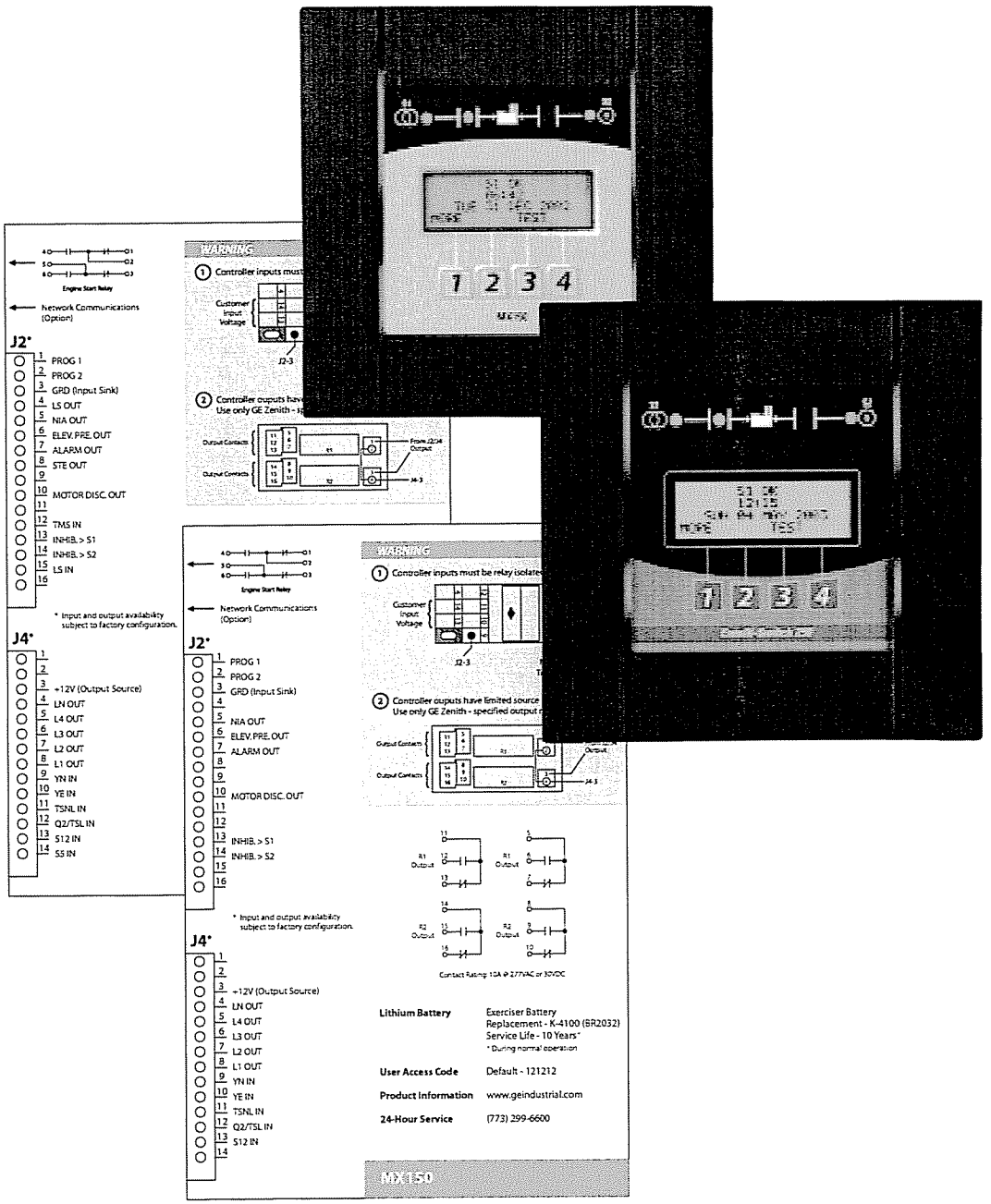
GE Zenith Controls

MX150 / MX250
Spare Replacement
Microprocessor Controller



O-4059
10/04

Instruction Bulletin

Authorized Service

For GE parts and service, call: (773) 299-6600

Table of Contents

Introduction

GE Zenith Transfer Switches are used to provide a continuous source of power for lighting and other critical loads by automatically transferring from source 1 power to source 2 power in the event that source 1 voltage falls below preset limits.

