

# VMX-Synergy Plus™ A

## ANSI - Rated Premium Digital Soft Starter

### 200 - 690VAC, 18 - 1250A, 10 - 1000HP

#### THE MOST ADVANCED SOFT STARTER FOR ANY APPLICATION

Removable 3.5" Color Touch Screen rated IP66/N4X

42 Smart Application profiles - easy setup in 1 minute

Auto Pedestal to control spinning motors

Built-in iERS – intelligent Energy Recovery System

AI Adjustments for Acceleration and Deceleration

65kA SCCR capable with proper protection

Advanced motor protection with memory

Life Time Event Logging Diagnostics

Metering for power, voltage and current

ANSI Bypass Contactor rated for Full Voltage Starting

Available as Configured Soft Starter in N4/12 Enclosure



Crushers



Conveyors



Compressors

# VMX-Synergy Plus™

## CONNECTIONS AND PROGRAMMING

### Connection Features

Easy User Terminal Access

4 Programmable Digital Inputs

Use with 24VDC/110VAC/240VAC Control Supply

5 Programmable Relay Outputs

Analog Output 0-10V / 4-20mA

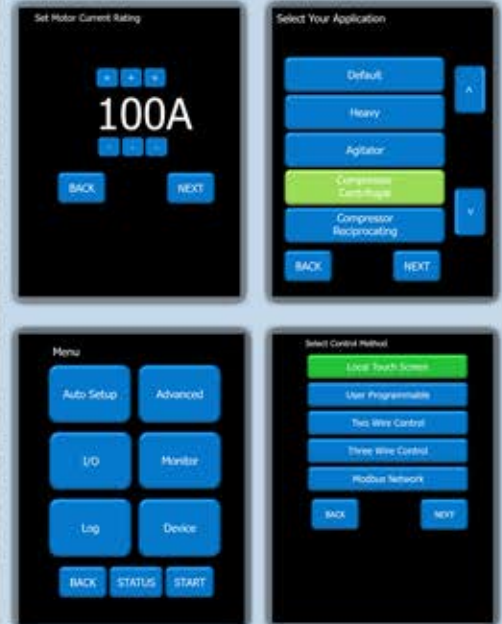
Analog Input 0-10V / 4-20mA

RS485 - Modbus RTU

Other Industrial Protocols Available as Option



### Built-in Touchscreen Setup, Status and Diagnostics



## MOTOR PROTECTION, MEASUREMENT AND ANALYSIS FUNCTIONS

### Motor Overload Protection

The soft starter protects the motor in the event of an overload condition at full  $I^2t$  motor overload with intelligent thermal memory retention feature. Continually monitors overloads to ascertain the reduction in motor heating levels even when VMX-Synergy Plus™ is in the 'off' state. This is combined with protection and diagnostics giving the operator peace of mind while running the motor.

### Event Logging

VMX-Synergy Plus™ data logger records up to 3 million events to enable fast accurate fault analysis and their resolution. Recording multiple activities including start, stop, top of ramp, faults, application parameters (time, overload level, currents, frequency) and the device information. Event log can be downloaded via USB port or via the VMX-Synergy Plus™ MLINK software.

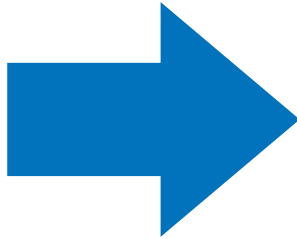


### Soft Starter and Motor Monitoring

The VMX-Synergy Plus™ continuously monitors and analyzes soft starter and motor data such as: Line Frequency, Phase Rotation, Current  $I_{rms}$ ,  $V_{rms}$ , Real Power Factor, True Power P, Apparent Power S, Reactive Power Q, iERS Saving Level, SCR Overload, Delay Angle, Backstop, Delay Max, Pres PF Degrees, Ref PF Degrees, Start Saving Level, Last Peak Start Current, Last Peak Stop Current, Last Temperature, Last Overload, Heatsink Temp, Motor Thermistor Overload, Trip Free Time, Number of Starts, etc...



# Complete Package for your Application



## VMX Synergy Plus Series

### VMX-B Plus & VMX-H Plus Include:

- N12/4 Enclosure
- VMX-Synergy Plus ANSI Rated Soft Starter
- Built-in Start Rated Bypass
- Circuit Breaker Disconnect (54A- & up)
- Fusible Switch Disconnect (18A-42A)
- Advanced Motor Protection
- Control Power Transformer
- Interface Board for easy control connections
- Smart Door Customer Interface including:
  - Emergency Stop Pushbutton with E-Stop Pilot Light
  - Soft Start – X-Line Mode selector (Door "H" / Inside "B")
  - Local-Off-Remote Selector Switch
  - Start /Stop Pushbuttons
  - Motor Run Pilot Light
  - Power On Pilot Light
  - Starter Fault Pilot Light

### VMX-H Plus also includes:

- Door Mounted Color Touch Screen
- X-Line Enabled Pilot Light
- External Interlock with Pilot Light

## VMX-H Plus Series



VMX-H Plus Smart Door Customer Interface Panel allows for Superior Functionality and Diagnostics.

