RX SPECIFICATIONS

MOTORTRONICS™
Solid State AC Motor Control

Type of Load
3 Phase AC induction motors

Ambient Conditions
0 to 50° C, 0 to 90% relative humidity
Up to 10,000' elevation (3000m) w/o derating

LED Alphanumeric Display
High brightness 7-segment display can be seen in high ambient light conditions.
4 digit display allows display of high values

Power Wiring
Feed through or external CT lead feed-through

AC Supply Voltage (Motor Voltage)
Direct: 200-600VAC, +/- 10% 50/60Hz
With 120V PTs: 690-15, 000VAC

Service Factor (for NEMA design motors)
1.00-1.30

LED Status Lights
10 LED indicators on the front panel give relay status or quick reference for the alphanumeric display.

Packaging
Open panel mount with DIN rail clips (IP00)

Current Ranges
1-2000 Amps

Current Measurement
2 window CTs on units up to 5A
External CTs for larger ranges
Meets NEC requirements for leg protection

Full Function Keypad
4 quadrant navigation keys provide easy access to status information and programmable functions.

Operator interface
Built-in, or remote mount up to 6ft (1.8m) away

CONTROL SYSTEM

Control Voltage
Universal control voltage supply
85-265VAC or DC, 50/60Hz

Programmable Output Contacts:
1 Form C (SPDT) 5A, 240VAC max., +
1 Form A (SPST) 10A max. 1/2HP @240VAC
33 programmable functions

1 Multi-function Digital Input
Dry contact input for Timer Start, Remote Start, Remote Trip.

24 Hr 7 Day 7 Event Time Controller
Automatic Start for use with Batch Run Timer
1 through 7 days/week
1 through 7 Start events per day

Fault Reset
Manual button on display, or
Cycle control power for remote reset

Batch Run Timer Control
Minimum Run Timer (Resumes timing if stopped) or Permissive Run Timer (Only runs during time)
Time Setting: 1-9999 minutes

PROTECTION SYSTEM DESIGN AND ADJUSTMENTS

Overload Protection Method
Real-time Motor Thermal Modeling uses current sensors and microprocessor to continuously calculate motor temperature.

Learned Dynamic Reset
Overload Trip will not reset unless motor has regained enough thermal capacity based on learned motor starting profiles.

Phase Loss/Sequence Protection
Trips on any phase under 12% of Voltage.
Sequence selectable A-B-C, C-A-B or Off

Over Voltage Trip
Any phase voltage over trip level
Of or 1-10% of set voltage, w/1-20 sec. delay

Load Monitor (True Motor Power)
Under or Over kW trip or alarm
Off, or 20-100% motor kW, w/1-20 sec. delay

Equipment Ground Fault Protection
Electronic Residual current protection method, no additional CTs needed
Setting: Off, 5-90% of CT w/1-60 sec. delay

Starts-per-Hour Lockout
Programmable maximum starts-per-hour to prevent exceeding motor limits.
Setting: Off or 0-10 start / Hr

Retentive Thermal Memory
Remembers the thermal condition of the motor even if control power is lost. Thermal Register is adjusted for Off-Time when power is resumed.

Programmable Service Factor
Service Factor setting automatically adjusts other settings to compensate.
Adjustment Range: 1.0-1.15 SF

Over-Current Trip
Electronic Shear-Pin / Shock Relay
Setting: Off or 50-300% FLA w/1-20 sec. delay

Under Voltage Trip on Startup
Off, or 1-30% of set voltage
1-180 second startup time

Power Factor Monitor
Leading or Lagging PF, trip or alarm
Off, or 0.01-1.00, lead or Lag w/1-20 sec. delay

Short Circuit / Shorted Load
Peak Current quick trip (electronic fuse)
Trip level: Off or 800-1400% FLA,
with .1-.5 sec. delay

Minimum Time Between Starts
Used with or without Start-per-Hour protection to prevent short cycling of motor
Setting: Off or 1-60 minutes between starts

Dual Overload Curve Settings for RV start
Start Curve can be set to Class 5-30
Run Curve can be set to Class 5-30
Automatic Full Speed detection and change over

Current Imbalance Protection
Provides monitoring of phase-to-phase current levels and trips if imbalance exceeds setting.
Setting: Off or 1-30% FLA w/1-20 sec. delay

Under-Current Trip
Load-Loss /Loss of Prime protection
Setting: Of or 10-90% FLA w/1-60 sec. delay

Under Voltage Trip at Full Speed
Off, or 1-30% of set voltage
1-20 second trip delay

Frequency Monitor
Over or Under programmed frequency
Trip Setting: Off, or 1-10Hz, w/1-20 sec. delay

Restart Delay Timer
Programmable delay for restarting after a power failure for use in multiple installations.
Setting: 0-999 sec.

Coast-Down Timer
Back Spin or Anti-Wind Milling protection
Prevents Restart after Stop Command
Time Setting: Off or 1-60 min.

RX SPECIFICATIONS (Continued)

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METERING AND DISPLAY SPECIFICATIONS

Amp Meter for Each Phase
Default is Phase A
Scroll up or down for Phases B, C and Ground
0-9999A (999A for Ground), +/- 2% accuracy

Volt Meter for Each Phase
0-600V, or 1-15kV, +/- 2% accuracy.
Average Voltage Imbalance %

Fault Display
Alpha abbreviated English display
Shows fault code plus 10 LEDs indicate phase and trip status

Thermal Capacity Meter
Real-time display of Remaining Thermal Capacity of motor after starting or running
0-100%, counts up while cooling

Elapsed TIme Meter
Running time from At-Speed detection.
Non-Resettable except with password
0-9,999,999.9 hours

Power Metering
kW, kWHr, kVA, kVAR, or MW, MWHr, MVA, MVAR. 0-9999 units +/- 2% accuracy

Fault Event Recorder
Records previous 3 fault trips
Shown on display and stored in non-volatile memory

Remaining Time Value Displays
View values of lockout timers such as Time Between Starts or Coast-Down,
View process timer or time clock values

Run Cycle Counter
Counts starts (At-Speed) for maintenance
Non-Resettable except with password
0-99,999,999 counts

Power Factor Metering
Leading (Inductive) or lagging (capacitive)
0.01-1.00 PF

Time and Date Stamps
Fault history stored with time and date stamps from Real Time Clock. Can be cleared with password protection.

Remote Display Mounting
Display is built-into front of unit
Can be remotely mounted up to 10ft. away
NEMA 12 display membrane kit available