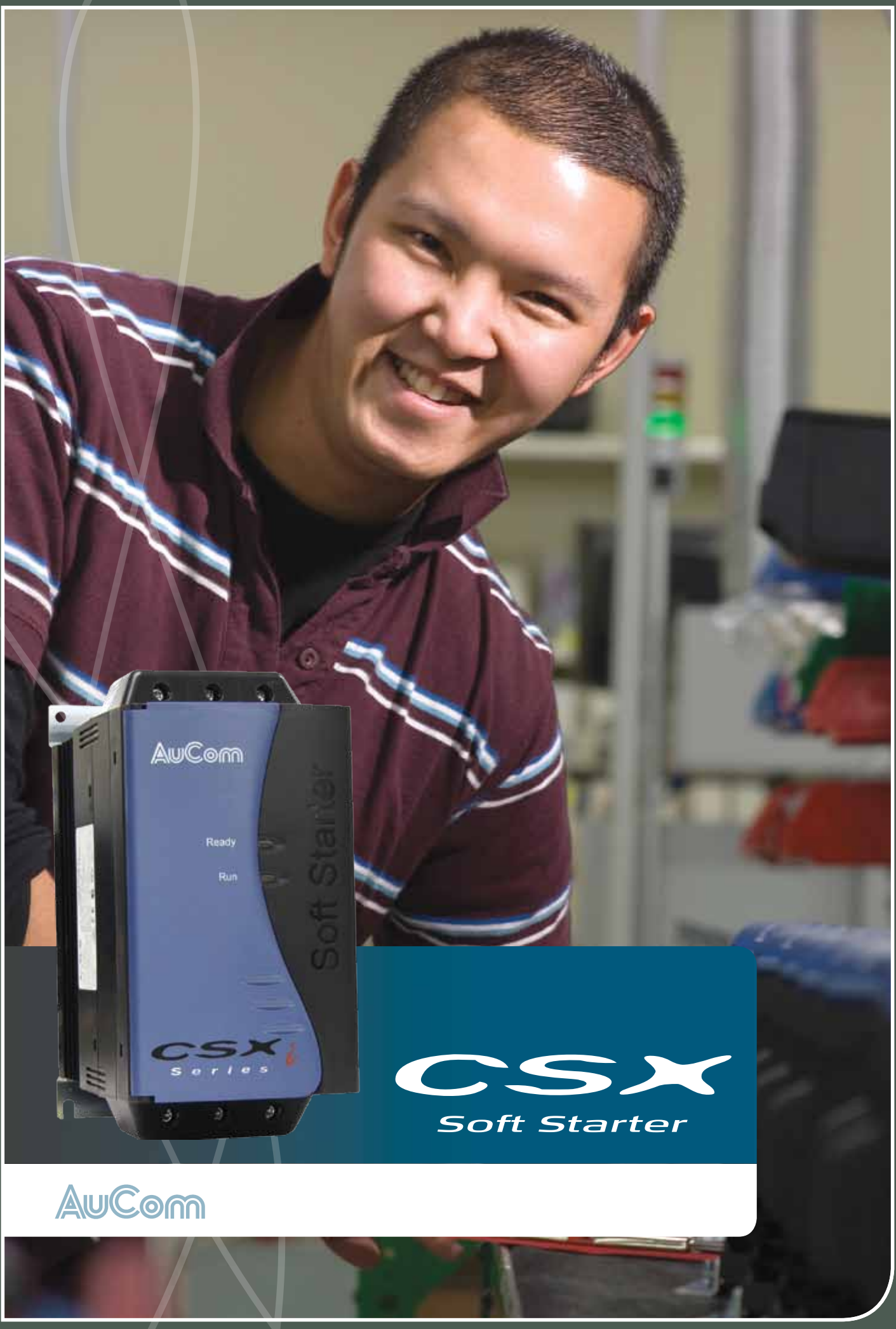


CSX
Soft Starter

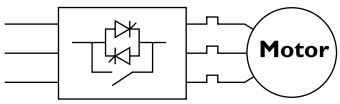
AuCom

CSX
Soft Starter

The AuCom CSX-030 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 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.

