

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 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.

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



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	10	18	CSX-007	870-1300	CSXi-007	870-1320
10	10	25	34	CSX-015	870-1301	CSXi-015	870-1321
	15	30	42	CSX-018	870-1302	CSXi-018	870-1322
15			48	CSX-022	870-1303	CSXi-022	870-1323
20	20	40	60	CSX-030	870-1304	CSXi-030	870-1324
25	25	50	75	CSX-037	870-1305	CSXi-037	870-1325
	30	60	85	CSX-045	870-1306	CSXi-045	870-1326
30		75	100	CSX-055	870-1307	CSXi-055	870-1327
40	50	100	140	CSX-075	870-1308	CSXi-075	870-1328
60	60	125	170	CSX-090	870-1309	CSXi-090	870-1329
	75	150	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	10	17	CSX-007	870-1300	CSXi-007	870-1320
7.5	10	20	30	CSX-015	870-1301	CSXi-015	870-1321
10		25	36	CSX-018	870-1302	CSXi-018	870-1322
		30	40	CSX-022	870-1303	CSXi-022	870-1323
15	15		49	CSX-030	870-1304	CSXi-030	870-1324
20	20	50	65	CSX-037	870-1305	CSXi-037	870-1325
	25		73	CSX-045	870-1306	CSXi-045	870-1326
30	30	75	96	CSX-055	870-1307	CSXi-055	870-1327
40	40		120	CSX-075	870-1308	CSXi-075	870-1328
	50	100	142	CSX-090	870-1309	CSXi-090	870-1329
50	60	125	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.

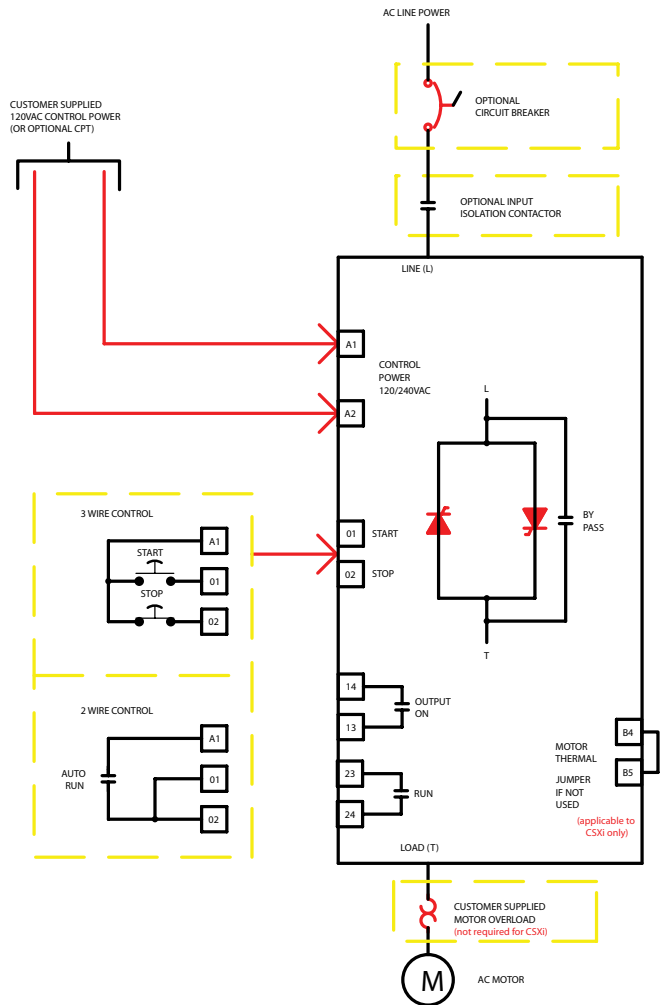
Outputs

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

IMS2

Flexible Digital Solid State Soft Starter

The IMS2 series advanced starter offers a total motor starting solution, combining high level functionality with flexibility and ease of use. This universal source matched starter can accommodate 200-690VAC 3-phase input supply and is available up to 1500 hp at 575VAC. IMS2 starter input and output power termination bus bars are field configurable by the installer (Top-Top, Top, Bottom, etc.) to suit the wiring requirements at site.



- **Universal Input Voltage (208-690VAC, 45 to 66Hz)**
- **Built-In Motor protection**
- **4 wire start stop control**
- **Local/Remote Reset**
- **Numeric Keypad Display**
- **Flexible bus bar configuration**
- **Modbus and DeviceNet Options**
- **Remote Operator Option**
- **Bypass Contactor Option**
- **Constant Current/Ramp/Torque Start**

The IMS2 series starters are available in Panel Mount, NEMA 1, NEMA 3R, NEMA 4, NEMA 12 enclosures. Ratings & order codes are shown for NEMA 1 & NEMA 12 only. For other configurations consult factory. See the Packaged Soft Starter section for more details.

