

AuCom

Ready  
Run

Soft Starter

CSX  
Series

CSX  
Soft Starter

AuCom

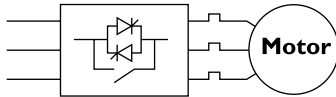


# CSX

## Soft Starter

AuCom's CSX soft starters provide greater control over the starting and stopping of three phase motors. There are two product ranges: the CSX for a simple soft start control device, or the CSXi for an advanced soft start system complete with motor protection.

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



The AuCom CSX-030 soft starter

**THE CSX IS A COMPACT AND COST EFFECTIVE SOFT STARTER SOLUTION. SIMPLE OPERATION AND A BUILT-IN BYPASS FUNCTION MAKE THE CSX SERIES A PLEASURE TO USE WITH MANY BENEFITS IN A TIDY PACKAGE.**

### COMPACT DESIGN

The CSX soft starter is a compact unit suitable for mounting in a switchboard or Motor Control Centre without the need for an external bypass contactor. At only 165 mm deep it is easy to mount in shallow switchboards.

For motors up to 60 A, soft starters can be mounted on a DIN-rail. Or the CSX may be mounted in a bank horizontally to use less space, often critical in certain switchboards.

### SIMPLE TO USE

CSX series soft starters are easy to use with as only three adjustments to be made to get started:

- initial start time
- start ramp time
- soft stop ramp time

Adjustments are made using simple rotary switches. The CSXi soft starters allow more control over starts and stops with several adjustment controls.

### BUILT-IN BYPASS FUNCTION

CSX soft starters are equipped with integrated bypass function. The internal bypass function allow CSX starters to be easily installed into switchboards or motor control cubicles without need for extra ventilation or external bypass contactors.

Makes installation simple, reduces ventilation requirements and overall installation cost.

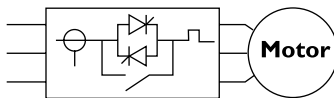
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It provides a range of motor protection functions in addition to soft start and soft stop. Protections include motor overload, phase loss and excess start time.

The CSXi also features a programmable relay.



Contact your local distributor to learn how a CSX soft starter can benefit you today.



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### PROTECTION

The CSXi has built-in thermal model motor overload protection. The motor current is continuously monitored and the expected temperature is calculated based on this monitored current.

The user sets the Motor Trip Class, and will trip when the calculated motor temperature reaches 105%.

An external motor protection device is not required when using a CSXi soft starter.







# EASY TO OPERATE

Three adjustments can be made on the CSX soft starter:

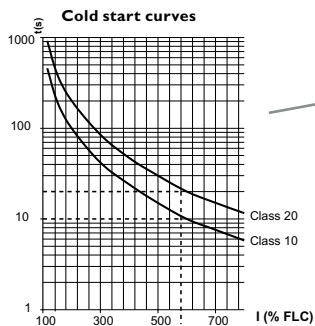
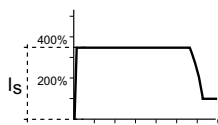
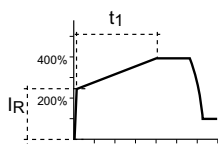
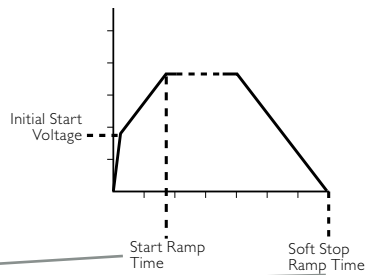
- Initial Start Voltage
- Start Ramp Time
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The CSXi has several adjustments for more control:

- Motor FLC
- Current limit
- Current ramp
- Stop time
- Motor trip class
- Phase sequence
- Excess start time
- Auxiliary relay selection



CSX control panel

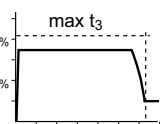
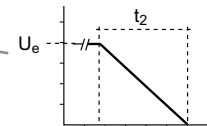


OFF = No overload protection  
 Note: Trip class must be set to match installation limitations.

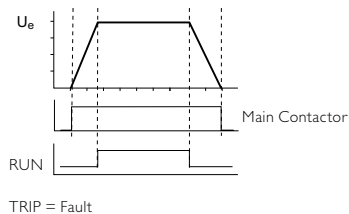


CSXi control panel

Motor FLC  
 CSXi FLC



L1	CSXi	FWD	✓	✓
L2			✓	✓
L3			✓	✓
L1	CSXi	ANY	✗	✓
L2			✗	✓
L3			✗	✓







# EQUI-VEC: BALANCED VECTOR CONTROL



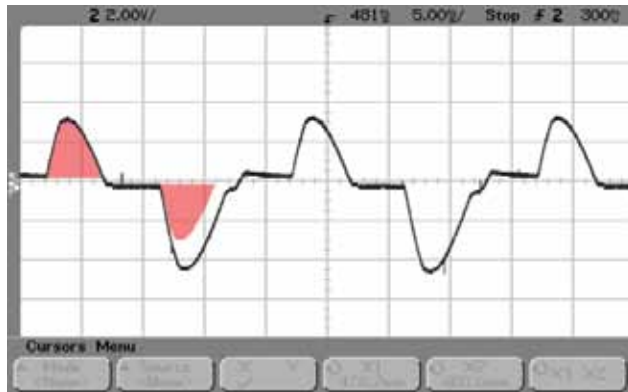
## BALANCED VECTOR CONTROL

In the past soft starters using two phase control caused extra heating in the motor and required higher starting currents because the output waveform was not symmetrical.

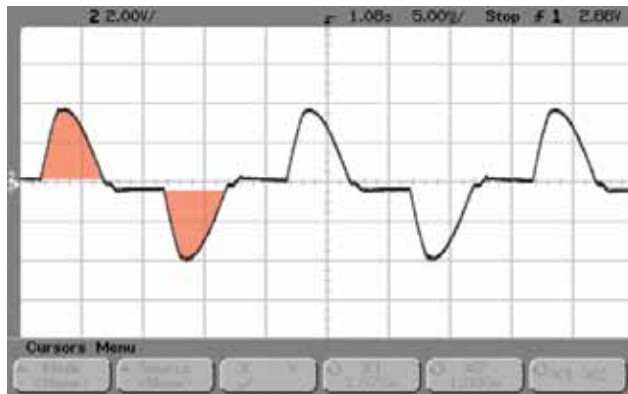
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This eliminates previous limitations of two phase controllers such as:

- Limited starts per hour
- Limited to light loads only
- Limited to motor < 55 kW



Typical 2-Phase control waveform



Equi-vec waveform

## TRIP MESSAGES

The CSX series allows for fast diagnosis of a trip via two LEDs on the front of the unit. LEDs will flash to indicate the trip. (Note: some trip messages available only on the CSXi or with an optional accessory).

Indicator	Description
○	No control power
●	Ready
⊗	Tripped

Flash Code	Description
⊗ x 1	Power circuit
⊗ x 2	Excess Start Time
⊗ x 3	Motor Overload
⊗ x 4	Motor Thermistor
⊗ x 5	Current Imbalance
⊗ x 6	Supply Frequency
⊗ x 7	Phase Rotation
⊗ x 8	Network Communication Failure
⊗ x 9	Starter Communication Failure
⊗ x 10	Bypass Overload

\* Protection feature standard





# FEATURES



	CSX	CSXi
<b>STARTING FUNCTIONS</b>		
Timed Voltage Ramp	✓	
Current Limit		✓
Current Ramp		✓
<b>STOPPING</b>		
Coast To Stop	✓	✓
Soft Stop	✓	✓
<b>PROTECTION</b>		
Motor Overload		✓
Phase Loss		✓
Excess Start Time		✓
Phase Sequence		✓
Current Imbalance		✓
Motor Thermistor		✓
Power Circuit Fault	✓	✓
Supply Frequency	✓	✓
Instantaneous Overcurrent		✓
Bypass Overload		✓
Communications Failure	✓	✓

	CSX	CSXi
<b>INTERFACE</b>		
Fixed Relay Output (Main Contactor Relay)	✓	✓
Programmable Relay (Trip or Run)		✓
Run Relay Output	✓	
<b>ACCESSORIES (OPTIONAL)</b>		
Remote Operator	✓	✓
Modbus Interface	✓	✓
Profibus Interface	✓	✓
DeviceNet Interface	✓	✓
PC Software	✓	✓
Pump Application Module	✓	✓



# SPECIFICATIONS

## SPECIFICATIONS

### General

Current Range ..... 18 A ~ 200 A (nominal)  
 Motor connection ..... In-line  
 Bypass ..... Internal

### Supply

Mains Voltage (A1, A2, A3)  
 CSX-xxxx-V4 ..... 3 x 200 VAC ~ 440 VAC (± 10% / -15%)  
 CSX-xxxx-V6 ..... 3 x 200 VAC ~ 575 VAC (± 10% / -15%)  
 Control Voltage (A1, A2, A3)  
 C1 ..... 110 ~ 240 VAC (+ 10% / -15%)  
 ..... or 380 ~ 440 VAC (+ 10% / -15%)  
 C2 ..... 24 VAC AC/24 VDC (+ 20%)  
 Mains Frequency ..... 45 Hz to 66 Hz

### Inputs

Start (terminal 01) ..... Normally open, 300 VAC max  
 Stop (terminal 02) ..... Normally closed, 300 VAC max

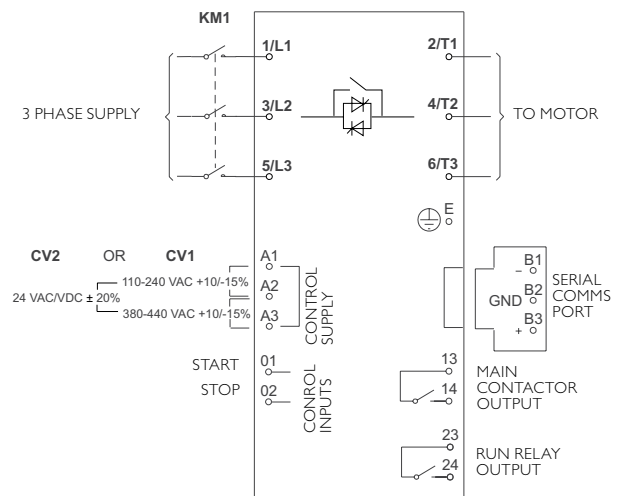
Motor Thermistor (B4, B5) (CSXi only) .....

