

Section 1

General Description

The SAM is for use on "Knowing Act" Automatic Swing Doors typically found in hospital corridors. The SAM is a microprocessor based timing module that will control the push plate wall switch (Knowing Act), Approach Sensor (Secondary Activation) and the Presence Sensor (Swing Side Safety). The SAM will monitor an electromechanical or electrohydraulic operated swing door's open to closed positions and its closing time via the operator motor and control when to turn on and off the approach sensor after the push plate switch is activated. This is all done while simultaneously monitoring the presence sensor and locking out its signal during the doors closing cycle.

The SAM meets ANSI A156.10 2005 requirements for swing door operators when properly installed with the appropriate sensors.

Section 2

Basic Installation

1. Mount the SAM in the door operator housing.
2. With power off, make all necessary wire connections to the wiring harnesses. Refer to Figures 1 & 2 for wiring installations.

The SAM layout and wiring connections are shown in Figures 1 & 2

3. Install resistor (Fig. 1) **ONLY** if the motor voltage exceeds 50V AC.
4. After successfully making all wiring connections, plug both wiring harnesses into the SAM. Refer to Figure 3 for operating display explanations and programming instructions.

The SAM programming instructions are shown in Figure 3



NOTICE: These instructions are provided for your convenience. Please verify your installation is in compliance with all applicable standards upon completing installation of this product.



NOTICE: The SAM works with both electromechanical and electrohydraulic operators. Confirm which type of operator is being used before installing the SAM. Follow the proper wiring diagram (2a or 2b) for your operator. For technical assistance, contact us at 1-317-842-2545.

Section 3

Technical Data

Model.....	SAM
Input Power.....	12-24V AC or DC
Power Consumption.....	<1W (0.050 Amps @ 12V)
Output Contacts.....	Form C, Rated at 3 Amps
Temperature Rating.....	-22 °F to 158 °F (-30 °C to 70 °C)
Weight.....	<0.25 lbs.
Physical Size.....	4.75"L x 2.125"W x 0.75"H

Section 4

Warranty

MS SEDCO guarantees this product to be free from manufacturing defects for 1 year from date of installation. Unless MS SEDCO is notified of the date of installation, the warranty will be in effect for 1 year from the date of shipment from our factory. If, during the first year, this device fails to operate and has not been tampered with or abused, the unit can be returned prepaid to factory and it will be repaired free of charge. After 1 year, the unit will be repaired for a nominal service charge. **This limited warranty is in lieu of all other warranties expressed or implied, including any implied warranty of merchantability, and no representative or person is authorized to assume for MS SEDCO any other liability in connection with the sale of our products. All warranties are limited to the duration of this written warranty. In no event shall MS SEDCO be liable for any special, incidental, consequential or other damages arising from any claimed breach of warranty as to its products or services.**

Questions? Call us toll-free at 1-317-842-2545 or visit us online at www.mssedco.com.

