

# VMX-Synergy Plus

Low Voltage  
Soft Starters

Premium Digital Soft Starter



Advanced energy saving  
Powerful control

Feature rich, fast set up  
and easy to use

17-1250 A\*

\*For larger motor sizes contact your local distributor.

 **MOTORTRONICS**<sup>™</sup>  
Solid State AC Motor Control

# VMX-Synergy Plus

Premium Digital Soft Starter

With a unique combination of smart features, VMX-Synergy Plus sets new performance standards for soft starters



- 1 Display**  
3.5" Colour-TFT resistive Touch Screen.
- 2 USB**  
For firmware upgrades and downloading of the event logging data.
- 3 Modbus RTU**  
Communication as standard. Optional communication cards.
- 4 Anybus Compact**  
For anybus modules that support all major communication protocols.
- 5 Indicator LED**  
Showing the status of the unit.
- 6 Inputs/outputs**  
Includes various digital, analogue and thermistor for remote set up.
- 7 Expansion Port**  
Available to integrate for further I/O.

The incorporation of Motortronics' unique iERS technology allows VMX-Synergy Plus™ to deliver unrivalled soft start performance alongside energy saving capability on partially loaded motors.

VMX-Synergy Plus™ uses Motortronics' globally renowned i45 smart application pre-program suite. This allows the user to program the unit to any common application in 4 simple steps using our intuitive touch screen technology.

With built in full motor overload protection, the feature rich VMX-Synergy Plus™ will meet all key design criteria.

## Enhanced Intelligent Energy Saving

With energy prices at record levels and carbon footprint reduction targets being implemented globally, our patented iERS technology delivers significant competitive advantage.

iERS intelligently monitors the motor load and adjusts the voltage and current delivered to the motor to exactly match this, effectively regulating energy consumption on fixed speed motors.

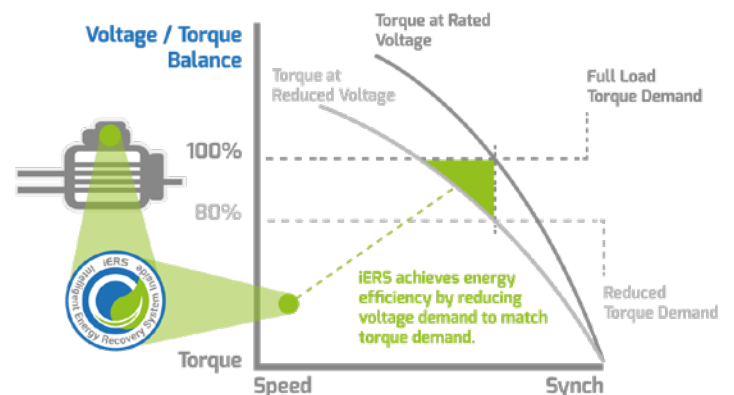


### VMX-Synergy Plus™ Energy Savings Calculator

Monitors the amount of energy saved when a motor is lightly loaded, allowing users to calculate hourly operational savings.



up to **32%** energy saving



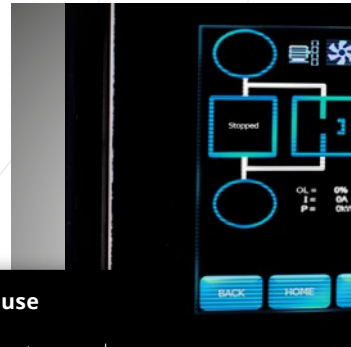
# VMX-Synergy Plus

Premium Digital Soft Starter

## Features

### i45 Smart Application Pre-program Suite

The automatic functionality has been expanded to include 45 preconfigured parameters settings to meet your application needs.



#### Ease of use

Intuitive set-up and commissioning in under 60 seconds.

### Ready for digital transformation



Ready to remotely deliver accurate, real-time information about drive events that can be used for predictive maintenance, energy data management and resource optimisation.

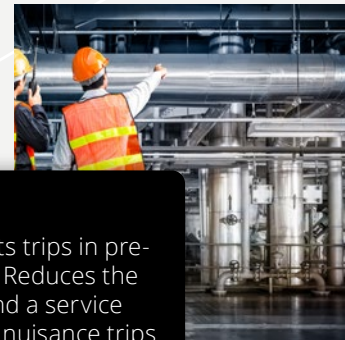


### Fire mode

External input signal overriding normal controls allowing the motor to continue running in emergency situations.



#### Automatic load tuning

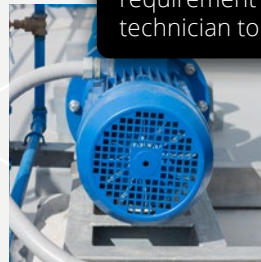


#### Automatic reset

Automatically resets trips in pre-defined situations. Reduces the requirement to send a service technician to reset nuisance trips.

