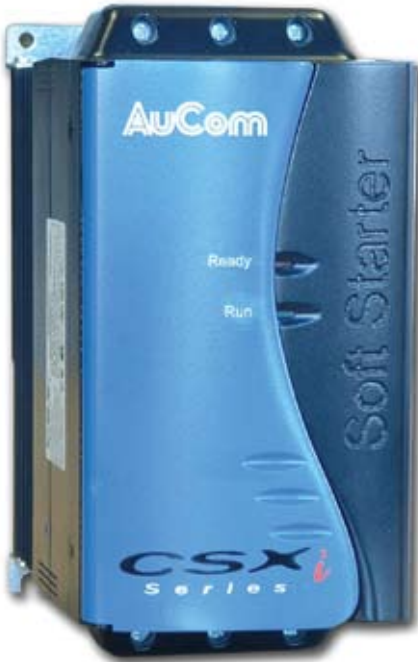


AuCom - Soft Starters

AuCom - Soft Starters



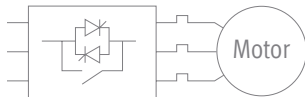
CSXi

Compact Soft Starters

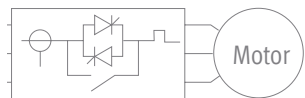


AuCom's new CSX Series includes two ranges. Users can choose between a simple soft start control device and an advanced soft start system complete with motor protection. This choice allows selection of a soft start product best suited to an individual application.

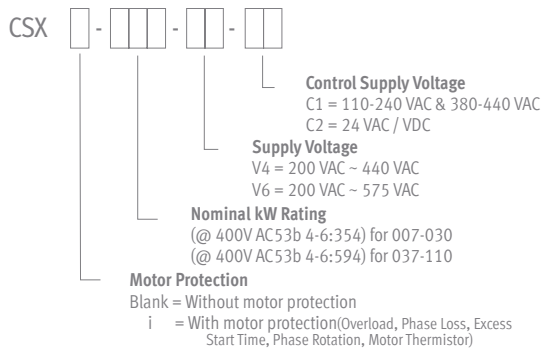
The CSX range is a TVR system that provides soft start and soft stop functionality in a very compact frame.



The CSXi range is a Constant Current system with current measurement and control. It provides a range of motor protection functions in addition to soft start and soft stop.



Power Range	7.5kW~110kW @ 400V
Supply Voltage	3 x 200~440 VAC or 3 x 200~575 VAC
Supply Frequency	45Hz~66Hz
Control Voltage	110~240VAC, 380~440 VAC or 24 VAC / VDC



- Compact design, small footprint
- Simple set-up and installation
- Built-in bypass contactor
- Excellent start ratings and duty
- IP20 up to 55kW
- DIN rail mounting up to 30kW
- CE, UL, C-UL, C ✓ approvals

FEATURE SET

	CSX	CSXi
Starting		
TVR (Timed voltage ramp)	✓	
Constant Current		✓
Current Ramp		✓
Stopping		
Soft Stop	✓	✓
Protection		
Motor Overload		✓
Phase Imbalance		✓
Phase Sequence		✓
Excess Start Time		✓
Motor Thermistor		✓
Supply Fault	✓	✓
Shorted SCR	✓	✓
LED Indication		
Ready/Tripped	✓	✓
Running/Starting-Stopping	✓	✓
Fault Code	✓	✓
Relay Outputs		
Main Contactor	✓	✓
Run		✓
Tripped		✓
Options & Accessories		
Remote Operator	✓	✓
4-20mA Output		✓
PC Software	✓	✓
AS-i	✓	✓
Modbus RTU	✓	✓
Profibus	✓	✓
DeviceNet	✓	✓

Model	kW	Height mm	Width mm	Depth mm
007	7	203	98	163
015	15			
018	18			
022	22			
030	30			
037	37	215	145	191
045	45			
055	55			
075	75	240	202	212
090	90			
110	110			

EMX3 Series [3 phase 7.5~1.500kW]

