



CSX

Compact Digital Solid State Soft Start Controller

Our CSX series has one of the smallest foot prints available and includes a built-in bypass contactor, which allows smaller, non-ventilated enclosures, making it ideal for MCC applications.

The CSX is an open loop TVR (Timed Voltage Ramp) controller that reduces the electrical and mechanical strain on the motor and the load, providing soft starts and soft stops for squirrel-cage induction motors. The CSX is designed to be used with an external motor protection device and is ideal for the applications that have an existing full voltage starter or external motor overload. Fieldbus communication modules can be easily snapped on to the side of the CSX module for Modbus, Profibus and DeviceNet protocols.



Soft Starters

- **Universal Input Voltage (208-575Vac) ±10%**
- **Compact Design, Smallest Footprint**
- **Built-in Bypass Contactor**
- **DIN Rail Mounting Up To 60A**
- **2 Wire or 3 Wire Start Stop Control Circuit**
- **Modbus, Profibus and DeviceNet Options**
- **Remote Operator Option**
- **TVR - Time Voltage Ramp Start**
- **Equi-Vec™ Balanced Vector Control Technology**

WEIGHTS & DIMENSIONS (Module Only)

Model	Weights (lbs)	Dimension H x W X D (inches)
CSX-007 to CSX-030	6	8.0 x 3.9 x 6.5
CSX-037 to CSX-055	10	8.5 x 5.7 x 7.6
CSX-075 to CSX-110	16	9.5 x 8.0 x 8.5

Both the CSX & CSXi series are available in Panel Mount, NEMA 1, NEMA 3R, NEMA 4, NEMA 12 enclosures. Ratings & order codes are shown for NEMA 12 only. For other configurations consult factory.

WEIGHTS & DIMENSIONS (NEMA 12)

Enclosure	Weights (lbs)	Dimension H x W X D (inches)
NEMA 12		
CSX-007 to CSX-030	70	20 x 16 x 12
CSX-037 to CSX-055	70	20 x 16 x 12
CSX-075 to CSX-110	101	24 x 20 x 12
NEMA 12 with C/B		
CSX-007 to CSX-030	85	20 x 16 x 12
CSX-037 to CSX-055	85	20 x 16 x 12
CSX-075 to CSX-110	125	24 x 20 x 12

Modbus RTU

DeviceNet





CSXi

Compact Digital Soft Starter with Motor Protection

CSXi includes all the functionality of the CSX, with the addition of motor protection and current limit/current ramp starting modes.

The CSXi is a closed loop controller (constant current or current ramp) that reduces the electrical and mechanical strain on the motor and the load, providing soft starts and soft stops for squirrel-cage induction motors. CSXi is ideal for high inertia loads, or loads where the starting load torque requirements do not change. Modbus, Profibus and DeviceNet fieldbus communication modules can be easily snapped on to the side of the CSXi module.

Soft Starters



- Motor Current Protection
- Universal Input Voltage (208-575Vac)
- Compact Design, Smallest Footprint
- Built-in Bypass Contactor
- DIN Rail Mounting Up To 60A
- 2 Wire or 3 Wire Start Stop Control Circuit
- Modbus, Profibus and DeviceNet Options
- Remote Operator Option
- Constant Current Start
- TVR - Terminal Voltage Ramp
- Equi-Vec™ Balanced Vector Control Technology



Modbus RTU



WEIGHTS & DIMENSIONS (Module Only)

Model	Weights (lbs)	Dimension H x W X D (inches)
CSXi-007 to CSXi-030	6	8.0 x 3.9 x 6.5
CSXi-037 to CSXi-055	10	8.5 x 5.7 x 7.6
CSXi-075 to CSXi-110	16	9.5 x 8.0 x 8.5

The CSX & CSXi series are available in Panel Mount, NEMA 1, NEMA 3R, NEMA 4, NEMA 12 enclosures. Ratings & order codes are shown for NEMA 12 only. For other configurations consult factory.