FIGURE 1—SAM Layout & Wiring Connections

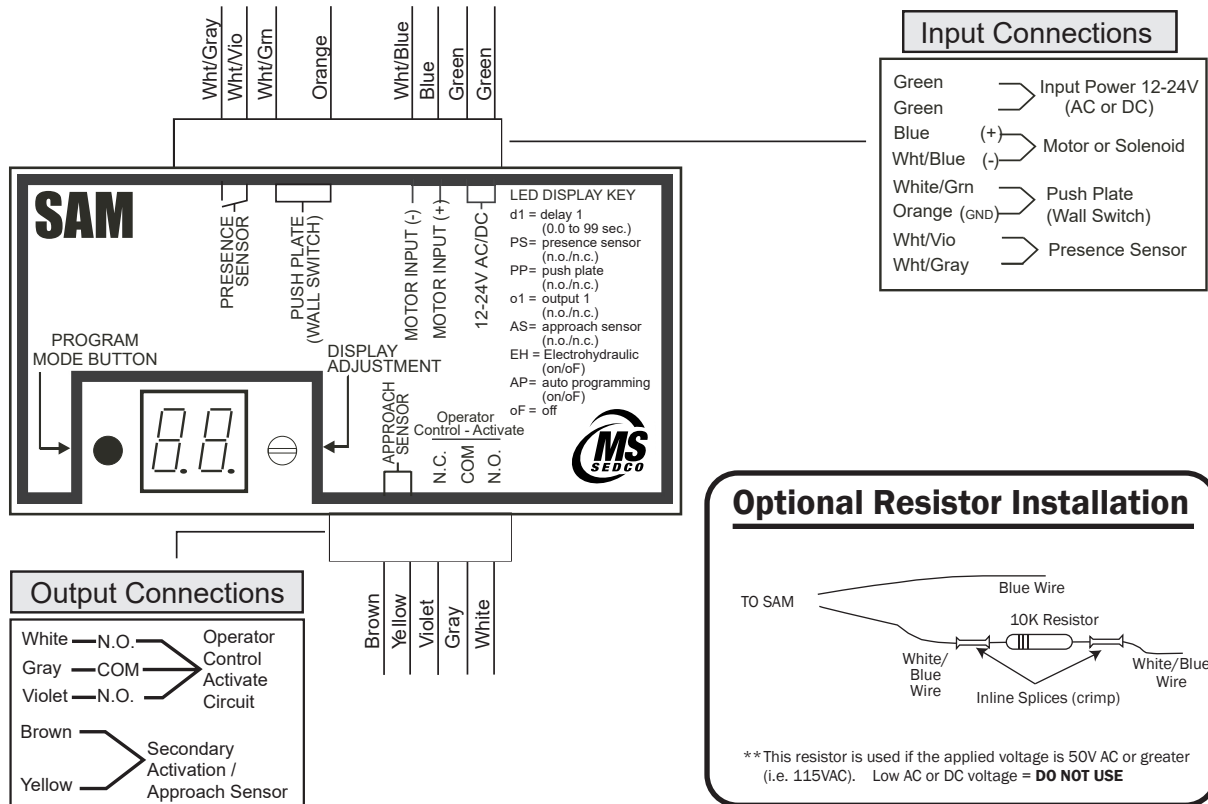


FIGURE 2a—SAM Wiring Diagram

Operator Type: Electromechanical

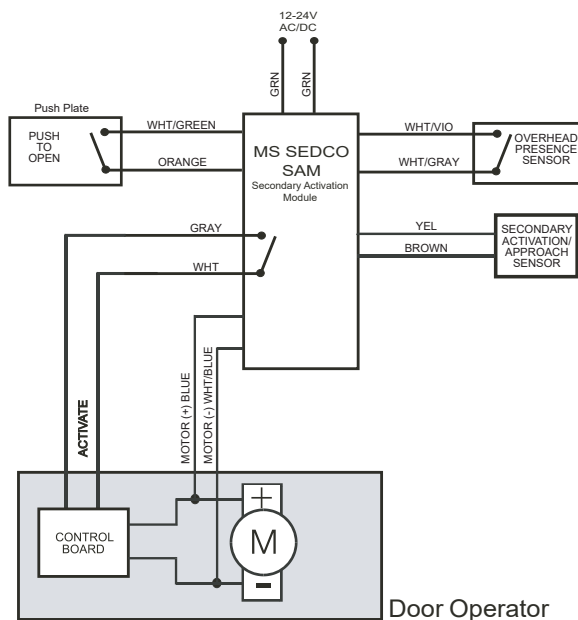


FIGURE 2b—SAM Wiring Diagram

Operator Type: Electrohydraulic with or without Solenoid

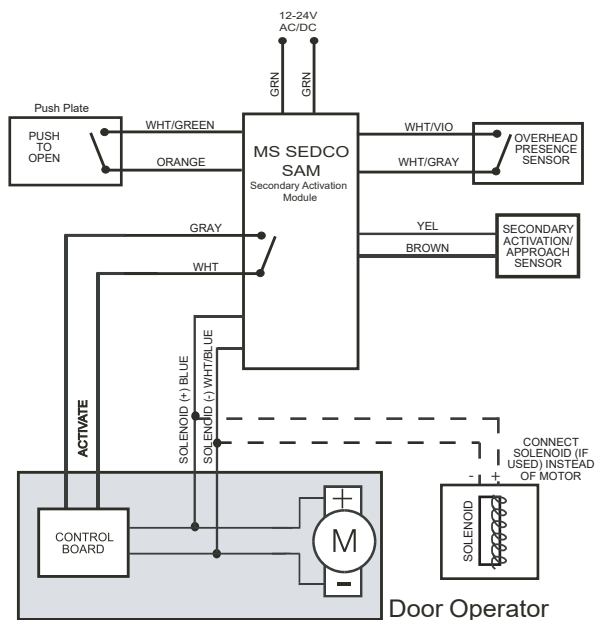
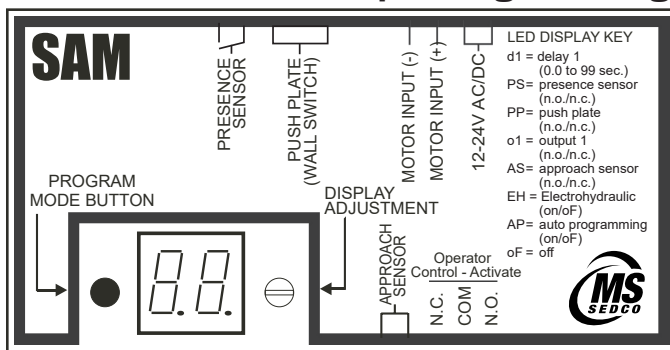


FIGURE 3—Operating and Programming Instructions



LED DISPLAY KEY

-- (flashing) = Ready Mode

Push **Program Mode Button**

- | | |
|--------------|--|
| 1 Time = d1 | 0.0 - 99 seconds
(Relay Lock Out Time) |
| 2 Times = PS | n.o. or n.c.
(PS = Presence Sensor) |
| 3 Times = PP | n.o. or n.c.
(PP = Push Plate) |
| 4 Times = o1 | n.o. or n.c.
(o1 = Relay Output 1) |
| 5 Times = AS | n.o. or n.c.
(AS = Approach Sensor) |
| 6 Times = EH | On or Off
(EH = Electrohydraulic) |
| 7 Times = AP | On or Off
(AP = Auto Program Mode for Relay Lockout Time) |

Programming Instructions: Please read these instructions completely before proceeding.

- 1) Apply power to the SAM. The display will flash double bars (--). This indicates the SAM is ready to be programmed.



NOTICE: The SAM is equipped with an **Auto Program Mode** that will automatically program the necessary relay lockout time for the presence (safety) sensor (electromechanical operators only) —OR— you can manually select the relay lockout time you desire.

