
AuCom
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EMX3
Soft Starter
AuCom

EMX3 Soft Starter

THE EMX3 IS A COMPREHENSIVE MOTOR MANAGEMENT SYSTEM FOR THE MOST DEMANDING SOFT STARTING AND STOPPING APPLICATIONS.

WITH AN IMPRESSIVE RANGE OF FEATURES, THE EMX3 DELIVERS SUPERIOR PERFORMANCE AND AN UNPRECEDENTED LEVEL OF FLEXIBILITY IN A COMPACT AND USER FRIENDLY PACKAGE.

MORE CONTROL

Not only does the EMX3 soft starter feature Constant Current and Current Ramp, but the EMX3 is the world's first soft starter to control acceleration. We call it Adaptive Acceleration Control.

According to your application requirements you can now select between early, constant or late acceleration/deceleration.

More control means smarter starts and smoother stops that reduce downtime and eliminate water hammer problems.

EASY TO USE

The EMX3 is easy to use during installation, commissioning, operation and even trouble shooting.

Quick setup gets your machinery running in next to no time, informative screens advise your operator on the performance of your motor and real language trip messages pinpoint exactly where any issues lie.

Options for control wiring from the top, bottom or left side provide greater flexibility, plus unique wiring looms and cable retainers make for a faster, tidier install. You'll soon experience how easy the EMX3 is to use.

FEATURE SET

The EMX3 is a smart, dependable and easy to use soft starter. New design features make the EMX3 the perfect solution for quick set-up or more customised control, including:

- Large LCD screen with multi-language feedback
- Remote mountable keypad station
- Intuitive programming
- Advanced start and stop control functions
- A complete range of motor protection features
- Extensive performance monitoring and event logging

XLR-8: ADAPTIVE ACCELERATION CONTROL

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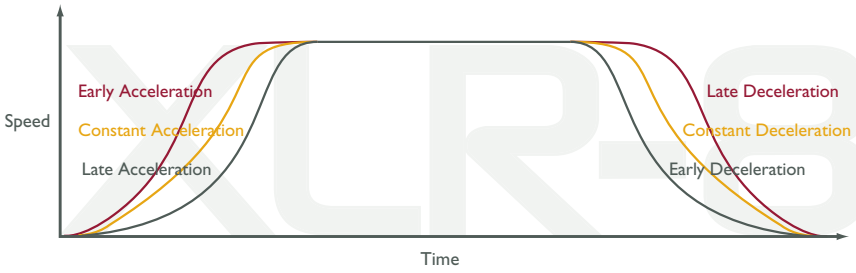
AuCom's industry-leading motor control technology XLR-8 Adaptive Acceleration Control, gives you precise control over your motor's acceleration and deceleration profiles.

Using XLR-8, the soft starter learns your motor's performance during start and stop, then adjusts control to optimise performance. Simply select the profile that best matches your load type and the soft starter automatically ensures the smoothest possible acceleration for your load.

Contact your local distributor to see an EMX3 demonstration today.

ADAPTIVE ACCELERATION PROFILE OPTIONS



Adaptive acceleration offers three start and stop profiles according to your needs.

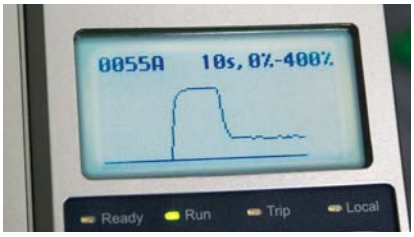
THE EMX3 SIMPLIFIES THE INSTALLATION AND OPERATION OF MOTOR STARTING SYSTEMS TO REDUCE INSTALLATION COST AND TIME.

The EMX3 comes in a range of sizes to suit the demands of your application. See rating and sizes for details.

EASY TO UNDERSTAND DISPLAY

REAL LANGUAGE IN REAL TIME

AuCom wants to make your job easy, so the EMX3 gives real-language feedback messages, so you don't have to look up codes to know what's happening. With real-time metering displays and a 99-place event log recording time-stamped details of operation and performance, it has never been easier to track how your motor is behaving.



