor protection allows the adjustment of the nominal power and replaces an additional motor protection switch. Thanks to an integrated bypass relay, there are no additional costs for external bridging.

The CCM range is available with two or three switched phases and is designed for a large number of switching cycles per hour. The bypass is integrated in accordance with the version. Separate potentiometers allow the adjustment of start-up and breaking times, as well as the kick-start function, and the start-up torque can be limited to 0 to 85 % of the nominal value. The CCMB range also offers a dynamic break function with automatic standstill detection.

The starting torque limiters of the CTC range are activated via an upstream contactor. The start-up torque can be limited to 1 to 85 % of the nominal torque. Typical applications are blowers and smaller machinery.



Starting Torque Limiter – CTC3415

Type: CTC3415

The starting torque limiters of the CTC range are activated via an upstream contactor. The start-up torque can be limited to 1 to 85 % of the nominal torque. Typical applications are blowers and smaller machinery.

Output

Switching element	Thyristor
Numbers of phases	3
Nominal voltage (U _{nom})	400 VAC
Output voltage range	208 – 480 VAC
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	50 mA
Max. leakage current	5 mA
Max. inrush current	120 A
Operation current AC-53B @ U _{nom}	15 A
Switching cycles/h	3000 cycles/h
Startup time	0,5 – 5 s
Max. response time	1 period
Limit load	1800 A ² t

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 10 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	650 g

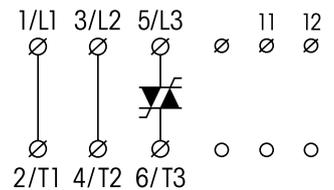
Standard type

Starting Torque Limiter

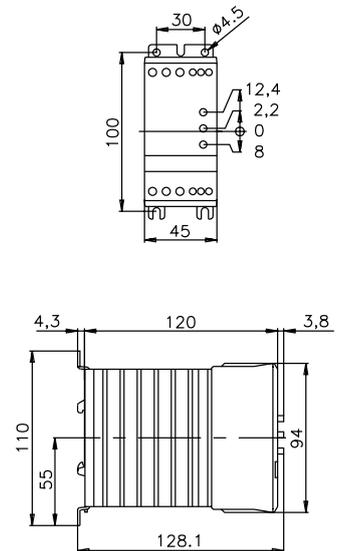
CTC3415



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Starting Torque Limiter – CTC3425

Type: CTC3425

The starting torque limiters of the CTC range are activated via an upstream contactor. The start-up torque can be limited to 1 to 85 % of the nominal torque. Typical applications are blowers and smaller machinery.

Output

Switching element	Thyristor
Numbers of phases	3
Nominal voltage (U _{nom})	400 VAC
Output voltage range	208 – 480 VAC
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	50 mA
Max. leakage current	5 mA
Max. inrush current	120 A
Operation current AC-53B @ U _{nom}	25 A
Switching cycles/h	3000 cycles/h
Startup time	0,5 – 5 s
Max. response time	1 period
Limit load	6300 A ² t

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

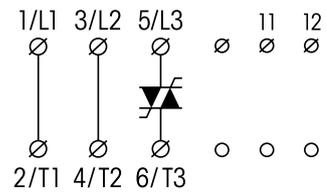
Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 10 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	650 g

Standard type

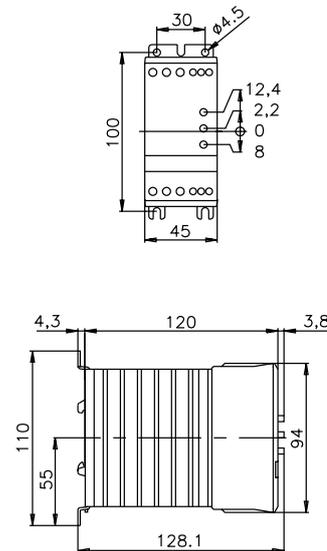
Starting Torque Limiter	CTC3425
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Connection diagram



Dimensions [mm]



Technical approvals, conformities



Compressor Softstarter – CCL33H415US

Type: CCL33H415US

The CCL range has been developed for the operation of heat pumps and compressors. Intelligent current limitation during start-up reduces the drive power by up to 65%. The integrated motor protection allows the adjustment of the nominal power and replaces an additional motor protection switch. Thanks to an integrated bypass relay, there are no additional costs for external bridging. Comprehensive monitoring detects over- and undercurrent, incorrect phase sequences and wiring errors. CCL Softstarter is available in three versions with a nominal current of up to 35 A. Cage clamp terminals allow quick wiring.