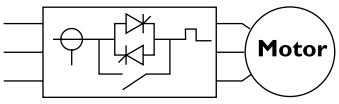
Makes installation simple, reduces ventilation requirements and overall installation cost.

CSXi Soft Starter

The CSXi range is a Constant Current system with current measurement and control.

It provides a range of motor protection functions in addition to soft start and soft stop. 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.

The AuCom CSXi-030 soft starter

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.

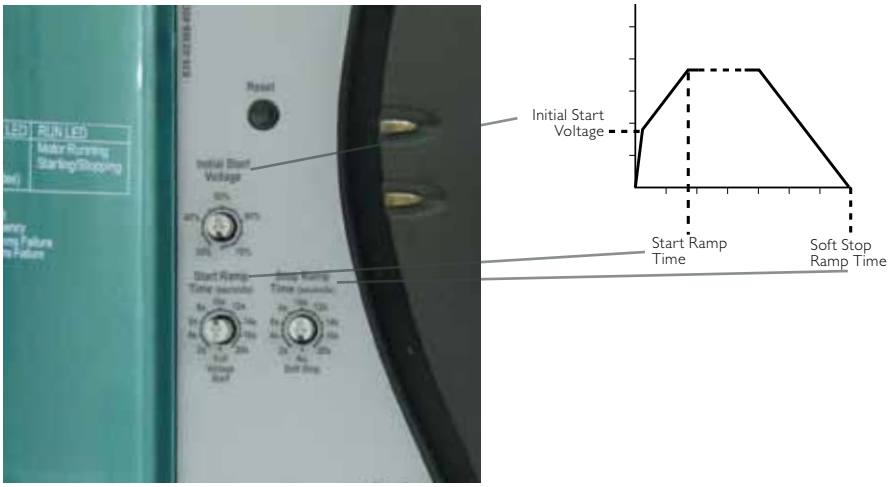
EASY TO OPERATE

Three adjustments can be made on the CSX soft starter:

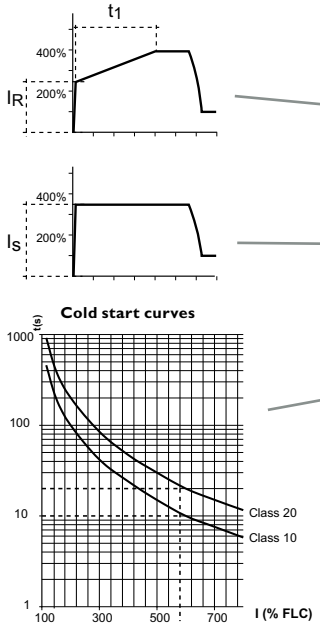
- Initial Start Voltage
- Start Ramp Time
- Soft Stop Ramp Time

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

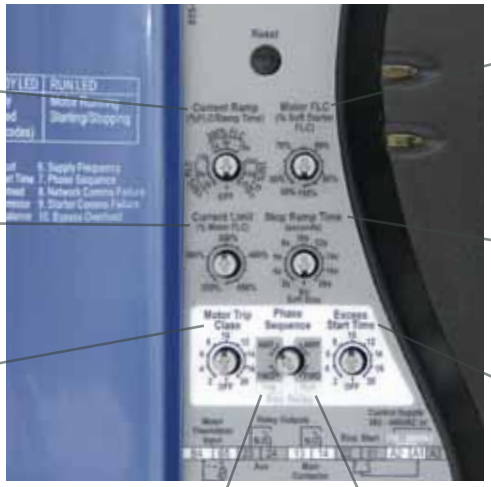


CSX control panel

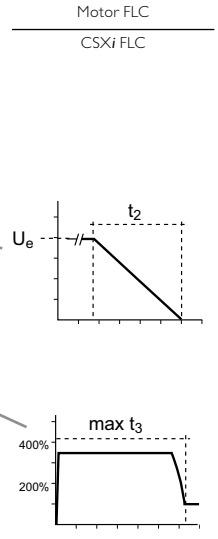


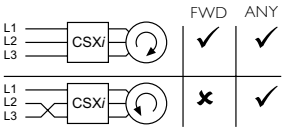
OFF = No overload protection

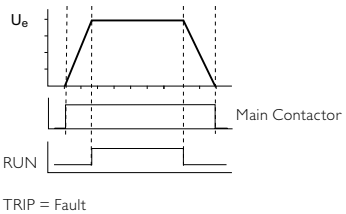
Note: Trip class must be set to match installation limitations.