## VMX-B Plus Series



VMX-B Plus Command Center allows for Superior Functionality and Diagnostics.



# Advanced Features

## EASY SETUP, TUNING & CONFIGURATION SOFTWARE

### Easy of Use

The display will show all messages in full and many different global languages. The use of graphic/schematic images and active mimic diagrams will facilitate complete understanding. Detailed lifelong logging will aid setup and onboard USB allows configurations to be uploaded/downloaded and emailed.

### Auto Configuration

The automatic functionality has been expanded so that more features can be configured without referring to parameter lists.

### Built-in Applications

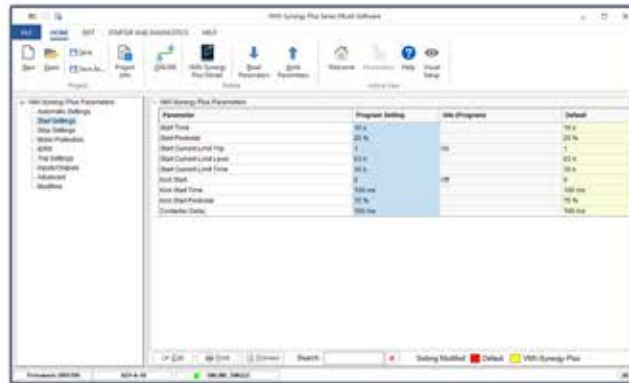
With many different applications profiles, the VMX-Synergy Plus™ offers a quick and comprehensive commissioning process. Setup takes less than 1 minute.

### Automatic Load Tuning

The VMX-Synergy Plus™ will dynamically tune to a changing load.

### MLINK Configuration Software

MLink software tools can be used to commission, start-up, diagnose and troubleshoot the VMX-Synergy Plus™. Software has an easy-to-use interface with built-in trend recorder, monitor and status panel.



## DEDICATED APPLICATION FEATURES & FUNCTIONS

### Conveyors

Closed Loop Torque/Current Ramping provides a linear increase in output torque during acceleration and maximizes the available torque using an internal PID feedback loop ensuring a smooth linear ramp.

### Compressors & Chillers

Voltage Ramp with Current Limit provides the smoothness of voltage ramping while maintaining the ability to start in limited power environments.

### Auto Pedestal

Automatically corrects the start voltage and senses the motor is turning in the correct direction. For dynamic situations like roof cooling fans, which sometimes spin backwards, the Auto Pedestal feature will control the ramp while the motor spins down to a stop and accelerates in the correct direction. Once the soft start senses the motor is turning in the right direction, the soft start will accelerate the motor normally. There will be no belt failures from fans spinning backwards. The Auto Pedestal offers the best, simplest, and most economical way to deal with roof cooling fans, which spin backward. No user input required.

# VMX-Synergy Plus™

## SPECIFICATIONS

Range from 18 - 1250A or 10 - 1000HP

3-phase 6 SCR Control

Full motor overload with Memory

Overload adjustable to ANSI/NEMA Trip class 10,20,30

200, 208, 230, 380, 400, 460, 480, 575, 600, 690 volts

Operates on varying frequency 45Hz-65Hz

Internally Bypassed, Contactor both ANSI and NEMA

Auto Pedestal Function for spinning motor direction control

Protected chassis construction

User-friendly, full color touch screen / Full automatic set up

Control power requirement 110VAC (240VAC optional)

iERS - intelligent Energy Recovery System as standard

Inside Delta / 6 wire connection capable

Multiple languages

Modbus RTU as standard, other protocols optional

Inputs / Outputs:

- 5 x programmable output relays

- 4 x programmable digital inputs

- 1 x Analog input

- 1 x Analog output

- USB for data logging and parameter setting/saving

- Full Meter Functions

Comprehensive data logging

Fully field upgradeable via USB port

## DEDICATED OPTIONS

### Remote Touchscreen Keypad Mounting Kit

Special gasket and cable to remote mount existing touchscreen keypad.

IP66 / NEMA 4X Rated.