Output

Switching element	Thyristor
Numbers of phases	3
Bypass	integrated
Nominal voltage (U_{nom})	400 VAC
Output voltage range	230 – 400 Vrms
Reverse voltage	1200 Vrrm
Peak reverse voltage	1300 Vrsm
Min. load	10 A
Max. leakage current	5 mA
Max. inrush current ($t=450$ ms)	67 A
Operation current AC-58 @ U_{nom}	15 A
Switching cycles/h	max. 12 cycles/h
Response/Release time	500 ms
Limit load	610 A ² t

Input

Voltage	230 VAC
Min. voltage	196 VAC
Max. voltage	264 VAC
Release voltage	110 VAC
Max. current	7 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -20 – 65°C
Connection terminals	Screw terminal 6 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1
Weight	470 g

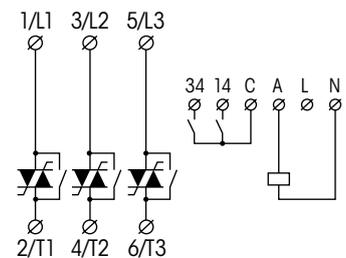
Standard type

Starting Torque Limiter

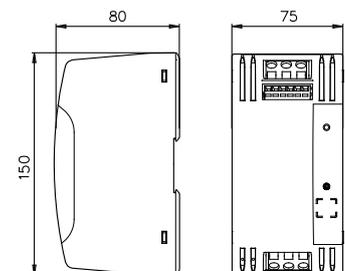
CCL33H415US



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Compressor Softstarter – CCL33H425US

Type: CCL33H425US

The CCL range has been developed for the operation of heat pumps and compressors. Intelligent current limitation during start-up reduces the drive power by up to 65%. The integrated motor protection allows the adjustment of the nominal power and replaces an additional motor protection switch. Thanks to an integrated bypass relay, there are no additional costs for external bridging. Comprehensive monitoring detects over- and undercurrent, incorrect phase sequences and wiring errors. CCL Softstarter is available in three versions with a nominal current of up to 35 A. Cage clamp terminals allow quick wiring.

Output

Switching element	Thyristor
Numbers of phases	3
Bypass	integrated
Nominal voltage (U _{nom})	400 VAC
Output voltage range	230 – 400 Vrms
Reverse voltage	1200 Vrrm
Peak reverse voltage	1300 Vrsm
Min. load	10 A
Max. leakage current	5 mA
Max. inrush current (t=450 ms)	112 A
Operation current AC-58 @ U _{nom}	25 A
Switching cycles/h	max. 12 cycles/h
Response/Release time	500 ms
Limit load	1800 A ² t

Input

Voltage	230 VAC
Min. voltage	196 VAC
Max. voltage	264 VAC
Release voltage	110 VAC
Max. current	7 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -20 – 65°C
Connection terminals	Screw terminal 6 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1
Weight	470 g

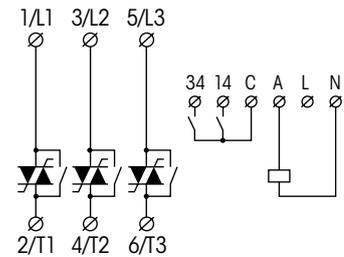
Standard type

Starting Torque Limiter

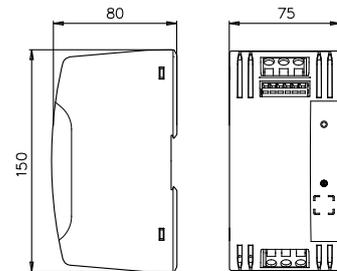
CCL33H425US



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Compressor Softstarter – CCL33H435US

