



**EMX3**  
*Soft Starter*

**AuCom**  
THE SOFT START SPECIALISTS



# EMX3

## Soft Starter

THE EMX3 IS THE LATEST DEVELOPMENT IN SOFT STARTERS PROVIDING A COMPLETE MOTOR STARTING AND MANAGEMENT SYSTEM.

WITH AN IMPRESSIVE RANGE OF FEATURES IN A SINGLE USER FRIENDLY PACKAGE, NEVER BEFORE HAS MOTOR CONTROL BEEN SO SIMPLE.



### 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 or XLR-8.

According to your application requirements you can now select between early, constant or late acceleration/deceleration. This level of choice is only available from AuCom.

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



## XLR-8: ADAPTIVE ACCELERATION CONTROL

AuCom's new EMX3 soft starter introduces a new generation in soft start technology: XLR-8 Adaptive Acceleration Control. XLR-8 gives you an unprecedented level of 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.

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

## ADAPTIVE ACCELERATION PROFILE OPTIONS



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



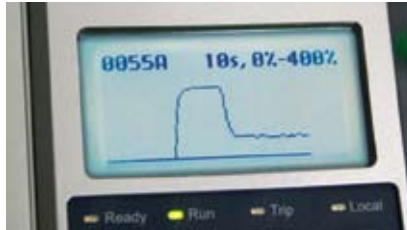


# EASY TO UNDERSTAND DISPLAY



## 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 powermeter (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.



### 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.

### 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 (e.g. high head applications)
- Compressors (optimising load control)
- Bandsaws (easy blade alignment)
- Irrigators (built-in timer).



### 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.

### 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.



### 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 buttons

### 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
- RS485 failure
- Motor overload
- Current imbalance
- Ground fault (optional)

### ADDITIONAL FEATURES

- Starter communication timeout
- Network communication trip
- Auto detection of inline 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
- I/O expansion card (optional)

# SPECIFICATIONS

## 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

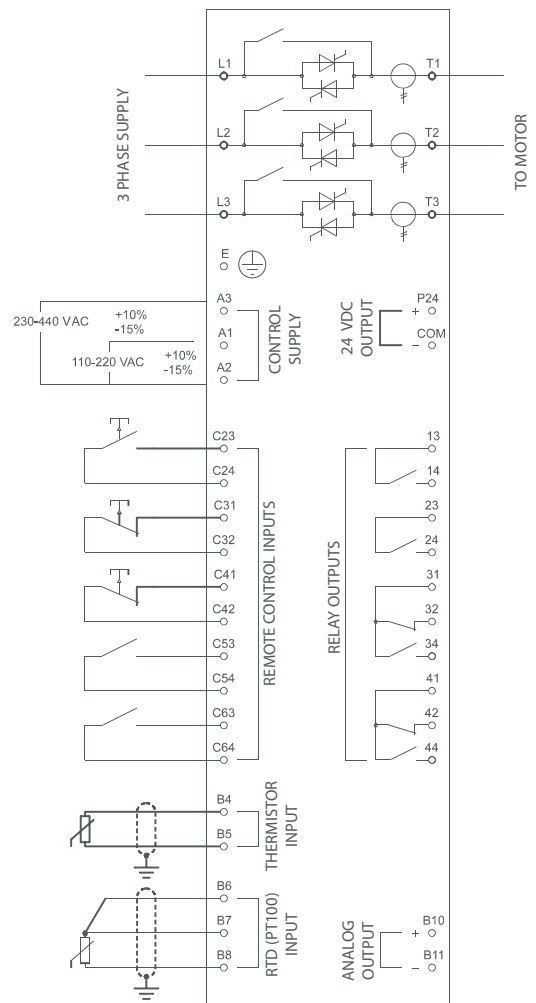
Inputs ..... Active 24 VDC, 8 mA approx.  
 Start (C23, C24) ..... Normally open  
 Stop (C31, C32) ..... Normally closed  
 Reset (C41, C42) ..... Normally open or closed  
 Programmable Inputs  
 Input A (C53, C54) ..... Normally open or closed  
 Input B (C63, C64) ..... Normally open or closed  
 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 °C ~ 60 °C  
 Storage temperature ..... -10 °C ~ 60 °C  
 Humidity ..... 5% to 95% Relative Humidity



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



(Some certification pending at the time of print.)

