

VMX-Synergy Plus

Premium Digital Soft Starter

Low Voltage
Soft Starters



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™**
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.

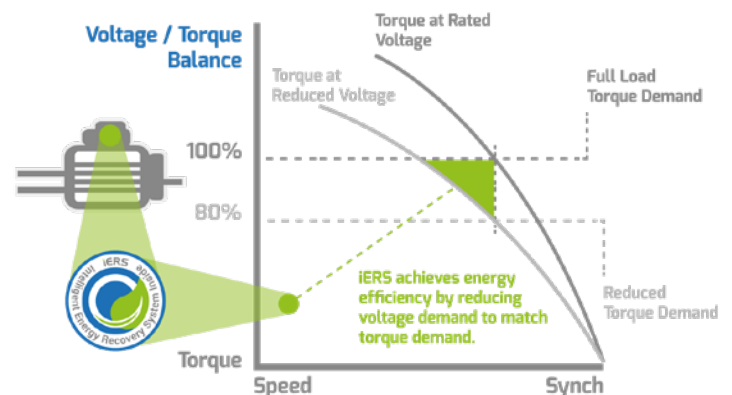


VMX-Synergy Plus™ Energy Savings Calculator

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



up to 32%
energy saving



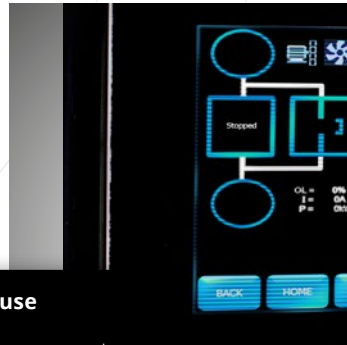
VMX-Synergy **Plus**

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.

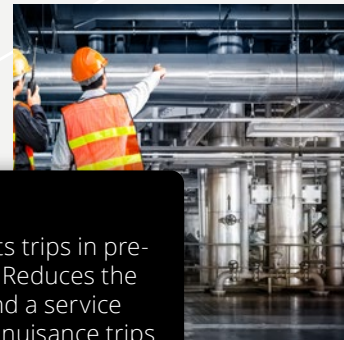
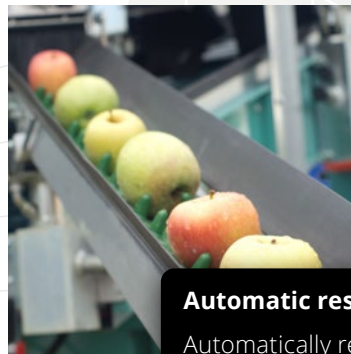


Fire mode

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.



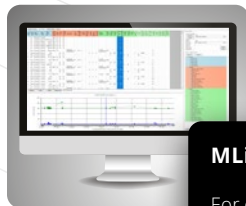
Removable touchscreen

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.

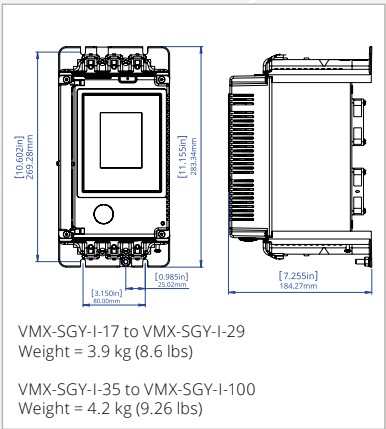


Optional 7" inch screen

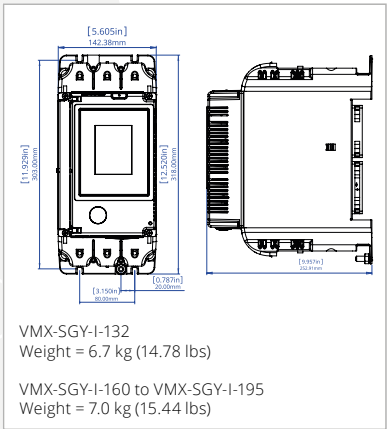
Msmart 7" and 3.5" touch screen options available.

Dimensions

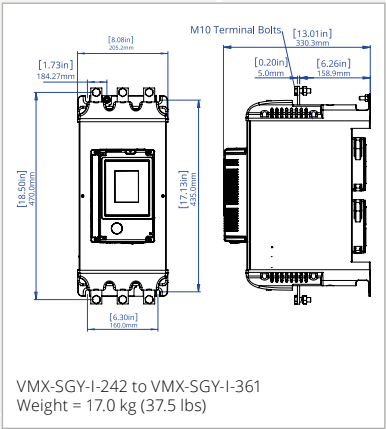
VMX-SGY-I-17 to VMX-SGY-I-100 (Size 1)



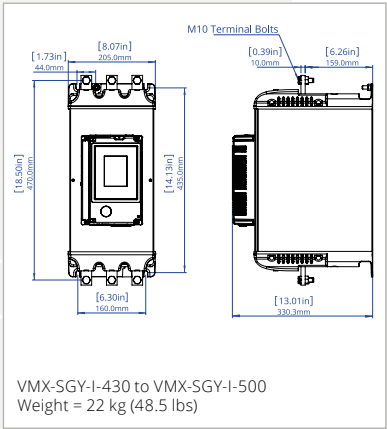
VMX-SGY-I-132 to VMX-SGY-I-195 (Size 2)