Voltage sensing and system control is performed via a state-of-the-art microcontroller located on the cabinet door. It is designed to give highly accurate control of the transfer switch system.

All GE Zenith transfer switches are designed for use on emergency or standby systems, and are rated for total system or motor loads. Transfer switches are UL Listed under Standard 1008 and CSA Certified under Standard C22.2 No. 178 and IEC Listed under Standard 947.

NOTES: A protective device such as a molded case circuit breaker or fused disconnect switch MUST be installed on both sources of incoming power for circuit protection and as a disconnection device.

All references made within this manual about the term "S1" or "Source 1" relate to a Normal Power Source. All references made about the term "S2" or "Source 2" relate to an Emergency or Alternative Power Source.

Safety / Inspection

⚠ DANGER ⚠

HAZARDOUS VOLTAGE
(Can Cause Severe Injury or Death)

Turn OFF all power before installation, adjustment, or removal of transfer switch or any of its components.

The safe operation of your switch is GE Zenith's focus. The proper storage, installation, operation and maintenance will help increase the life of the switch.

⚠ CAUTION ⚠

Due to hazardous voltage and current, GE Zenith recommends that a GE Zenith Certified technician or a qualified electrician must perform the installation and maintenance of the switch.

Equipment Inspection and Storage

Once you have received the controller, inspect it for any damage. If any damage is found or suspected, file a claim as soon as possible with the carrier and notify the nearest GE Zenith representative.

Before installation, if it is necessary, store the transfer switch in a clean dry place, protected from dirt and water. Provide ample air circulation and heat, if necessary, to prevent condensation.

Storage Temperature	Operating Temperature (Ambient):	Humidity
-30°C to +75°C (-22°F to +167°F)	**40-400 AMP** *(molded shell)* -20°C to +65°C (-4°F to +149°F) **40-4000 AMP** *(all other frame and panel types)* -20°C to +60°C (-4°F to +140°F)	5% to 95% (non-condensing)

Table 1

Final Equipment Inspection

Prior to energizing the transfer switch:

1. Remove any debris with a vacuum.
2. Verify that all cabled connections are correct and that phase rotation of both sources match.
3. Check engine start connections.
4. Verify the correct connection of all control wires.
5. Check settings of all timers and adjust as necessary.
6. Adjust any optional accessories as required.
7. Check the lug torque values of the power connections.

   NOTE: Lug torque values are specified in the power panel manual.

8. Make sure that all covers and barriers are installed and properly fastened.

   NOTE: Power panels ship from GE Zenith in Source 1 Position.

⚠ WARNING ⚠

Do not use a blower since debris may become lodged in the electrical and mechanical components and cause damage.

For more details on the operation and maintenance of the automatic transfer switch, please consult the manual included with your switch.

Installation

The MX Spare Replacement Controller is designed to be used whenever an MX150 or MX250 ATS Controller requires field replacement. Setup and configuration are required before use. Complete factory-like Option programming can be done using the special MPI One-Time-use code included with this kit. The MPI Code is located on the backside of the battery pull-tape included with every new controller (Fig. 1).

The MPI number is unique for each controller and can only be used to configure the ATS options once as part of a field replacement. If the battery pull-tape is no longer available or, if the Controller is part of a job order, the Controller will not be able to be field programmed.

⚠ WARNING ⚠

It is important to know the previous configuration and settings for the ATS Controller being replaced. Since this RPL kit can be configured for any set of options offered by GE-Zenith, configuring improper options for use with the original ATS can lead to miss-operation and void all other product warranties. Contact Zenith Sales or Technical Support if you are not sure of the previous options and settings.