WEIGHTS & DIMENSIONS (NEMA 12)

NEMA 12		
CSXi-007 to CSXi-030	70	20 x 16 x12
CSXi-037 to CSXi-055	70	20 x 16 x12
CSXi-075 to CSXi-110	101	24 x 20 x 12
NEMA 12 with C/B		
CSXi-007 to CSXi-030	85	20 x 16 x12
CSXi-037 to CSXi-055	85	20 x 16 x12
CSXi-075 to CSXi-110	125	24 x 20 x 12





CSX (NORMAL DUTY RATINGS & ORDER GUIDE)

Normal Duty HP		Voltage Code			ND Amps	Model Number	Module Only Order Code	NEMA 12 Order Code (32Fvhhh20)*	NEMA 12 with C/B Order Code (32Fvhhh21)*
1 208V	2 230V	4 460V	5 575V						
5	5	10	15	18	CSX-007	870-1300	32F401020	32F401021	
10	10	25	30	34	CSX-015	870-1301	32F402520	32F402521	
	15	30	40	42	CSX-018	870-1302	32F403020	32F403021	
15				48	CSX-022	870-1303	32F101520	32F101521	
20	20	40	50	60	CSX-030	870-1304	32F404020	32F404021	
25	25	50	60	75	CSX-037	870-1305	32F405020	32F405021	
	30	60	76	85	CSX-045	870-1306	32F406020	32F406021	
30		75	100	100	CSX-055	870-1307	32F407520	32F407521	
40	50	100	125	140	CSX-075	870-1308	32F410020	32F410021	
60	60	125	150	170	CSX-090	870-1309	32F412520	32F412521	
	75	150	200	200	CSX-110	870-1310	32F415020	32F415021	

CSX (HEAVY DUTY RATINGS & ORDER GUIDE)

Heavy Duty HP		Voltage Code			HD Amps	Model Number	Module Only Order Code	NEMA 12 Order Code (32Hvhhh20A)*	NEMA 12 with C/B Order Code (32Hvhhh21A)*
1 208V	2 230V	4 460V	5 575V						
5	5	10	15	17	CSX-007	870-1300	32H401020A	32H401021A	
7.5	10	20	25	30	CSX-015	870-1301	32H402020A	32H402021A	
10		25	30	36	CSX-018	870-1302	32H402520A	32H402521A	
		30		40	CSX-022	870-1303	32H403020A	32H403021A	
15	15		40	49	CSX-030	870-1304	32H201520A	32H201521A	
20	20	50	60	65	CSX-037	870-1305	32H405020A	32H405021A	
	25			73	CSX-045	870-1306	32H202520A	32H202521A	
30	30	75	75	96	CSX-055	870-1307	32H407520A	32H407521A	
40	40		100	120	CSX-075	870-1308	32H204020A	32H204021A	
	50	100	125	142	CSX-090	870-1309	32H410020A	32H410021A	
50	60	125	150	165	CSX-110	870-1310	32H412520A	32H412521A	

Soft Starters

CSXi (NORMAL DUTY RATINGS & ORDER GUIDE)

Normal Duty HP		Voltage Code			ND Amps	Model Number	Module Only Order Code	NEMA 12 Order Code (32Fivhhh20A)*	NEMA 12 with C/B Order Code (32Fivhhh21A)*
1 208V	2 230V	4 460V	5 575V						
5	5	10	15	18	CSXi-007	870-1320	32Fi401020A	32Fi401021A	
10	10	25	30	34	CSXi-015	870-1321	32Fi402520A	32Fi402521A	
	15	30	40	42	CSXi-018	870-1322	32Fi403020A	32Fi403021A	
15				48	CSXi-022	870-1323	32Fi101520A	32Fi101521A	
20	20	40	50	60	CSXi-030	870-1324	32Fi404020A	32Fi404021A	
25	25	50	60	75	CSXi-037	870-1325	32Fi405020A	32Fi405021A	
	30	60	76	85	CSXi-045	870-1326	32Fi406020A	32Fi406021A	
30		75	100	100	CSXi-055	870-1327	32Fi407520A	32Fi407521A	
40	50	100	125	140	CSXi-075	870-1328	32Fi410020A	32Fi410021A	
60	60	125	150	170	CSXi-090	870-1329	32Fi412520A	32Fi412521A	
	75	150	200	200	CSXi-110	870-1330	32Fi415020A	32Fi415021A	