Type: CCL33H435US

The CCL range has been developed for the operation of heat pumps and compressors. Intelligent current limitation during start-up reduces the drive power by up to 65%. The integrated motor protection allows the adjustment of the nominal power and replaces an additional motor protection switch. Thanks to an integrated bypass relay, there are no additional costs for external bridging. Comprehensive monitoring detects over- and undercurrent, incorrect phase sequences and wiring errors. CCL Softstarter is available in three versions with a nominal current of up to 35 A. Cage clamp terminals allow quick wiring.

Output

Switching element	Thyristor
Numbers of phases	3
Bypass	integrated
Nominal voltage (U_{nom})	400 VAC
Output voltage range	230 – 400 Vrms
Reverse voltage	1200 Vrrm
Peak reverse voltage	1300 Vrsm
Min. load	10 A
Max. leakage current	5 mA
Max. inrush current ($t=450$ ms)	135 A
Operation current AC-58 @ U_{nom}	35 A
Switching cycles / h	max. 12 cycles/h
Response/Release time	500 ms
Limit load	1800 A ² t

Input

Voltage	230 VAC
Min. voltage	196 VAC
Max. voltage	264 VAC
Release voltage	110 VAC
Max. current	7 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -20 – 65°C
Connection terminals	Screw terminal 6 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1
Weight	470 g

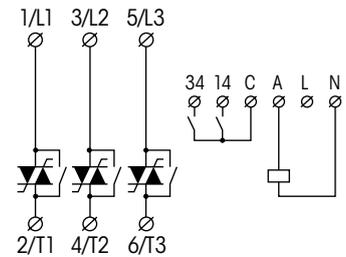
Standard type

Starting Torque Limiter

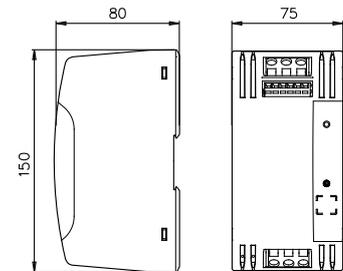
CCL33H435US



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Softstarter 2 phases switched – CCM3H403USi

Type: CCM3H403USi

Softstarter CCM3 have two switched phases and are available with a nominal current of 3 to 50 A. The types CCM3...USi feature an integrated bypass. Separate potentiometers allow the adjustment of start-up and breaking times, as well as the kick-start function, and the start-up torque can be limited to 0 to 85 % of the nominal value.

Output

Switching element	Thyristor
Numbers of phases	2
Bypass	integrated
Nominal voltage (U_{nom})	400 VAC
Output voltage range	400 – 480 VAC
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	3 A
Max. leakage current	5 mA
Max. inrush current	18 A
Operation current AC-53B @ U_{nom}	3 A
Switching cycles/h	120 cycles/h
Startup time	0,5 – 10 s
Deceleration time	0,5 – 10 s
Limit load	72 A ² t

Input

Voltage	24 – 230 VAC
Min. voltage	20,4 VAC
Max. voltage	253 VAC
Release voltage	5 VAC
Max. current	15 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 6 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	270 g

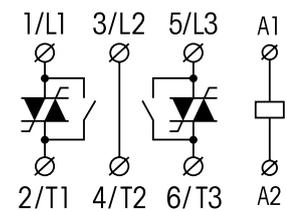
Standard type

Starting Torque Limiter

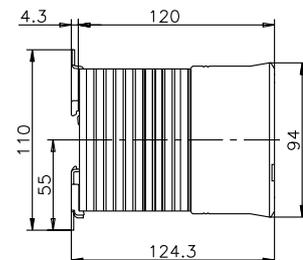
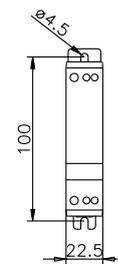
CCM3H403USi



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Softstarter 2 phases switched – CCM3H415

Type: CCM3H415

Softstarter CCM3 have two switched phases and are available with a nominal current of 3 to 50 A. The types CCM3...USi feature an integrated bypass. Separate potentiometers allow the adjustment of start-up and breaking times, as well as the kick-start function, and the start-up torque can be limited to 0 to 85 % of the nominal value.

