

# 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.

- Universal Input Voltage (208-480 VAC)  $\pm 10\%$
- 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 - Terminal Voltage Ramp
- Equi-Vec™ Balanced Vector Control Technology

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

# 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.

- Motor Current Protection
- Universal Input Voltage (200-480 VAC)
- 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
- Current Ramp Start
- Equi-Vec™ Balanced Vector Control Technology

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.



Modbus RTU *DeviceNet*



### CSX & CSXi

#### WEIGHTS & DIMENSIONS (Module Only)

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

### CSX & CSXi 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
Pump Interface Module	PIM-PA-01	870-1383

**Note:** Serial Communication Modules to be ordered as a separate line item and shipped loose (not installed).

## MODULE

### CSX & CSXi (NORMAL DUTY RATINGS & ORDER GUIDE)

Normal Duty HP Voltage Code				CSX Module with internal bypass		CSXi Module with internal bypass	
1	2	4	ND Amps	Model Number	Module Only Order Code	Model Number	Module Only Order Code
208V	230V	460V					
5	5	<b>10</b>	18	CSX-007	870-1300	CSXi-007	870-1320
10	10	<b>25</b>	34	CSX-015	870-1301	CSXi-015	870-1321
	15	<b>30</b>	42	CSX-018	870-1302	CSXi-018	870-1322
15			48	CSX-022	870-1303	CSXi-022	870-1323
20	20	<b>40</b>	60	CSX-030	870-1304	CSXi-030	870-1324
25	25	<b>50</b>	75	CSX-037	870-1305	CSXi-037	870-1325
	30	<b>60</b>	85	CSX-045	870-1306	CSXi-045	870-1326
30		<b>75</b>	100	CSX-055	870-1307	CSXi-055	870-1327
40	50	<b>100</b>	140	CSX-075	870-1308	CSXi-075	870-1328
60	60	<b>125</b>	170	CSX-090	870-1309	CSXi-090	870-1329
	75	<b>150</b>	200	CSX-110	870-1310	CSXi-110	870-1330

### CSX & CSXi (HEAVY DUTY RATINGS & ORDER GUIDE)

Heavy Duty HP Voltage Code				CSX Module with internal bypass		CSXi Module with internal bypass	
1	2	4	HD Amps	Model Number	Module Only Order Code	Model Number	Module Only Order Code
208V	230V	460V					
5	5	<b>10</b>	17	CSX-007	870-1300	CSXi-007	870-1320
7.5	10	<b>20</b>	30	CSX-015	870-1301	CSXi-015	870-1321
10		<b>25</b>	36	CSX-018	870-1302	CSXi-018	870-1322
		<b>30</b>	40	CSX-022	870-1303	CSXi-022	870-1323
15	15		49	CSX-030	870-1304	CSXi-030	870-1324
20	20	<b>50</b>	65	CSX-037	870-1305	CSXi-037	870-1325
	25		73	CSX-045	870-1306	CSXi-045	870-1326
30	30	<b>75</b>	96	CSX-055	870-1307	CSXi-055	870-1327
40	40		120	CSX-075	870-1308	CSXi-075	870-1328
	50	<b>100</b>	142	CSX-090	870-1309	CSXi-090	870-1329
50	60	<b>125</b>	165	CSX-110	870-1310	CSXi-110	870-1330

**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.

Soft Starters

## CSX & CSXi MODULE SPECIFICATIONS:

### Operating Conditions

Horsepower	5 thru 150 hp
Current range	17A – 200A (nominal)
Line Voltage	3 hp, 200 - 480VAC (+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.

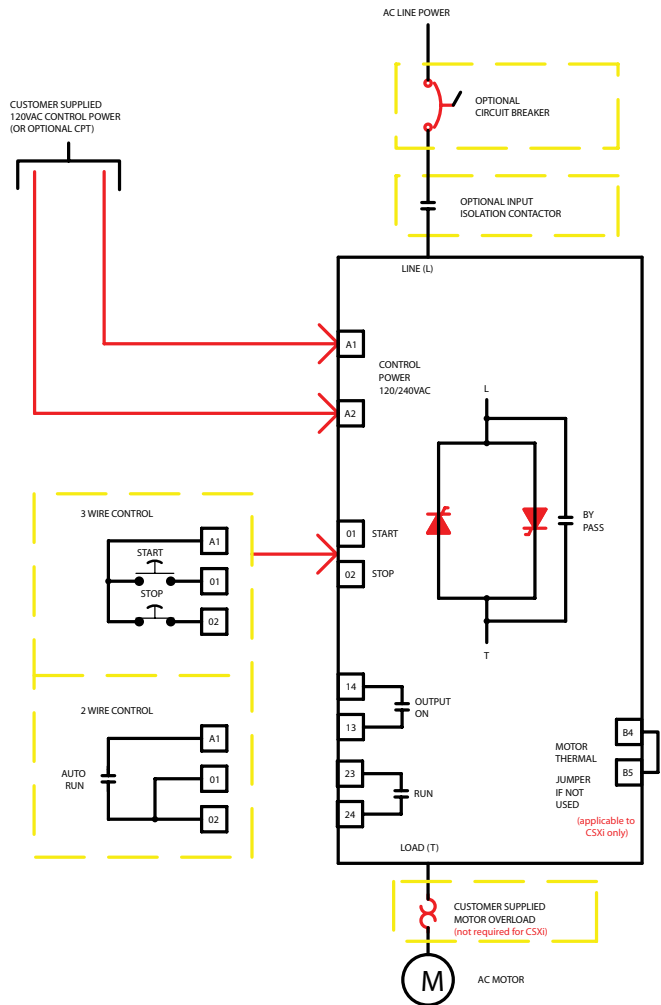
### Outputs

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

### Approvals & Listings

UL, cUL CE

## CSX & CSXi WIRING DIAGRAM



CSXi set up



CSX set up