CSXi (HEAVY DUTY RATINGS & ORDER GUIDE)

Heavy Duty HP		Voltage Code			HD Amps	Model Number	Module Only Order Code	NEMA 12 Order Code (32Hivhhh20A)*	NEMA 12 with C/B Order Code (32Hivhhh21A)*
1 208V	2 230V	4 460V	5 575V						
5	5	10	15	17	CSXi-007	870-1320	32Hi401020A	32Hi401021A	
7.5	10	20	25	30	CSXi-015	870-1321	32Hi402020A	32Hi402021A	
10		25	30	36	CSXi-018	870-1322	32Hi402520A	32Hi402521A	
		30		40	CSXi-022	870-1323	32Hi403020A	32Hi403021A	
15	15		40	49	CSXi-030	870-1324	32Hi201520A	32Hi201521A	
20	20	50	60	65	CSXi-037	870-1325	32Hi405020A	32Hi405021A	
	25			73	CSXi-045	870-1326	32Hi202520A	32Hi202521A	
30	30	75	75	96	CSXi-055	870-1327	32Hi407520A	32Hi407521A	
40	40		100	120	CSXi-075	870-1328	32Hi204020A	32Hi204021A	
	50	100	125	142	CSXi-090	870-1329	32Hi410020A	32Hi410021A	
50	60	125	150	165	CSXi-110	870-1330	32Hi412520A	32Hi412521A	

ND = Normal Duty (Fan/Pump Application)

CSX Series 007-030 Module = 400% / 6 Sec., 354 Sec., between starts.
 CSX Series 037-110 Module = 400% / 6 Sec., 594 Sec., between starts.

HD = Heavy Duty (Conveyor Application)

CSX Series 007-030 Module = 400% / 20 Sec., 340 Sec., between starts.
 CSX Series 037-110 Module = 400% / 20 Sec., 580 Sec., between starts.

* Choose appropriate voltage code "v" when ordering packaged starters. Most order codes shown are for 460V units. Choices are (1=208V, 2=230V, 4=460V, 5=575V). Code hhh=horsepower.



CSX & CSXi MODULE SPECIFICATIONS:

Operating Conditions	
Horsepower	5 thru 200 hp
Current range	17A – 200A (nominal)
Line Voltage	3 hp, 200 - 575VAC (+10%/-15%)
Supply Frequency (at start)	45 – 66Hz
Control Voltage	110 to 230 VAC (+10% / -15%)
Rated Insulation Voltage	600V
Enclosure	IP20, NEMA1, Enclosure (CSX-007 to CSX-055) IP00, Open Chassis (CSX-075 to CSX-110)
Ambient Temperature	-10 – 60°C (14°F - 140°F) (Operating)
Altitude	1000m (3,300 ft)
Relative Humidity	5% to 95% Non-condensing
Overload Capacity	See Ratings Table
Rated Short Circuit current	5KA (CSX-007 to CSX-037) 10KA (CSX-045 to CSX-110)
Pollution Degree	Pollution Degree 3
Vibration	IEC 60068 Test Fc Sinusoidal, 4Hz to 13.2 Hz ±1mm displacement 13.2 Hz to 200 Hz ± 0.7g
Form Designation	Bypassed Semiconductor Motor Starter Form 1