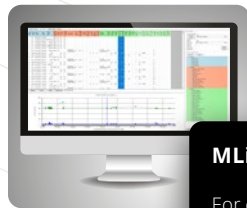
### Jogging function

Allows motor to be slowly rotated into position for maintenance & process control.



### Removable touchscreen

A removable 3.5" colour touch screen rated IP66/NEMA4X – ready for panel mounting - is fitted as standard.



#### MLink software

For easy commissioning, start-up & diagnosis.

### Lifetime event logging

Comprehensive logging feature to easily identify energy savings, trends and fault conditions.



### Modbus RTU

#### Flexible communications

Modbus-RTU, Anybus, USB and Ethernet.

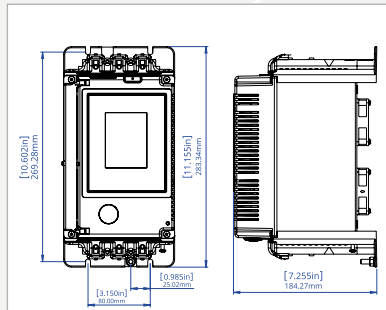


#### Optional 7" inch screen

Msmart 7" and 3.5" touch screen options available.

## Dimensions

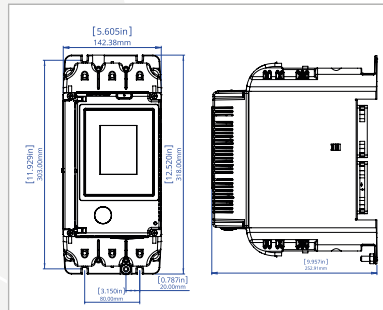
VMX-SGY-I-17 to VMX-SGY-I-100 (Size 1)



VMX-SGY-I-17 to VMX-SGY-I-29  
Weight = 3.9 kg (8.6 lbs)

VMX-SGY-I-35 to VMX-SGY-I-100  
Weight = 4.2 kg (9.26 lbs)

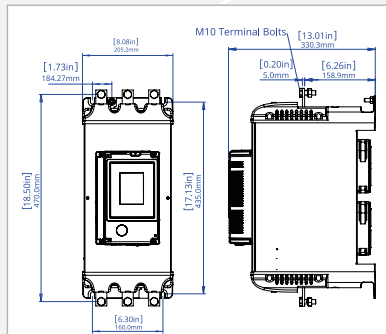
VMX-SGY-I-132 to VMX-SGY-I-195 (Size 2)



VMX-SGY-I-132  
Weight = 6.7 kg (14.78 lbs)

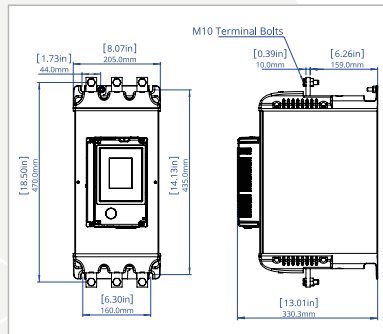
VMX-SGY-I-160 to VMX-SGY-I-195  
Weight = 7.0 kg (15.44 lbs)

VMX-SGY-I-242 to VMX-SGY-I-361 Isolated (Size 3)



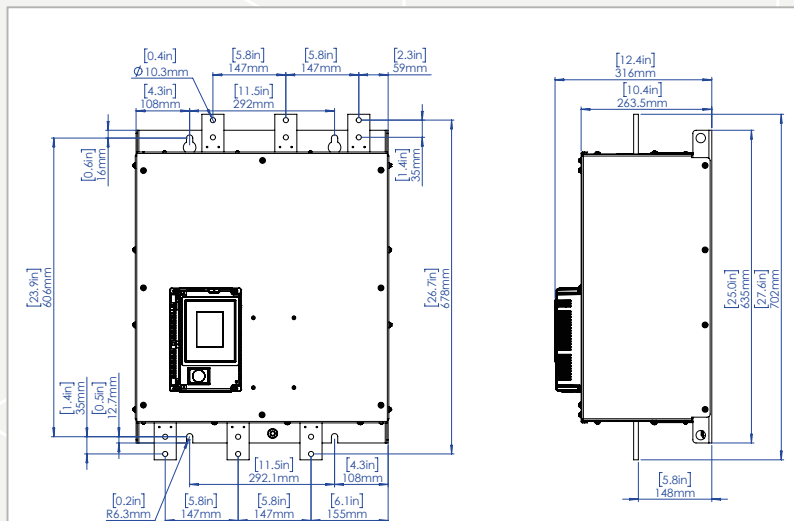
VMX-SGY-I-242 to VMX-SGY-I-361  
Weight = 17.0 kg (37.5 lbs)