### Relay Outputs

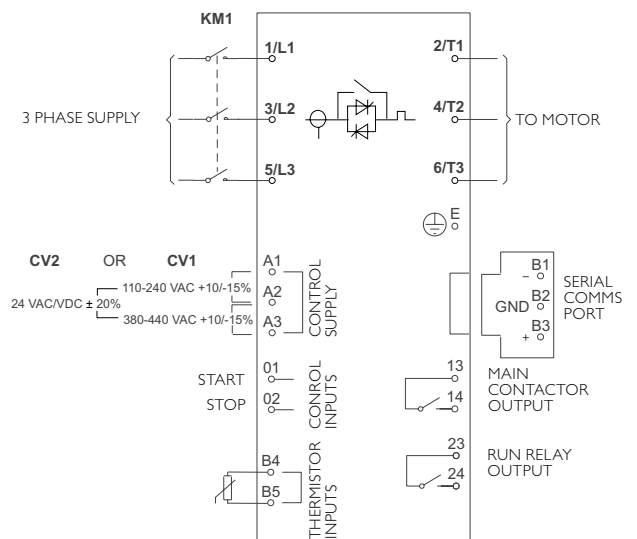
Main Contactor (13, 14) ..... Normally Open  
 ..... 6A, 30 VDC resistive / 2A, 400 VAC, ACII  
 CSX Run Relay ..... Normally Open  
 CSXi Programmable Relay (23, 24) ..... Normally Open  
 ..... 6A, 30 VDC resistive / 2A, 400 VAC, ACII

### Environmental

Protection  
 CSX-007 ~ CSX-055 ..... IP20  
 CSX-075 ~ CSX-110 ..... IP00  
 Operating temperature ..... -10 °C , max 60 °C with derating  
 Humidity..... 5% to 95% Relative Humidity  
 Conformal Coating ..... Standard



CSX electrical schematic



CSXi electrical schematic





# THE COMPLETE RANGE



CSX-007 ~ CSX-030    CSX-075 ~ CSX-110    CSX-037 ~ CSX-055



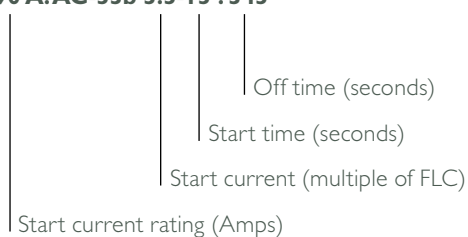
CSXI-007 ~ CSXI-030    CSXI-075 ~ CSXI-110    CSXI-037 ~ CSXI-055

## CSX AND CSXI CURRENT RATINGS

Model	AC53b 4-6:354 <1000 metres		AC53b 4-20:340 <1000 metres	
	40 °C	50 °C	40 °C	50 °C
CSX-007	18 A	17 A	17 A	15 A
CSX-015	34 A	32 A	30 A	28 A
CSX-018	42 A	40 A	36 A	33 A
CSX-022	48 A	44 A	40 A	36 A
CSX-030	60 A	55 A	49 A	45 A
Model	AC53b 4-6:594 <1000 metres		AC53b 4-20:580 <1000 metres	
	40 °C	50 °C	40 °C	50 °C
CSX-037	75 A	68 A	65 A	59 A
CSX-045	85 A	78 A	73 A	67 A
CSX-055	100 A	100 A	96 A	87 A
CSX-075	140 A	133 A	120 A	110 A
CSX-090	170 A	157 A	142 A	130 A
CSX-110	200 A	186 A	165 A	152 A

AuCom ratings are detailed using the AC53b utilisation code specified by IEC60947-4-2.

### 90 A: AC-53b 3.5-15 : 345

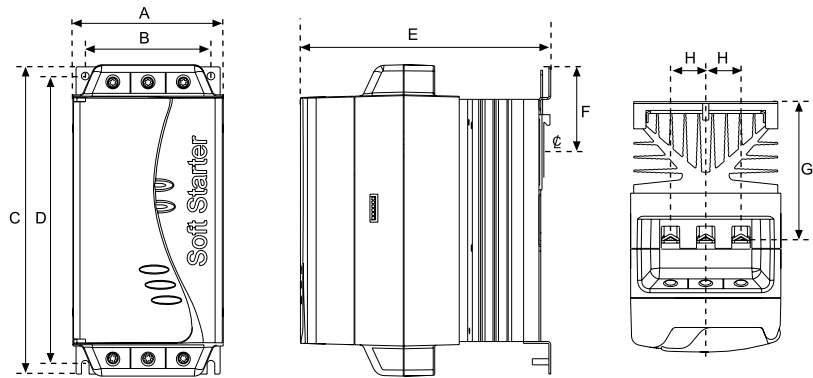




# INSTALLATION

## DIMENSIONS AND WEIGHTS

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



MODEL	A		B		C		D		E		F		G		H		WEIGHT kg (lbs)	
	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	CSX	CSXi
CSX-007	98	82	203	188	165	55	90.5	23	2.2	2.4							2.2	2.4
CSX-015	(3.86)	(3.23)	(7.99)	(7.40)	(6.50)	2.17	3.56	(0.9)	(4.85)	(5.29)							(4.85)	(5.29)
CSX-018																		
CSX-022																		
CSX-030																		
CSX-037	145	124	215	196	193	-	110.5	37	4.0	4.3							4.0	4.3
CSX-045	(5.71)	(4.88)	(8.46)	(7.71)	(7.60)		(4.35)	(1.46)	(8.82)	(9.48)							(8.82)	(9.48)
CSX-055																		
CSX-075	202	160	240	204	214	-	114.5	51	6.1	6.8							6.1	6.8
CSX-090	(7.95)	(6.30)	(9.45)	(8.03)	(8.43)		(4.50)	(2.0)	(13.45)	(14.99)							(13.45)	(14.99)
CSX-110																		





## ACCESSORIES/OPTIONAL FEATURES

### REMOTE OPERATOR



The remote operator controls and monitors motor performance via a communication module including:

- Operational control (start, stop, reset)
- Status monitoring (start, run and trip)
- Performance monitoring (motor current and temperature)
- Trip Code display
- 4-20 mA analog output

### COMMUNICATION MODULES



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

### PC SOFTWARE

Using AuCom's own WinMaster software you can control and monitor your soft starter from your desktop computer.

### FINGER GUARD KIT



This option ensures personnel safety by preventing accidental contact with live terminals. Finger guards provide IP20 protection when used with cable of diameter 22 mm or greater..





## 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-II. 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
IMS2	•	•	•		≤ 2361 A	≤ 690 VAC
EMX3	•	•	•	•	≤ 2400 A	≤ 690 VAC
MVS	•	•	•	•	≤ 600A *	≤ 13.8 kV
MVX	•	•	•	•	≤ 800A *	≤ 15 kV

\* higher ratings available on request.

## 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.

## EMX3 ADVANCED SOFT STARTER



A complete motor management system providing constant current, and current ramp as well as the new XLR-8, Adaptive Acceleration Control, available only from AuCom.

