



# Technical specifications

## Continuous Ratings

MODEL	Normal Duty 3.0 x FLC AC53a 3-10:50-10 45°C < 1000 metres		Heavy Duty 3.5 x FLC AC53a 3.5-15:50-10 45°C < 1000 metres	
	3 wire	6 wire	3 wire	6 wire
MSX-013	13A	19A	12A	18A
MSX-018	18A	27A	16A	25A
MSX-034	34A	51A	32A	48A
MSX-041	41A	62A	39A	58A
MSX-047	47A	71A	44A	66A
MSX-067	67A	101A	60A	90A
MSX-088	88A	132A	78A	116A
MSX-096	96A	144A	85A	127A
MSX-125	125A	188A	112A	168A
MSX-141	141A	212A	122A	183A
MSX-202	202A	303A	177A	266A
MSX-238	238A	357A	211A	317A
MSX-347	347A	521A	297A	446A

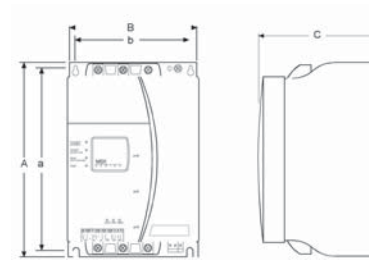
## Bypassed Ratings

MODEL	Normal Duty 3.0 x FLC AC53b 3-10:350 45°C < 1000 metres		Heavy Duty 3.5 x FLC AC53b 3.5-15:345 45°C < 1000 metres	
	3 wire	6 wire	3 wire	6 wire
MSX-013	13A	19A	13A	19A
MSX-018	18A	27A	16A	25A
MSX-034	34A	51A	32A	48A
MSX-041	41A	62A	39A	58A
MSX-047	47A	71A	44A	66A
MSX-067	67A	101A	60A	90A
MSX-088	88A	132A	78A	116A
MSX-096	96A	144A	85A	127A
MSX-125	125A	188A	112A	168A
MSX-141	141A	212A	122A	183A
MSX-202	202A	303A	177A	266A
MSX-238	238A	357A	211A	317A
MSX-347	347A	521A	297A	446A

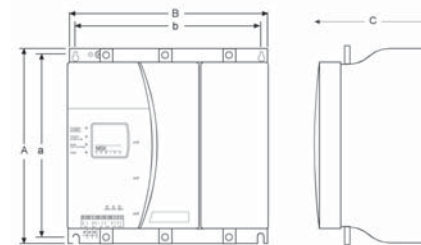
## Dimension

MODEL	A	B	C	a	b	Weight kg (lbs)
	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	
IP00 / OPEN CHASSIS						
MSX-013						
MSX-018						
MSX-034	327 (12.87)	207 (8.15)	140 (5.51)	311 (12.24)	180 (7.09)	6.5 (14.3)
MSX-041						
MSX-047						
MSX-067						
MSX-088	327 (12.87)	207 (8.15)	223 (8.78)	311 (12.24)	180 (7.09)	9.5 (20.9)
MSX-096						
MSX-125						
MSX-141						
MSX-202	327 (12.87)	339 (13.35)	245 (9.65)	311 (12.24)	260 (10.27)	17.5 (38.5)
MSX-238						
MSX-347	331 (13.03)	382 (15.04)	295 (11.61)	308.5 (12.14)	350 (13.78)	21 (46.3)