GRAPHICAL DISPLAY

In many cases we've done away with language altogether, using real-time graphs of motor operating performance and current to quickly and clearly illustrate exactly how your motor is performing.

REMOTE DISPLAY MOUNTING

The keypad is easily mounted on the exterior of your enclosure, using an optional keypad mounting kit. When mounting multiple soft starters in a single enclosure, this allows centralised control from a single location, with all the relevant information. Mount a number of displays next to each other for quick diagnosis of problems. (IP65 when mounted).

METERING AND MONITORING

The EMX3 delivers an extensive range of information to replace an additional power meter (Amps, kW, kVA, pf).

PROGRAM MULTIPLE UNITS

When programming multiple units, simply plug the keypad into different starters for immediate download of your data. No fuss, no trouble – a smoother start in every sense.

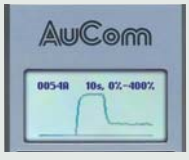
MOTOR TEMPERATURE

CURRENT

MOTOR POWER

LAST START INFORMATION

DATE AND TIME



PERFORMANCE GRAPH

SCR CONDUCTION

USER-PROGRAMMABLE SCREEN

TRIP MESSAGES

EASY TO INSTALL, EASY TO OPERATE

SMARTER STARTING

The EMX3 puts you in control of motor starting. Depending on your application requirements you can select the best soft start control method.

For applications requiring precise control of motor start current the EMX3 offers a choice of Constant Current or Current Ramp start modes. For superior control over acceleration or deceleration choose XLR-8 Adaptive Acceleration Control.

SMOOTHER STOPPING

XLR-8 also provides precise control over soft stopping and is ideal for applications requiring a smoother soft stop. XLR-8 is ideal for low inertia loads such as pumps and conveyors, and can substantially reduce or eliminate the effects of water hammer.

BRAKING

For high inertia loads, the EMX3 incorporates AuCom's latest braking algorithm, letting you take precise control over the motor's stopping time. Shorter stopping times help improve your production efficiency by reducing downtime between operating cycles.

ADVANCED OPERATION

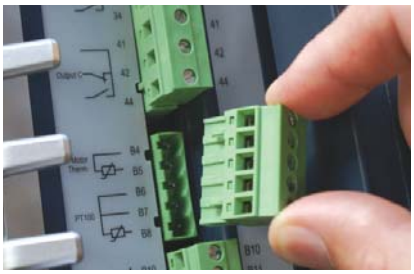
To meet the unique requirements of your application, the EMX3 offers a range of advanced features. The EMX3 meets the needs of specific applications including:

- Pumping (eg high head applications)
- Compressors (optimising load control)
- Bandsaws (easy blade alignment)
- Irrigators (built-in timer).

SIMULATIONS

Need to test the installation before connecting a motor? The EMX3 simulation functions let you test the soft starter's operation, external control circuits and associated equipment without connecting the soft starter to line voltage or a motor. The EMX3 has three simulation modes:

- **Run simulation:** simulates a motor starting, running and stopping to ensure correct installation.
- **Protection simulation:** simulates activation of each protection mechanism to confirm correct protection response.
- **Signalling simulation:** simulates output signalling.



EASIER INSTALLATION

If space is at a premium in your motor control centre, the EMX3's compact size will save you space and trouble. Internal bypass contactors, built-in monitoring and indicators, and extensive on-board input and output functionality reduce the need for space and cost of external equipment, as well as simplifying installation.

REMOVABLE CONNECTORS & UNIQUE WIRING LOOM

Installation is easy with plug-in control terminal blocks. Simply unplug each block, complete the wiring and re-insert the block.

Using the EMX3's unique and flexible cable ways, cables can be efficiently organised for wiring from either the top, left or from below.

FASTER COMMISSIONING

The EMX3 has been designed for ease of use, and the user-friendly menu is no exception. After a tidy installation, a quick setup guide helps you configure the starter for common applications by suggesting a typical setting, which you can then fine tune to suit your needs, all accessible from the easy to use keypad.