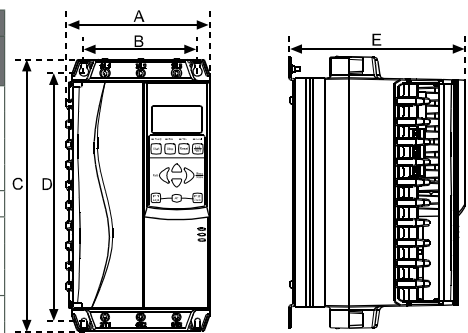
# EMX3 PRODUCT RANGE



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

## DIMENSIONS AND WEIGHTS

Model	A mm (inches)	B mm (inches)	C mm (inches)	D mm (inches)	E mm (inches)	Weight 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						
EMX3-0076B						
EMX3-0097B						
EMX3-0100B	282 (11.10)	250 (9.84)	438 (17.24)	380 (14.96)	250 (9.84)	16 (35.27)
EMX3-0105B						
EMX3-0145B						
EMX3-0170B	390 (15.35)	320 (12.60)	417 (16.42)	400 (15.75)	281 (11.06)	25 (55.12)
EMX3-0200B						
EMX3-0220B						
EMX3-0255C						
EMX3-0360C						
EMX3-0380C						
EMX3-0430C	430 (16.93)	320 (12.60)	545 (21.46)	522 (20.55)	299 (11.77)	50.5 (111.33)
EMX3-0620C						
EMX3-0930C						
EMX3-1200C						
EMX3-1410C	574 (22.60)	500 (19.69)	750 (29.53)	727 (28.62)	361 (14.21)	136 (299.83)
EMX3-1600C						



## 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.

For EMX3-0145B ~ EMX3-1600C, dimensions A & C are the unit footprint.  
Bus bars are not included as this dimension will vary with bus bar configuration.



# RATINGS

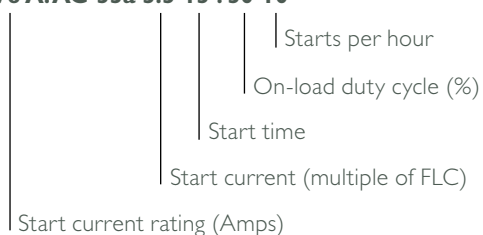
## CURRENT RATINGS (IN-LINE CONNECTION)

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
	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

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

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





## ACCESSORIES/OTHER FEATURES

### COMMUNICATION MODULES



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

### PC SOFTWARE

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



### VOLTAGE MEASUREMENT CARD

The voltage measurement card allows real-time monitoring of mains voltage, eliminating the need for external devices. The voltage measurement card enhances undervoltage and overvoltage protection.

### 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



### FINGER GUARDS

This option ensures personnel safety by preventing accidental contact with live terminals. The finger guard kit fits the EMX3-0145B to EMX3-0220B and provides IP20 protection when used with 22 mm plus size cables.

### 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.



### ADJUSTABLE BUS BAR CONFIGURATION

The bus bars 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



### THE SOFT START SPECIALISTS

AuCom has a range of industry leading products utilising the latest technology. Our experts are the go-to guys for soft starters, so let our sales team become your engineering resource for everything soft start.

Whether you are involved in pumping, forestry, petrochemical, mining or the marine industry, we'll work with you to find a solution.

And why are we so good?

Because we're the soft start specialists.



*AuCom manufacturing plant in Christchurch, New Zealand.*

## AUCOM NETWORK WORLDWIDE



*Shaded areas indicate the growing network of over 30 AuCom distributors worldwide. A complete list of distributors is available at [www.aucom.com](http://www.aucom.com)*

# 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
IMS2	•	•	•		≤ 2361 A	≤ 690 VAC
EMX3	•	•	•	•	≤ 2400 A	≤ 690 VAC
MVS	•	•	•	•	≤ 390 A *	≤ 13.8 kV

\* Ratings higher than 390 A available on request.

## CSX SOFT START 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.

## IMS2 DIGITAL SOFT STARTER



A comprehensive motor management system providing selectable soft start and soft stop control, advanced motor/load protection systems and extensive control & interface features.

## 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.

For more information on AuCom products, contact your local distributor:

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