## 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

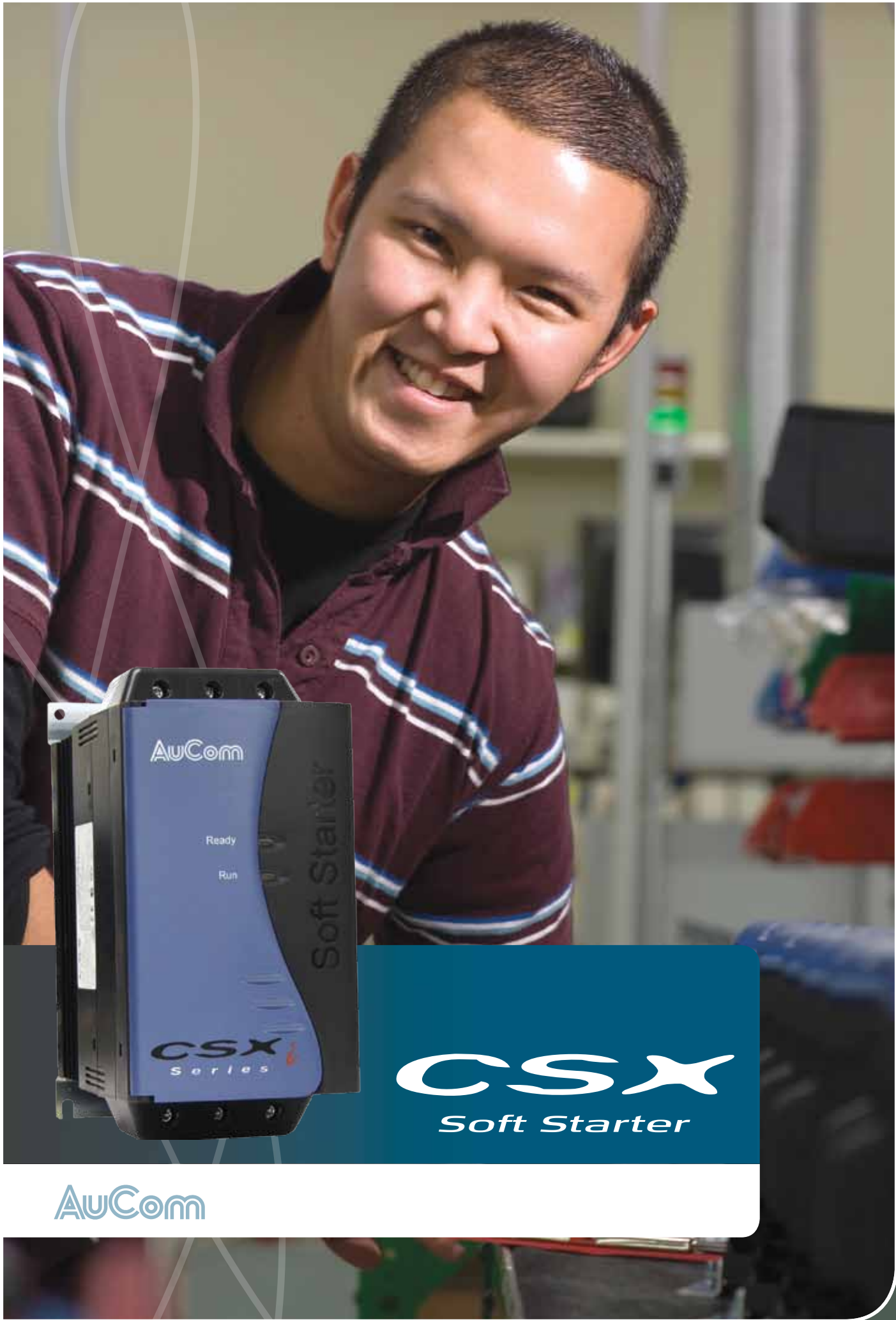


The MVX is among the smallest medium voltage soft starter in its class. To ensure that your staff and plant are safe from arc faults, MVX is the only choice.

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

**AuCom**

AuCom Electronics Ltd.  
 123 Wrights Road  
 PO Box 80208  
 Christchurch 8440  
 New Zealand  
 T +64 3 338 8280  
 F +64 3 338 8104  
 E [salesupport@aucom.com](mailto:salesupport@aucom.com)  
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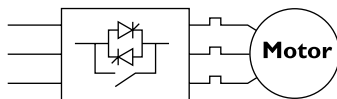


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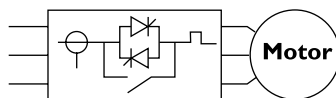
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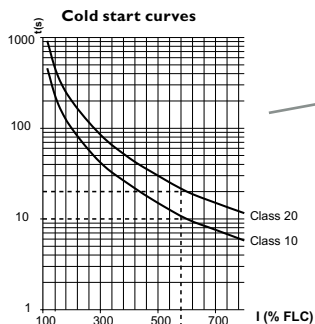
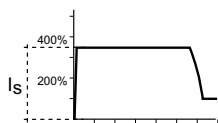
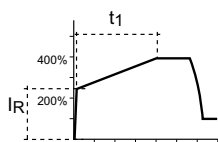
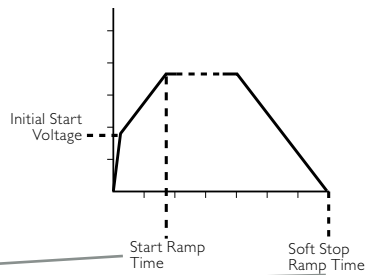
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CSX control panel

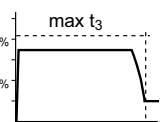
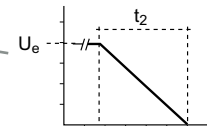


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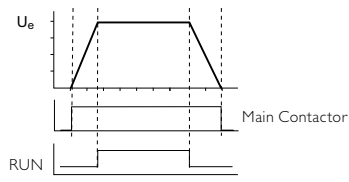


CSXi control panel

Motor FLC  
 CSXi FLC



	FWD	ANY
L1 L2 L3	✓	✓
L1 L2 L3	✗	✓



TRIP = Fault



# EQUI-VEC: BALANCED VECTOR CONTROL



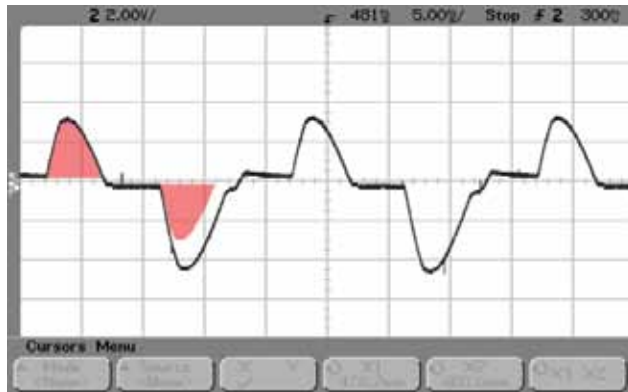
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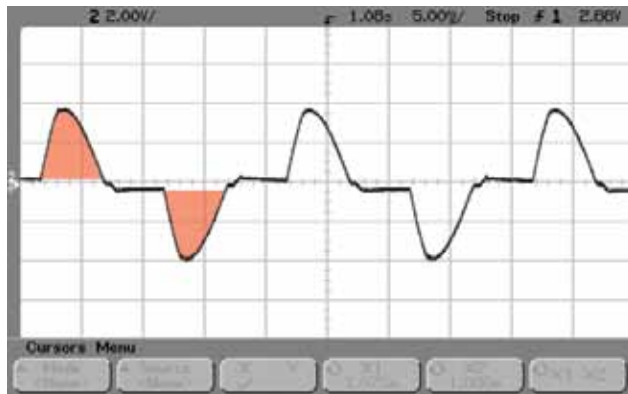
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Equi-vec waveform

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⊗ x 6	Supply Frequency
⊗ x 7	Phase Rotation
⊗ x 8	Network Communication Failure
⊗ x 9	Starter Communication Failure
⊗ x 10	Bypass Overload

\* Protection feature standard







# FEATURES



	CSX	CSXi
<b>STARTING FUNCTIONS</b>		
Timed Voltage Ramp	✓	
Current Limit		✓
Current Ramp		✓
<b>STOPPING</b>		
Coast To Stop	✓	✓
Soft Stop	✓	✓
<b>PROTECTION</b>		
Motor Overload		✓
Phase Loss		✓
Excess Start Time		✓
Phase Sequence		✓
Current Imbalance		✓
Motor Thermistor		✓
Power Circuit Fault	✓	✓
Supply Frequency	✓	✓
Instantaneous Overcurrent		✓
Bypass Overload		✓
Communications Failure	✓	✓

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<b>INTERFACE</b>		
Fixed Relay Output (Main Contactor Relay)	✓	✓
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Pump Application Module	✓	✓



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Mains Voltage (A1, A2, A3)  
 CSX-xxxx-V4 ..... 3 x 200 VAC ~ 440 VAC (± 10% / -15%)  
 CSX-xxxx-V6 ..... 3 x 200 VAC ~ 575 VAC (± 10% / -15%)  
 Control Voltage (A1, A2, A3)  
 C1 ..... 110 ~ 240 VAC (+ 10% / -15%)  
 ..... or 380 ~ 440 VAC (+ 10% / -15%)  
 C2 ..... 24 VAC AC/24 VDC (+ 20%)  
 Mains Frequency ..... 45 Hz to 66 Hz

### Inputs

Start (terminal 01) ..... Normally open, 300 VAC max  
 Stop (terminal 02) ..... Normally closed, 300 VAC max

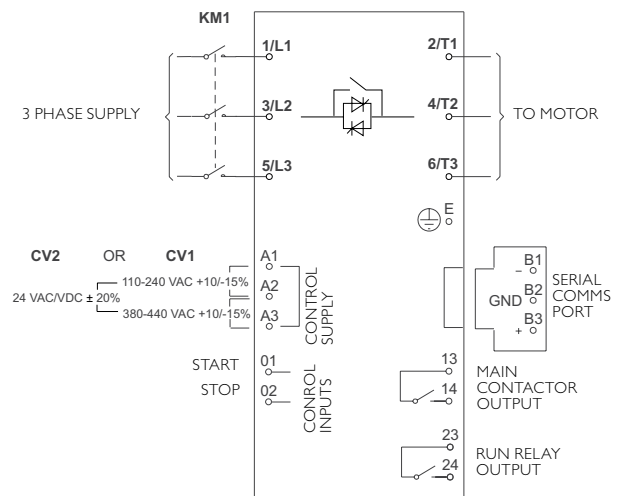
Motor Thermistor (B4, B5) (CSXi only) .....