CSXi control panel







TRIP = Fault

EQUI-VEC: BALANCED VECTOR CONTROL

EQUI-VEC™
BALANCED VECTOR CONTROL

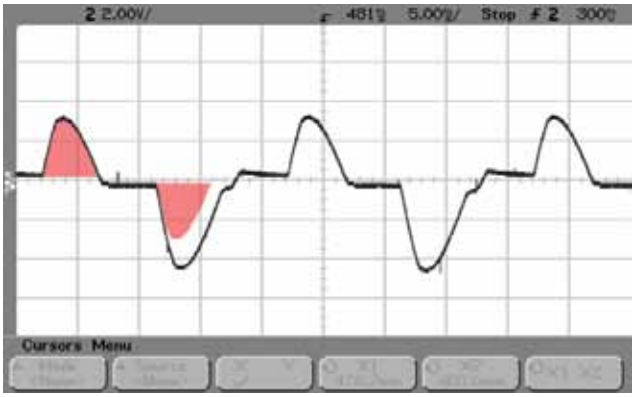
BALANCED VECTOR CONTROL

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.

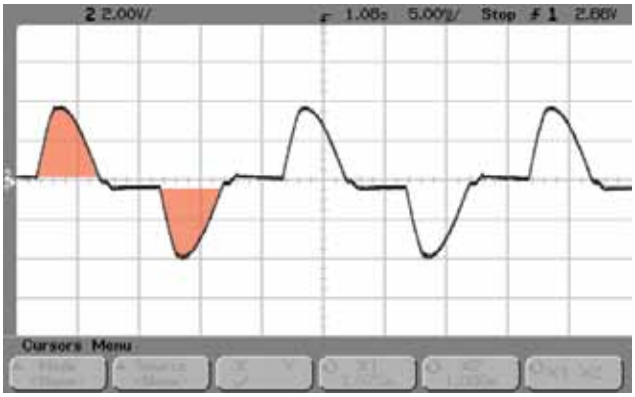
CSX soft starters control only two phases, but include Equi-Vec™ balanced vector control technology. Equi-Vec™ balances the output waveform to make it symmetrical. By balancing the waveform the CSX provides 3 phase like performance with compact soft starter technology.

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

RESET PUSH BUTTON

TRIP CODE TABLE ALLOWS DIAGNOSTICS WITHOUT MANUAL

EASY TO PROGRAM VIA ROTARY SWITCHES

EASY ACCESS DOOR

SMALL FOOTPRINT AND DEPTH SAVES SPACE

CSX SOFT STARTERS MAY BE MOUNTED SIDE BY SIDE OR HORIZONTALLY

STATUS LEDS INSTANTLY SHOW START, STOP OR TRIP

MOUNTING HOLES FOR EASY MOUNTING AND REMOVAL

	CSX	CSXi
STARTING FUNCTIONS		
Timed Voltage Ramp	✓	
Current Limit		✓
Current Ramp		✓
STOPPING		
Coast To Stop	✓	✓
Soft Stop	✓	✓
PROTECTION		
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
INTERFACE		
Fixed Relay Output (Main Contactor Relay)	✓	✓
Programmable Relay (Trip or Run)		✓
Run Relay Output	✓	
ACCESSORIES (OPTIONAL)		
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

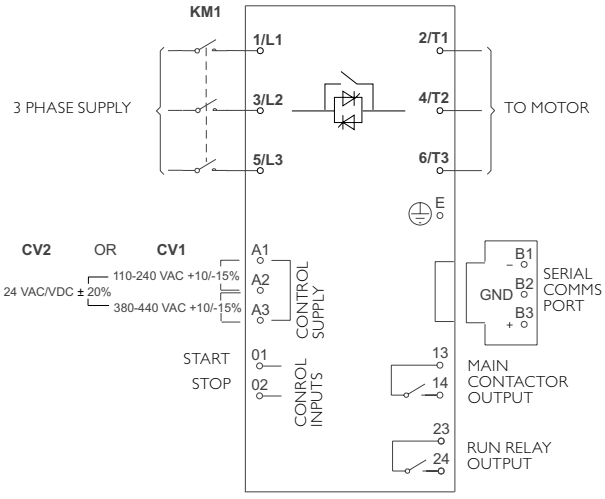
Motor Thermistor (B4, B5) (CSXi only) .....