VMX-SGY-I-430 to VMX-SGY-I-500 Live (Size 3)



VMX-SGY-I-430 to VMX-SGY-I-500  
Weight = 22 kg (48.5 lbs)

VMX-SGY-I-625 to VMX-SGY-I-850 (Size 4)



Weight = 54 kg (119 lbs)

## Specification

<b>Designation</b>	3-phase SCR Energy Saving Motor Controller
<b>Current</b>	Size 1 up to 100A Size 2 up to 195A Size 3 up to 500A Size 4 up to 850A Size 5 up to 1250A
<b>Bypass</b>	All sizes Internally Bypassed, Form 1
<b>Motor Protection</b>	Full I <sup>2</sup> T Motor Overload with memory
<b>Supply Voltages</b>	Operates from 200 to 600 Volts as standard Allowing for varying supply frequency 45 to 65Hz
<b>Rated impulse withstand voltage</b>	Main circuit: 6kV, Control supply circuit: 4kV
<b>Overvoltage Category/ Pollution Degree</b>	III/3
<b>Rated conditional short-circuit co-ordination</b>	Type 1 co-ordination: With associated short circuit protective device Type 2 co-ordination: With correctly selected semiconductor fuses
<b>Standard Duty Rating</b>	Trip Class 10: 3 x 23 or 3.5 x 17 5 starts/hour (VMX-SGY-I-17 to VMX-SGY-I-195) 3 starts/hour (VMX-SGY-I-242 to VMX-SGY-I-1250) 90% duty Trip Class 20: 3 x 19 and Trip Class 30: 4 x 29 available
<b>Enclosure Type</b>	Up to 195 A IP20/NEMA 1 with standard finger guard Above 195 A IP00/NEMA 1: Optional Finger Guards up to 500 A to ensure full IP20/NEMA 1 enclosures
<b>Terminal Position</b>	Terminal position/spacing to match common contactors and circuit breakers
<b>Terminal Construction</b>	Up to 195 A Cage Clamp Above 195 A Plain Busbar
<b>Control Supply Voltages</b>	24Vdc & 110/230Vac (VMX-SGY-I-17 to VMX-SGY-I-361) 110Vac or 230Vac (VMX-SGY-I-430 to VMX-SGY-I-1250)
<b>Rated Control Circuit Voltages</b>	24Vdc, 110Vac or 230Vac
<b>Ambient Operating Conditions</b>	-20°C to 50°C (VMX-SGY-I-17 to VMX-SGY-I-500) -20° to 40°C (VMX-SGY-I-625 to VMX-SGY-I-1250) Up to 60°C with de-rating
<b>Motortronics iERS: Energy Saving Technology</b>	Yes, including enhanced Energy Saving Calculator
<b>Automatic Set Up Wizard</b>	A suite of 45 pre-programmed application 'complete setup' profiles
<b>Automatic Starting and Stopping Features</b>	Creates the Starting and Stopping ramp profile for your specific application with no further adjustment needed
<b>In Delta/6 wire connection</b>	Yes
<b>Display Technology</b>	3.5" Colour-TFT resistive Touch Screen Intuitive touch screen control on all models
<b>Keypad</b>	The 3.5" Colour-TFT resistive Touch Screen is detachable for enclosure mounting IP66/N4X
<b>Languages</b>	17 Languages: English, Chinese, Dutch, French, German, Greek, Italian, Japanese, Korean, Polish, Portuguese, Russian, Serbian, Spanish, Turkish, Ukrainian, Vietnamese.
<b>Inputs/Outputs</b>	4 x Programmable digital Inputs 3 x NO Programmable Output Relays, 1 Amp 1 x NC Programmable Output Relay, 1 Amp 1 x NO Programmable Output Relay, 3 Amps 1 x 0-10V or 4-20mA Programmable Analogue Output 1 x 0-10V or 4-20mA Programmable Analogue Input PTC Thermistor Input 1 x USB 1 x Expansion Port: Add On Smart Module
<b>Comms</b>	2 x Modbus-RTU as standard - RJ45 Option for Profibus DP, Ethernet IP, Modbus TCP plus many more with Anybus Communicator
<b>Intelligent capability Predictive Maintenance Data Logging</b>	Equipped with 16Gb memory, allowing the logging of over 200 million events Fast and accurate fault analysis and their resolution, life, application events recorded: start, stop, top of ramp, faults, application parameters - time, overload, currents and frequency Equipment &/or component failure predictions during planned maintenance, avoids unwanted breakdowns Optimised performance and equipment conditioning, reduced lost production time, lower operation & maintenance costs Configuration (Parameters) Upload/Download Configuration Backup and Maintenance, side by side comparison of Parameter files, Modbus PNU information
<b>EU/IEC Legislation</b>	IEC 60947-4-2: 2012 Low Voltage Directive (2014/35/EU) EMC (Electromagnetic Compatibility) (2014/30/EU) Battery Directive Energy Using Products/Energy Related Product Directives
<b>Environmental</b>	Products comply to REACH, SVHC, RoHS (2011/65/EU) and WEEE
<b>Standards</b>	CE, UL, cULus, UKCA
<b>Warranty</b>	2 years from first motor start
<b>Field Serviceability</b>	All power and control cards are in an easily changeable cassette Firmware upgrade from USB port Log and Parameter files downloadable