### Relay Outputs

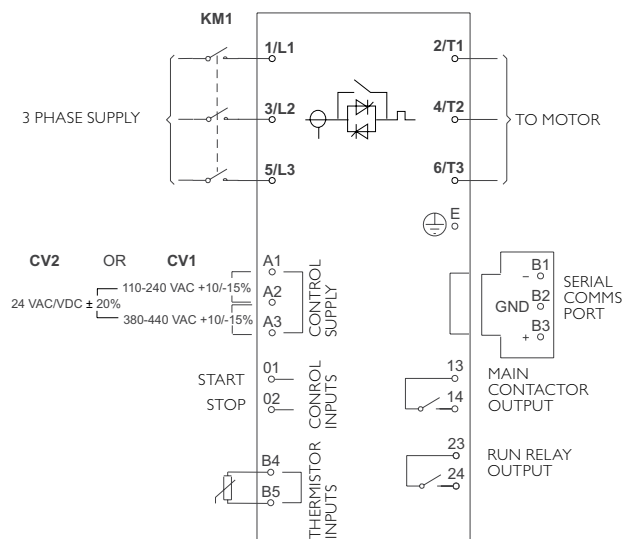
Main Contactor (13, 14) ..... Normally Open  
 ..... 6A, 30 VDC resistive / 2A, 400 VAC, ACII  
 CSX Run Relay ..... Normally Open  
 CSXi Programmable Relay (23, 24) ..... Normally Open  
 ..... 6A, 30 VDC resistive / 2A, 400 VAC, ACII

### Environmental

Protection  
 CSX-007 ~ CSX-055 ..... IP20  
 CSX-075 ~ CSX-110 ..... IP00  
 Operating temperature ..... -10 °C , max 60 °C with derating  
 Humidity..... 5% to 95% Relative Humidity  
 Conformal Coating ..... Standard



CSX electrical schematic



CSXi electrical schematic



# THE COMPLETE RANGE



CSX-007 ~ CSX-030    CSX-075 ~ CSX-110    CSX-037 ~ CSX-055



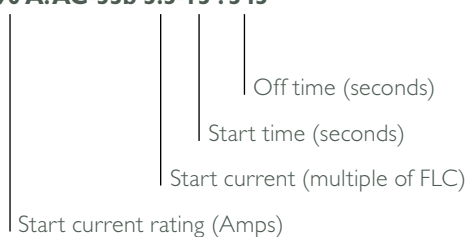
CSXI-007 ~ CSXI-030    CSXI-075 ~ CSXI-110    CSXI-037 ~ CSXI-055

## CSX AND CSXI CURRENT RATINGS

Model	AC53b 4-6:354 <1000 metres		AC53b 4-20:340 <1000 metres	
	40 °C	50 °C	40 °C	50 °C
CSX-007	18 A	17 A	17 A	15 A
CSX-015	34 A	32 A	30 A	28 A
CSX-018	42 A	40 A	36 A	33 A
CSX-022	48 A	44 A	40 A	36 A
CSX-030	60 A	55 A	49 A	45 A
Model	AC53b 4-6:594 <1000 metres		AC53b 4-20:580 <1000 metres	
	40 °C	50 °C	40 °C	50 °C
CSX-037	75 A	68 A	65 A	59 A
CSX-045	85 A	78 A	73 A	67 A
CSX-055	100 A	100 A	96 A	87 A
CSX-075	140 A	133 A	120 A	110 A
CSX-090	170 A	157 A	142 A	130 A
CSX-110	200 A	186 A	165 A	152 A

AuCom ratings are detailed using the AC53b utilisation code specified by IEC60947-4-2.

### 90 A: AC-53b 3.5-15 : 345

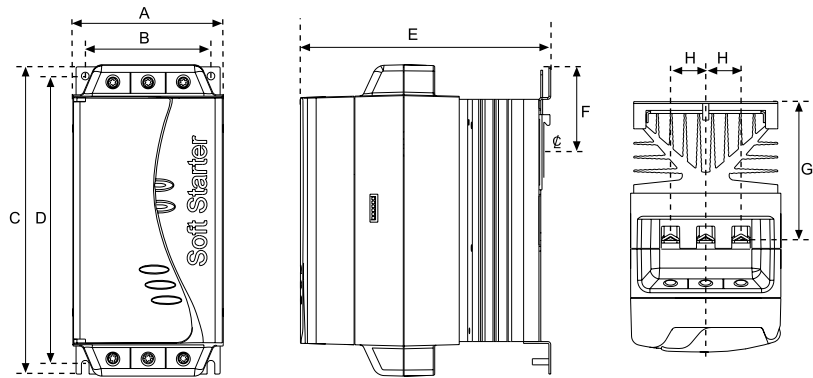




# INSTALLATION

## DIMENSIONS AND WEIGHTS

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



MODEL	A		B		C		D		E		F		G		H		WEIGHT kg (lbs)	
	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	CSX	CSXi
CSX-007	98	82	203	188	165	55	90.5	23	2.2	2.4							2.2	2.4
CSX-015	(3.86)	(3.23)	(7.99)	(7.40)	(6.50)	2.17	3.56	(0.9)	(4.85)	(5.29)							(4.85)	(5.29)
CSX-018																		
CSX-022																		
CSX-030																		
CSX-037	145	124	215	196	193	-	110.5	37	4.0	4.3							4.0	4.3
CSX-045	(5.71)	(4.88)	(8.46)	(7.71)	(7.60)		(4.35)	(1.46)	(8.82)	(9.48)							(8.82)	(9.48)
CSX-055																		
CSX-075	202	160	240	204	214	-	114.5	51	6.1	6.8							6.1	6.8
CSX-090	(7.95)	(6.30)	(9.45)	(8.03)	(8.43)		(4.50)	(2.0)	(13.45)	(14.99)							(13.45)	(14.99)
CSX-110																		







## ACCESSORIES/OPTIONAL FEATURES

### REMOTE OPERATOR



The remote operator controls and monitors motor performance via a communication module including:

- Operational control (start, stop, reset)
- Status monitoring (start, run and trip)
- Performance monitoring (motor current and temperature)
- Trip Code display
- 4-20 mA analog output

### COMMUNICATION MODULES



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

### PC SOFTWARE

Using AuCom's own WinMaster software you can control and monitor your soft starter from your desktop computer.

### FINGER GUARD KIT



This option ensures personnel safety by preventing accidental contact with live terminals. Finger guards provide IP20 protection when used with cable of diameter 22 mm or greater..



## 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-II. 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
IMS2	•	•	•		≤ 2361 A	≤ 690 VAC
EMX3	•	•	•	•	≤ 2400 A	≤ 690 VAC
MVS	•	•	•	•	≤ 600A *	≤ 13.8 kV
MVX	•	•	•	•	≤ 800A *	≤ 15 kV

\* higher ratings available on request.

## 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.

## EMX3 ADVANCED SOFT STARTER



A complete motor management system providing constant current, and current ramp as well as the new XLR-8, Adaptive Acceleration Control, available only from AuCom.

## 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 on AuCom products, contact your local distributor:

**AuCom**

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 Christchurch 8440  
 New Zealand  
 T +64 3 338 8280  
 F +64 3 338 8104  
 E [salesupport@aucom.com](mailto:salesupport@aucom.com)  
 W [www.aucom.com](http://www.aucom.com)



EMX3 SOFT STARTER

# Take control from the start

**AuCom**  
MOTOR CONTROL SPECIALISTS

RIGHT FROM  
THE START



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.

The EMX3 doesn't just start and stop your machinery with Constant Current and Current Ramp, it also features the innovative XLR-8 Adaptive Acceleration Control. XLR-8 gives you the ability to precisely manage your starting and stopping acceleration, reducing downtime and eliminating water hammer problems.

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

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.



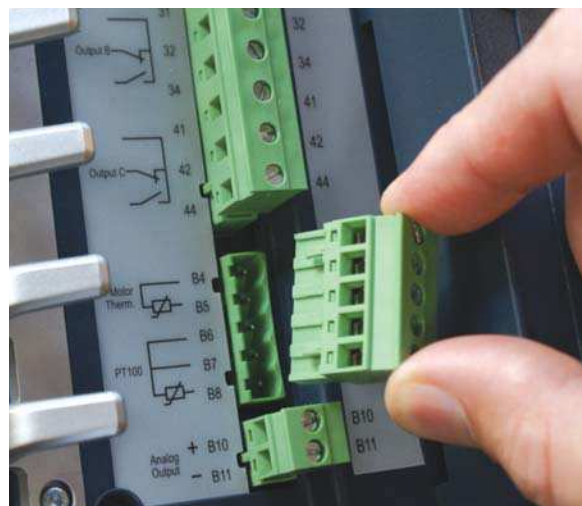
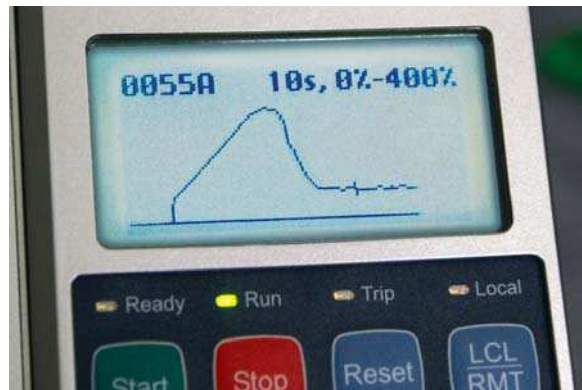
# Take control from the start

We've packed the EMX3 with features designed to make your life easier, including real-language feedback messages, so you don't have to look up codes to know what's happening.