Relay Outputs

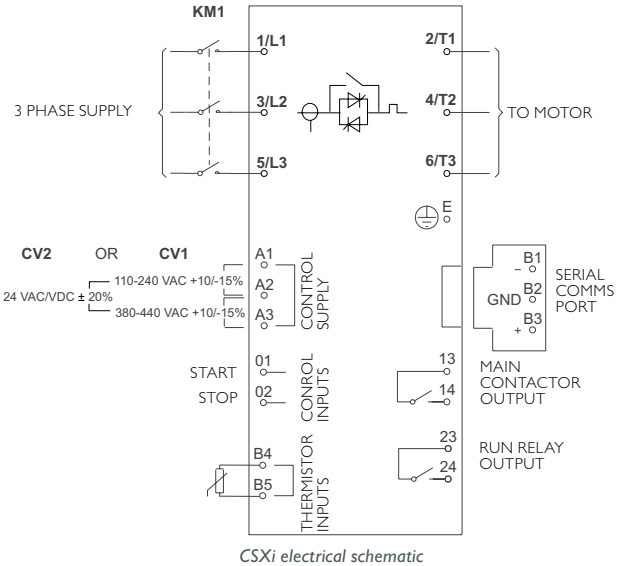
Main Contactor (13, 14) ..... Normally Open
..... 6A, 30 VDC resistive / 2A, 400 VAC, AC11
CSX Run Relay ..... Normally Open
CSXi Programmable Relay (23, 24) ..... Normally Open
..... 6A, 30 VDC resistive / 2A, 400 VAC, AC11

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 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.

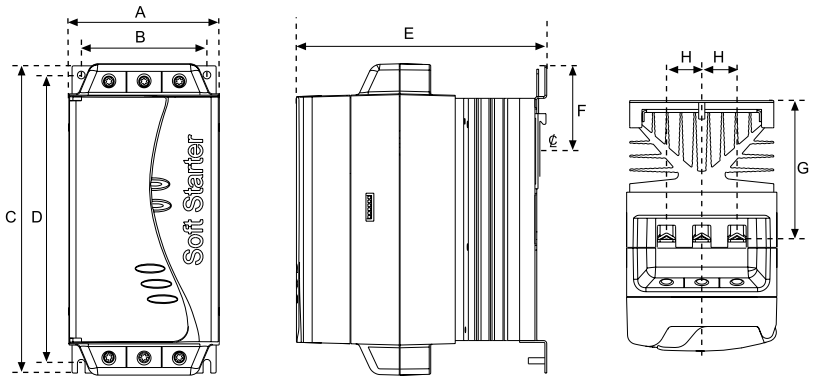
90 A: AC-53b 3.5-15 : 345

- 345 — Off time (seconds)
- 15 — Start time (seconds)
- 3.5 — Start current (multiple of FLC)
- 90 A — Start current rating (Amps)

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.



	A	B	C	D	E	F	G	H	WEIGHT kg (lbs)	
MODEL	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
CSX-015	(3.86)	(3.23)	(7.99)	(7.40)	(6.50)	2.17)	3.56)	(0.9)	(4.85)	(5.29)
CSX-018										
CSX-022										
CSX-030										
CSX-037	145	124	215	196	193	-	110.5	37	4.0	4.3
CSX-045	(5.71)	(4.88)	(8.46)	(7.71)	(7.60)		(4.35)	(1.46)	(8.82)	(9.48)
CSX-055										
CSX-075	202	160	240	204	214	-	114.5	51	6.1	6.8
CSX-090	(7.95)	(6.30)	(9.45)	(8.03)	(8.43)		(4.50)	(2.0)	(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-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
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:

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