Required Materials

- Replacement MX150 or MX250 Controller
- Programming Jumper J6 (included)
- Original ATS Option and settings

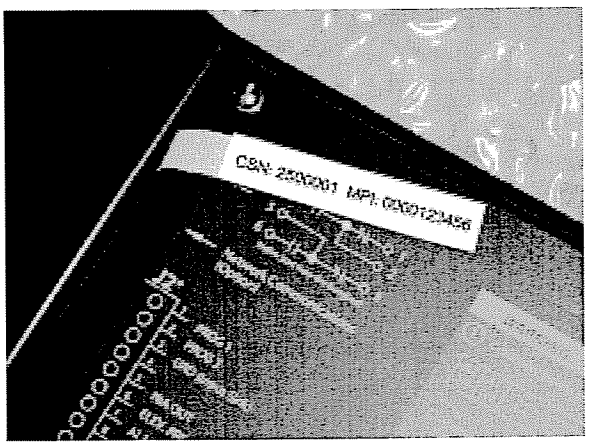


Figure 1

Installing the Replacement Controller

1. Unpack the Controller by removing it from the protective bag. Find the J6 programming Jumper included (Fig. 2), and plug it into the J6 connector on the new Controller as shown in Figure 3.

2. Replace the existing Controller and transfer all din rail options, electrical connections, network card (See Addendum A), etc., from the old controller. Tighten all mounting hardware as necessary.

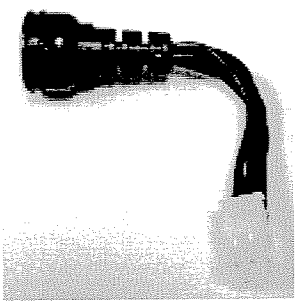


Figure 2

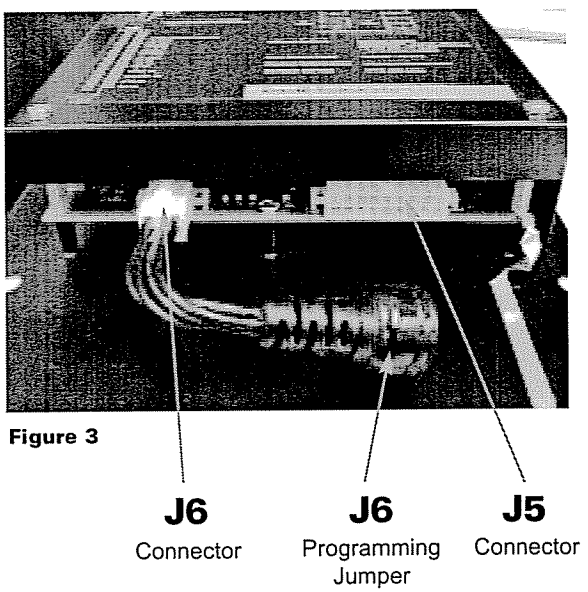


Figure 3

Programming the Replacement Controller

Controller Options - Perform the following steps and refer to the illustrations (Figure 4-7) to prepare the Controller for option configuration:

⚠ WARNING ⚠

Avoid cycling power until all Option choices have been SAVED. After power cycle, no other changes can be made using the MPI One-Time Code.

1. With steps 1 and 2 completed from page 1, close the utility-side breaker (normal power).
2. After a brief startup delay, the screen in fig. 4 should appear.
3. Depress and hold keys 1 and 4 Simultaneously until the screen in fig. 5 appears. Release keys 1 and 4.
4. Using the MPI code printed on the battery-pull tape, enter the 6 digit number preceded by 0000, using the up and down arrows to increase and decrease each number, and the SAVE key to enter. If a mistake is made, use the BACK key to redo the entry (Fig. 6).
5. If the MPI code was entered correctly, the screen in Fig. 7 should appear. This is the entry point to the ATS Option Menu.

Using the Option list provided by Technical Support, scroll down using the MORE key to see and select the appropriate ATS Options (Fig. 8-25).

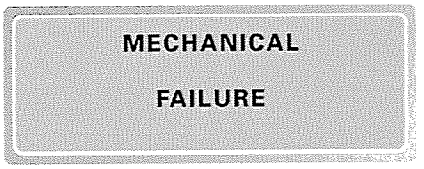


Figure 4

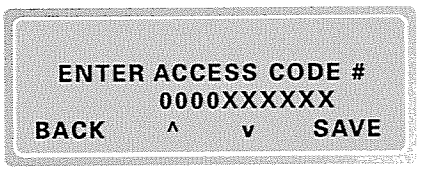


Figure 5

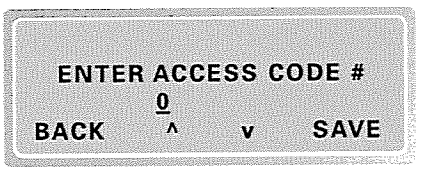


Figure 6

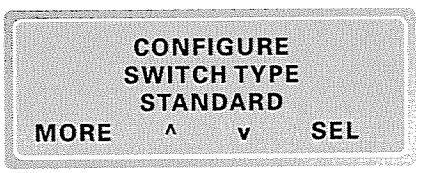


Figure 7

Option Menu Selections

To find and change an Option, use the MORE key to scroll through the menu loop. At the selected Option, press the SEL key to select the Option, then use the Up (^) and Down (V) arrows to see the possible choices. To save the choice, press the SAVE key.

