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## INSTALLATION INSTRUCTIONS

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Original Issue Date: **8/05**

Model: **Automatic Transfer Switches equipped with MPAC 500 Controls**

Market: **ATS**

Subject: **External Alarm Module (EAM) Kit GM38795-KP1**

### Introduction

The External Alarm Module (EAM) connects to automatic transfer switches equipped with MPAC 500 controls. Use the EAM to perform the following functions from a convenient location up to 150 meters (500 ft.) away from the transfer switch:

- Start the generator set and transfer the load
- Transfer back to utility power and signal the generator set to stop
- Receive visible and 85 dB audible indication that the generator set is supplying the load
- Receive visible and 85 dB audible indication of system faults

The EAM is designed for indoor installation in a standard 21 cubic inch outlet box.

**Note:** The MPAC 500 accessory board is required for EAM connection and operation.

The EAM is powered through the accessory board. The EAM also contains a rechargeable battery that powers the module when no other power is available. The battery recharges when the power returns.

The generator set master switch must be in the AUTO position for EAM operation.

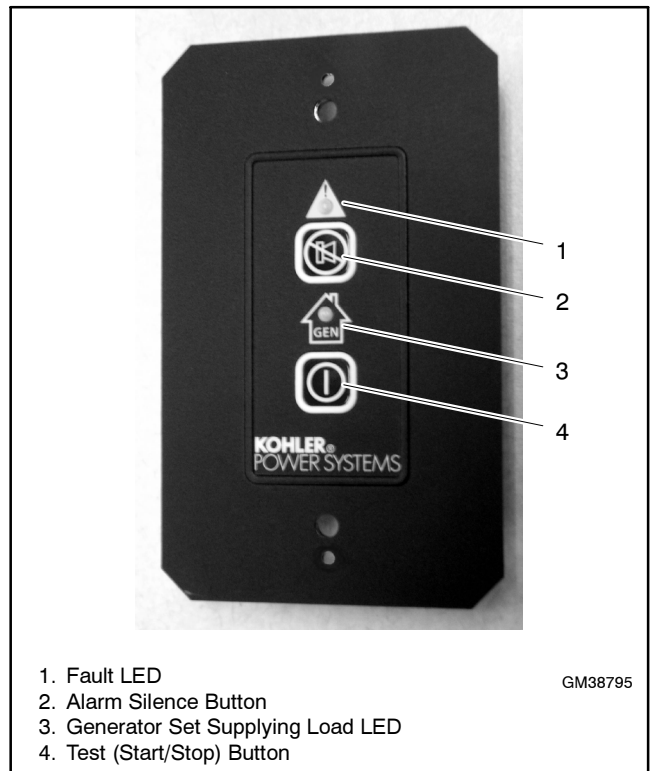
The EAM is constructed of two parts, circuit board GM37419 and switch/LED membrane GM38872, which are factory-assembled and ready to install into a standard outlet box. Read the entire installation procedure and obtain the required customer-supplied parts before beginning installation. Perform the steps in the order shown. Refer to ATS Operation and Installation Manual TP-6345 as needed.

See Figure 1 for an illustration of the EAM.

### Customer-Supplied Parts

Obtain the following items locally before installation:

- Standard 21 cubic inch outlet box with mounting screws
- GFCI outlet cover plate or rocker switch plate
- Category 5e network cable with RJ-45 (8-conductor) connectors, 150 m (500 ft.) maximum



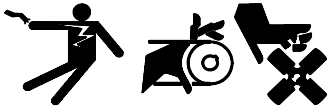
**Figure 1** External Alarm Module (EAM)

## Safety Precautions

Observe the following safety precautions while installing the kit.

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### 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.

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**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.

