VMX Series 3 to 1200 HP (18 to 1250A)

The control & protection you expect in an innovative, compact soft starter

by MOTORTRONICS

The VMX Series Specifications

Power Components
6 SCRs in inverse parallel pairs for full phase angle soft start control
1600V PIV rating on all units
RC snubber for dv/dt protection of each SCR pair

Line Voltage Range
200 to 600 VAC, 3 phase +10% -15% on all units, 50/60Hz

Current Ratings
18 - 1250A depending on unit selection
Range of each unit is 50-100% of maximum current rating based on 1.0 service factor

AC Supply Voltage
User supplied 120VAC +10% -15% tolerance, 60Hz
Optional 240VAC 50Hz control available

Overload Capacity (% of motor FLA)
Standard Duty: 350% for 30 seconds, 1.0 SF
Heavy Duty: 500% for 30 seconds, 1.15 SF

Bypass Contactor
Standard on all units
Standard Duty: Shunt rated bypass
Heavy Duty (Across-the-Line) line start rated bypass

Start/Stop Control Choices
2-wire Run-Stop using dry contacts
3-wire Start/Stop with built-in seal in contact
N.C. Interlock input (dry contact) for remote devices

Ramp Control Choices (4 built-in)
Voltage Ramp
Voltage Ramp with Current Limit
CLT© Closed Loop Torque Ramp (Current Ramp)
Current Step (current limit only)
Ramp times adjustable 1 - 120 seconds
Current Limit adjustable 200 - 600% of FLA

Dual Ramps
Select via dry contact closure between any combinations of the above

Jog
Dry contact closure selects a non-ramping Jog function at an adjustable torque

Kick Start
10 - 100% starting torque for 0.1 - 2 seconds

Pump-Flex™ Deceleration Ramp
Fully adjustable to match field conditions:
Begin Decel setting, 0 - 100% of line voltage
Decel ramp time, 1 - 60 seconds
End Decel setting (Off), 0 - 1% of Begin setting

Restart Delay Timer (Sequential Start Delay)
Programmable time delay 1 - 999 seconds after loss of control power for staggered restarts

Time Clock Controller
24 hour/7 day time clock to provide automatic start
Up to 7 start events per day
Select operation from 1 through 7 days per week
Run time determined by process control timer

Process Control Timer (choice of either)
Minimum Run (Batch) Timer
1- 999 minutes
Runs until time expires, resets only if expired
Resumes and finishes if stopped or power is lost

Permissive Run Timer
1- 999 minutes
Only allows operation during active run time

RS-485 Serial Communications
Up to 247 starters per link
Modbus RTU protocol built-in
Full programming over the serial link
Programmable remote starter control

Operator Interface
Tactile feedback keypad
Easy to read LED display
Run and fault
status indicators

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Start & Run Protection

Two programmable overload trip curves allow for the thermal capacity required to start the load while providing motor overload protection needed during the run time.

Start: Programmable for Class 5 - 30

Run: Programmable for Class 5 - 30, enabled when starter detects motor is "At-Speed"

Reset: Manual or automatic, selectable via programming. Remote reset available.

Real-Time Thermal Modeling

Continuously calculates motor operating temperature even when the motor is not running.

Retentive Thermal Memory

Remembers the thermal condition of the motor even in the event of a power brown-out or black-out when power is restored. Extrapolates motor temperature using a real-time clock.

Dynamic Reset Capacity

Overload will not reset until thermal capacity in the motor is sufficient for a successful restart. Starter learns and retains this information from previous starts.

Motor Temperature

PTC thermistor input can also be used for E-stop or external overload relay.

Equipment Ground Fault

Residual current method with adjustable trip delay.

Phase Current Imbalance/Loss Protection

Trip level: 5 - 30% current imbalance between any two phases with trip delay

Phase Loss

Trips on phase current or voltage loss

Phase Rotation

Phase rotation trip can be set to A-B-C, A-C-B or disabled.

Electronic Shear Pin Protection

Trip level: 100 - 300% of motor FLA with trip delay

Load Loss (Under Current) Trip Protection

Trip level: 10 - 90% of motor FLA with trip delay

Motor Duty Cycle Protection

Back-spin/coast-down, starts-per-hour or minimum time between starts lockouts. Restart delay after a power failure.

Short Circuit

Trips at 10x unit current rating during run. Checks for shorted load prior to each start.

Shorted SCR

Locks out on any single shorted SCR (defeatable) or can provide shunt trip function if multiple SCRs short or bypass contactor is welded closed.

Metering

Monitors phase current, ground current and motor thermal capacity.

Easy to Install, Easy to Wire