We also use real-time graphs of motor operating performance and current, intended to quickly and clearly illustrate exactly how your motor is performing.

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.

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).



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.

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.

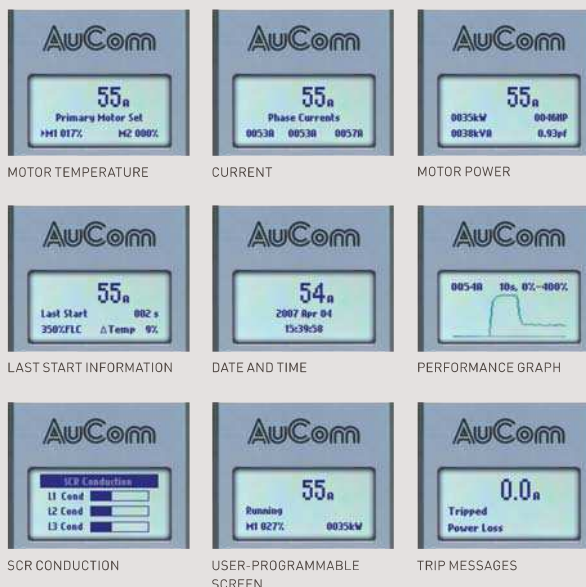


### METERING AND MONITORING

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.





# Features and options

## 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.

## 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.

Feature Sets	EMX3
<b>MOTOR CONTROL</b>	
Motor sets	2
Constant current and current ramp start	•
XLR-8 adaptive control starting/stopping	•
Kickstart	•
Coast to stop and TVR stop	•
DC brake	•
Jog (forward and reverse)	•
Inside delta (6 wire) control	•
<b>MOTOR PROTECTION</b>	
Motor thermal model	•
Motor thermistor	•
Current imbalance	•
Under/Overcurrent	•
Phase sequence	•
Phase loss	•
Power loss	•
<b>INTEGRATION AND MANAGEMENT</b>	
Multi-language graphical display	•
I/O expansion options	•
Analog output	•
Emergency run	•
SCR fail PowerThrough operation	•
Auto restart	•
<b>COMMUNICATIONS OPTIONS</b>	
Modbus RTU	•
Profibus	•
DeviceNet	•
Modbus TCP	•
ProfiNET	•
Ethernet/IP	•
<b>ACCESSORIES</b>	
Remote keypad	•
Finger guards	•

## CURRENT RATINGS

	Light	Medium	Heavy	Severe
Internal Bypass	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	37 A	31 A	26 A
EMX3-0050B	50 A	44 A	37 A	30 A
EMX3-0053B	53 A	53 A	46 A	37 A
Internal Bypass	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	329 A	284 A	244 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
Non Bypassed	AC53a 3-10:50-6	AC53a 3.5-15:50-6	AC53a 4-20:50-6	AC53a 4.5-30:50-6
EMX3-0255C	255 A	231 A	201 A	176 A
EMX3-0360C	360 A	360 A	310 A	263 A
EMX3-0380C	380 A	380 A	359 A	299 A
EMX3-0430C	430 A	430 A	368 A	309 A
EMX3-0620C	620 A	620 A	540 A	434 A
EMX3-0650C	650 A	650 A	561 A	455 A
EMX3-0790C	790 A	790 A	714 A	579 A
EMX3-0930C	930 A	930 A	829 A	661 A
EMX3-1200C	1200 A	1200 A	1200 A	1071 A
EMX3-1410C	1410 A	1410 A	1319 A	1114 A
EMX3-1600C	1600 A	1600 A	1600 A	1353 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

# The future starts with AuCom

We develop motor control products for industrial applications across the world. Our focus on research and development, as well as manufacturing, supply and support, ensures that when you choose to work with AuCom, you're working with a global leader. Almost 40 years of experience added to our expertise and ability means you can rely on us to get it right from the start.

## OUR APPROACH

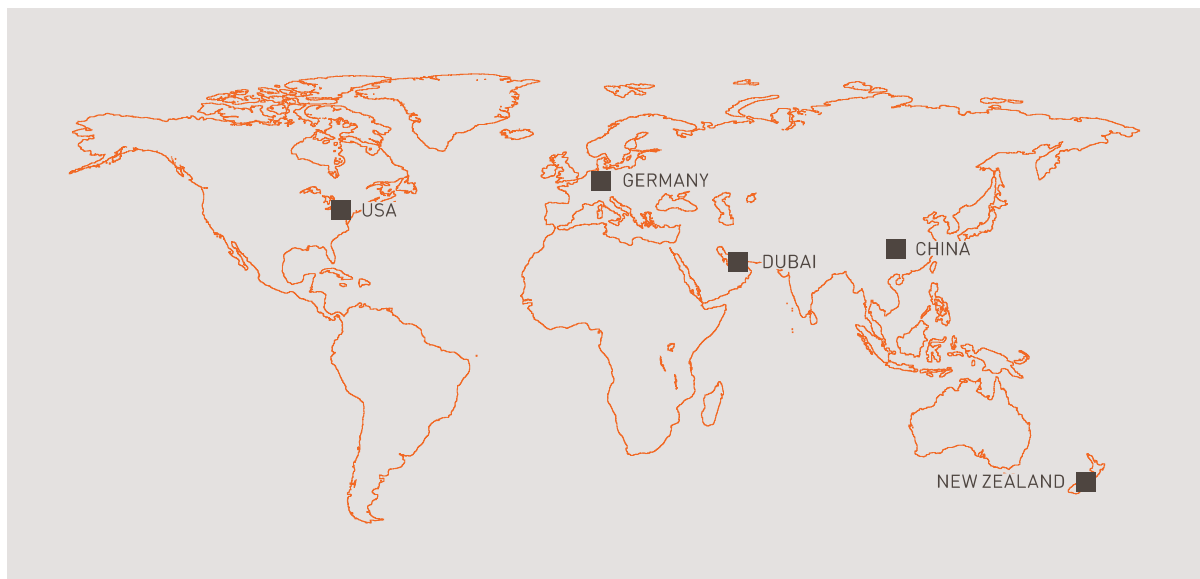
We start with a challenge or application, working with you to define and develop a solution that's not only fit for purpose today, but fully supported into tomorrow.

## OUR PEOPLE

The power behind our success doesn't rely on our innovative products alone. Our people play a pivotal role. That's why, with AuCom, it's always personal. Combining dedication and experience with ability and passion, we don't just listen more closely, we draw on the breadth of our expertise to better understand your unique requirements and offer real solutions and ongoing support.