FEATURES

MOUNTING HOLES FOR EASY MOUNTING AND REMOVAL

TOP AND BOTTOM CABLE RETAINERS FOR TIDIER WIRING

SMALL FOOTPRINT AND DEPTH SAVES SPACE

LARGE VIEWABLE SCREEN WITH REAL LANGUAGE TEXT, NO MORE TRIP CODES!

STATUS LEDS FOR IMMEDIATE FEEDBACK

START, STOP, RESET, LOCAL/REMOTE PUSH BUTTONS

SHORTCUT BUTTONS FOR QUICK ACCESS TO COMMON TASKS

IP65 REMOVABLE KEYPAD FOR MOUNTING ON CABINET EXTERIOR

EASY ACCESS DOOR HIDES CABLES FROM OPERATOR, BUT ALLOWS EASY ACCESS FOR INSTALLERS

UNIQUE WIRING LOOM SEPARATES WIRES FOR EASY INSTALL AND ALLOWS ACCESS FROM TOP, LEFT OR BOTTOM FOR MORE FLEXIBILITY

STARTING FUNCTIONS

- XLR-8 adaptive acceleration
- Constant current start mode
- Current ramp start mode
- Kickstart

STOPPING FUNCTIONS

- XLR-8 adaptive deceleration
- TVR soft stop
- Brake mode
- Coast to stop

KEYPAD

- Remote mounting option
- Status LEDs
- Easy to read screen
- Real language feedback
- Multi-language options
- Shortcut button

PROTECTION

- Fully customisable protection
- Motor thermal model
- Motor thermistor input
- Phase sequence
- Undercurrent
- Instantaneous overcurrent
- Auxiliary trip input
- Heatsink overtemperature
- Excess start time
- Supply frequency
- Shorted SCR
- Power circuit
- Motor connection
- RS-485 failure
- Motor overload
- Current imbalance
- Ground fault (optional)

ADDITIONAL FEATURES

- Starter communication timeout
- Network communication trip
- Auto detection of in-line or inside delta power connection
- Programmable auto start/stop
- 24 VDC auxiliary power supply
- PT100 (RTD) input
- Real time clock with battery backup
- PowerThrough - enables the choice of continuous operation despite a power assembly failure. This allows production to continue while long-term remedial action can be taken.
- Forward and reverse jog function
- Industrial network protocols: DeviceNet, Ethernet/IP, Modbus RTU, Modbus TCP, Profibus, Profinet (optional)
- I/O expansion card (optional)

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 ~ 440 VAC (± 10%)
EMX3-xxxx-V7 ..... 380 ~ 600 VAC (± 10%)
EMX3-xxxx-V7 .. 380 ~ 690 VAC (± 10%) (earthed star supply system only)
Control voltage (A1, A2, A3) ..... 110 ~ 210 VAC (+ 10% / -15%)
..... or 220 ~ 440 VAC (+ 10% / -15%)
..... 24 VAC/VDC (± 20%)
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)