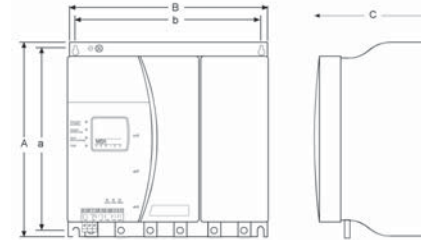
## Dimension



MSX-013 ~ MSX-125

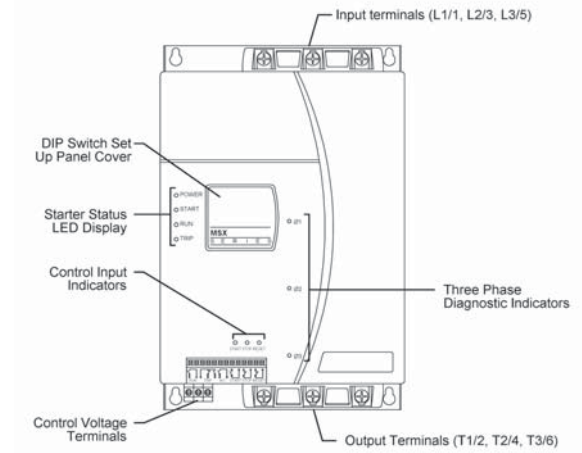


MSX-141 ~ MSX-238

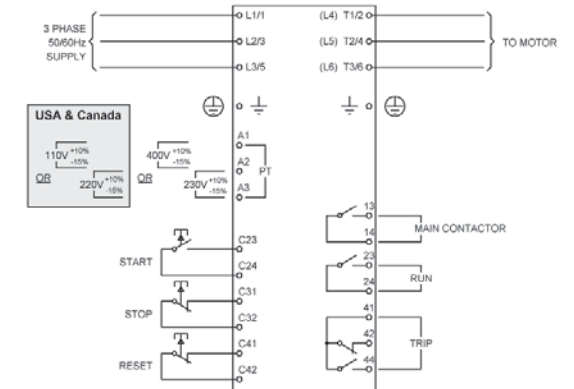


MSX-347

## Layout



## MSX3 Connection Detail



## Part Number Format

RS-MSX3    -

Nominal Current Ratings  
(Amps @ AC53a 3-30:50-10)  
e.g 0125 = 125A AC53a 3-10:50-10

Supply voltage  
V5 = 200VAC-525VAC  
V7 = 200VAC-690VAC

Control Supply Voltage  
C24 = 230VAC & 400V AC  
C45 = 460VAC & 575V AC

## IMS2 Series

**IMS2 Series Soft Starters are a total motor starting solution. They include all the functionality expected from an advanced and technically superior soft starter. IMS2 Series Soft Starters also provide some elementary features that make installation and use simple and straight forward.**

Most significant among these elementary features is the enclosure style of IMS2 models up to 253 Amps. Unlike most other soft starters, the IMS2 is a **fully enclosed unit suitable for immediate installation**. No additional enclosures are required for these models. Both IP42 and IP54 versions are available and ensure a quick installation that saves the costs normally associated with enclosing and ventilating the starter.

**A user friendly control panel simplifies installation and use.** Local start, stop and reset push buttons are provided along with a local remote push button for switching control between the local panel and remote control circuits. The parameter display provides feedback on motor current and temperature as well as displaying diagnostic information in the event of a trip condition. These features save time and costs because the addition of discrete components to perform these functions is unnecessary.

**IMS2 starters are suitable for use in a broad range of applications.** The standard range can operate on supplies up to 525 VAC 50/60 Hz, with a second range available for supplies up to 690 VAC 50/60Hz. Each range includes models suitable for controlling motors from 4kW through to in excess of 1000kW.

**IMS2 starters can also be connected to the motor in 6 Wire or inside delta configuration.** This enables the starter to control motors 50% larger than possible with standard 3 Wire connection. This is possible because the soft starter controls only phase current rather than line current when connected in 6 Wire configuration. 6 Wire connection makes replacing star/delta starters easy because existing motor wiring need not be changed.

**Optimum control of motor starting and stopping for all load types** is ensured by the broad range of start and stop profiles provided by the IMS2. Four starting options are provided including a new torque control feature. Torque control can be used to create a more linear acceleration than possible with standard constant current control. Three stopping options are also provided. Traditional soft stop technology for extending motor deceleration is complemented by a new and advanced pump control feature.



These technologies combine to make water hammer a thing of the past. For inertial loads the IMS2 can also provide a braking function for rapid stopping. Starting and stopping motors is however only part of the IMS2's capabilities. A wide range of advanced motor protection features, including a motor thermal model, ensure that motors can be operated with confidence. In the area of motor protection the IMS2 again provides cost savings because additional motor protection devices are not required.

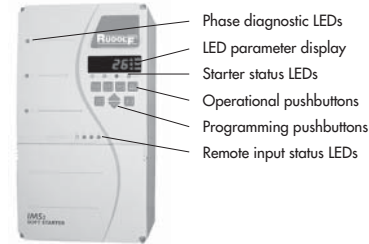
The IMS2 protection systems continue to function even when the starter is bypassed. Protection for the load is also provided by the IMS2. Features such as undercurrent protection, shearpin protection and excess start time protection can all be used to detect and protect against abnormal operating conditions. **The IMS2 records all trip events** in a trip log that stores the last eight trip events. This ensures rapid identification and remedy of conditions causing trip states. Further, **a fully programmable Auto-reset function can be used to restart motors** after user selected trip conditions. This is particularly useful for remote installations because it prevents unnecessary site visits to reset trip states caused by temporary faults. **Interfacing with external control circuitry is easy** with the IMS2.