### DANGER



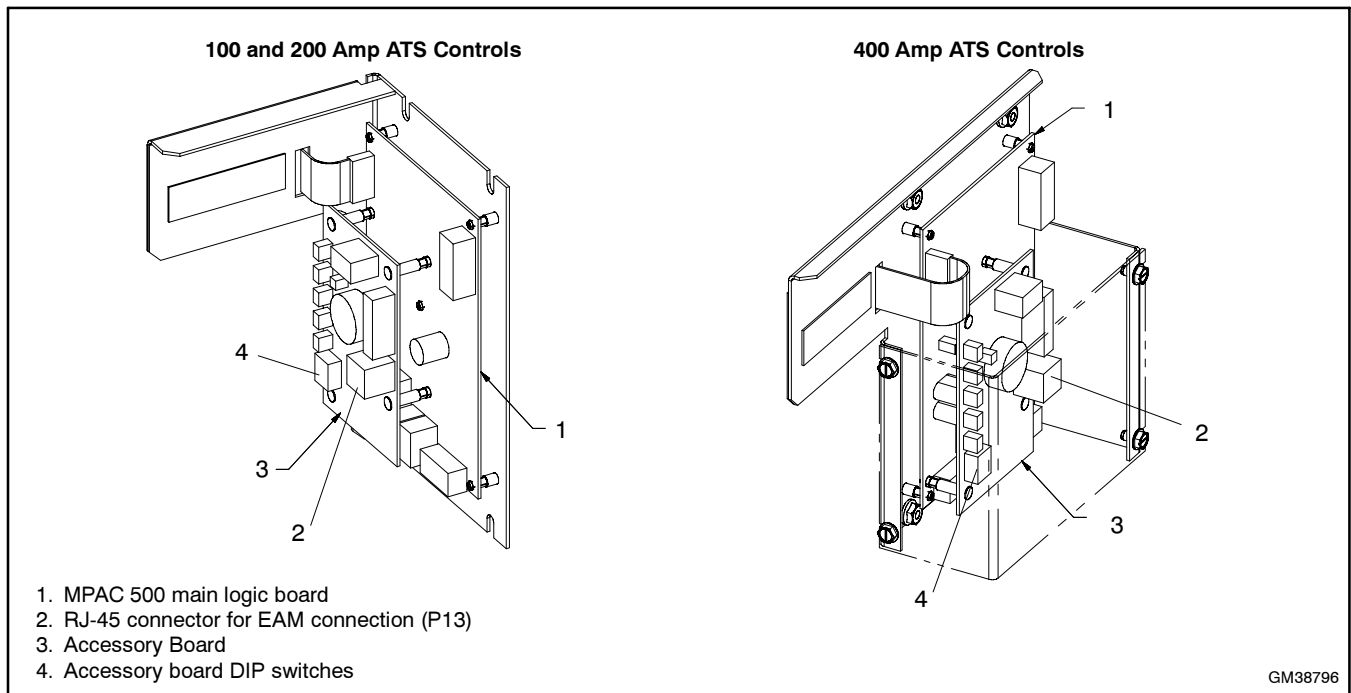
#### **Hazardous voltage. Will cause severe injury or death.**

Disconnect all power sources before opening the enclosure.

**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.

## Installation Procedure

1. Place the generator set master switch in the OFF position.
2. Disconnect the power to the battery charger, if equipped.
3. Disconnect the generator set engine starting battery(ies), negative (-) lead first.
4. Open the circuit breakers to disconnect power to the transfer switch before opening the enclosure.
5. Choose a convenient location for the EAM up to 150 m (500 ft.) from the transfer switch. Install a standard 21 cubic inch outlet box (not supplied) at the EAM location.
6. Route Category 5e straight networking cable with RJ-45 connectors (maximum length 152 m [500 ft.]; not supplied) from the ATS Accessory board to the outlet box for the EAM. See Figure 2.
7. Set DIP switch 3 on the ATS Accessory board to the ON (maintained) position. See Figure 2.
8. Use the Category 5e cable to connect P10 on the EAM circuit board to connector P13 on the ATS Accessory board. See Figure 2 and Figure 3.
9. Mount the EAM assembly into the outlet box using the screws supplied with the box. Cover the EAM assembly with a GFCI outlet cover plate or rocker switch plate (not supplied). See Figure 3.
10. Close and secure the ATS enclosure door.
11. Close the circuit breakers to reconnect power to the ATS.
12. Check that the generator set master switch is in the OFF position.
13. Reconnect the generator set engine starting battery, negative (-) lead last.
14. Reconnect power to the battery charger, if equipped.
15. Move the generator set master switch to the AUTO position.
16. Check the EAM and system operation by starting and stopping a test as described in the following section.