High performance soft starters



- Constant & ramp current, kickstart and XLR-8 adaptive acceleration starting functions
- Standard soft Stop and XLR-8 adaptive deceleration stopping functions
- Motor and starter advanced protection functions
- 3 & 6 wire connection possibility with auto detection function
- Built-in bypass contactor (up to 220Amp)
- Advanced wide LCD graphic digital operator
- 24VDC auxiliary power supply
- Motor thermistor (PTC) and Pt100 (RTD) inputs
- 4 - 20mA output
- Real time clock with battery backup
- Forward and reverse jog function
- Plug-in control terminal blocks
- CE, UL, C-UL, Ctick approvals



Current Ratings (in-line connection)

Model	Light	Medium	Heavy	Severe
	AC53b 3.0-10:350	AC53b 3.5-15:345	AC53b 4.0-20:340	AC53b 4.5-30:330
EMX 3-0023B	23 A	20 A	17 A	15 A
EMX 3-0043B	43 A	40 A	34 A	29 A
EMX 3-0050B	50 A	44 A	37 A	30 A
EMX 3-0053B	53 A	53 A	46 A	37 A
	AC53b 3.0-10:590	AC53b 3.5-15:585	AC53b 4.0-20:580	AC53b 4.5-30:570
EMX 3-0076B	76 A	64 A	55 A	47 A
EMX 3-0097B	97 A	82 A	69 A	58 A
EMX 3-0100B	100 A	88 A	74 A	61 A
EMX 3-0105B	105 A	105 A	95 A	78 A
EMX 3-0145B	145 A	123 A	106 A	90 A
EMX 3-0170B	170 A	145 A	121 A	97 A
EMX 3-0200B	200 A	189 A	160 A	134 A
EMX 3-0220B	220 A	210 A	178 A	148 A
	AC53a 3.0-10:50-6	AC53a 3.5-15:50-6	AC53a 4.0-20:50-6	AC53a 4.5-30:50-6
EMX 3-0255C	255 A	222 A	195 A	171 A
EMX 3-0360C	360 A	351 A	303 A	259 A
EMX 3-0380C	380 A	380 A	348 A	292 A
EMX 3-0430C	430 A	413 A	355 A	301 A
EMX 3-0620C	620 A	614 A	515 A	419 A
EMX 3-0650C	650 A	629 A	532 A	437 A
EMX 3-0790C	790 A	790 A	694 A	567 A
EMX 3-0930C	930 A	930 A	800 A	644 A
EMX 3-1200C	1200 A	1200 A	1135 A	983 A
EMX 3-1410C	1410 A	1355 A	1187 A	1023 A
EMX 3-1600C	1600 A	1600 A	1433 A	1227 A

All ratings are at 40 °C and <1000 metres. To calculate inside-delta ratings, multiply by 1.5

EMX3 Series [3 phase 7.5~1.500kW]

High performance soft starters



Specifications

General

Current Range 23 A ~ 1600 A (nominal)
 Motor connection In-line or inside delta
 Bypass Integrated internal or external

Supply

Mains Voltage (L1, L2, L3)
 EMX3-xxxx-V4 200 VAC ~ 440 VAC ($\pm 10\%$)
 EMX3-xxxx-V7 380 VAC ~ 690 VAC ($\pm 10\%$) (in-line connection)
 EMX3-xxxx-V7 .. 380 VAC ~ 600 VAC ($\pm 10\%$) (inside delta connection)
 Control Voltage (A1, A2, A3) 110 ~ 220 VAC (+10% / -15%)
 or 230 ~ 440 VAC (+10% / -15%)
 Mains Frequency 45 Hz to 66 Hz