As standard, the starters include four remote control inputs, one fixed and three programmable relay outputs, one programmable analogue output as well as a RS485 serial communications link. This hardware allows the IMS2 to provide external control systems with a wide range of information on motor and system performance without the need for additional monitoring equipment.

**IMS2 soft starters are designed to provide superior performance and maximum user safety.** The products are **independently tested to all relevant international standards** including IEC60947-4-2, UL508, CSA 22.2 No. 14, AS/NZS 3927-4-2, CISPR-11. This proven performance means you can be confident when selecting IMS2 soft starter for your motor control applications.

## Product Features

IMS2 starters are user friendly. Simple applications can be commissioned with only one programming adjustment. The required adjustment sets the motor's Full Load Current rating. For advanced applications, the IMS2 provides an extensive range of functions that cover the majority of motor starting and control requirements.



### Starting Functions

- Constant current start mode
- Current Ramp start mode
- Torque control
- Kickstart

### Stopping Functions

- Soft Stop
- Pump Stop
- Soft Braking
- D.C.Braking (option)

### Protection Functions

- Motor thermal model
- Motor thermistor input
- Phase imbalance
- Phase sequence
- Electronic shearpin
- Undercurrent
- Auxiliary trip input
- Starter heatsink overtemperature
- Excess start time
- Supply frequency
- Shorted SCR
- Power circuit
- Motor connection
- RS485 failure

### Interface Formats

- Remote control inputs (3 x fixed, 1 x programmable)
- Relay outputs (1 x fixed, 3 x programmable)
- 4 - 20mA output (1 x programmable)
- RS485 link

### Human Interface

- Local push buttons (Start, Stop, Reset, Local/Remote)
- Local programming buttons
- LED parameter display
- Remote input status and Phase indicator LEDs

### Power Connection

- 3 Wire connection
- 6 Wire connection (option)
- Bypass terminals (enables protection functions when bypassed)
- 200 ~ 525 VAC or 200 ~ 690 VAC models

### Additional Features

- Current readout
- Motor temperature readout
- Trip log (last eight trips)
- Multiple function sets
- Restart delay
- Low current flag
- High current flag
- Overload flag
- Auto-reset
- Auto-stop
- Start counter
- Function lock, password protection
- Store/Restore function settings
- Emergency mode operation
- Thermal model override

### Wall Mount Capability

IMS2 models up to IMS2-0253 can be mounted directly onto a wall thereby eliminating enclosure costs. These models are available with either an IP42 rating for clean environments or IP54 for harsh environments. IMS2 models IMS2-0302 and above are designed for installation into switchboards or dedicated enclosures.

### Compact Design

IMS2 starters are extremely compact. For switchboard installations the IMS2 saves on both footprint area and overall volume as compared to comparable soft start products.

### Adjustable Busbar Configuration

Models IMS2-0302 and above allow the installer to select their own desired configuration for power input and output connections. The IMS2 input (L1,L2,L3) and output (T1,T2,T3) bus bars can be configured for either top or bottom entry, or a combination of both. This flexibility allows optimisation of switchboard layout and complements the already compact design.

# Technical Specifications

**Standard** Conformity to standards

- UL508
- CSA 22.2 No 14.
- C $\checkmark$  (CISPR-11)
- CE (IEC947-4-2)
- IEC 60947-4-2

**Supply**

Supply voltage IMS2xxx-V5-xxx-xx-xx	3 x 200 VAC~525VAC (3 Wire Connection) 3 x 200 VAC~440VAC (6 Wire Connection)
Supply voltage IMS2xxx-V7-xxx-xx-xx	3 x 200 VAC~690VAC (6 Wire Connection) 3 x 200 VAC~440VAC (6 Wire Connection)
Electronic Supply IMS2xxx-xx-C24-xx-xx	230VAC (+10%/-15%) or 400VAC (+10%/-15%)
Electronic Supply IMS2xxx-xx-C45-xx-xx	460VAC (+10%/-15%) or 575VAC (+10%/-15%)
Supply frequency (at start)	50Hz ( ± 2Hz) or 60Hz ( ± 2Hz)
Supply frequency (during start)	> 45Hz (50Hz supply) or > 55Hz (60Hz supply)
Supply frequency (during run)	> 48Hz (50Hz supply) or > 58Hz (60Hz supply)

**Control inputs**

Start (Terminals C23, C24)	Normally Open, Active 24VDC, 8mA approx.
Stop (Terminals C31, C32)	Normally Closed, Active 24VDC, 8mA approx.
Reset (Terminals C41, C42)	Normally Closed, Active 24VDC, 8mA approx.
Programmable Input A (Terminals C53, C54)	Normally Open, Active 24VDC, 8mA approx.