Soft Starters



IMS2 WEIGHTS & DIMENSIONS (Module, Chassis & NEMA 12)

Model Number	Module Only		NEMA 1		NEMA 1 C/B or NEMA 12 Bypass		NEMA 12 C/B & BP Including Crusher Duty	
	Dimensions HxWxD (in)	Weight (lbs)	Dimensions HxWxD (in)	Weight (lbs)	Dimensions HxWxD (in)	Weight (lbs)	Dimensions HxWxD (in)	Weight (lbs)
IMS20018 to 0047	15 x 7.3 x 7	13.2	24 x 20 x 12	80	24 x 20 x 12	110	30 x 24 x 12	120
IMS20067 to 0125	15 x 7.3 x 10	27			30 x 24 x 12	160		
IMS20141 to 0238	16.75 x 10.7 x 11	40	30 x 24 x 12	180	36 x 30 x 16	200	36 x 30 x 16	180
IMS20253	16.75 x 15.4 x 11	50.6						
IMS20302 to 0405	27.2 x 17 x 11.6	84	36 x 30 x 16	220	48 x 36 x 16	500	48 x 36 x 16	550
IMS20513 to 0585	27.2 x 17 x 11.6	111						
IMS20628 to 0897	27.2 x 17 x 11.6	117	48 x 36 x 16	275	60 x 36 x 16	800	60 x 36 x 16	800
IMS201153 to 1574	33.3 x 22.6 x 14	267			Call Factory for Quote			

The IMS2 series starters are available in Panel Mount, NEMA 1, NEMA 3R, NEMA 4, and NEMA 12 enclosures. Ratings & order codes are shown for NEMA 1 & NEMA 12 only. Consult factory for other configurations.

IMS2 OPTIONS

Description	Model Number	Order Code
Remote Keypad Kit	RCM01	870-1380
DeviceNet Interface Module	DCM01	870-1382

Note: Modbus Communications in AP ASCII, Modbus RTU and Modbus ASCII protocols are standard.

Soft Starters

MODULE

IMS2 (NORMAL DUTY RATINGS & ORDER GUIDE)

Normal Duty HP Voltage Code					Module without internal bypass	
1	2	4	5	ND Amps	Model Number	Order Code
208V	230V	460V	575V			
5	5	10	15	18	IMS20018	870-1350
10	10	25	30	34	IMS20034	870-1351
		30	40	41	IMS20041	870-1352
15	15			47	IMS20047	870-1353
20	20	50	60	67	IMS20067	870-1354
30	30	60	75	88	IMS20088	870-1355
		75		96	IMS20096	870-1356
40	40	100	125	125	IMS20125	870-1357
	50			141	IMS20141	870-1358
60	75	150	200	202	IMS20202	870-1359
75				238	IMS20238	870-1360
	100	200	250	253	IMS20253	870-1361
100		250	300	302	IMS20302	870-1362
150	150	300	400	405	IMS20405	870-1363
	200	400	500	513	IMS20513	870-1364
200		450	600	585	IMS20585	870-1365
	250	500		628	IMS20628	870-1366
250	300	600	800	775	IMS20775	870-1367
300	350	700	900	897	IMS20897	870-1368
400	450	900	1100	1153	IMS21153	870-1369
500		1100	1400	1403	IMS21403	870-1370
	600	1300	1500	1574	IMS21574	870-1371

ND = Normal Duty (Fan/Pump Application) verify the motor amps. Then select the starter amps to be equal or greater than motor amps.

IMS2 0018 to 1574 = 300% / 10 sec., 360 Sec., between starts.