**Figure 2** ATS Accessory Board

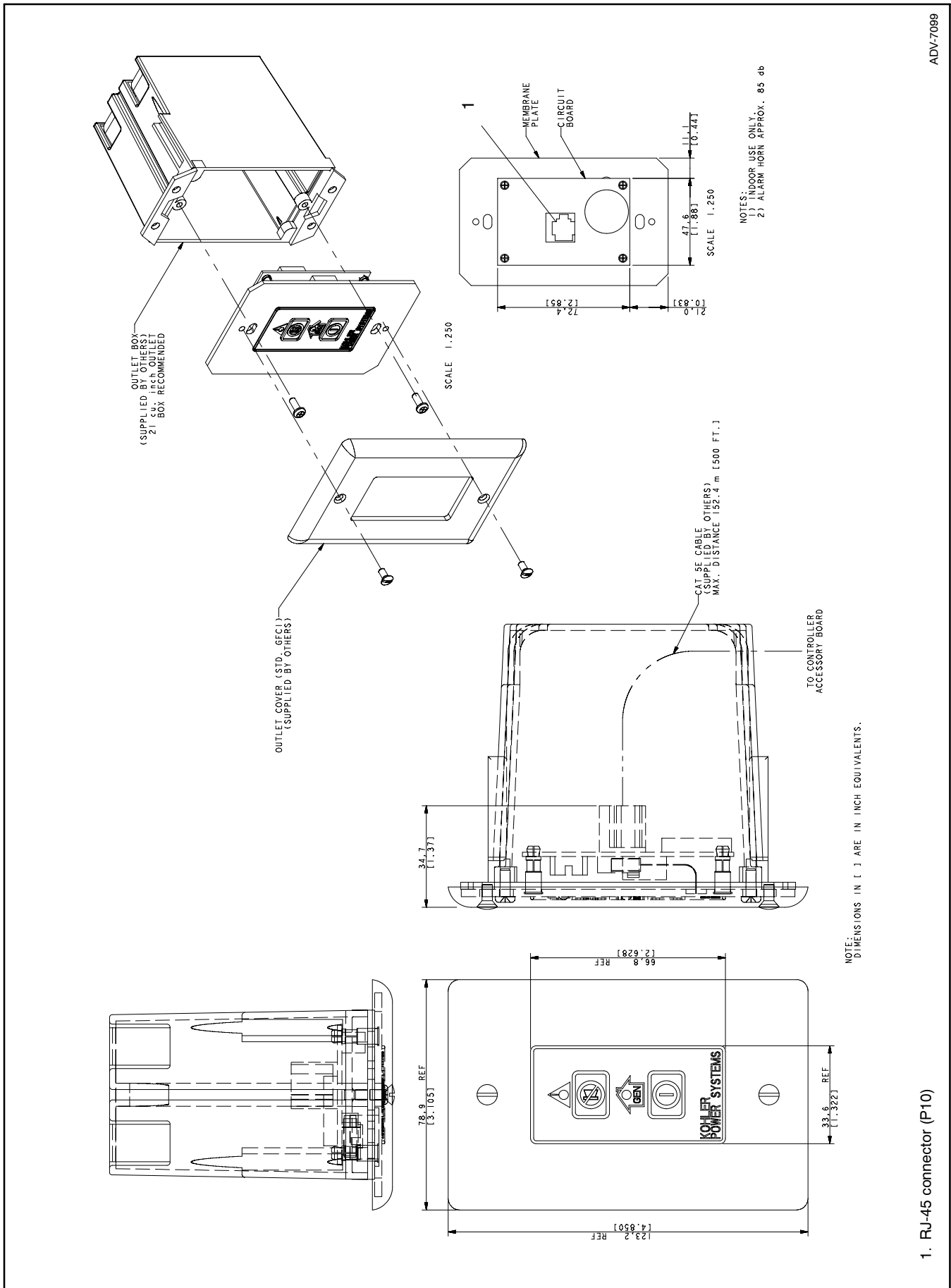


Figure 3 EAM Dimension Drawing, ADV-7099

# EAM Operation

See Figure 1 for an illustration of EAM buttons and LED indicators. Figure 4 summarizes the operation of the LED indicators and audible alarm.