**Outputs**

Run output (Terminals 23, 24)	Normally Open, 5A @ 250VAC / 360VA 5A @ 30VDC resistive
Programmable Output A (Terminals 13, 14)	Normally Open, 5A @ 250VAC / 360VA 5A @ 30VDC resistive
Programmable Output B (Terminals 33, 34)	Normally Open, 5A @ 250VAC / 360VA 5A @ 30VDC resistive
Programmable Output C (Terminals 41, 42, 44)	Changeover, 5A @ 250VAC / 360VA 5A @ 30VDC resistive
Analogue Output (Terminals B10, B11)	4-20mA

**Additional**

Enclosure Rating IMS2xxx-xx-xxx-xx-E0	IP00 (Open Chasis)
Enclosure Rating IMS2xxx-xx-xxx-xx-E4	IP42 (NEMA 1)
Enclosure Rating IMS2xxx-xx-xxx-xx-E5	IP54 (NEMA 12)
Rated short-circuit current (with semi-conductor fuses)	100kA
Rated insulation voltage	690 V
Surges	2kV line to earth, 1kV line to line
Fast transients	2.0kV / 5.0kHz
Rated impulse withstand voltage	2kV
Form designation	Form 1
Electrostatic discharge	4kV contact discharge, 8kV air discharge
Equipment class (EMC)	Class A
Radio-frequency electromagnetic field	0.15 MHz-80 MHz: 140dBmV 80 MHz-1 GHz: 10V/m
Pollution degree	Pollution Degree 3
Operating Temperatures	-5°C / +60°C
Relative Humidity	5-95% (max non condensing)

# Motor Ratings

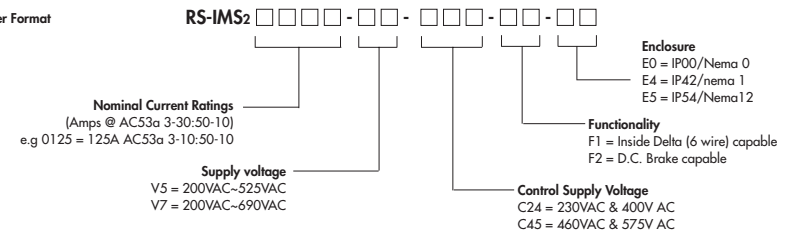
**Continuous Ratings**

MODEL	Normal Duty 3.0 x FLC AC53a 3-10:50-10 45°C < 1000 metres		Heavy Duty 3.5 x FLC AC53a 3.5-15:50-10 45°C < 1000 metres	
	3 wire	6 wire	3 wire	6 wire
IMS2-0018	18A	27A	16A	25A
IMS2-0034	34A	51A	32A	48A
IMS2-0041	41A	62A	39A	58A
IMS2-0047	47A	71A	44A	66A
IMS2-0067	67A	101A	60A	90A
IMS2-0088	88A	132A	78A	116A
IMS2-0096	96A	144A	85A	127A
IMS2-0125	125A	188A	112A	168A
IMS2-0141	141A	212A	122A	183A
IMS2-0202	202A	303A	177A	266A
IMS2-0238	238A	357A	211A	317A
IMS2-0253	253A	379A	218A	327A
IMS2-0302	302A	453A	275A	413A
IMS2-0405	405A	608A	376A	564A
IMS2-0513	513A	769A	481A	722A
IMS2-0585	585A	878A	558A	837A
IMS2-0628	628A	942A	595A	893A
IMS2-0775	775A	1163A	756A	1134A
IMS2-0897	897A	1346A	895A	1342A
IMS2-1153	1153A	1730A	1049A	1574A
IMS2-1403	1403A	2105A	1302A	1953A
IMS2-1574	1574A	2361A	1486A	2229A