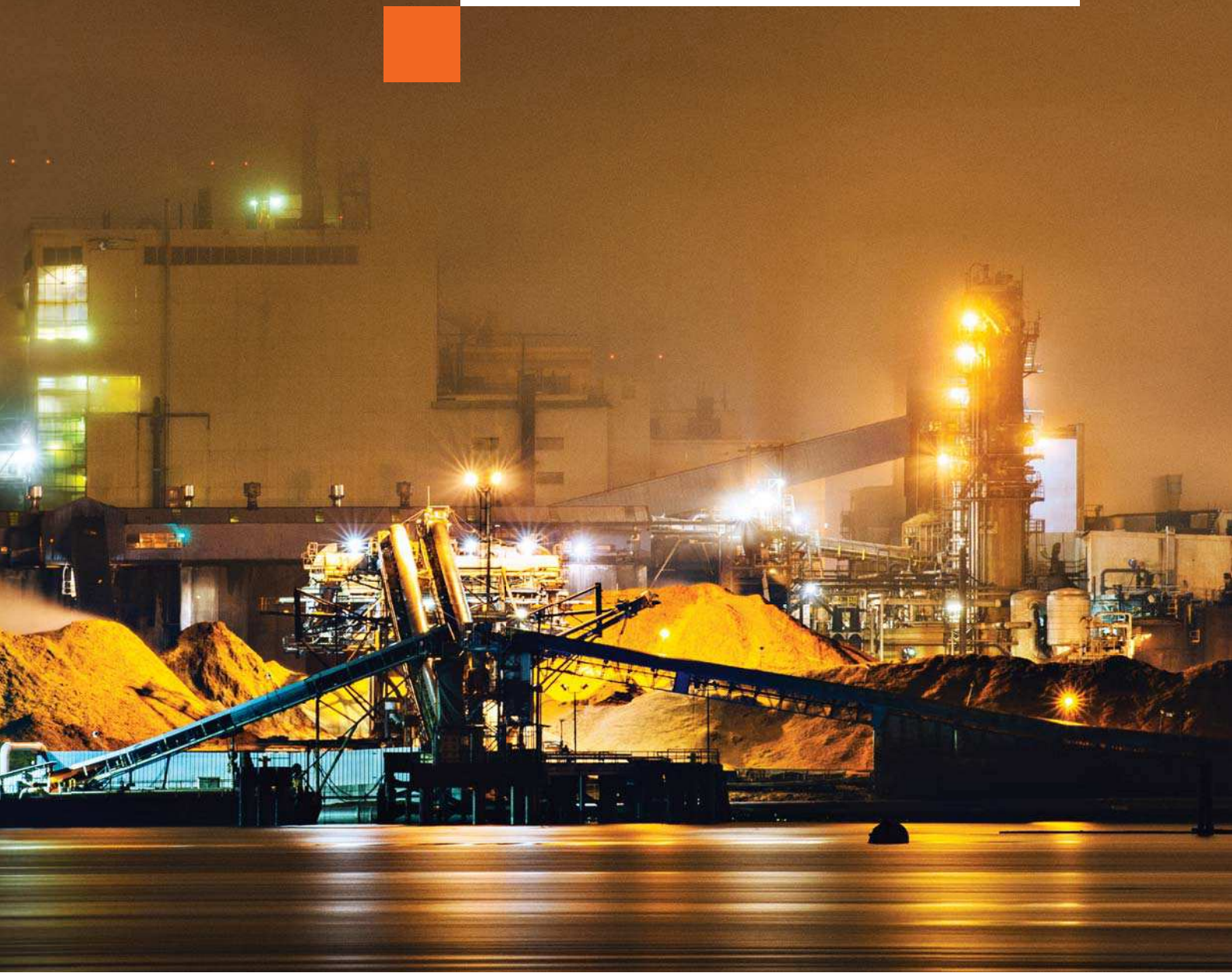
## OUR PARTNERS

We choose partners that are experts, not only in soft start and motor control, but in understanding the needs of their industry. We work closely with our partners to ensure customers receive only the best support and advice.



# We have high 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 of our products are thoroughly tested in certified facilities and in the field before release, and every soft starter is tested before dispatch.

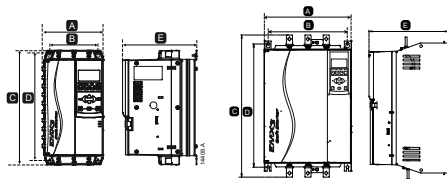




# EMX3 dimensions

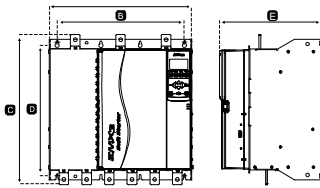
## COMPACT DESIGN

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.

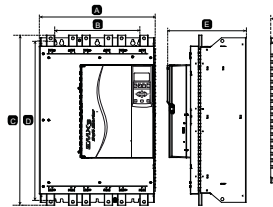


EMX3-0023B ~ 0105B

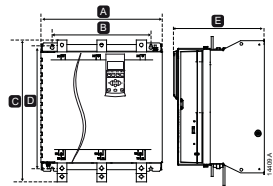
EMX3-0145B ~ 0220B



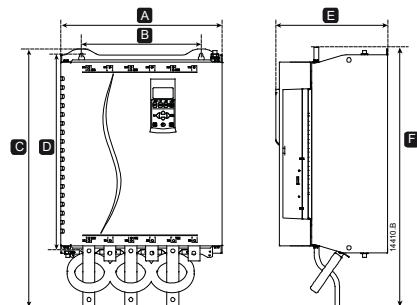
EMX3-0255B ~ 425B



EMX3-0500B ~ 1000B



EMX3-0255C



EMX3-0360C ~ 1600C

	A	B	C	D	E	F	Weight kg (lbs)
mm (inch)							
EMX3-0023B							
EMX3-0043B					192 (7.6)	N/A	4.2 (9.3)
EMX3-0050B							
EMX3-0053B	156 (6.2)	124 (4.9)	295 (11.7)	278 (11)			4.5 (9.9)
EMX3-0076B							
EMX3-0097B					223 (8.8)	N/A	5 (11)
EMX3-0100B							
EMX3-0105B							
EMX3-0145B							14 (30.9)
EMX3-0170B	282 (11.2)	250 (9.9)	438 (17.3)	380 (15)	250 (9.9)	N/A	14.2 (31.3)
EMX3-0200B							15 (33.1)
EMX3-0220B							
EMX3-0255B							26 (57.3)
EMX3-0350B	424 (16.7)	376 (14.9)	440 (17.4)	392 (15.5)	298 (11.8)	N/A	29.4 (64.8)
EMX3-0425B							
EMX3-0500B							50 (110.2)
EMX3-0580B							
EMX3-0700B	433 (17.1)	320 (12.6)	640 (25.2)	600 (23.7)	295 (11.7)	N/A	63.5 (140)
EMX3-0820B							
EMX3-0920B							64 (141.1)
EMX3-1000B							
EMX3-0255C	390 (15.4)	320 (12.6)	460 (18.2)	400 (15.8)	279 (11)	N/A	23 (50.7)
EMX3-0360C							
EMX3-0380C							36 (79.4)
EMX3-0430C							
EMX3-0620C	430 (17)	320 (12.6)	689 (27.2)*	522 (20.6)	300 (11.9)	696 (27.5)**	39.5 (87.1)
EMX3-0650C							
EMX3-0790C							51.5 (113.5)
EMX3-0930C							128.5 (283.3)
EMX3-1200C							130 (286.6)
EMX3-1410C	574 (22.6)	500 (19.7)	856 (33.8)*	727 (28.7)	361 (14.3)	862 (34)**	140 (308.6)
EMX3-1600C							

\* Dimension C is the height when input and output busbars are at the same end of the unit (top in/top out or bottom in/bottom out).

\*\* Dimension F applies for either top in/bottom out or bottom in/top out configuration.





## We've got you covered

AuCom's expertise and knowledge extends well beyond the products we make. We're about helping you achieve efficient and effective control of your machines and processes no matter what the industry or application.





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For more information and your local contact visit [www.aucom.com](http://www.aucom.com)

**AuCom**  
MOTOR CONTROL SPECIALISTS



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**RIGHT FROM  
THE START**



EMX4 SOFT STARTER

# Redefining soft starters

**AuCom**  
MOTOR CONTROL SPECIALISTS

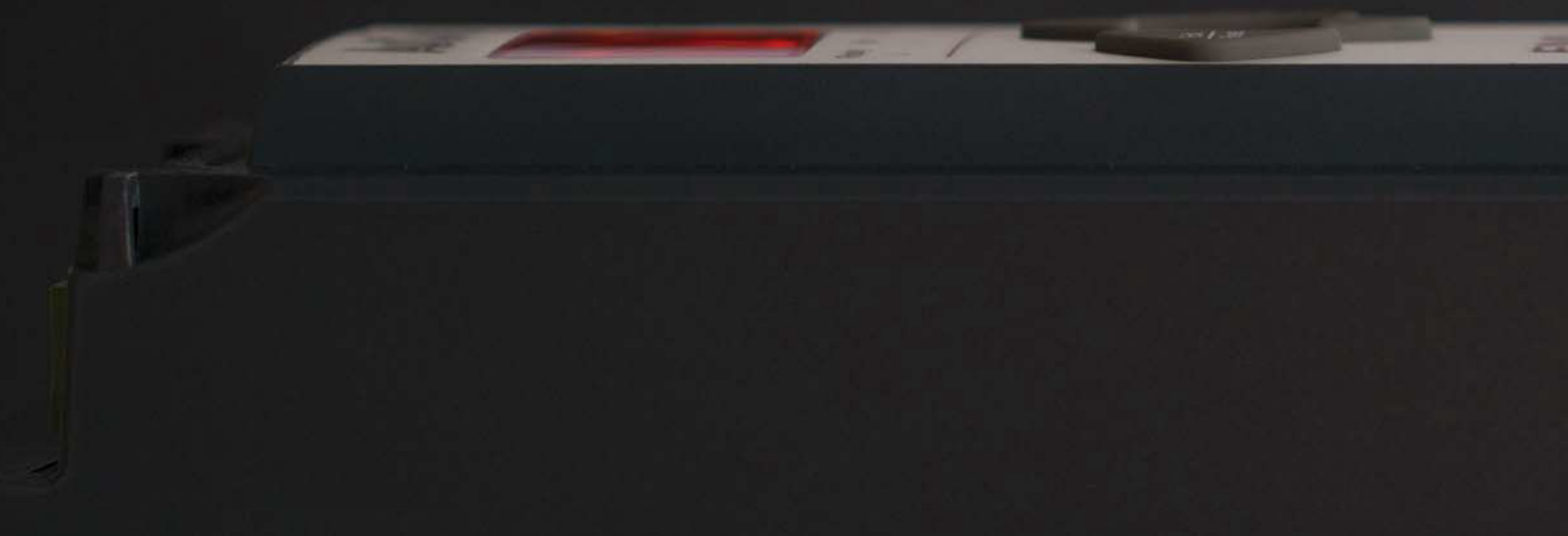
RIGHT FROM  
THE START



Our innovation is driven by your ongoing challenges. The relentless demand for productivity in every aspect of your operation has impelled us to develop a soft starter that delivers unsurpassed efficiency, right from the start.