Output

Switching element	Thyristor
Numbers of phases	2
Bypass	—
Nominal voltage (U_{nom})	400 VAC
Output voltage range	400 – 480 VAC
Reverse voltage	1200 V _{rm}
Peak reverse voltage	1300 V _{rsm}
Min. load	3 A
Max. leakage current	5 mA
Max. inrush current	90 A
Operation current AC-53B @ U_{nom}	15 A
Switching cycles / h	3000 cycles/h
Startup time	0,5 – 10 s
Deceleration time	0,5 – 10 s
Limit load	1800 A ² t

Input

Voltage	24 – 230 VAC
Min. voltage	20,4 VAC
Max. voltage	253 VAC
Release voltage	5 VAC
Max. current	15 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 6 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	650 g

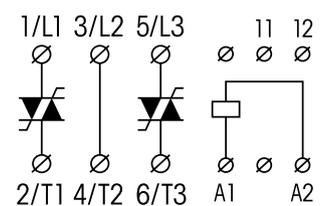
Standard type

Starting Torque Limiter

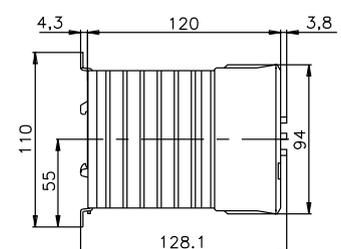
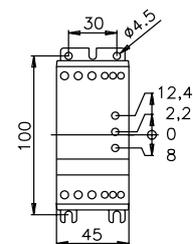
CCM3H415



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Softstarter 2 phases switched- CCM3H425

Type: CCM3H425

Softstarter CCM3 have two switched phases and are available with a nominal current of 3 to 50 A. The types CCM3...USi feature an integrated bypass. Separate potentiometers allow the adjustment of start-up and breaking times, as well as the kick-start function, and the start-up torque can be limited to 0 to 85 % of the nominal value.

Output

Switching element	Thyristor
Numbers of phases	2
Bypass	—
Nominal voltage (U_{nom})	400 VAC
Output voltage range	400 – 480 VAC
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	3 A
Max. leakage current	5 mA
Max. inrush current	150 A
Operation current AC-53B @ U_{nom}	25 A
Switching cycles/h	3000 cycles/h
Startup time	0,5 – 10 s
Deceleration time	0,5 – 10 s
Limit load	6300 A ²

Input

Voltage	24 – 230 VAC
Min. voltage	20,4 VAC
Max. voltage	253 VAC
Release voltage	5 VAC
Max. current	15 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 10 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	1050 g

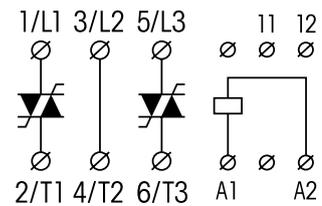
Standard type

Starting Torque Limiter

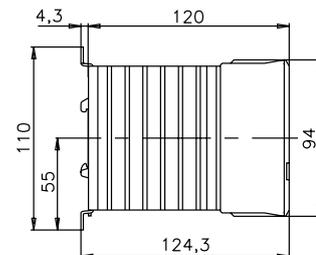
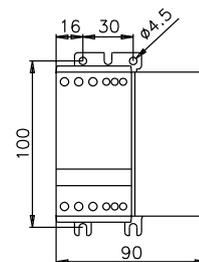
CCM3H425



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Softstarter 2 phases switched- CCM3H415DS

Type: CCM3H415DS

The motor contactor CCM3H415DS have two switched phases and a nominal current of 15 A.