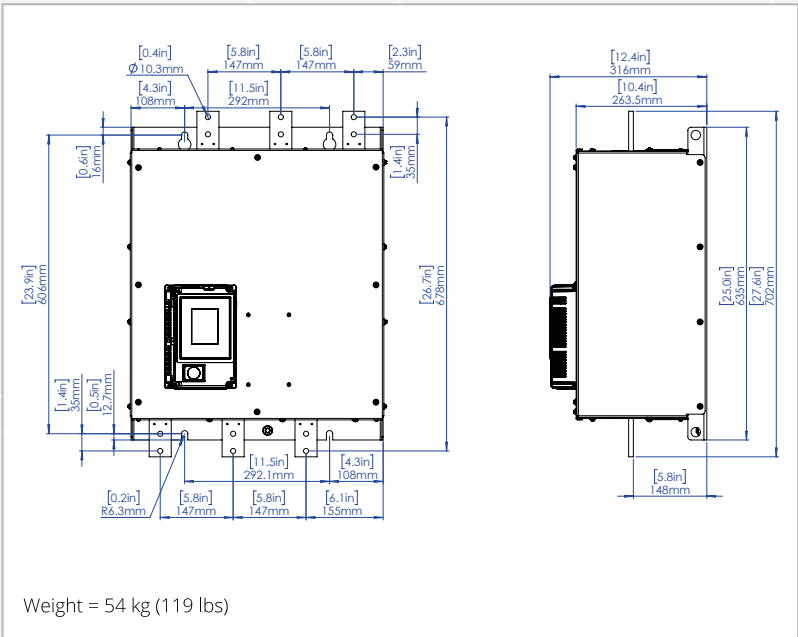
VMX-SGY-I-242 to VMX-SGY-I-361 Isolated (Size 3)



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



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



Specification

Designation	3-phase SCR Energy Saving Motor Controller
Current	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
Bypass	All sizes Internally Bypassed, Form 1
Motor Protection	Full I ² T Motor Overload with memory
Supply Voltages	Operates from 200 to 600 Volts as standard Allowing for varying supply frequency 45 to 65Hz
Rated impulse withstand voltage	Main circuit: 6kV, Control supply circuit: 4kV
Overvoltage Category/ Pollution Degree	III/3
Rated conditional short-circuit co-ordination	Type 1 co-ordination: With associated short circuit protective device Type 2 co-ordination: With correctly selected semiconductor fuses
Standard Duty Rating	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
Enclosure Type	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
Terminal Position	Terminal position/spacing to match common contactors and circuit breakers
Terminal Construction	Up to 195 A Cage Clamp Above 195 A Plain Busbar
Control Supply Voltages	24Vdc & 110/230Vac (VMX-SGY-I-17 to VMX-SGY-I-361) 110Vac or 230Vac (VMX-SGY-I-430 to VMX-SGY-I-1250)
Rated Control Circuit Voltages	24Vdc, 110Vac or 230Vac
Ambient Operating Conditions	-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
Motortronics iERS: Energy Saving Technology	Yes, including enhanced Energy Saving Calculator
Automatic Set Up Wizard	A suite of 45 pre-programmed application 'complete setup' profiles
Automatic Starting and Stopping Features	Creates the Starting and Stopping ramp profile for your specific application with no further adjustment needed
In Delta/6 wire connection	Yes
Display Technology	3.5" Colour-TFT resistive Touch Screen Intuitive touch screen control on all models
Keypad	The 3.5" Colour-TFT resistive Touch Screen is detachable for enclosure mounting IP66/N4X
Languages	17 Languages: English, Chinese, Dutch, French, German, Greek, Italian, Japanese, Korean, Polish, Portuguese, Russian, Serbian, Spanish, Turkish, Ukrainian, Vietnamese.
Inputs/Outputs	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
Comms	2 x Modbus-RTU as standard – RJ45 Option for Profibus DP, Ethernet IP, Modbus TCP plus many more with Anybus Communicator
Intelligent capability Predictive Maintenance Data Logging	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
EU/IEC Legislation	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
Environmental	Products comply to REACH, SVHC, RoHS (2011/65/EU) and WEEE
Standards	CE, UL, cULus, UKCA
Warranty	2 years from first motor start
Field Serviceability	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