# Model Selection

Minimum current ratings based on typical rated operation currents of motors for the corresponding rated operational powers.

Current rating optimised for kW@400V & HP@440-480V - Ref IEC 60947-4-2: 2012



**Rated Starting Capability**  
**Typical Applications**

	Trip Class 10	Trip Class 20	Trip Class 30
<b>Rated Starting Capability</b>	3 × Motor Current – 23 secs 3.5 × Motor Current – 17 secs	4 × Motor Current – 19 secs	4 × Motor Current – 29 secs
<b>Typical Applications</b>	Agitator Compressor Rotary Vane Unloaded Scroll Conveyor Unloaded Bow Thruster Zero Pitch Fan Low Inertia or < 85 A Feeder Screw Lathe Machines Mixer Unloaded Moulding Machine Plastic and Textile Machines Pump Submersible - Centrifugal Submersible - Rotodynamic Saw Band Transformers Voltage Regulators	Compressor Centrifugal Reciprocating Rotary Screw Ball Mill Bow Thruster Loaded Conveyor Loaded Grinder Hammer Mill Mills Flour etc. Mixer Loaded Pelletizers Press, Flywheel Positive Displacement Pump Reciprocating Rotary Pump Jack Rolling Mill Roots Blower Saw Circular Screen Vibrating Tumblers	Crusher* Shredder Wood Chipper Fan* High Inertia or > 85 A  * start time > 30 secs

## Motor Rating

In Line							In Delta							Select Model	Select Model	Select Model
IEC	IEC	IEC	IEC	UL	UL	UL	IEC	IEC	IEC	IEC	UL	UL	UL			
	kW	kW	kW		HP	HP		kW	kW	kW		HP	HP			
A	230V	400V	500V	A	440-480V	550-600V	A	230V	400V	500V	A	440-480V	550-600V	5 starts/hour @ 50°C	5 starts/hour @ 50°C	5 starts/hour @ 50°C
17	4	7.5	7.5	17	10	15	29	7.5	15	18.5	29	20	25	SGY-I-17	SGY-I-22	SGY-I-29
22	5.5	11	11	22	15	20	38	11	18.5	22	36	25	30	SGY-I-22	SGY-I-29	SGY-I-35
29	7.5	15	15	27	20	25	50	11	22	30	47	30	40	SGY-I-29	SGY-I-35	SGY-I-41
35	7.5	18.5	22	34	25	30	61	18.5	30	37	59	40	50	SGY-I-35	SGY-I-41	SGY-I-55
41	11	22	22	41	30	40	71	18.5	37	45	69	50	60	SGY-I-41	SGY-I-55	SGY-I-66
55	15	30	37	52	40	50	95	22	45	55	90	60	75	SGY-I-55	SGY-I-66	SGY-I-80
66	18.5	37	45	65	50	60	114	30	55	75	113	75	100	SGY-I-66	SGY-I-80	SGY-I-100
80	22	45	55	77	60	75	139	37	75	90	133	100	125	SGY-I-80	SGY-I-100	SGY-I-132
100	30	55	55	99	75	100	173	55	90	110	166	125	150	SGY-I-100	SGY-I-132	SGY-I-160
132	37	75	90	125	100	125	229	55	110	160	215	150	200	SGY-I-132	SGY-I-160	SGY-I-195
160	45	90	110	156	125	150	277	75	150	185	270	200	250	SGY-I-160	SGY-I-195	↓
195	55	110	132	192	150	200	338	90	185	220	312	250	300	SGY-I-195	↓	↓
3 starts/hour @ 50°C							3 starts/hour @ 50°C							3 starts/hour @ 50°C	3 starts/hour @ 50°C	3 starts/hour @ 50°C
160	45	90	110	156	125	150	277	75	150	185	270	200	250	↓	↓	SGY-I-242
195	55	110	132	192	150	200	338	90	185	220	312	250	300	↓	SGY-I-242	SGY-I-302
242	75	132	160	242	200	250	419	132	220	300	419	350	450	SGY-I-242	SGY-I-302	SGY-I-361
302	90	160	200	302	250	300	523	160	300	375	523	450	500	SGY-I-302	SGY-I-361	SGY-I-430
361	110	200	250	361	300	350	625	200	355	425	625	500	600	SGY-I-361	SGY-I-430	SGY-I-500
430	132	250	250	414	350	450	745	220	425	530	717	500	700	SGY-I-430	SGY-I-500	↓
500	150	280	355	480	400	500	866	280	500	630	831	600	800	SGY-I-500	↓	↓
3 starts/hour @ 40°C							3 starts/hour @ 40°C							3 starts/hour @ 40°C	3 starts/hour @ 40°C	3 starts/hour @ 40°C
430	132	250	250	414	350	450	745	220	425	530	717	500	700	↓	↓	SGY-I-625
500	150	280	355	480	400	500	866	280	500	630	831	600	800	↓	SGY-I-625	SGY-I-722
625	200	355	425	625	500	600	1082	355	630	800	1082	900	1000	SGY-I-625	SGY-I-722	SGY-I-850
722	220	400	530	722	600	700	1250	400	710	900	1250	1000	1250	SGY-I-722	SGY-I-850	SGY-A-1006
850	280	500	630	850	700	800	1472	475	850	1000	1472	1100	1500	SGY-I-850	SGY-A-1006	SGY-A-1250
1006	360	630	810	1006	800	1000	1742	560	1000	1300	1742	1250	1250	SGY-A-1006	SGY-A-1250	↓
1250	400	710	900	1250	1000	1250	2165	670	1100	1400	2165	1500	2000	SGY-A-1250	↓	↓