Output

Switching element	Thyristor
Numbers of phases	2
Bypass	—
Nominal voltage (U _{nom})	400 VAC
Output voltage range	400 – 480 VAC
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	3 A
Max. leakage current	5 mA
Max. inrush current	90 A
Operation current AC-53B @ U _{nom}	15 A
Switching cycles/h	3000 cycles/h
Startup time	1 period
Deceleration time	1 period
Limit load	1800 A ² t

Input

Voltage	24 – 60 VDC / 24 – 480 VAC
Min. voltage	20,4 VAC
Max. voltage	253 VAC
Release voltage	5 VAC
Max. current	15 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 6 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	650 g

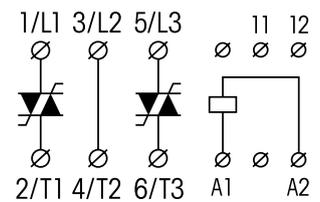
Standard type

Starting Torque Limiter

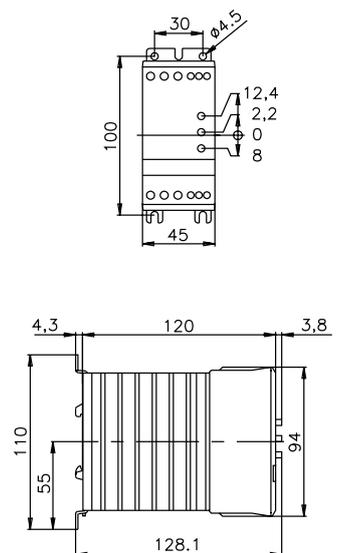
CCM3H415DS



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Softstarter 3 phases switched – CCM33H425US

Type: CCM33H425US

Softstarter CCM33 have three switched phases and are available with a nominal current of up to 85 A. The types CCM33...USi feature an integrated bypass. Separate potentiometers allow the adjustment of start-up and breaking times, as well as the kick-start function, and the start-up torque can be limited to 0 to 85 % of the nominal value.

Output

Switching element	Thyristor
Numbers of phases	3
Bypass	externally
Nominal voltage (U_{nom})	400 VAC
Output voltage range	400 – 480 VAC
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	3 A
Max. leakage current	5 mA
Max. inrush current ($t=450$ ms)	150 A
Operation current AC-53B @ U_{nom}	25 A
Switching cycles/h	120 cycles/h
Startup time	0,5 – 30 s
Deceleration time	0,5 – 60 s
Limit load	6300 A ² t

Input

Voltage	24 – 230 VAC
Min. voltage	20,4 VAC
Max. voltage	253 VAC
Release voltage	5 VAC
Max. current	15 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 10 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	1050 g

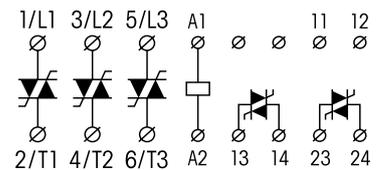
Standard type

Starting Torque Limiter

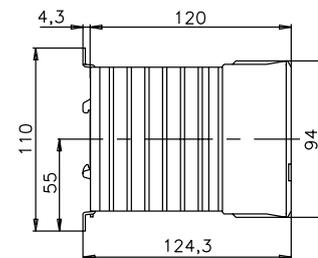
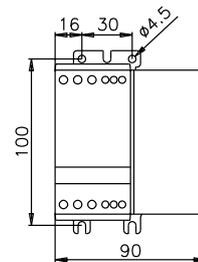
CCM33H425US



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Softstarter 3 phases switched – CCM33H450US

Type: CCM33H450US

Softstarter CCM33 have three switched phases and are available with a nominal current of up to 85 A. The types CCM33...USi feature an integrated bypass. Separate potentiometers allow the adjustment of start-up and breaking times, as well as the kick-start function, and the start-up torque can be limited to 0 to 85 % of the nominal value.