**Note:** The Test and Alarm Silence buttons must be pressed and held for at least one second to operate. This feature guards against accidental system starts and stops.

**Note:** The Maintained/Momentary DIP switch on the ATS accessory board must be set to the ON (maintained) position for EAM operation.

Pressing the Test button activates a relay on the EAM circuit board to start a test. Pressing the button again deactivates the relay and stops the test.

## Starting a Test

To start the generator set and transfer the load, press the EAM Test (Start/Stop) button. The GEN LED flashes slowly until the generator set starts and the ATS transfers the load. The GEN LED then lights steadily and the audible alarm beeps once every 10 minutes to indicate that the emergency power system has been started by the EAM and is running.

## Stopping a Test

Press the Test (Start/Stop) button to stop a test. The ATS transfers the load back to the utility and then stops the generator set engine. The GEN LED flashes slowly until the load is transferred.

Pressing the Test button will not transfer the load or stop the generator set if utility power is not available. In this case, the fault LED will indicate a shutdown timeout fault after 2 minutes. (See *Faults*.) Press the Alarm Silence

button to clear the fault. When the utility power returns, the ATS will then transfer the load and stop the generator set.

The generator set engine may continue to run until the engine cooldown time delay expires. See the Transfer Switch Operation and Installation Manual for information about time delays.

## Audible Alarm

The alarm sounds once every 10 minutes to indicate that a test has been started by a remote start command from the EAM. To silence the alarm, press the Alarm Silence button. The GEN LED flashes every 2 seconds if the alarm is silenced while the generator set is supplying the load.

The GEN LED flashes but the alarm does *not* sound if the system is running due to an exercise run or an automatic start triggered by loss of the utility power.

The alarm sounds 3 short beeps every minute and the Fault LED lights or flashes to indicate a fault. See Figure 4.

## Silencing the Alarm

Press the Alarm Silence button to silence the audible alarm. If the alarm is silenced during a test, the GEN LED flashes once per second to indicate that the generator set is supplying the load and the alarm is silenced.

An ATS fault will reactivate the alarm if it has been silenced. If the alarm is silenced when the GEN LED is not illuminated, there is no visible indication that the alarm is silenced.

Press the Alarm Silence button again to reactivate the alarm.

LED Indicator		Alarm	Condition
GEN	Steady	One beep/10 minutes	Generator set supplying load after a remote start signal from the EAM Test button
	Fast flash every second	None	Generator set supplying load after a remote start signal from the EAM Test button and alarm silenced
		None	Generator set supplying load due to automatic start after utility power loss or exercise run
	Slow flash every 2 seconds	None	System starting or stopping in response to Test (Start/Stop) button
Fault	Steady	Three short beeps/minute	Power system (ATS) fault
	Flashing	Three short beeps/minute	Test did not start (or stop) within 2 minutes of EAM Test button activation

**Figure 4** EAM LED and Audible Alarm Operation

## Faults

The Fault LED lights and the alarm sounds 3 short beeps every minute to indicate the following faults:

- Failure to acquire emergency source (ATS)
- Failure to transfer (ATS)
- Auxiliary switch fault (ATS)
- Startup/shutdown timeout (EAM, flashing LED)

The fault LED flashes to indicate startup/shutdown timeout if the transfer switch does not transfer the load within 2 minutes of the signal from the EAM. Press the Alarm Silence button to clear this fault condition.

Refer to the Transfer Switch Operation and Installation Manual for more information about transfer switch faults.

## Lamp Test

Press the Alarm Silence button *briefly* (less than 1 second) to illuminate both LEDs. Holding the button more than one second will silence or reactivate the alarm as described in *Silencing the Alarm*, above.

## Parts List

### External Alarm Module

Kit: GM38795-KP1		
Qty.*	Description	Part Number
1	PCB Assy, Audible Alarm	GM37419
1	Membrane, Switch/LED	GM38872
* The two parts are factory-assembled into one unit.		