

MEsoftstart

Industry-hardened low-voltage softstarter



- Extending the life of motors and connected equipment
- Avoiding excessive current draw from the plant's electrical supply
- Preventing mechanical and thermal stress of your assets

Longer motor and equipment life by mechanical shock elimination

MEsoftstart – Mitsubishi Electric's new soft starter technology – minimises costs by reducing overall electrical power requirements and wear-and-tear on your assets on your assets, providing ramped start-up and slow-down of motors. This prevents water hammer in pumped applications and reduces mechanical shocks and stresses on the motor shaft as well as the driven equipment in your plant.

Versatile fields of application

MEsoftstart can be effortlessly integrated into motor control solutions, offering higher productivity and shorter downtimes for various industry applications such as:

- centrifugal pumps in industry and water utilities
- fans, compressors and blowers across all industries
- mixers and agitators within the water and chemical sector

In addition, it is an ideal alternative to variable speed drives when a more cost effective, simple solution is required, e.g. for conveyors, compressors, hydraulic pumps or for starting motors from weak power sources.

MEsoftstart is also perfect for replacement of star-delta starters to avoid the high peak currents they cause, as MEsoftstart provides all needed terminals for inside-delta motor connection.

Extended life of motors and the equipment driven by them

Our new softstarter technology offers a slower start-up – and if needed slowdown – of motors, reducing mechanical jerks and stresses on the motor and shaft as well as driven components in your plant.

Smarter use of power and less inrush current

By gradually increasing the net supply voltage to the motor during start-up (or decreasing it during slow-down), MEsoftstart efficiently manages power. It even has the ability to match the rate and pattern at which the voltage is ramped up or down to the process, motor's electrical characteristics or the strength of the electric supply. In this way, companies can avoid maximum demand charge penalties from utility companies and are able to select cheaper supply equipment with lower electrical ratings.

Prevent thermal deterioration of the electrical equipment

MEsoftstart protects motors, cables, transformers or switchgears by controlling the inrush current and enhancing the motor's starting duty, reducing the temperature rise in stator windings and supply transformer.



Functional overview

The product program consists of 5 models, offering solutions for a wide range of motor sizes and usage profiles:

- covering motor sizes ranging from 11 kW to a massive 1.5 MW
- available in 400 V and 690 V versions (plus 525 V for North American market)
- providing both soft-start and soft-stop functions, with a variety of predefined ramp-up and ramp-down curves, e.g. pedestal, kickstart, constant current or torque, time-linear, RMS-linear and S-curve voltage ramp
- easy parameterisation via TFT touchscreen ("pro" models), simple potentiometers ("core" models) and PC app
- all three phases are controlled, no short cuts like only two phases controlled (which can adversely affect motor life)
- robust and rugged design born out of extreme environments like mining and quarries

The tables to the right present the expected application motor power range¹ for each soft-starter model under varying motor duty conditions. Use the motor power ratings below only as a guidance. Motor rated currents may vary with speed and manufacturer.

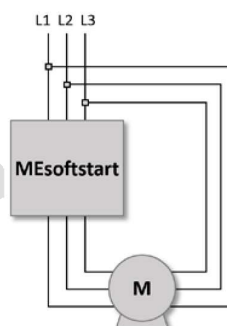
Normal Connection

Model	Rated output (A)	MOTOR POWER (supply voltage, 50 Hz)		
		400 V _{ac} (kW)	525 V _{ac} (kW)	690 V _{ac} (kW)
MEsoftstart/I00	100	11 – 55	15 – 75	18.5 – 90
MEsoftstart/I01	200	22 – 110	30 – 132	37 – 160
MEsoftstart/I02	390	37 – 200	45 – 250	55 – 355
MEsoftstart/I03	600	75 – 315	90 – 400	110 – 560
MEsoftstart/I04	900	75 – 500	110 – 630	132 – 800



Inside Delta Connection

Model	Rated Output (A)	MOTOR POWER (supply voltage, 50 Hz)		
		400 V _{ac} (kW)	525 V _{ac} (kW)	690 V _{ac} (kW)
MEsoftstart/I00	100	18.5 – 90	22 – 110	30 – 160
MEsoftstart/I01	200	37 – 160	45 – 250	75 – 315
MEsoftstart/I02	390	55 – 355	75 – 450	110 – 630
MEsoftstart/I03	600	110 – 560	160 – 710	200 – 900
MEsoftstart/I04	900	132 – 800	200 – 1120	250 – 1400



¹ Exact selection depends on factors like motor duty, starting current requirements and whether bypass contactor will be deployed.

Product range overview

MOTOR SUPPLY VOLTAGES		3 Ranges: 340 – 420 Vac, 425 – 578 Vac, 586 –760 Vac				
Current Ratings		MEsoft/100	MEsoft/101	MEsoft/102	MEsoft/103	MEsoft/104
	Max continuous current @50 °C	100 A	200 A	390 A	600 A	900 A
	Max starting current – normal duty	240 A	480 A	730 A	1440 A	1600 A
	Max starting current – heavy duty	125 A	250 A	390 A	750 A	900 A
Operating temperature		-10°C to +60°C (de-rate all Ampere values at 1.4 % per °C for temperatures >50°C)				
Storage temperature		-30 °C to +70 °C				
Relative humidity		< 85 % non-condensing				
Operating altitude		Up to 3000 m above sea-level. De-rate at 0.7 % per 100 m for altitudes >1400 m				
Enclosure protection category		IP00				
Communication						
	Standard on all models	Modbus RTU (RS485, Baud rate: 9600–115200, 8 bits, 1 start, 1 stop, even parity)				
	Additional on “pro” models	Modbus TCP (Ethernet); CC-Link IE Field				
Digital IO		“core” variants		“pro” variants		
		3 relay outputs (5A, 240Vac, pot.free): READY, BYPASS, FAULT 3 inputs included: RUN/STOP,RESET, Auto/Maintenance		8 relay outputs included (5A, 240Vac, pot. free): READY;RUNNING; TRIP; BYPASS CONTACTOR; OVERLOAD; ALARM; FAULT / LINE VOLTAGE ALARM; TEMPERATURE FAULT 3 inputs included: RUN/STOP; Auto/Maintenance; RESET.		
	Temperature Measurement inputs	1x PT-100 (Core and Pro) and 1x LM35 (Pro) motor temperature measurement channel				
Fault indication		Flashing LED pattern on “core” models, displayed on HMI screen on “pro” models				

LONG TERM RELIABILITY

MEsoftstart's comprehensive motor protection guarantees long term reliability while the external bypass connections or internal bypass options ensure flexibility and excellent performance – all in a robust, versatile design.

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