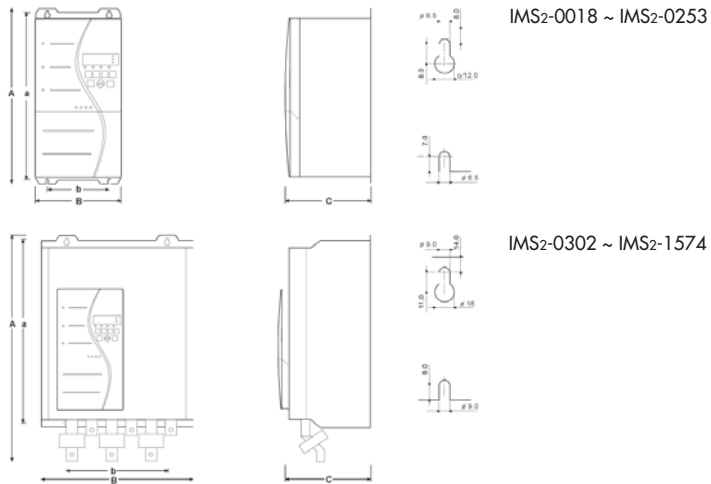
**Bypassed Ratings**

MODEL	Normal Duty 3.0 x FLC AC53b 3-10:350 45°C < 1000 metres		Heavy Duty 3.5 x FLC AC53b 3.5-15:345 45°C < 1000 metres	
	3 wire	6 wire	3 wire	6 wire
IMS2-0018	18A	27A	18A	27A
IMS2-0034	34A	51A	34A	51A
IMS2-0041	41A	62A	41A	62A
IMS2-0047	47A	71A	47A	71A
IMS2-0067	67A	101A	62A	94A
IMS2-0088	88A	132A	82A	122A
IMS2-0096	96A	144A	90A	136A
IMS2-0125	125A	188A	120A	181A
IMS2-0141	141A	212A	127A	190A
IMS2-0202	202A	303A	187A	281A
IMS2-0238	238A	357A	224A	336A
IMS2-0253	254A	381A	228A	342A
IMS2-0302	302A	453A	285A	427A
IMS2-0405	405A	608A	395A	592A
IMS2-0513	513A	770A	513A	770A
IMS2-0585	585A	878A	585A	878A
IMS2-0628	628A	942A	626A	939A
IMS2-0775	775A	1163A	775A	1163A
IMS2-0897	897A	1346A	897A	1346A
IMS2-1153	1153A	1730A	1153A	1730A
IMS2-1403	1403A	2105A	1403A	2105A
IMS2-1574	1574A	2361A	1574A	2361A

**Part Number Format**

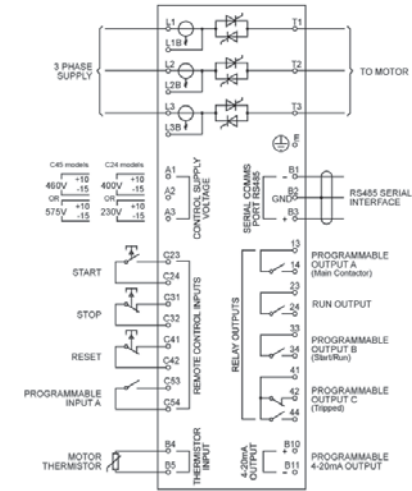


### Dimensions



### Connection Details / Layout

#### IMS2 Connection Detail



#### Layout

Model	A	B	C	a	b	Weight kg (lbs)
	mm (inches)	mm (inches)	mm (inches)	mm (inches)	mm (inches)	
<b>IP42/NEMA 1 or IP54/NEMA 12</b>						
IMS2-0018	380 (14.96)	185 (7.28)	180 (7.09)	365 (14.37)	130 (5.12)	6 (13.2)
IMS2-0034						
IMS2-0041						
IMS2-0047						
IMS2-0067	380 (14.96)	185 (7.28)	250 (9.84)	365 (14.37)	130 (5.12)	7 (15.4)
IMS2-0088						
IMS2-0096						
IMS2-0125						
IMS2-0141	425 (16.73)	270 (10.63)	275 (10.83)	410 (16.14)	280 (7.87)	17.5 (38.6)
IMS2-0202						
IMS2-0238						
IMS2-0253						
<b>IPOO</b>						
IMS2-0302	545 (21.46)	430 (16.93)	294 (11.58)	522 (20.55)	320 (12.60)	42 (92.6)
IMS2-0405						
IMS2-0513						
IMS2-0585						
IMS2-0628						
IMS2-0775						
IMS2-0897	845 (33.27)	574 (22.60)	353 (13.90)	707 (27.83)	500 (19.68)	110 (242)
IMS2-1153						
IMS2-1403						
IMS2-1574						