Inputs

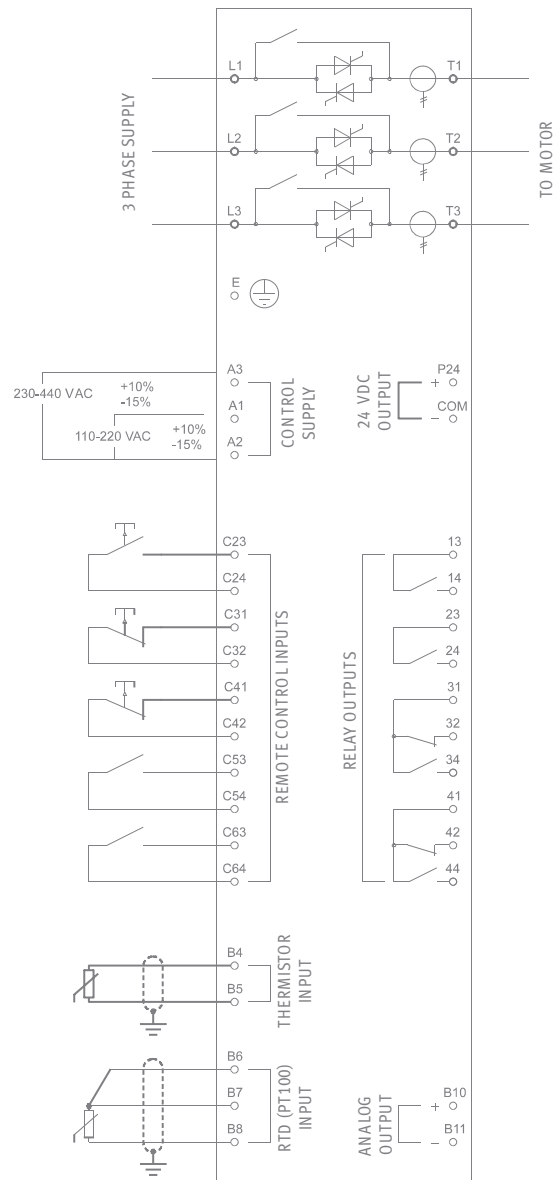
Inputs Active 24 VDC, 8 mA approx.
 Start (C23, C24) Normally open
 Stop (C31, C32) Normally closed
 Reset (C41, C42) Normally open or closed
 Programmable Inputs
 Input A (C53, C54) Normally open or closed
 Input B (C63, C64) Normally open or closed
 Motor Thermistor (B4, B5)
 PT100 RTD (B6, B7, B8)

Outputs

Relay outputs 10 A at 250 VAC resistive
 5 A at 250 VAC, AC15 pf 0.3
 Run Relay (23, 24) Normally Open
 Programmable Outputs
 Relay A (13, 14) Normally Open
 Relay B (31, 32, 34) Changeover
 Relay C (41, 42, 44) Changeover
 Analog Output (B10, B11) 0-20 mA or 4-20 mA
 24 VDC Output (P24, COM) 200 mA

Environmental

Protection
 EMX3-0023B ~ EMX3-0105B IP20 & NEMA1
 EMX3-0145B ~ EMX3-1600C IP00
 Operating temperature $-10\text{ }^{\circ}\text{C} \sim 60\text{ }^{\circ}\text{C}$
 Storage temperature $-10\text{ }^{\circ}\text{C} \sim 60\text{ }^{\circ}\text{C}$
 Humidity 5% to 95% Relative Humidity



The internal bypass feature is included only on units with the suffix 'B'

EMX3 Series [3 phase 7.5~1.500kW]