For larger motor sizes contact your local distributor.

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## Product Options

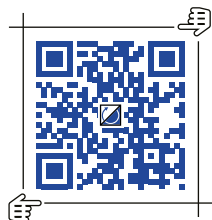
- VMX-SGY-074** Msmart 7 inch
- VMX-SGY-073** Msmart 3.5 inch
- VMX-P-** VMX-Synergy Plus™ Panel
- VMX-HP-** VMX-Synergy Plus™ hired panel
- VMX-SGY-072** VMX-Synergy Plus™ EXP-002 I/O Expansion Module
- VMX-SGY-061** Terminal Cover Kit for VMX-SGY-I-242 to VMX-SGY-I-500
- VMX-SGY-015** VMX-Synergy Plus™ CABLE15 Communications Cable RJ45 3m
- VMX-SGY-035** VMX-Synergy Plus™ CBL-035 Modbus Terminating Resistor RJ45
- VMX-SGY-6270** VMX-Synergy Plus™ AnyBus M30 Profibus DP plug-in communications module
- VMX-SGY-6223** VMX-Synergy Plus™ AnyBus M30 Modbus TCP 2-port plug-in communications module
- VMX-SGY-6604** VMX-Synergy Plus™ AnyBus M40 EtherNet/IP 2-port plug-in communications module

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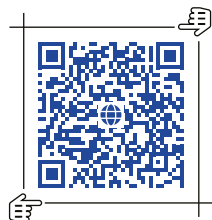
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For more information on our different products, please contact your local Motortronics distributor or scan the QR code below

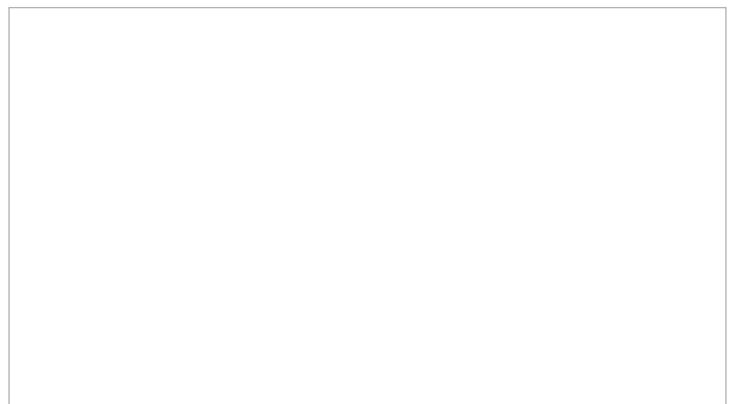
To get more information on the VMX-Synergy Plus, scan the QR code below and see more



SCAN HERE



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