



## MX150 MICROPROCESSOR CONTROLLER

The MX150 microprocessor is standard with the CTG product family. The MX150 microprocessor panel controls the operation and displays the status of the transfer switch's position, timers and available sources.

As an embedded digital controller, the MX series offers high reliability and ease of unattended operation across a range of applications.

### FEATURES AND BENEFITS

- Digital timer and adjustments with 1 second resolution
- Long lasting LED indicators and an easy-to-view LCD display
- Inputs optoisolated for high electrical immunity to transients and noise
- Digital voltage and frequency adjustments with 1% resolution
- Voltage and frequency sensing includes:
  - Voltage imbalance detection between phases.
  - Under frequency sensing on source 2.
  - 3 Phase under voltage sensing on source 1 (S1) – Normal and single phase sensing on source (S2) – Emergency
- Modular pre-signal option easily integrated into the system (e.g. elevator pre-signal and motor load disconnect)
- Universal Motor Disconnect (UMD) available for programming to pre-signal, post-signal or both
- Line voltage transients are isolated from the control board using remote transformers
- Simplified major components and modules for easy replacement
- On-board diagnostics including voltage frequency, control and timing
- Nonvolatile memory – battery backup not required during normal source outage

- External communication available through LonWorks/ModBus network interface (RS 232, RS 422, and RS 485 are also available)
- Maintained and momentary test positions are available to the controller
- Test mode allows manual bypass of all transfer timers when applicable
- Automatic daylight savings adjustment available

### USER-FRIENDLY OPERATION

- LEDs for continuous monitoring of switch position, source availability, exercise time delay operation and diagnostics
- Simplified adjustment for voltage, frequency and time delay settings
- Close differential 3 phase under-voltage sensing of source 1, factory standard setting 90% pickup, 80% dropout (adjustable); under-frequency sensing of the source 1 factory setting 95% pickup (adjustable)
- Voltage and frequency sensing of source 2, factory standard setting 90% pickup voltage, 95% pickup frequency (adjustable)
- Test switch (fast test/load/no load) to simulate normal source failure – automatically bypassed should source 2 fail

## PERFORMANCE FEATURES

- UL, CSA and IEC listed
- Ringing wave immunity per IEEE 472 (ANSI C37.90A)
- Conducted and Radiated Emissions per EN55022 Class B (CISPR 22) (Exceeds EN55011 and MILSTD 461 Class 3)
- ESD immunity test per EN61000-4-2 (Level 4)
- Radiated RF, electromagnetic field immunity test per EN61000-4-3 (ENV50140) 10v/m
- Electrical fast transient/burst immunity test per EN61000-4-4
- Surge immunity test per EN61000-4-5 IEEE C62.41
- Conducted immunity test per EN61000-4-6 (ENV50141)
- Voltage dips and interruption immunity EN61000-4-11

## CONTROL SETTING RANGES

Control Function		MX150	
		Range	Factory Setting
S1 Line Sensing – Under-voltage	Fail	75-98%	80%
	Restore	85-100%	90%
S2 Line Sensing – Under-voltage	Fail	75-98%	80%
	Restore	85-100%	90%
S2 Line Sensing – Under-frequency	Fail	88-98%	90%
	Restore	(2 Hz below restore setting) 90-100%	95%
Time Delay – S2 Start	(P1)	0-10 seconds	3 seconds
Time Delay – Engine Cool Down	(U)	0-60 minutes	5 minutes
Time Delay – Transfer to Emergency	(W)	0-5 minutes	1 second
Time Delay – Retransfer to Normal	(T)	0-60 minutes	30 minutes
Time Delay – Motor Disconnect or Transfer Pre-signal	(A62, UMD, or T3/W3)	0-60 seconds	20 seconds
Delayed Transition (when applicable)	(DT, DW)	0-10 minutes	5 seconds

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