INSTALLATION INSTRUCTIONS

Original Issue Date: **4/02**
Model: **Model K and Model S Programmable Transfer Switches and Bypass-Isolation Transfer Switches**
Market: **Transfer Switches**
Subject: **Line-to-Neutral Voltage Monitoring Kits GM23425-KP1 and GM23425-KP2**

Introduction

This document provides installation instructions for the line-to-neutral voltage monitoring kits for two- and three-pole transfer switches.

GM23425-KP1 covers 30–800 amp open transition and 150–800 amp programmed transition transfer switches.

GM23425-KP2 covers 1000–4000 amp open and programmed transition transfer switches and all bypass-isolation transfer switches.

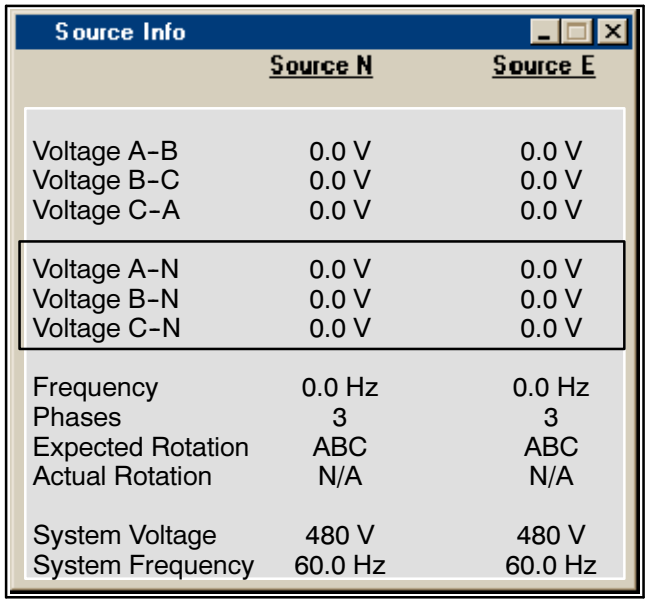


Figure 1 Line-to-Neutral Display, Three-Phase Source

Note: A personal computer running the Setup Program or Modbus is required to view the line-to-neutral voltage values as shown in Figure 1 or Figure 2. Refer to the **Setup Program Operation Manual** for details.

Read the entire installation procedure and compare the kit parts with the parts list at the end of this publication before beginning installation. Perform the steps in the order shown.

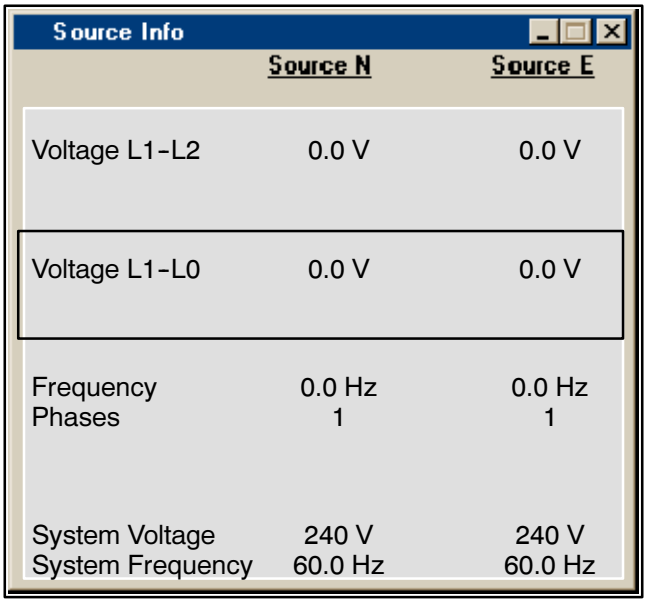


Figure 2 Line-to-Neutral Display, Single-Phase Source

Safety Precautions

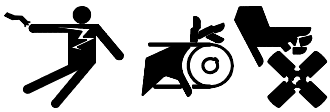
Observe the following safety precautions during installation.

⚠ DANGER

Hazardous voltage.
Will cause severe injury or death.

Disconnect all power sources before opening the enclosure.

⚠ WARNING



Accidental starting.
Can cause severe injury or death.