High performance soft starters

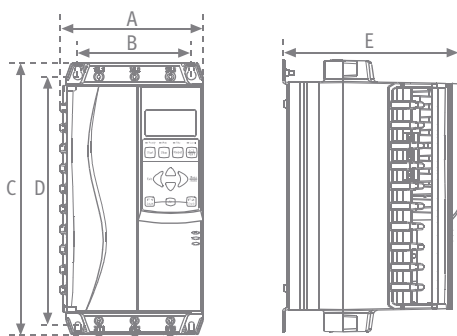


Dimensions and weights

Model	A	B	C	D	E	Weight
	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	kg (lbs)
EMX3-0023B	156.4 (6.16)	124.0 (4.88)	294.6 (11.60)	278.0 (10.94)	192.2 (7.57)	3.2 (7.05)
EMX3-0043B						
EMX3-0050B						
EMX3-0053B					222.7 (8.77)	3.5 (7.22)
EMX3-0076B						
EMX3-0097B						
EMX3-0100B						
EMX3-0105B	282 (11.10)	250 (9.84)	438 (17.24)	380 (14.96)	250 (9.84)	16 (35.27)
EMX3-0145B						
EMX3-0170B						
EMX3-0200B						
EMX3-0220B	390 (15.35)	320 (12.60)	417 (16.42)	400 (15.75)	281 (11.06)	25 (55.12)
EMX3-0255C						
EMX3-0360C						
EMX3-0380C						
EMX3-0430C						
EMX3-0620C						
EMX3-0930C						
EMX3-1200C	574 (22.60)	500 (19.69)	750 (29.53)	727 (28.62)	361 (14.21)	136 (299.83)
EMX3-1410C						
EMX3-1600C						

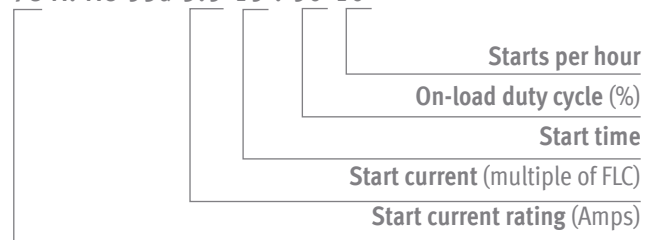
For EMX 3-0145B ~ EMX 3-1600C, dimensions A & C are the unit footprint. Bus bars are not included as this dimension will vary with bus bar configuration.

Compact Design



AuCom ratings are detailed using the AC53 utilisation code specified by IEC60947-4-2.

78 A: AC-53a 3.5-15 : 50-10



The design of the EMX3 allows for multiple units to be mounted side by side, or in a bank of starters due to the flexibility in cabling options. Internally bypassed starters further reduce the overall size of your soft starter.

MVS Series [3 phase 250~8.000kW]

Medium voltage pre-engineered soft starters



- Constant & ramp current, kickstart and XLR-8 adaptive acceleration starting functions
- Standard soft Stop and XLR-8 adaptive deceleration stopping functions
- Motor and starter advanced protection functions
- Advanced LCD digital operator
- Fibre optic link
- User-programmable metering screen
- Multi-level password protection
- Event log (99 positions, time stamped)
- Trip Log (8 positions, date/time stamped)
- Synchronous motor control (optional)
- Communication capabilities : PC, Modbus RTU, Profibus, DeviceNet (optional)
- Wide voltage range (2.3~13.8kV)
- IP32 and IP54 turnkey panel type solution (other IP rating available on request)
- CE, UL, C-UL, Ctick approvals



3.1 Current Ratings

(At 1000 m.)

Two starts per hour

	3.5-15 : 1785		4.0-20 : 1780		4.0-30 : 1770		5.0-30 : 1770		5.0-60 : 1740	
	40 °C	50 °C	40 °C	50 °C	40 °C	50 °C	40 °C	50 °C	40 °C	50 °C
MVS0080	96	91	80	74	72	66	59	55	46	42
MVS0159	19	177	159	147	143	132	117	109	91	84
MVS0230	282	261	230	213	201	185	165	152	121	111
MVS0321	393	363	321	296	279	257	229	211	168	154

Three starts per hour

	4.0-20 : 1180		4.0-30 : 1170		5.0-30 : 1170		5.0-60 : 1140	
	40 °C	50 °C	40 °C	50 °C	40 °C	50 °C	40 °C	50 °C
MVS0080	73	68	65	60	53	49	40	37
MVS0159	146	135	129	119	106	98	79	73
MVS0230	207	190	175	162	144	132	101	93
MVS0321	288	265	244	225	200	184	141	129

Four starts per hour

	4.0-20 : 880		4.0-30 : 870		5.0-30 : 870		5.0-60 : 840	
	40 °C	50 °C	40 °C	50 °C	40 °C	50 °C	40 °C	50 °C
MVS0080	68	63	59	54	48	45	35	33
MVS0159	136	125	117	108	96	89	70	65
MVS0230	188	173	157	144	129	118	88	81
MVS0321	262	241	218	200	179	164	122	112

MVS Series [3 phase 250~8.000kW]