The new EMX4 soft starter helps ensure enhanced productivity of your operation. The EMX4 doesn't just start and stop your machinery with precision and efficiency, it also helps you minimise energy costs and improve operational effectiveness through the delivery of meaningful data to both operators and plant automation systems.

AuCom develops motor control solutions for a range of industrial applications across the world. Our specialised focus on the research, development and engineering of innovative customised solutions ensures that when you choose to work with AuCom, you're working with a global leader.



Like its predecessor, the EMX4 Soft Starter sets new standards for soft start technology.

EMX4 is not only smaller, more powerful and packed with new control and protection features, it also introduces the game-changing Smart Card capability. Fitting a Smart Card to the EMX4 transforms it from super smart motor controller to complete system controller.

This is truly a starter for the future.



# Why not make life easier?

Smart does not have to mean complex. While the EMX4 offers more functionality than ever before, it has been designed to make your life easier. By enhancing the display and connectivity functions, and making them intuitive, it is easier to access the right information when you need it, enhancing your overall efficiency.

We have designed the user experience to include a comprehensive graphical display, quick setup menus and multiple languages.

It is also easier to connect with other devices and support services. Connectivity has been enhanced with a suite of communication cards to enable network connections and increase accessibility.

The new USB port allows straightforward upload, download and storage of starter performance information, increasing your ability to manage the system effectively.

Scheduling and automation features enable you to tailor operations to meet your site requirements, minimising manual intervention and ensuring continued operation.

The EMX4 includes starter, motor and system protection functions, complete with alarms to alert you to any potential issues. In the event that the worst does happen, Power Through and Emergency Run functions give you the power to choose to keep running.



Useful operational and event logs

A worker in a blue uniform and yellow safety vest is operating machinery in a factory. The worker is wearing a white hard hat and large headphones. The machinery consists of large, vertical, cylindrical components with various pipes and valves. The background shows a complex industrial environment with more machinery and structural elements.

## Rely on EMX4

Whether you are responsible for installation, maintenance or operation the EMX4 has got you covered.

Feature	Benefit
Quick Application Setup	Easy commissioning
Simulation Mode	Easy and fast testing during installation and commissioning No need for mains supply and motor
Automatic Timers and Schedulers	Fast and easy automation No need for external logic or timers
Power Through	Minimal downtime on-site Retain most control and protection capabilities
Emergency Mode	Continued operation in emergency situations
USB Port	Easy data retrieval without the need for PC or network No need for adaptor or cable Easy firmware updates Easy and fast commissioning
Emergency Mode	Continued operation in emergency situations
Pluggable Terminals	Fast installation and unit exchange



# Now you can start smart

The EMX4 Smart Card redefines the role of a soft starter. With the appropriate Smart Card installed the EMX4 is able to operate as an entire system controller.

Smart Cards deliver industry or application specific functionality and are easily inserted into the EMX4, simplifying system design, installation and set-up.

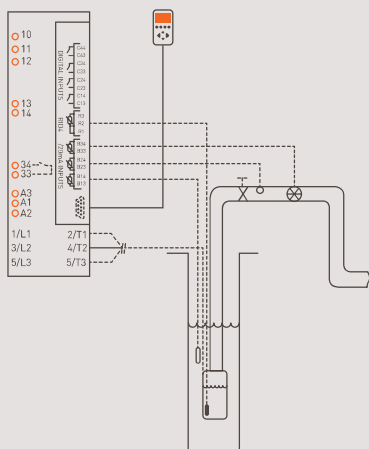
By transforming your EMX4 with an industry specific Smart Card, your system can be purpose-built around one central point of intelligent control and communications.

Utilising this technology will improve overall efficiency of your system, and put you firmly in control.

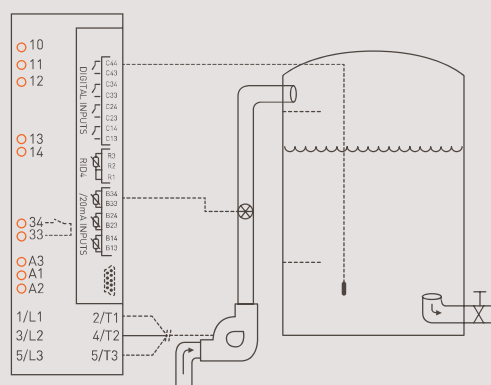


## START PUMPING SMART

Installing the Pumping Smart Card allows applicable sensors to be directly connected to the EMX4. This removes the need for extra components normally required to provide this level of specific information and control for your system.



Irrigation



Water Utility Application

The EMX4 Smart Card release program is ongoing. Go to [www.aucom.com](http://www.aucom.com) for available Smart Cards and the opportunity to suggest a development for application or industry.

# Spray irrigation

EMX4 starters fitted with Pumping Smart Cards are providing farmers with improved control of their spray irrigation.

- Built in timers and scheduling functions enable operation to be tailored to match water restrictions and optimal electrical tariffs.
- Travel to the pump shed is reduced by the Sleep Mode and Automatic Restart functions. These automatically restart operation after irrigators are shifted or temporary electrical disturbances interrupt irrigation.
- All this and more without the cost and complexity of separate control logic and wiring.

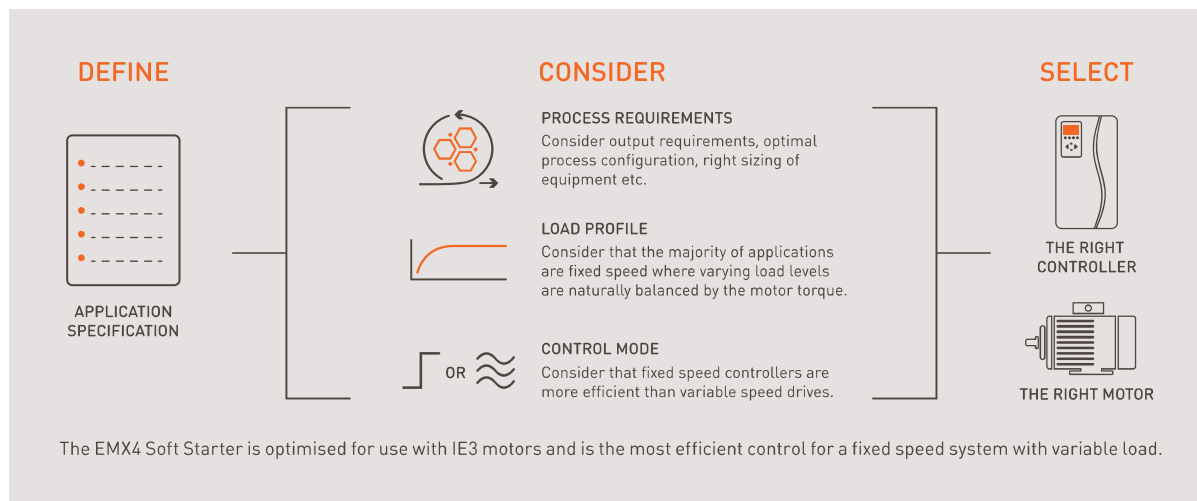


# Efficiency starts with us



## GET IT RIGHT FROM THE START

Design of energy efficient systems requires consideration of the system as a whole. Using energy efficient components is important but selection of the correct motor control mode (fixed or variable speed) is also critical. Approximately 80% of motor applications are most efficiently operated at a fixed speed. Using a Variable Speed Drive (VSD) with such a system is hugely inefficient, regardless of the efficiency of the motor you are running.



### EMX4 – THE MOST ENERGY EFFICIENT OUTCOME FOR FIXED SPEED APPLICATIONS

- 99.5% Efficiency**  
 Internal bypass makes EMX4 Soft Starters 99.5% efficient when running.
- 80% Reduction in wasted energy**  
 Compared to a misapplied drive the 99.5% efficiency of EMX4 equates to around an 80% reduction in waste energy.
- 0% Harmonics**  
 EMX4 produces no harmonics during run, improving overall power quality and eliminating system losses resulting from harmonics.

### IE3 CAPABLE

The use of IE3 motors offers the opportunity to maximise efficiency and save on operating costs, however there can be issues associated with starting these type of motors, including:

- Higher inrush and starting currents that stress electrical supply circuits.
- ‘Spiky’ pullout torque curves can make smooth control more difficult.

We have developed the EMX4 Soft Starter to be an ideal partner for running IE3 motors.

Our innovative XLR-8 adaptive acceleration technology auto-tunes for the connected motor (IE2 or IE3) and gives you precise control over the acceleration and deceleration of your motor without any of the downsides.



## Conveyor control

An energy audit of a quarry identified a VSD controlled 132 kW conveyor that always operated at full speed. An EMX4 Soft Starter offered this fixed speed application savings of > €1,750 p.a. as well as a reduction in site harmonics.

Correctly identifying this conveyor as a fixed speed application at installation would have substantially reduced the capital costs. Using an EMX4 with a fixed speed application delivers superior acceleration and deceleration performance, advanced motor protection and communications functions.