⚠ WARNING ⚠

All menu items may be selected and changed as many times as needed. However, because this Replacement Controller uses a "One time use" MPI code, once the POWER is cycled, all selections are "locked" and no further changes will be possible without calling Technical Support.

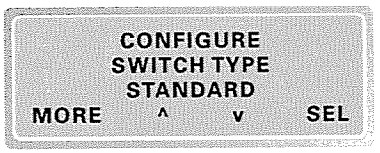


Figure 8 **Switch Type:** Standard (Standard or Delay)

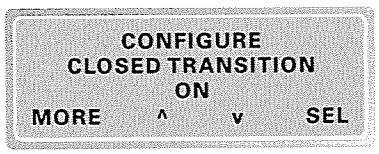


Figure 9 **Closed Transition:** Off (On or Off)

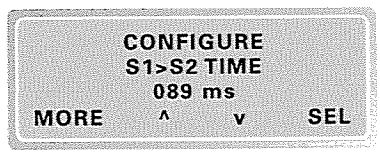


Figure 10 **S1>S2 Time:** 89 ms (50 to 300 ms)

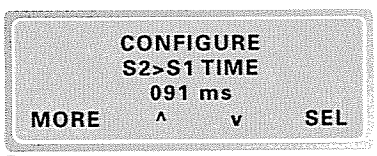


Figure 11 **S2>S1 Time:** 91 ms (50 to 300 ms)

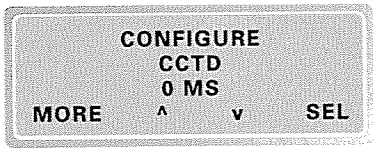


Figure 12 **CCTD:** 0 ms (0 ms or 300 ms)

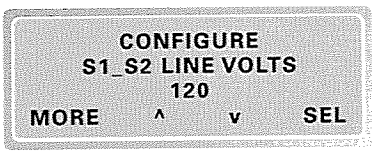


Figure 13 **S1 S2 Line Volts:** 120 (120, 208, 220, 230, 240, 277, 380 400, 416, 440, 460, 480, 575, 600)

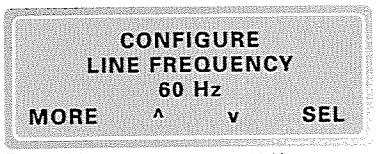


Figure 14 **Line Frequency:** 60 Hz (50 or 60 Hz)

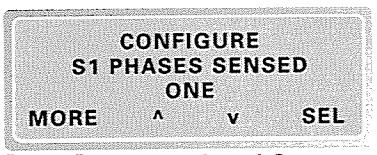


Figure 15 **S1 Phases Sensed:** One (One or Three)

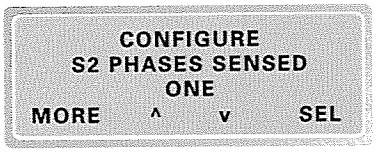


Figure 16 **S2 Phases Sensing:** One (One or Three)

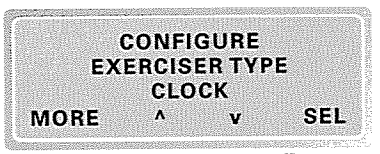


Figure 17 **Exerciser Clock Type:** Timer (Timer or Clock)

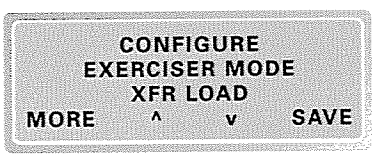


Figure 18 **Exerciser Mode:** XFR Load (XFR Load or No XFR)

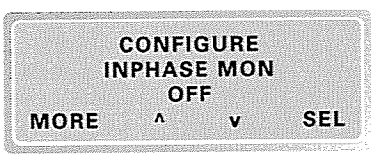


Figure 19 **In Phase Monitor:** Off (On or Off)