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

Grounding electrical equipment. Hazardous voltage can cause severe injury or death. Electrocution is possible whenever electricity is present. Open the main circuit breakers of all power sources before servicing the equipment. Configure the installation to electrically ground the generator set, transfer switch, and related equipment and electrical circuits to comply with applicable codes and standards. Never contact electrical leads or appliances when standing in water or on wet ground because these conditions increase the risk of electrocution.

Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage**.** Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove all jewelry before servicing the equipment.

NOTICE

Electrostatic discharge damage. Electrostatic discharge (ESD) damages electronic circuit boards. Prevent electrostatic discharge damage by wearing an approved grounding wrist strap when handling electronic circuit boards or integrated circuits. An approved grounding wrist strap provides a high resistance (about 1 megohm), *not a direct short*, to ground.

Installation Procedure

1. Remove the generator set and transfer switch from service

1.1 Place all generator set master switches in the OFF position.

1.2 Disconnect the power to all battery chargers, if equipped.

1.3 Disconnect all generator set engine starting battery(ies), negative (-) leads first.

1.4 Disconnect all power sources to transfer switches and power monitors.

1.5 Turn off and disconnect the power to all devices in the system.

1.6 Open the transfer switch enclosure.

2. Disconnect the inline connector and leads

2.1 Locate and disconnect the inline connector between the contactor and logic circuit board. See Figure 3.

2.2 Use the pin extractor tool and remove the three leads from the *contactor* wiring connector pins 22, 23, and 24 as shown in Figure 4.

2.3 Remove the three leads from the contactor harness and plastic conduit. The other end of each lead is unconnected. These leads will not be reused.

3. Connect the three leads to the inline connector

3.1 Install the three leads (SWN-18120-19200 or SWN-1866-19200) supplied with the kit in contactor wiring connector pin locations 22, 23, and 24.

3.2 Reconnect the mating ends of the inline connector.

3.3 Locate the neutral connection point in the transfer switch enclosure. See Figure 5.

Note: Route leads to nearest available neutral connection point when connecting to bypass-isolation transfer switches or units with integral solid-neutral contactors.

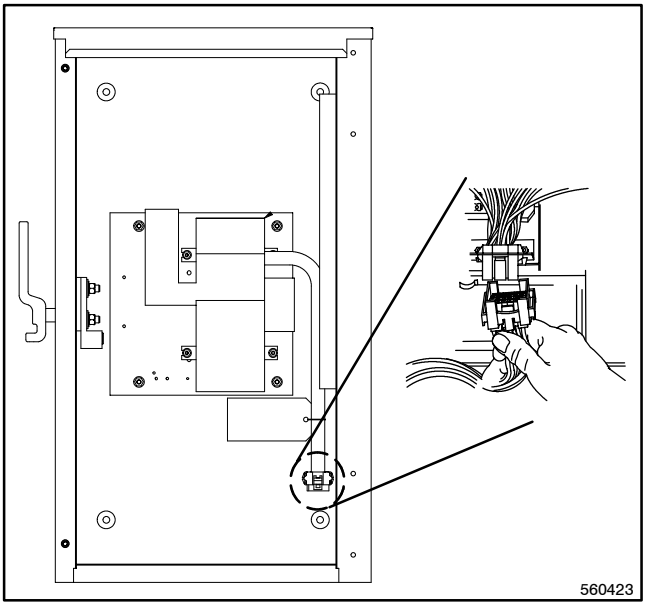
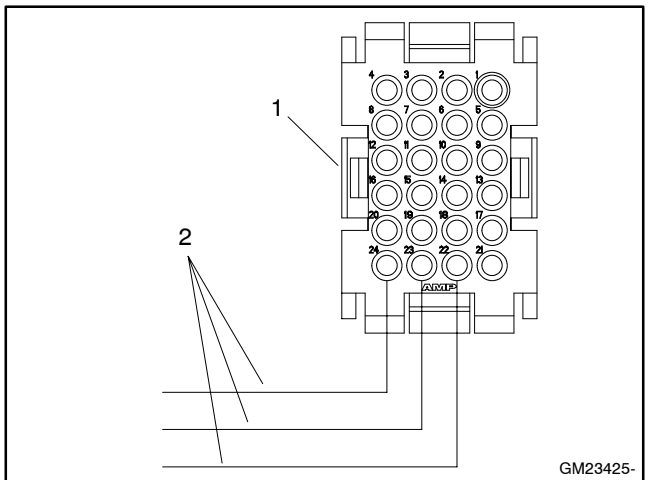