- 2) Press the **Program Mode Button** one time. The **LED display** will flash between d1 and 3.0. This is the factory setting relay lockout time of 3 seconds for the presence (safety) sensor. (a) If you want to use the **Auto Program Mode**, simply press the **Program Mode Button** again and proceed to step 3. (b) If you want to manually set the relay lockout time, use a screwdriver to turn the **Display Adjustment Knob** clockwise to increase or counter-clockwise to decrease the time. Press the **Program Mode Button** to save the setting.
- 3) The **LED display** is now flashing between PS (Presence or Safety Sensor) and n.o. (normally open) and n.c. (normally closed) by turning the **Display Adjustment Knob**, depending upon how the presence (safety) sensor relay output is wired. In most applications the output should be set to n.o. (factory setting). Press the **Program Mode Button** again to save the setting.
- 4) The **LED Display** is now flashing between PP (Push Plate) and n.o. Select between n.o. and n.c. by turning the **Display Adjustment Knob**, depending upon how your push plate output is wired. In most applications, the output should be set to n.o. (factory setting). Press the **Program Mode Button** again to save the setting.
- 5) The **LED Display** is now flashing between o1 (Output 1) and n.o. Output 1 is the output to the activate circuit on the operator control. Select between n.o. and n.c. by turning the **Display Adjustment Knob**, depending upon the desired relay output for Output 1. The activate circuit of most operator controls is n.o. (factory setting). Press the **Program Mode Button** to save the setting.
- 6) The **LED Display** is now flashing between AS (Approach Sensor) and n.o. Select between n.o. and n.c. by turning the **Display Adjustment Knob**, depending upon how your Approach Sensor relay output is wired. In most applications, the output should be set to n.o. (factory setting). Press the **Program Mode Button** again to save the setting.
- 7) The **LED Display** is now flashing EH (electrohydraulic) and oF (off). Select between ON and OFF by turning the **Display Adjustment Knob**, depending upon the type of door operator. EH=ON is for an Electrohydraulic and EH=OFF is for an Electromechanical operator. Press the **Program Mode Button** again to save the setting. Note: If electrohydraulic mode is selected, the AP (**Auto Program Mode**) will always be locked in the OFF position and the time set for d1 will be used. (See step 2).
- 8) The **LED Display** is now flashing AP (**Auto Program Mode**) and oF (OFF). Select between OFF and ON by turning the **Display Adjustment Knob**. When set to ON, the relay lockout time d1 is automatically programmed. When set to OFF, the relay lockout time d1 must be manually programmed (step 1). Press the **Program Mode Button** to save the setting.



NOTICE: Once the **Auto Program Mode** has been set to ON and saved, no other programming changes can be made without first removing and then reapplying power to the unit.

Auto Program Mode ON = LED Display is Blank. Clear the opening and activate the door. It will open and close one time. The **LED Display** will flash (--). This indicates the relay lockout time has been successfully programmed. Activate the door again and the **LED Display** will count down the closing cycle time.

Auto Program Mode OFF = LED Display flashes (--). This indicates the relay lockout time d1 was manually programmed. Clear the opening and activate the door. The **LED Display** will count down the closing cycle time selected in step 1.

SAM Programming is Complete.



Troubleshooting:

Problem: When I activate the door it does not open and the LED Display Flashes PS when the presence (safety) sensor is not activated.

Solution: The presence (safety) sensor is not programmed correctly (Step 3). Make sure the wiring of the presence (safety) sensor relay output matches the SAM programming of either n.o. or n.c.

Problem: When I apply power to the door it immediately goes to hold open.

Solution 1: Output o1 is programmed incorrectly (Step 5). Make sure program setting matches the activate circuit on the operator control of either n.o. or n.c.

and/or

Solution 2: The Push Plate is not programmed correctly (Step 6). Make sure the wiring of the push plate output matches the SAM programming of either n.o. or n.c.

Problem: I set the Auto Program Mode ON and activated the door one time to program the door's closing time. Now the door will not reopen when I activate it.

Solution: The motor input wires connected to the SAM are polarity sensitive. Remove power to the SAM, reverse the motor input wire connections and reapply power. Refer to Figure 3 and reprogram the device.



WARNING: You must first remove power to the SAM BEFORE reversing the motor wire connections & then reapply power or the device will malfunction.

Problem: I set the Auto Program Mode OFF and activated the door. Now the door keeps reactivating by itself and is standing open.

Solution: The motor input wires connected to the SAM are polarity sensitive. Prop the door open first then remove power to the SAM, reverse the motor input wire connections and reapply power. Refer to Figure 3 and reprogram the device.



WARNING: Removing power to the SAM will cause the door to close. If the door is in the open position when power is removed, be sure to prop it open.

Problem: The timer countdown begins during the opening cycle.

Solution: The electrohydraulic (EH) setting is incorrect (Step 7).
EH=ON=Electrohydraulic operators.
EH=OFF=Electromechanical operators.