Output

Switching element	Thyristor
Numbers of phases	3
Bypass	externally
Nominal voltage (U_{nom})	400 VAC
Output voltage range	400 – 480 VAC
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	3 A
Max. leakage current	5 mA
Max. inrush current ($t=450$ ms)	300 A
Operation current AC-53B @ U_{nom}	50 A
Switching cycles / h	120 cycles/h
Startup time	0,5 – 30 s
Deceleration time	0,5 – 60 s
Limit load	25300 A ² t

Input

Voltage	24 – 230 VAC
Min. voltage	20,4 VAC
Max. voltage	253 VAC
Release voltage	5 VAC
Max. current	15 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 35 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	2600 g

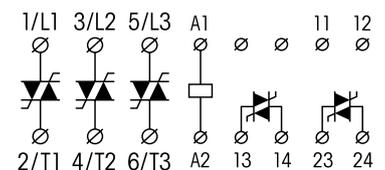
Standard type

Starting Torque Limiter

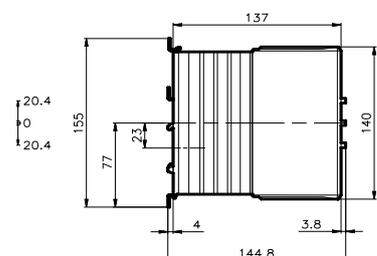
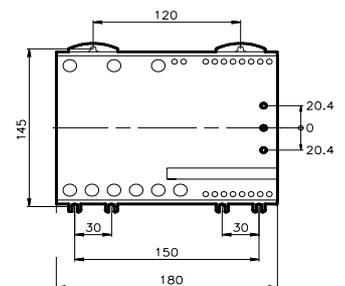
CCM33H450US



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Softstarter 3 phases switched – CCM33H530USi

Type: CCM33H530USi

Softstarter CCM33 have three switched phases and are available with a nominal current of up to 85 A. The types CCM33...USi feature an integrated bypass. Separate potentiometers allow the adjustment of start-up and breaking times, as well as the kick-start function, and the start-up torque can be limited to 0 to 85 % of the nominal value.

Output

Switching element	Thyristor
Numbers of phases	3
Bypass	externally
Nominal voltage (U_{nom})	480 VAC
Output voltage range	200 – 480 VAC
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	3 A
Max. leakage current	5 mA
Max. inrush current ($t=450$ ms)	180 A
Operation current AC-53B @ U_{nom}	30 A
Switching cycles/h	120 cycles/h
Startup time	0,5 – 30 s
Deceleration time	0,5 – 60 s
Limit load	6300 A ² t

Input

Voltage	24 – 230 VAC
Min. voltage	20,4 VAC
Max. voltage	253 VAC
Release voltage	5 VAC
Max. current	15 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 10 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	1050 g

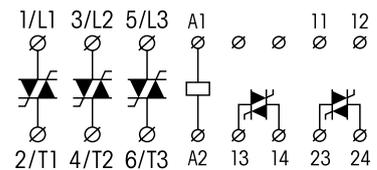
Standard type

Starting Torque Limiter

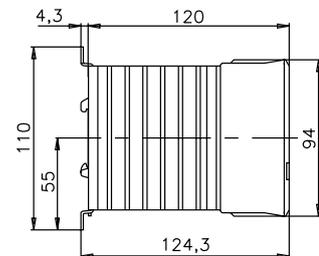
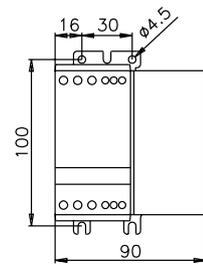
CCM33H530USi



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Softstarter 3 phases switched – CCM33H550USi

Type: CCM33H550USi

Softstarter CCM33 have three switched phases and are available with a nominal current of up to 85 A. The types CCM33...USi feature an integrated bypass. Separate potentiometers allow the adjustment of start-up and breaking times, as well as the kick-start function, and the start-up torque can be limited to 0 to 85 % of the nominal value.