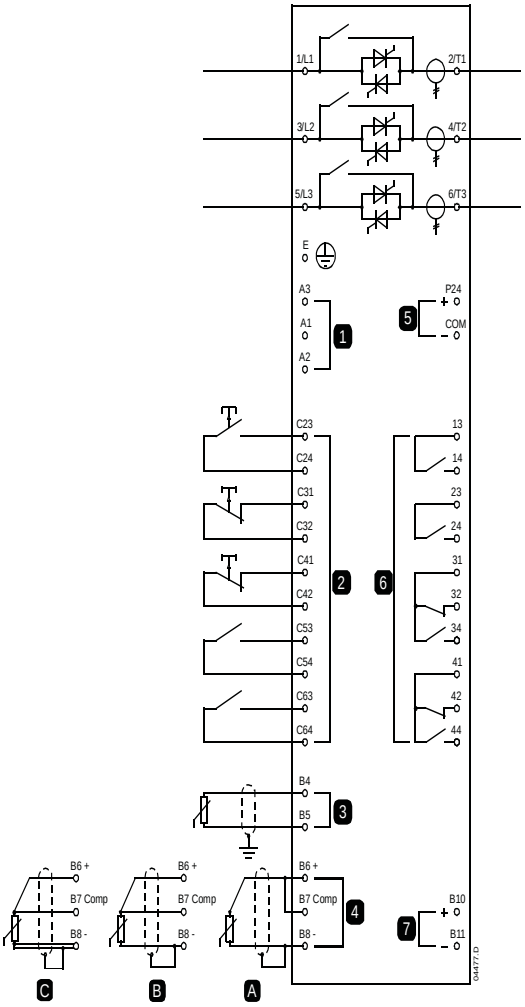
Outputs

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 (with derating) ..... -10 °C ~ 60 °C
Storage temperature ..... - 10 °C ~ 60 °C
Humidity ..... 5% to 95% Relative Humidity

** CERTIFICATION VARIES BY MODEL.*



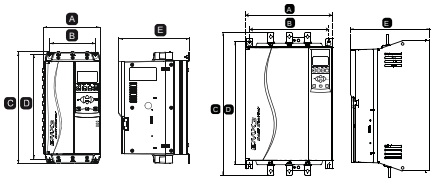
The internal bypass feature is included only on units with the suffix 'B'.

1: Control voltage (model dependent)
2: Remote control inputs
3: Motor thermistor
4A: RTD/PT100 input (2-wire)
4B: RTD/PT100 input (3-wire)
4C: RTD/PT100 input (4-wire)
5: 24 VDC output
6: Relay outputs
7: Analog output

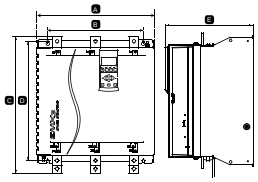
DIMENSIONS

DIMENSIONS AND WEIGHTS

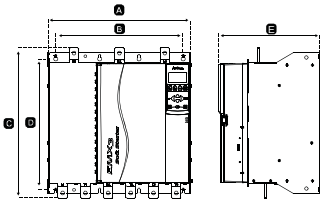
Model	A mm (inches)	B mm (inches)	C mm (inches)	D mm (inches)	E mm (inches)	F mm (inches)	G mm (inches)	H mm (inches)	Weight kg (lbs)
EMX3-0023B	156 (6.2)	124.0 (4.9)	295 (11.6)	278 (10.9)	192 (7.6)	n/a	n/a	n/a	4.2 (9.3)
EMX3-0043B									
EMX3-0050B									
EMX3-0053B									
EMX3-0076B					223 (8.8)	n/a	n/a	n/a	4.5 (9.9)
EMX3-0097B									5.0 (10.0)
EMX3-0100B									
EMX3-0105B									
EMX3-0145B	282 (11.1)	250 (9.8)	438 (17.2)	380 (15)	250 (9.8)	n/a	n/a	n/a	14.0 (30.9)
EMX3-0170B									14.2 (31.3)
EMX3-0200B									15.0 (33.1)
EMX3-0220B									
EMX3-0255B	424 (16.7)	376 (14.8)	440 (17.3)	392 (15.4)	298 (11.7)	n/a	n/a	n/a	26.0(57.3)
EMX3-0350B									29.4 (64.8)
EMX3-0425B									
EMX3-0500B	430 (16.9)	320 (12.6)	640 (25.2)	600 (23.6)	296 (11.7)	n/a	n/a	n/a	50.0 (110.2)
EMX3-0580B									
EMX3-0700B									63.5 (140.0)
EMX3-0820B									
EMX3-0920B									64.0 (141.1)
EMX3-1000B									
EMX3-0255C	390 (15.4)	320 (12.6)	417 (16.4)	400 (15.8)	284 (11.2)	n/a	n/a	n/a	23 (50.7)
EMX3-0360C	430 (16.9)	320 (12.6)	553 (21.8)	522 (20.6)	302 (11.9)	124 (4.9)	124 (4.9)	6 (0.2)	36.0 (79.4)
EMX3-0380C									
EMX3-0430C									
EMX3-0620C									39.5 (87)
EMX3-0650C									
EMX3-0690C									
EMX3-0790C									
EMX3-0930C									51.5 (113.5)
EMX3-1200C	574 (22.6)	500 (19.7)	750 (29.5)	727 (28.6)	361 (14.2)	124 (4.9)	129 (5.1)	12 (0.5)	128.5 (283.2)
EMX3-1410C									130 (286.6)
EMX3-1600C									140 (308.7)