Available as:

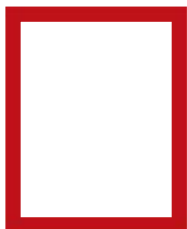
PN: VMX-SGY-PLUS-KIT-1 (1m Cable)

PN: VMX-SGY-PLUS-KIT-2 (2m Cable)

PN: VMX-SGY-PLUS-KIT-3 (3m Cable)



Detached Keypad



Gasket



Cable

### Communication Options

Modbus TCP/IP

EtherNet/IP

PROFIBUS DP-V1

PN: VMX-AB Series



### I/O Expansion Modules

Expand number of digital inputs and outputs of VMX-Synergy Plus™

PN: VMX-AGY-SGY-EXPIO



# Full Power Range

## Ratings

### VMX-SYNERGY PLUS™ - ANSI

### NOMINAL MOTOR RATING <sup>(1)</sup>

### Overload Rating: 500% for 60 sec.

VMX-SGY-A Model Number	Max Amps <sup>(2)</sup>	208V/HP/BYPASS		240V/HP/BYPASS		480V/HP/BYPASS		600V/HP/BYPASS		FRAME WEIGHT - Lb(kg)	DIMENSIONS - H x W x D inches (mm)
		SHUNT	START	SHUNT	START	SHUNT	START	SHUNT	START		
VMX-SGY-A-18	9-18	5	3	5	5	10	10	15	15	1	8.8 (4.0) 11.15 (283) x 5.62 (143) x 7.25 (184)
VMX-SGY-A-28	14-28	7.5	7.5	7.5	7.5	20	15	25	25	1	8.8 (4.0) 11.15 (283) x 5.62 (143) x 7.25 (184)
VMX-SGY-A-39	19-39	10	10	10	10	25	25	30	30	1	8.8 (4.0) 11.15 (283) x 5.62 (143) x 7.25 (184)
VMX-SGY-A-48	24-48	15	10	15	15	30	30	40	40	1	8.8 (4.0) 11.15 (283) x 5.62 (143) x 7.25 (184)
VMX-SGY-A-62	31-62	20	15	20	20	40	40	50	50	2	23 (10) 14.93 (125) x 8.14 (207) x 7.94 (202)
VMX-SGY-A-78	39-78	25	20	25	25	60	50	60	60	2	23 (10) 14.93 (125) x 8.14 (207) x 7.94 (202)
VMX-SGY-A-92	46-92	30	25	30	30	60	60	75	75	2	23 (10) 14.93 (125) x 8.14 (207) x 7.94 (202)
VMX-SGY-A-112	56-112	30	30	40	30	75	75	100	100	2	23 (10) 14.93 (125) x 8.14 (207) x 7.94 (202)
VMX-SGY-A-150	75-150	40	40	50	50	100	100	125	125	3	33 (15) 19.6 (498) x 8.2 (208) x 7.7 (196)
VMX-SGY-A-160	80-160	50	40	60	50	125	100	150	150	3	33 (15) 19.6 (498) x 8.2 (208) x 7.7 (196)
VMX-SGY-A-210	105-210	60	50	75	60	150	150	200	200	4	130 (59) 32 (813) x 12.62 (321) x 10.08 (256)
VMX-SGY-A-275	138-275	75	60	100	75	200	150	200	200	4	140 (64) 32 (813) x 12.62 (321) x 10.08 (256)
VMX-SGY-A-361	181-361	125	75	125	125	300	250	350	350	4	145 (66) 32 (813) x 12.62 (321) x 10.08 (256)
VMX-SGY-A-450	225-450	150	125	150	150	350	300	450	450	4	145 (66) 32 (813) x 12.62 (321) x 10.08 (256)
VMX-SGY-A-550	275-550	150	150	200	200	450	400	500	500	4	165 (75) 32 (813) x 12.62 (321) x 10.08 (256)
VMX-SGY-A-600	300-600	200	200	200	200	500	500 <sup>(3)</sup>	600	600 <sup>(3)</sup>	4	165 (75) 32 (813) x 12.62 (321) x 10.08 (256)
VMX-SGY-A-862	431-862	250	250	300	300	600	500	700	700	5	325 (147) 43 (1092) x 25.5 (648) x 11.53 (293)
VMX-SGY-A-900	450-900	300	250	350	300	700	600	900	900	5	325 (147) 43 (1092) x 25.5 (648) x 11.53 (293)
VMX-SGY-A-1006	503-1006	350	300	400	400	800	800	1,000	1,000	6	400 (181) 46.56 (1183) x 26.27 (667) x 14.7 (373)
VMX-SGY-A-1250	625-1250	450	350	500	450	1,000	900	1,200	1,200	6	400 (181) 46.56 (1183) x 26.27 (667) x 14.7 (373)

1) Rated operational powers in HP corresponding to FLA current rating according to UL508 and Table 430.250 of the National Electrical Code.

2) The FLA rating applies for a maximum surrounding air temperature of 50°C.

3) VMX-SGY-A-600 @ 480VAC and 600VAC is 1.0 S.F., all other ratings cover a 1.15 service factor.

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