Medium voltage pre-engineered soft starters



Specifications

General

Current Range 80 A ~ 390 A (nominal)*
 Motor connection In-line

Supply

Mains Voltage (L1, L2, L3)

- MVSxxx-V02 3 x 2300 VAC (± 10%)
- MVSxxx-V03 3 x 3300 VAC (± 10%)
- MVSxxx-V04 3 x 4160 VAC (± 10%)
- MVSxxx-V06 3 x 6600 VAC (± 10%)
- MVSxxx-V07 3 x 7200 VAC (± 10%)
- MVSxxx-V11 3 x 11000 VAC (± 10%)
- MVSxxx-V13 3 x 13800 VAC (± 10%)

Control Voltage (A1, A2, A3) 110 VAC to 130 VAC (+10% /-15%)
 or 220 VAC to 240 VAC (+10% /-15%)

Mains Frequency 45 Hz to 66 Hz

Inputs

- Inputs Active 24 VDC, 8 mA approx.
- Start (C23, C24) 24 VDC, 8mA approx.
- Stop (C31, C32) 24 VDC, 8mA approx.
- Reset (C41, C42) 24 VDC, 8mA approx.
- Input A (C53, C54) 24 VDC, 8mA approx.
- Input B (C63, C64) 24 VDC, 8mA approx.

Motor Thermistor (B4, B5)

Outputs

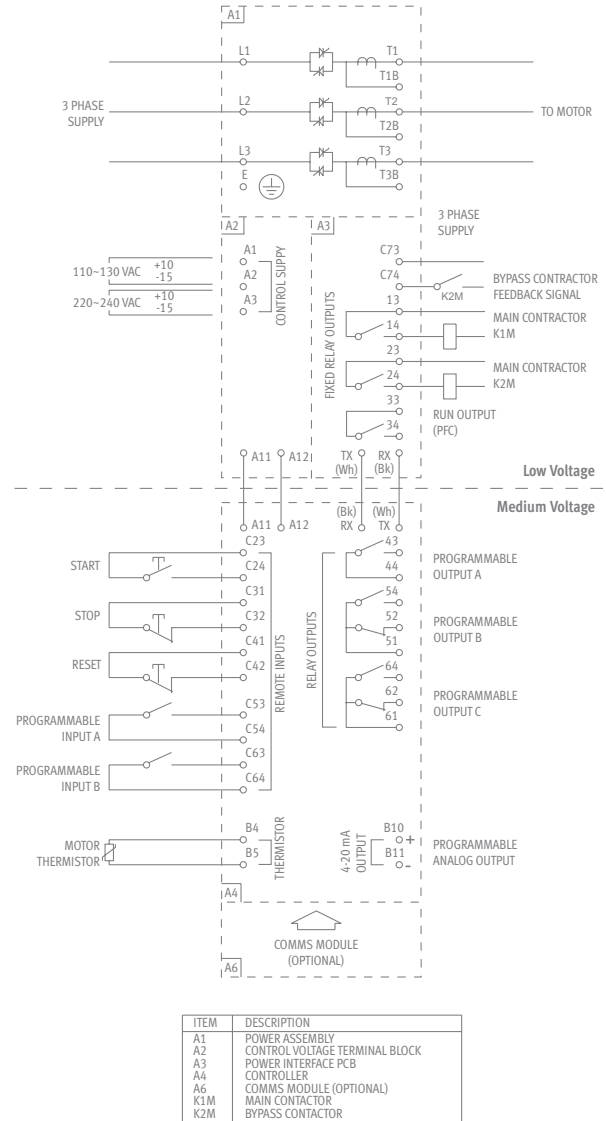
- Relay outputs 10 A at 250 VAC/360 VA
 10 A at 30 VAC resistive
- Main Contactor (Terminals 13, 14) Normally Open
- Bypass Contactor (Terminals 23, 24) Normally Open
- Run Output/ PFC (Terminals 33, 34) Normally Open
- Output Relay A (Terminals 43, 44) Normally Open
- Output Relay B (Terminals 51, 52, 54) Changeover
- Output Relay C (Terminals 61, 62, 64) Changeover
- Analog Output (Terminals B10, B11) 0-20 mA or 4-20 mA

Environmental

Protection

- Power Assembly IPO0
- Controller IP54/ NEMA 12
- Operating Temperature -10°C to +60°C
- Storage Temperature -25°C to +55°C
- Conformal coating of PCBs Standard

* Ratings higher than 390A available on request.