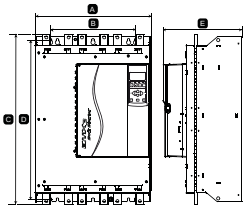
EMX3-0023B ~ 0105B *EMX3-0145B ~ 0220B*



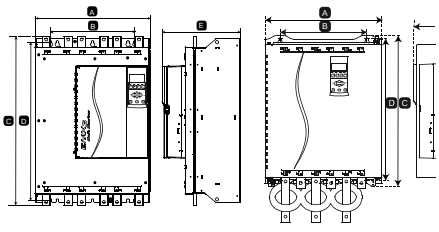
EMX3-0255C



EMX3-0255B ~ 425B



EMX3-0500B ~ 1000B



EMX3-0360C ~ 1600C

COMPACT DESIGN

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.

RATINGS

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
EMX3-0023B	23 A	20 A	17 A	15 A
EMX3-0043B	43 A	40 A	34 A	29 A
EMX3-0050B	50 A	44 A	37 A	30 A
EMX3-0053B	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
EMX3-0076B	76 A	64 A	55 A	47 A
EMX3-0097B	97 A	82 A	69 A	58 A
EMX3-0100B	100 A	88 A	74 A	61 A
EMX3-0105B	105 A	105 A	95 A	78 A
EMX3-0145B	145 A	123 A	106 A	90 A
EMX3-0170B	170 A	145 A	121 A	97 A
EMX3-0200B	200 A	189 A	160 A	134 A
EMX3-0220B	220 A	210 A	178 A	148 A
EMX3-0255B	255 A	231 A	201 A	176 A
EMX3-0350B	350 A	350 A	350 A	306 A
EMX3-0425B	425 A	411 A	355 A	305 A
EMX3-0500B	500 A	445 A	383 A	326 A
EMX3-0580B	580 A	492 A	425 A	364 A
EMX3-0700B	700 A	592 A	512 A	438 A
EMX3-0820B	820 A	705 A	606 A	516 A
EMX3-0920B	920 A	804 A	684 A	571 A
EMX3-1000B	1000 A	936 A	796 A	664 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
EMX3-0255C	255 A	222 A	195 A	171 A
EMX3-0360C	360 A	351 A	303 A	259 A
EMX3-0380C	380 A	380 A	348 A	292 A
EMX3-0430C	430 A	413 A	355 A	301 A
EMX3-0620C	620 A	614 A	515 A	419 A
EMX3-0650C	650 A	629 A	532 A	437 A
EMX3-0790C	790 A	790 A	694 A	567 A
EMX3-0930C	930 A	930 A	800 A	644 A
EMX3-1200C	1200 A	1200 A	1135 A	983 A
EMX3-1410C	1410 A	1355 A	1187 A	1023 A
EMX3-1600C	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
B = Internally bypassed, C - Non-bypassed

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

NON-BYPASSED

AC-53a 3.0-10 : 50-6

- Starts per hour
- On-load duty cycle (%)
- Start time (seconds)
- Start current (multiple of FLC)

BYPASSED

AC-53b 3.0-10: 345

- Off time (seconds)
- Start time (seconds)
- Start current (multiple of FLC)

ACCESSORIES/OTHER FEATURES

COMMUNICATION MODULES

The EMX3 supports USB and network communication using Ethernet, Profibus, DeviceNet and Modbus RTU protocols, via an easy-to-install communication interface module.

PC SOFTWARE

Using AuCom's custom designed WinMaster software you can control, monitor and program your EMX3 from your desktop computer.

INPUT/OUTPUT CARD

These hardware expansion cards suit users who require additional inputs and outputs or advanced functions. Each EMX3 can support one expansion card.

