

# Enercon MX150

## Microprocessor Controller

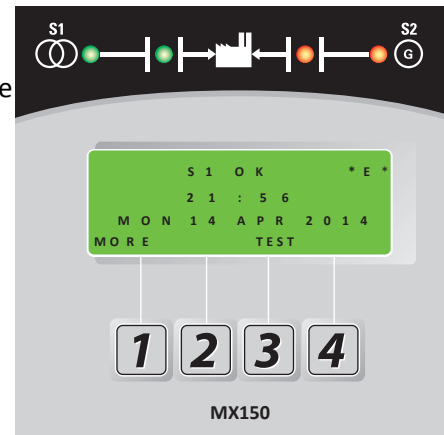
### Introduction

Enercon's MX 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 MX150 series offers high reliability and ease of unattended operation across a range of applications. Available on Enercon's ETG Series Transfer Switches.

### Features and Benefits

- Digital timer adjustments with 1 second resolution
- Long lasting LED indicators and an easy-to-view 4x20 character 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 voltage on Source 1 (S1) and Source 2 (S2) and under frequency sensing on Source 2 (S2)
  - 3-Phase under voltage sensing on S1 (normal) and Single Phase sensing on 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
- Optically-isolated inputs and outputs

- On-board diagnostics including voltage frequency, control and timing
- Nonvolatile memory battery backup not required during normal source outages
- External communication available through Modbus network interface (RS232)
- Maintained and momentary test push buttons are available on the controller
- Test mode allows manual bypass of all transfer timers when applicable



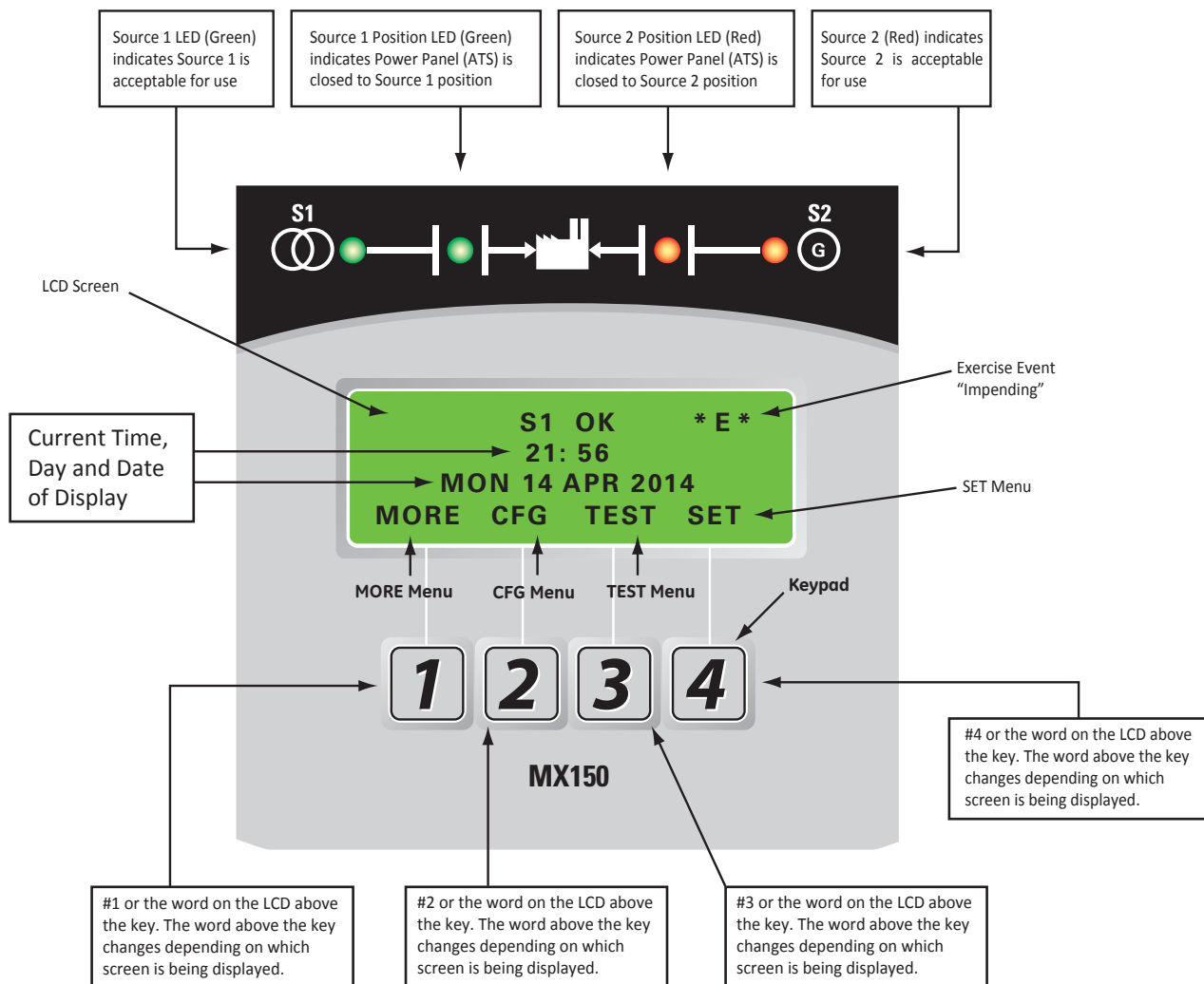
### User-Friendly Operation

- 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

## Fully Approved

- UL and CSA listed
- Ringing wave immunity per IEEE 472 (ANSI C37.90A)
- Conducted and Radiated Emissions per EN55022 Class B (CISPR 22) (Exceeds EN55011 & MILSTD 461 Class 3)
- ESD immunity test per EN61000-4-2 Class B (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 (1.2 X 50  $\mu$ s, 0.5 to 4 kV)
- Conducted immunity test per EN61000-4-6 (ENV50141)
- Voltage dips and interruption immunity EN61000-4-11

Control Setting Ranges			
Control Feature	Function	MX150	
		Range	Factory Setting
S1 Line Sensing – Under-voltage	Fail Restore	75-98%	80%
		85-100%	90%
S2 Line Sensing – Under-voltage	Fail Restore	75-98%	80%
		85-100%	90%
S2 Line Sensing – Under-frequency	Fail Restore	88-98% (2Hz below restore setting) 90-100%	90% 95%
Time Delay S2 Start	P1 Timer	0-10 seconds	3 seconds
S2 Stop Delay	U Timer	0-60 minutes	5 minutes
Time Delay S2 Stable Timer	W Timer	0-5 minutes	1 second
Time Delay S1 Stable Timer	T Timer	0-60 minutes	30 minutes
Time Delay - Motor Disconnect or Transfer Pre-signal	Acc., UMD, or T3/W3 Timers	0-60 seconds	20 seconds
Delay Transition Time Delays	DT, DW Timers	1 second-10 minutes	5 seconds



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