Figure 3 Disconnecting the Inline Connector, Typical

3.4 Route the leads from contactor wiring connector pins 22, 23, and 24 to the neutral connections.

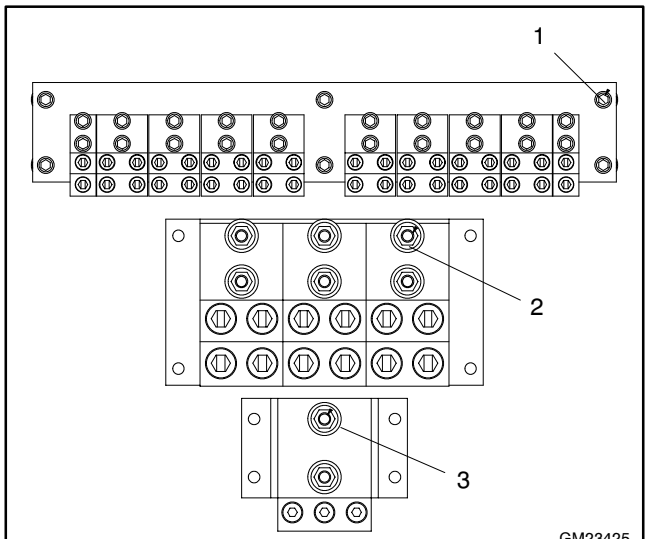
3.5 With surfaces clean and dry, attach the three cable tie bases (298776) to the transfer switch enclosure along the route of the three leads.

3.6 Use three cable ties (X-468-1) to secure the three leads to each cable tie base.



1. Contactor harness connector (wire/pin insertion end shown)
2. Remove leads from pins 22, 23, and 24

Figure 4 Remove the Existing Contactor Harness Leads from Pins 22, 23, and 24



1. Framework transfer switch neutral connection
2. 600/800 amp transfer switch neutral connection
3. 30-400 amp transfer switch neutral connection

Figure 5 Neutral Conductors in Transfer Switch Enclosure

4. Connect the three leads to the neutral conductor

4.1 Verify that the leads reach the neutral connection point shown in Figure 5 and cut the leads to remove excess length.

4.2 Strip and crimp eyelet terminal (X-283-21) onto each lead.

4.3 Disassemble neutral conductor hardware as necessary and attach all three leads to the same neutral connector as shown in Figure 5. Assemble and tighten the neutral conductor hardware.

Note: Route leads to nearest available neutral connection point when connecting to bypass-isolation transfer switches or units with integral solid-neutral contactors.

5. Restore the generator set and transfer switch to service

5.1 Close and secure the transfer switch enclosure.

5.2 Check that all generator set master switches are in the OFF position.

5.3 Reconnect the generator set engine starting battery(ies), negative (–) leads last.

5.4 Reconnect power to the battery charger, if equipped.

5.5 Reconnect all power sources to the transfer switches and power monitors.

5.6 Reconnect power to all devices in the system.

5.7 Place all generator set master switches in the AUTO position.

Parts List

Line-to-Neutral Monitoring Kits

Kit: GM23425-KP1		
Qty.	**Description**	**Part Number**
3	Base, cable tie	298776
3	Tie, cable	X-468-1
3	Terminal, 3/8 in. eyelet	X-283-21
3	Lead, 66 in.	SWN-1866-19200
1	Tool, pin extraction (for removing 1.57 mm [0.062 in.] female terminal pins)	241918

Kit: GM23425-KP2		
Qty.	**Description**	**Part Number**
3	Base, cable tie	298776
3	Tie, cable	X-468-1
3	Terminal, 3/8 in. eyelet	X-283-21
3	Lead, 120 in.	SWN-18120-19200
1	Tool, pin extraction (for removing 1.57 mm [0.062 in.] female terminal pins)	241918