EMC Emission & Immunity

Equipment Class (EMC)	Class A
Conducted Radio Freq. emission	0.15 MHz – 0.5 MHz; < 90 dB (µV) 0.5 MHz – 5 MHz; < 76 dB (µV) 5 MHz – 30 MHz; < 80-60 dB (µV)
Radiated Radio Freq. emission	30 MHz – 230 MHz; < 30 dB (µV/m) 230 MHz – 1000 MHz; < 37 dB (µV/m)
Electrostatic Discharge	4KV contact discharge, 8KV air discharge
Radio Frequency EM Field	0.15 MHz to 1000 MHz; 140 dB (µV)
Fast Transients 5/50 ns	2KV / 5 KHz (Main and control circuits)
Surges (1-2/50µs-8/20ms)	2 KV line to earth, 1 KV line to line (Main & control circuits)
Voltage dip/short time interrupt	5000 ms (at 0% nominal voltage)

Inputs

Control Inputs (Term 01 & 02) 300VAC max.

Outputs

Relay Outputs 6A @ 30VDC resistive / 2A, 400VAC, AC11
Analog Output (B10, B11) 4-20mA

Approvals & Listings

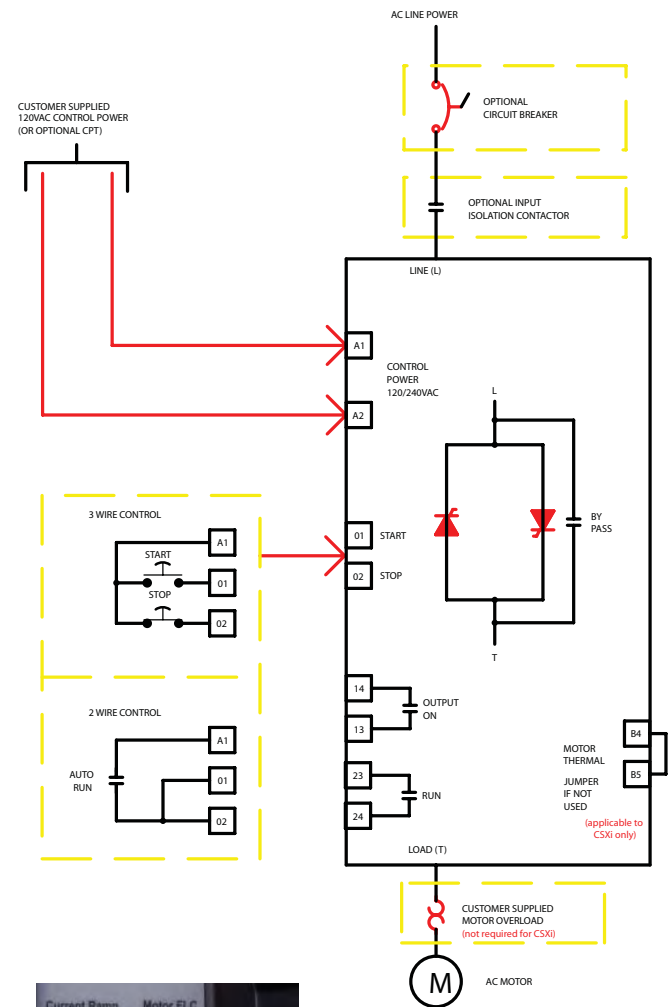
UL, cUL CE

CSX & CSXi COMMUNICATIONS OPTIONS

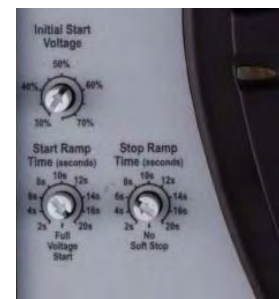
Description	Model Number	Order Code
Remote Keypad Kit (remote operator & Serial Interface Module)	PIM-RO-01	870-1343
Modbus Interface Module	PIM-MB-01	870-1340
Profibus Interface Module	PIM-PB-01	870-1341
DeviceNet Interface Module	PIM-DN-01	870-1342
RS-485 Serial Interface Module.	PIM-RZ-01	870-1344

Note: Series Communications Modules to be ordered as a separate line item and is shipped loose.

CSX & CSXi WIRING DIAGRAM



CSXi set up



CSX set up