The input/output expansion card adds:

- 2 x inputs
- 3 x relay outputs
- 1 x analog input
- 1 x analog output

RTD AND GROUND FAULT

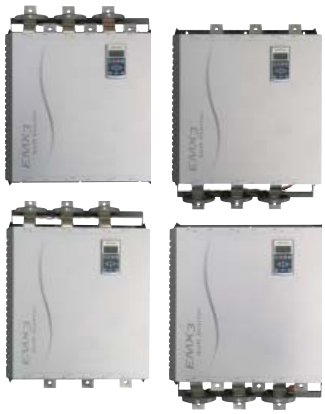
The RTD and ground fault protection card provides the following additional inputs:

- 6 x PT100 RTD inputs
- 1 x ground fault input

To use ground fault protection a 1000:1 5 VA current transformer is also required.

FINGER GUARDS

This option ensures personnel safety by preventing accidental contact with live terminals The finger guard kit fits the EMX3-0145B to EMX3-01000B and provides IP20 protection when used with 22 mm plus size cables.



ADJUSTABLE BUSBAR CONFIGURATION

The busbars on models EMX3-0360C ~ EMX3-1600C can be adjusted for top or bottom input and output as required. This flexibility allows you optimisation of your switchboard layout.

ABOUT AUCOM

SMART THINKING

We've been making soft starters since 1981 and we're still going strong. We're always talking to customers in order to improve technology to meet their needs. So our products have an international reputation for being the market leaders in soft start.

THE HIGHEST INTERNATIONAL STANDARDS

AuCom is accredited to ISO9001:2000, with all products designed and tested to international standards such as IEC 60947-4-2, UL 508, CCC and CISPR-11. All our products are thoroughly tested in certified facilities and in the field before release, and every soft starter is tested before despatch.

IT'S PERSONAL

No two people are the same, just as no two businesses are alike. We're proud that we treat each and every client as someone quite individual with their own set of business challenges. We have solutions for simple applications, and fully featured advanced starters for more complex requirements.

EXPERT PARTNERS

AuCom chooses partners that are committed to soft start and motor control, and regarded as experts in their local market. We work closely with our partners to ensure customers receive only the best advice.

HISTORY

AuCom introduced the first complete range of soft starters and since then, we have concentrated on fulfilling the promise that we lead the world in soft start technology and developing new products to keep improving motor performance.

We are proud of our attention to detail, flexibility and engineering skill, and are globally recognised as the world's leading specialist in soft starters.

AuCom manufacturing plant in Christchurch, New Zealand.

OTHER AUCOM PRODUCTS

AuCom offers a complete range of soft starters, with a solution for your soft starting requirement. Whether you need a simple product for starting only, or a comprehensive solution for your motor control and protection needs, you can trust AuCom to offer a product to match.

	Soft Start	Motor Protection	Advanced Interface	Internal Bypass	Power Range	Voltage Range
CSX	•			•	≤ 200 A	≤ 575 VAC
CSXi	•	•		•	≤ 200 A	≤ 575 VAC
EMX3	•	•	•	•	≤ 2400 A	≤ 690 VAC
MVS	•	•	•	•	≤ 500A *	≤ 11.0 kV
MVX	•	•	•	•	≤ 800A *	≤ 15 kV

** Higher ratings available on request.*

CSX SOFT STARTER CONTROLLER

An advanced soft start controller designed for use in motor control centres. Easily incorporated into any control circuit and suitable for use with any type of motor protection device.

CSXI COMPACT SOFT STARTER

A compact soft starter providing constant current soft start control plus essential motor protection. A complete motor control solution in a single compact design.

MVS MEDIUM VOLTAGE SOFT STARTER

An advanced motor management system for medium voltage motors. MVS soft starters provide a full range of soft start control, motor/load protection and other features.

MVX MEDIUM VOLTAGE SOFT STARTER

The MVX is among the smallest medium voltage soft starter in its class. To ensure that your staff and plant are safe from arc faults, MVX is the only choice.

For more information contact your local distributor. A complete list of distributors is available at **www.aucom.com**:

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