Output

Switching element	Thyristor
Numbers of phases	3
Bypass	externally
Nominal voltage (U_{nom})	480 VAC
Output voltage range	200 – 480 VAC
Reverse voltage	1200 V _{rrm}
Peak reverse voltage	1300 V _{rsm}
Min. load	3 A
Max. leakage current	5 mA
Max. inrush current ($t=450$ ms)	300 A
Operation current AC-53B @ U_{nom}	50 A
Switching cycles / h	120 cycles/h
Startup time	0,5 – 30 s
Deceleration time	0,5 – 60 s
Limit load	25300 A ² t

Input

Voltage	24 – 230 VAC
Min. voltage	20,4 VAC
Max. voltage	253 VAC
Release voltage	5 VAC
Max. current	15 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 40°C
Connection terminals	Screw terminal 35 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	2600 g

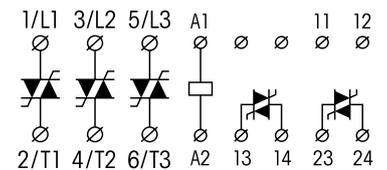
Standard type

Starting Torque Limiter

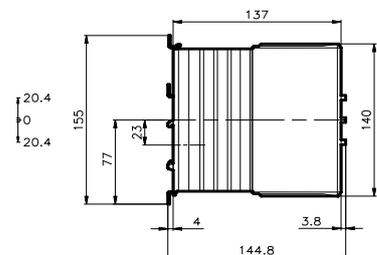
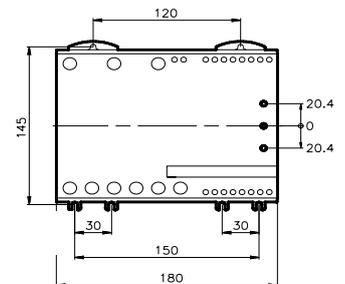
CCM33H550USi



Connection diagram



Dimensions [mm]



Technical approvals, conformities



Softstarter with dynamic breaking – CCMB3H425 (2 phases switched)

Type: **CCMB3H425**

Softstarter CCMB also offers a dynamic break function with automatic standstill detection in addition to the functions of the CCM3 range. They provide an output for an external bypass and have a nominal current of 25A.

Output

Switching element	Thyristor
Numbers of phases	2
Bypass	externally
Nominal voltage (U_{nom})	400 VAC
Output voltage range	400 – 480 VAC
Reverse voltage	1600 V _{rrm}
Peak reverse voltage	1650 V _{rsm}
Min. load	1 A
Max. leakage current	5 mA
Max. inrush current	200 A
Operation current AC-58 @ U _{nom}	25 A
Response/Release time	100 ms
Limit load	6300 A ² t

Input

Voltage	24 – 230 VAC
Min. voltage	20,4 VAC
Max. voltage	253 VAC
Release voltage	5 VAC
Max. current	15 mA

Insulation

Insulation voltage	4 kV
Dielectric strength	660 V

General Specifications

Ambient temperature storage/operation	-20 – 80°C / -5 – 65°C
Connection terminals	Screw terminal 6 mm ²
Ingress protection degree	IP 20
Mounting	DIN rail TS35
Housing material	PPE Noryl SE1 / Aluminium
Weight	1050 g

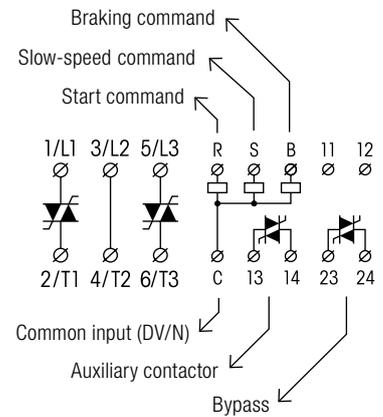
Standard type

Starting Torque Limiter

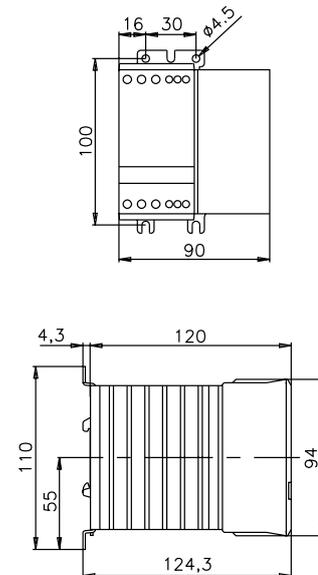
CCMB3H425



Connection diagram



Dimensions [mm]



Technical approvals, conformities