IMS2 (HEAVY DUTY RATINGS & ORDER GUIDE)

Heavy Duty HP Voltage Code					Module without internal bypass	
1	2	4	5	HD Amps	Model Number	Order Code
208V	230V	460V	575V			
3	3	7.5	10	12	IMS20018	870-1350
5	7.5	15	20	24	IMS20034	870-1351
	10	20	25	28	IMS20041	870-1352
10			30	33	IMS20047	870-1353
	15	30	40	46	IMS20067	870-1354
15	20	40	50	59	IMS20088	870-1355
20			60	64	IMS20096	870-1356
25	30	60	75	84	IMS20125	870-1357
30				94	IMS20141	870-1358
40	50	100	125	135	IMS20202	870-1359
50	60	125	150	160	IMS20238	870-1360
				167	IMS20253	870-1361
60	75	150	200	205	IMS20302	870-1362
100	100	200	250	274	IMS20405	870-1363
	125	250	350	342	IMS20513	870-1364
125	150	300	400	392	IMS20585	870-1365
150		350	450	424	IMS20628	870-1366
	200	450		521	IMS20775	870-1367
200	250	500	600	604	IMS20897	870-1368
250	300	600	800	791	IMS21153	870-1369
350	400	800	1000	970	IMS21403	870-1370
400	450	900	1100	1091	IMS21574	870-1371

HD = Heavy Duty (Conveyor Application) verify the motor amps. Then select the starter amps to be equal or greater than motor amps.

IMS2 0018 to 1574 = 450% / 30 sec., 360 Sec., between starts.

IMS2 MODULE SPECIFICATIONS:

Operating Conditions

Horsepower	3 thru 1500 hp
Current range	12A-1574A (nominal)
Line Voltage	3 hp, 200 - 690 VAC
Supply Frequency (at start)	50 Hz (±2%) or 60 Hz (±2%)
Supply Frequency (during start)	> 45 Hz (50 Hz supply) or > 55 Hz (60 Hz supply)
Supply Frequency (during run)	> 48 Hz (50 Hz supply) or > 58 Hz (60 Hz supply)
Control Voltage	110 VAC (+10% / -15%) or 230 VAC (+10% / -15%)
Enclosure	IP00 (302-1574A), Open Chassis IP42 (18-253A), NEMA 2
Ambient Temperature	-5 – 60°C (23°F - 140°F) (Operating)
Altitude	1000 m (3,300 ft)
Relative Humidity	5% to 95% Non-condensing
Overload Capacity	See Ratings Table

Standard Features

Rated Short Circuit current	100 KA (with semiconductor fuses)
Rated Insulation Voltage	690V
Surges	2 KV line to earth, 1 KV line to line
Fast Transients	2KV / 5 KHz
Form Designation	Form 1
Electrostatic Discharge	4 KV contact discharge, 8 KV air discharge
Equipment Class (EMC)	Class A
Radio Frequency EM Field	0.15 MHz – 80 MHz; 140 dBµV; 80MHz - 1GHz: 10V/m
Pollution Degree	Pollution Degree 3

Inputs

Voltage Active 24 VDC, 8 mA, approx.

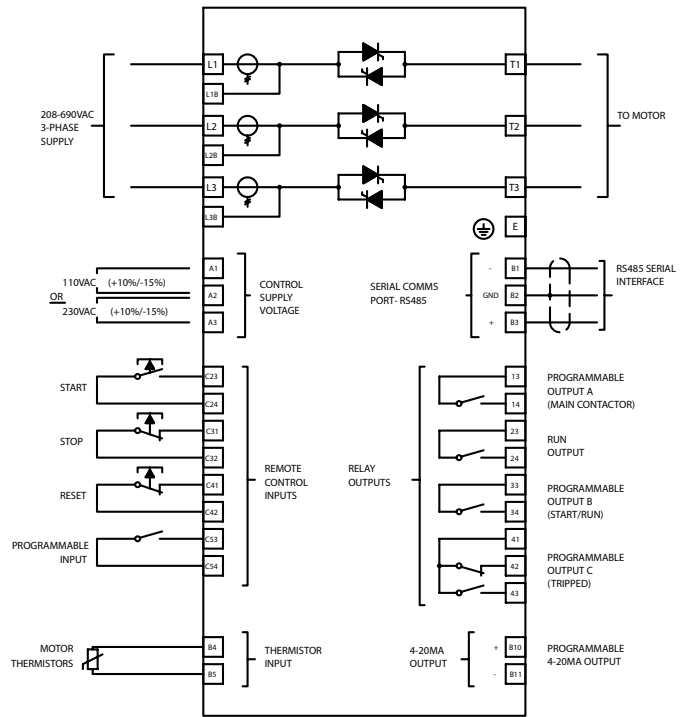
Outputs

Relay Outputs	5A @ 250 VAC / 360 VS, 5A @ 30 VDC resistive
Analog Output (B10, B11)	4-20 mA

Approvals & Listings

CE	IEC 60947-4-2
UL & CUL	UL 508A (size dependant)
C✓	IEC 60947-4-2

IMS2 WIRING DIAGRAM:



Soft Starters

**Please Consult the Factory
for special Soft Starter Solutions**