Motor Rating

In Line						
IEC	IEC	IEC	IEC	UL	UL	UL
	kW	kW	kW		HP	HP
A	230V	400V	500V	A	440-480V	550-600V
17	4	7.5	7.5	17	10	15
22	5.5	11	11	22	15	20
29	7.5	15	15	27	20	25
35	7.5	18.5	22	34	25	30
41	11	22	22	41	30	40
55	15	30	37	52	40	50
66	18.5	37	45	65	50	60
80	22	45	55	77	60	75
100	30	55	55	99	75	100
132	37	75	90	125	100	125
160	45	90	110	156	125	150
195	55	110	132	192	150	200
3 starts/hour @ 50°C						
160	45	90	110	156	125	150
195	55	110	132	192	150	200
242	75	132	160	242	200	250
302	90	160	200	302	250	300
361	110	200	250	361	300	350
430	132	250	250	414	350	450
500	150	280	355	480	400	500
3 starts/hour @ 40°C						
430	132	250	250	414	350	450
500	150	280	355	480	400	500
625	200	355	425	625	500	600
722	220	400	530	722	600	700
850	280	500	630	850	700	800
1006	340	560	710	1006	800	1000
1250	400	710	900	1250	1000	1250

In Delta						
IEC	IEC	IEC	IEC	UL	UL	UL
	kW	kW	kW		HP	HP
A	230V	400V	500V	A	440-480V	550-600V
29	7.5	15	18.5	29	20	25
38	11	18.5	22	36	25	30
50	11	22	30	47	30	40
61	18.5	30	37	59	40	50
71	18.5	37	45	69	50	60
95	22	45	55	90	60	75
114	30	55	75	113	75	100
139	37	75	90	133	100	125
173	55	90	110	166	125	150
229	55	110	160	215	150	200
277	75	150	185	270	200	250
338	90	185	220	312	250	300
3 starts/hour @ 50°C						
277	75	150	185	270	200	250
338	90	185	220	312	250	300
419	132	220	300	419	350	450
523	160	300	375	523	450	500
625	200	355	425	625	500	600
745	220	425	530	717	500	700
866	280	500	630	831	600	800
3 starts/hour @ 40°C						
745	220	425	530	717	500	700
866	280	500	630	831	600	800
1082	355	630	800	1082	900	1000
1250	400	710	900	1250	1000	1250
1472	475	850	1000	1472	1100	1500
1742	560	1000	1300	1742	1250	1250
2165	670	1100	1400	2156	1500	2000

	Trip Class 10	Trip Class 20	Trip Class 30
Rated Starting Capability	3 × Motor Current – 23 secs 3.5 × Motor Current – 17 secs	4 × Motor Current – 19 secs	4 × Motor Current – 29 secs
Typical Applications	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



Select Model	Select Model	Select Model
5 starts/hour @ 50°C	5 starts/hour @ 50°C	5 starts/hour @ 50°C
SGY-I-17	SGY-I-22	SGY-I-29
SGY-I-22	SGY-I-29	SGY-I-35
SGY-I-29	SGY-I-35	SGY-I-41
SGY-I-35	SGY-I-41	SGY-I-55
SGY-I-41	SGY-I-55	SGY-I-66
SGY-I-55	SGY-I-66	SGY-I-80
SGY-I-66	SGY-I-80	SGY-I-100
SGY-I-80	SGY-I-100	SGY-I-132
SGY-I-100	SGY-I-132	SGY-I-160
SGY-I-132	SGY-I-160	SGY-I-195
SGY-I-160	SGY-I-195	↓
SGY-I-195	↓	↓
3 starts/hour @ 50°C	3 starts/hour @ 50°C	3 starts/hour @ 50°C
↓	↓	SGY-I-242
↓	SGY-I-242	SGY-I-302
SGY-I-242	SGY-I-302	SGY-I-361
SGY-I-302	SGY-I-361	SGY-I-430
SGY-I-361	SGY-I-430	SGY-I-500
SGY-I-430	SGY-I-500	↓
SGY-I-500	↓	↓
3 starts/hour @ 40°C	3 starts/hour @ 40°C	3 starts/hour @ 40°C
↓	↓	SGY-I-625
↓	SGY-I-625	SGY-I-722
SGY-I-625	SGY-I-722	SGY-I-850
SGY-I-722	SGY-I-850	SGY-A-1006
SGY-I-850	SGY-A-1006	SGY-A-1250
SGY-A-1006	SGY-A-1250	↓
SGY-A-1250	↓	↓

For larger motor sizes contact your local distributor.

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VMX-Synergy Plus

Premium Digital Soft Starter

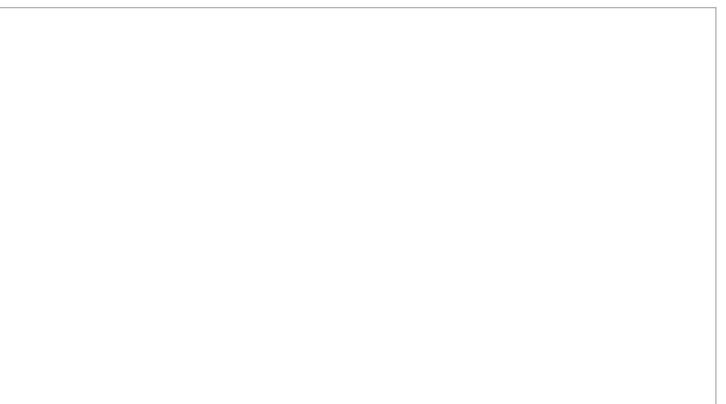
Product Options

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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