# Features and options

Feature Sets	EMX4e	EMX4i
<b>MOTOR CONTROL</b>		
Motor sets	1	2
Constant current and current ramp start	•	•
Adaptive control starting/stopping	•	•
Kickstart		•
Coast to stop and TVR stop	•	•
DC brake		•
Soft brake		•
Jog (forward and reverse)		•
Inside delta (6 wire) control		•
Soft trip		•
<b>MOTOR PROTECTION</b>		
Motor thermistor	•	•
Current imbalance	•	•
Under/Overcurrent	•	•
Phase sequence	•	•
Phase loss	•	•
Power loss	•	•
<b>INTEGRATION AND MANAGEMENT</b>		
Multi-language graphical display	•	•
I/O and network expansion options	•	•
USB port and data logging	•	•
Analog output	•	•
Emergency run	•	•
SCR fail PowerThrough operation		•
Daily on/off scheduling		•
<b>COMMUNICATIONS OPTIONS</b>		
Modbus RTU	•	•
Profibus	•	•
DeviceNet	•	•
Modbus TCP	•	•
ProfiNET	•	•
Ethernet/IP	•	•
<b>SMART CARD OPTIONS</b>		
Pumping Smart Card	•	•
<b>ACCESSORIES</b>		
Remote Keypad	•	•



## XLR-8 ACCELERATION CONTROL

Torque or Current Control start modes influence acceleration but only XLR-8 puts you in direct control of ramp profiles and start times.

Select a ramp profile and time then let the EMX4 do the rest. XLR-8 technology auto-tunes for the connected motor and load conditions to deliver the specified performance.







## Banishing water hammer

There are multiple causes of water hammer and each pump system has unique characteristics. For these reasons, ensuring a pump system is free of water hammer can be a complicated task.

Pumping engineers around the world are relying on AuCom's unique XLR-8 technology to help tune pump starting and stopping for optimal results. XLR-8 provides a choice of ramp profiles to deal with the different causes of water hammer. So whether you are trying to prevent rapid changes in flow rate, flow direction, or water column separation and closure, XLR-8 puts the right start and stop profile at your fingertips.



# The future starts with AuCom

We develop motor control products for industrial applications across the world. Our focus on research and development, as well as manufacturing, supply and support, ensures that when you choose to work with AuCom, you're working with a global leader. Almost 40 years of experience added to our expertise and ability means you can rely on us to get it right from the start.

## OUR APPROACH

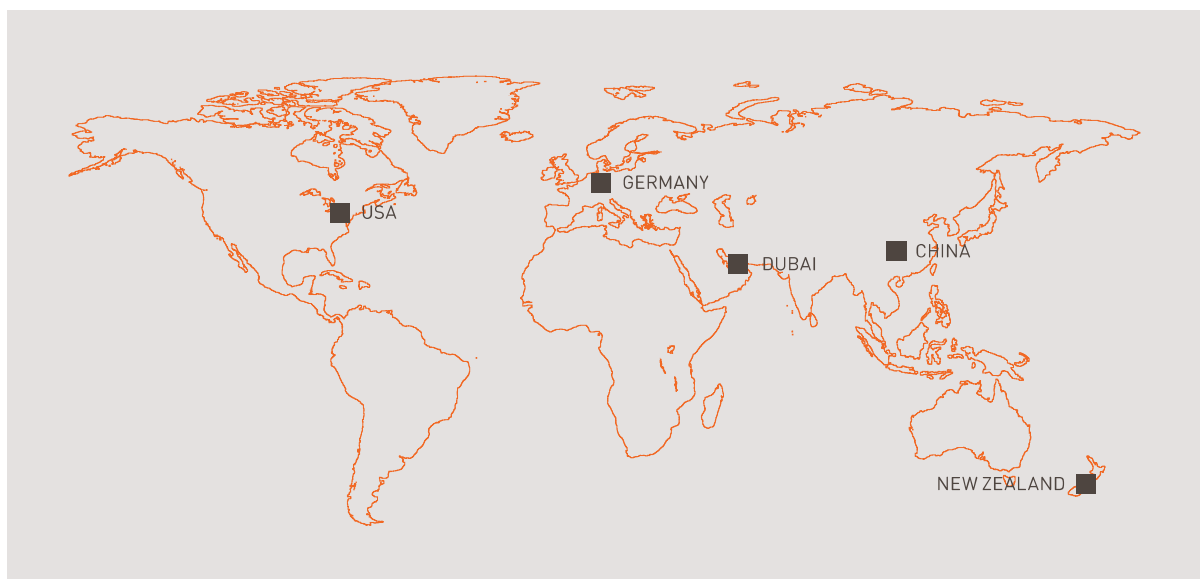
We start with a challenge or application, working with you to define and develop a solution that's not only fit for purpose today, but fully supported into tomorrow.

## OUR PEOPLE

The power behind our success doesn't rely on our innovative products alone. Our people play a pivotal role. That's why, with AuCom, it's always personal. Combining dedication and experience with ability and passion, we don't just listen more closely, we draw on the breadth of our expertise to better understand your unique requirements and offer real solutions and ongoing support.

## OUR PARTNERS

We choose partners that are experts, not only in soft start and motor control, but in understanding the needs of their industry. We work closely with our partners to ensure customers receive only the best support and advice.



A night-time photograph of an industrial facility, likely a cement plant or quarry. The scene is illuminated by numerous bright lights, creating a high-contrast environment. In the foreground, there are large, dark piles of material, possibly raw materials or finished products, with some light reflecting off their surfaces. A complex network of conveyor belts and structural steel is visible, extending across the middle ground. In the background, there are several large industrial buildings and structures, some with glowing windows and others with external lighting. The overall atmosphere is one of active industrial operations.

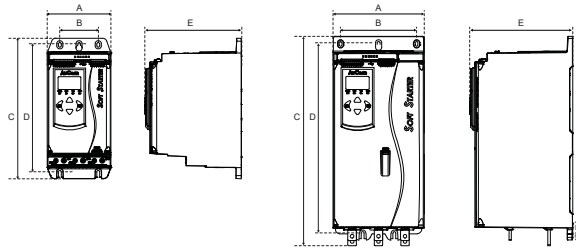
## We have high standards

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 of our products are thoroughly tested in certified facilities and in the field before release, and every soft starter is tested before dispatch.



# EMX4 specifications

## DIMENSIONS AND WEIGHTS



	Width mm (inch)		Height mm (inch)		Depth mm (inch)	Weight kg (lb)
	A	B	C	D	E	
EMX4-0024B						4.8 (10.7)
EMX4-0042B						
EMX4-0052B						4.9 (10.9)
EMX4-0064B	152 (6.0)	92 (3.6)	336 (13.2)	307 (12.1)	231 (9.1)	
EMX4-0069B						
EMX4-0105B						5.5 (12.1)
EMX4-0115B						
EMX4-0135B						
EMX4-0184B						
EMX4-0200B			495 (19.5)			12.7 (28.0)
EMX4-0229B						
EMX4-0250B						
EMX4-0352B	216 (8.5)	180 (7.1)		450 (17.7)	243 (9.6)	15.5 (34.2)
EMX4-0397B						
EMX4-0410B			523 (20.6)			
EMX4-0550B						19.0 (41.9)
EMX4-0580B						

## CURRENT RATINGS

	AC53b 3.0 - 10:350 40°C < 1000m	AC53b 3.5 - 15:345 40°C < 1000m	AC53b 4.0 - 10:350 40°C < 1000m	AC53b 4.0 - 20:340 40°C < 1000m
EMX4-0024B	24	20	18	16
EMX4-0042B	42	34	31	27
EMX4-0052B	52	41	39	35
EMX4-0064B	64	60	62	52
EMX4-0069B	69	69	69	62
	AC53b 3.0 - 10:590 40°C < 1000m	AC53b 3.5 - 15:585 40°C < 1000m	AC53b 4.0 - 10:590 40°C < 1000m	AC53b 4.0 - 20:580 40°C < 1000m
EMX4-0105B	105	85	83	68
EMX4-0115B	115	107	103	85
EMX4-0135B	135	129	125	102
EMX4-0184B	184	142	138	115
EMX4-0200B	200	170	163	137
EMX4-0229B	229	193	171	151
EMX4-0250B	250	243	227	204
EMX4-0352B	352	285	264	210
EMX4-0397B	397	323	297	227
EMX4-0410B	410	410	410	381
EMX4-0550B	550	525	500	423
EMX4-0580B	580	580	550	470

## Other solutions

AuCom offers a complete range of soft starters. Whether you need a simple product for starting only, or a comprehensive motor control panel you can trust AuCom to offer a product to match.

	Soft Start	Motor Protection	Advanced Interface	Internal Bypass	Current Range	Voltage Range
CSX	•			•	≤ 200 A	≤ 575 VAC
CSXi	•	•		•	≤ 200 A	≤ 575 VAC
EMX3	•	•	•	•	≤ 2400 A	≤ 690 VAC
MV Series	•	•	•	•	≤ 800 A *	≤ 15 kV

\*Up to 10 kA available on request.





## We've got you covered

AuCom's expertise and knowledge extends well beyond the products we make. We're about helping you achieve efficient and effective control of your machines and processes no matter what the industry or application.





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For more information and your local contact visit [www.aucom.com](http://www.aucom.com)

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**RIGHT FROM  
THE START**