MVS Series [3 phase 250~8.000kW]

Medium voltage pre-engineered soft starters



Enclosures

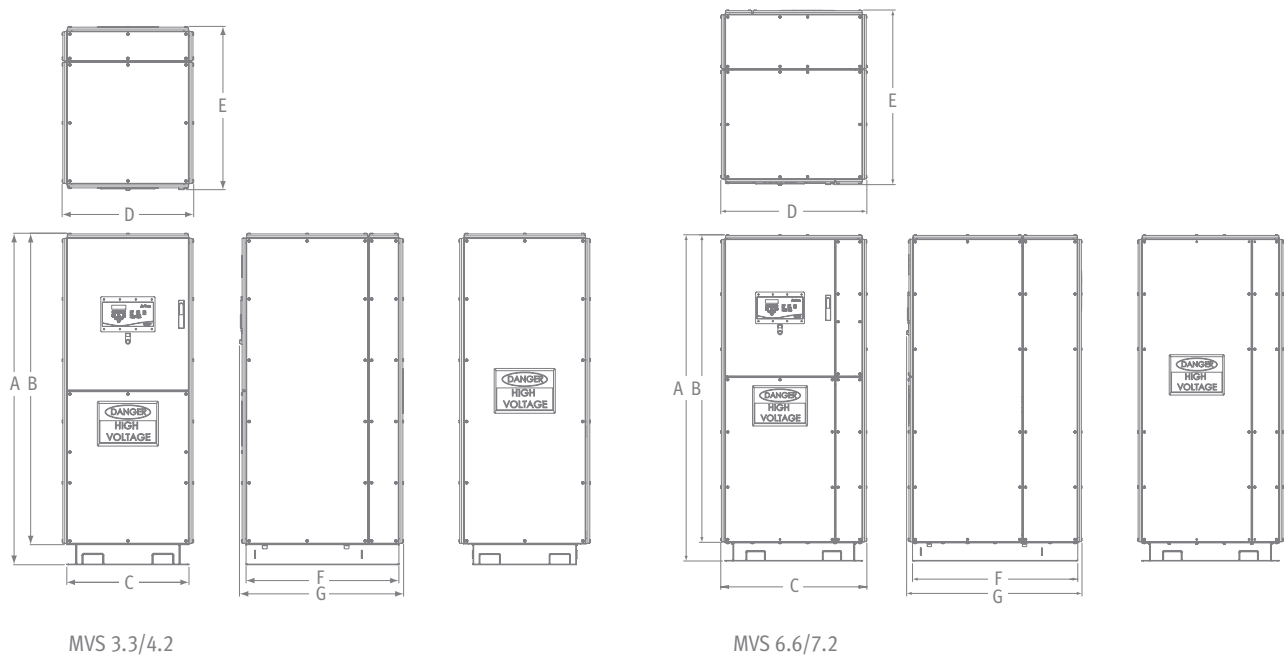
MVS enclosures are engineered to suit your project specific requirements. For other options, please contact your local sales engineer for more information.

Some examples of enclosure options include:

- Powerfactor correction
- Additional motor protection relays
- Transition panels with cables or direct bus bar connections
- Multi-motor operation
- Top of bottom entry cabling
- Various control options and RTD relays.

Enclosure*	A	B	C	D	E	F	G
	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)
MVS 3.3/4.2	2078 (81.81)	1953 (62.72)	766 (30.16)	825 (32.48)	1023 (40.28)	958 (37.72)	1029 (40.51)
MVS 6.6/7.2	2271 (89.41)	2141 (84.29)	1017 (40.04)	1017 (40.04)	1215 (47.83)	1150 (45.28)	1221 (48.07)
MVS 11/13	Ask your sales engineer for details						

* Measurements shown are typical dimensions and may vary for specific projects.





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