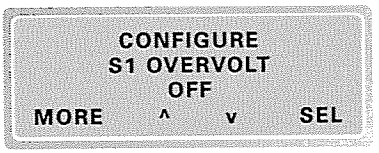


Figure 20 **S1 Over Voltage:** Off (On or Off)

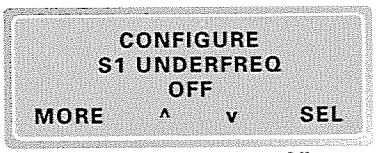


Figure 21 **S1 Under Frequency:** Off (On or Off)

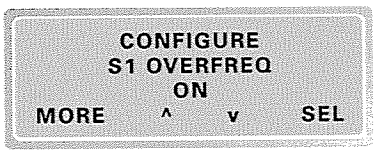


Figure 22 **S1 Over Frequency:** On (On or Off)

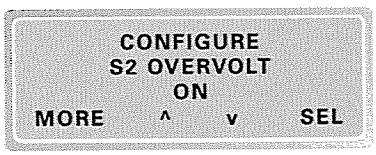


Figure 23 **S2 Over Voltage:** On (On or Off)

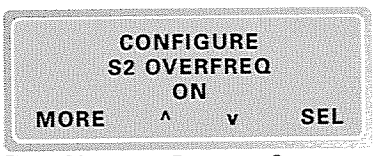


Figure 24 **S2 Over Frequency:** On (On or Off)

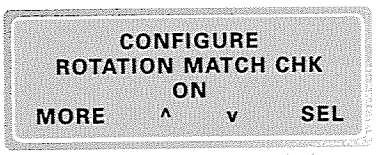


Figure 25 **Rotation Match Check:** On (On or Off)

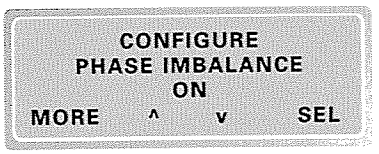


Figure 26 **Phase Imbalance:** On (On or Off)

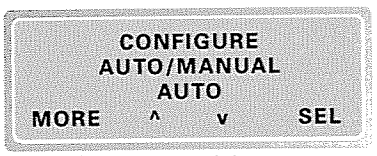


Figure 27 **Auto/Manual:** Auto (Auto, Man, S5, S12)

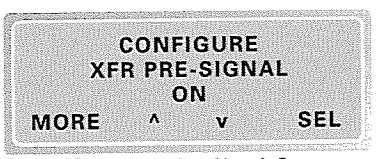


Figure 28 **Transfer Pre-Signal:** On (On or Off)

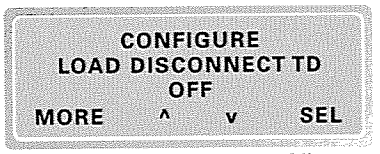


Figure 29 **Load Disconnect TD:** Off (On or Off)

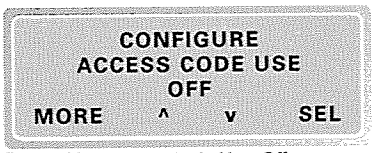


Figure 30 **Access Code Use:** Off (On or Off)

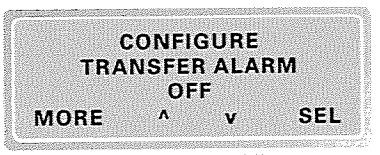


Figure 31 **Transfer Alarm:** Off (On or Off)

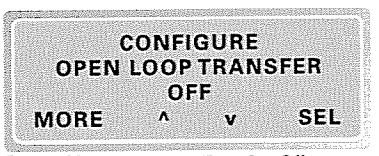


Figure 32 **Open Loop Transfer:** Off (On or Off)

Replacement Parts

50P-1160SPR ....MX150 Controller Replacement Kit
50P-1161SPR ....MX250 Controller Replacement Kit
50W-1211 .....J6 Programming Plug

GE Zenith Controls

A Product of GE Consumer & Industrial
General Electric Company
830 West 40th Street, Chicago, IL 60609 USA
773 299-6600, Fax: 773 247-7805
www.geindustrial.com