

Stanley Access Technologies
Quick-Reference Guide



Sentrex³ Swing Door Safety Sensor
Installation and Tune-In Instructions
Quick-Reference Guide

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Quick-Reference Guide

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1. PURPOSE

1.1 Discussion

This manual provides installation, tune-in, and troubleshooting instructions for the Stanley Sentrex³ swing door safety sensor. These instructions describe tune-in of single-door and double-door configurations.

Each sensor has a sensitivity potentiometer that can be tuned slightly for fine-tuning. Usually adjustment is not needed.

If there is a power interruption after tune-in, the zone patterns are retained in memory. When power returns, a 4-second time delay prevents the door from opening. After that, everything is the same as before the power was interrupted. To re-tune for any reason, power must be turned off then on before pushing the auto-learn pushbutton switch within this 4 seconds.

The LED on the Sentrex³ microboard is a watchdog indicator that should be on during normal operation.

After tuning, the sensor head LED will blink once every 10 seconds to verify that communication exists between the sensor head and control board. The operate sensors will blink only when the door is closed. The safety sensors will blink only when the door is open.

When communication between the control box and the sensor head breaks down (e.g. from a defective sensor head or broken flex-link cable) the door will not operate. It will stay either in full open or closed position, depending on the timing and nature of the breakdown.

1.2 Applicability

These instructions are applicable to the Stanley Sentrex³ swing door safety sensor. This manual can be used with the Magic-Swing and MC521 control boxes.

1.3 Features and Functions

The Sentrex³ swing door safety sensor includes the following features:

- Active infrared technology and microprocessor control provides approach and safety zone coverage without the use of mats.
- Door-mounted sensors monitor the swing path area. If an object is in the safety zone, the Sentrex³ will not allow the door to open. If an object enters the safety zone after the door starts to open, the Sentrex³ system shall cause the door to stall. Sentrex³ will re-open the door if an object enters the activate zone as the door starts to close, unless an object is in the safety zone.
- The microprocessor interprets the swing path area and prevents the door from opening or closing if pedestrians or obstructions are present.
- The microprocessor and sensors self-tune to establish doorway safety zones without the need for special instruments.

2. PREREQUISITES

- 2.1 The door is operating properly in accordance with ANSI specifications.
- 2.2 The control box is operating properly in accordance with Stanley Access Technologies document No. 204027, "Magic-Swing™, Magic-Force™, and Bifold MC521 Control Box Quick-Reference Guide" or Stanley Access Technologies document No. 203959, "Magic-Swing™ and Magic-Force™ HDLE/FE Microprocessor Control Box Quick-Reference Guide," as applicable.
- 2.3 Protective barrier (caution/warning tape) has been set up to prevent unauthorized access to work area.
- 2.4 Attachment 1 has been reviewed for the following:
 - Definitions of the terms used in this procedure
 - A listing of the additional documents required during this procedure
 - A listing of the tools, equipment, materials, and consumables used in this procedure.

3. PRECAUTIONS

- 3.1 To avoid injury to personnel and damage to equipment, do not disconnect cables or wires while power is applied. Damage to printed circuit boards may result.

4. INSTALLATION AND TUNE-IN INSTRUCTIONS

4.1 **Performing Initial Controller Adjustments**

- 4.1.1 Refer to Stanley Access Technologies document No. 204027, "Magic-Swing™, Magic-Force™, and Bifold MC521 Control Box Quick-Reference Guide" or Stanley Access Technologies document No. 203959, "Magic-Swing™ and Magic-Force™ HDLE/FE Microprocessor Control Box Quick-Reference Guide" as applicable, and PERFORM the following:
 - a. CONFIGURE controller for the applicable swing door application.
 - b. SET door "ON/OFF/HOLD OPEN" switch to "ON."
 - c. ADJUST open speed, open-check speed, and stall for proper operation.
 - d. ADJUST time delay to minimum.
 - e. SET door function switch to "OFF."

4.2 **Installing Sentrex³—Single Door Configuration**

WARNING

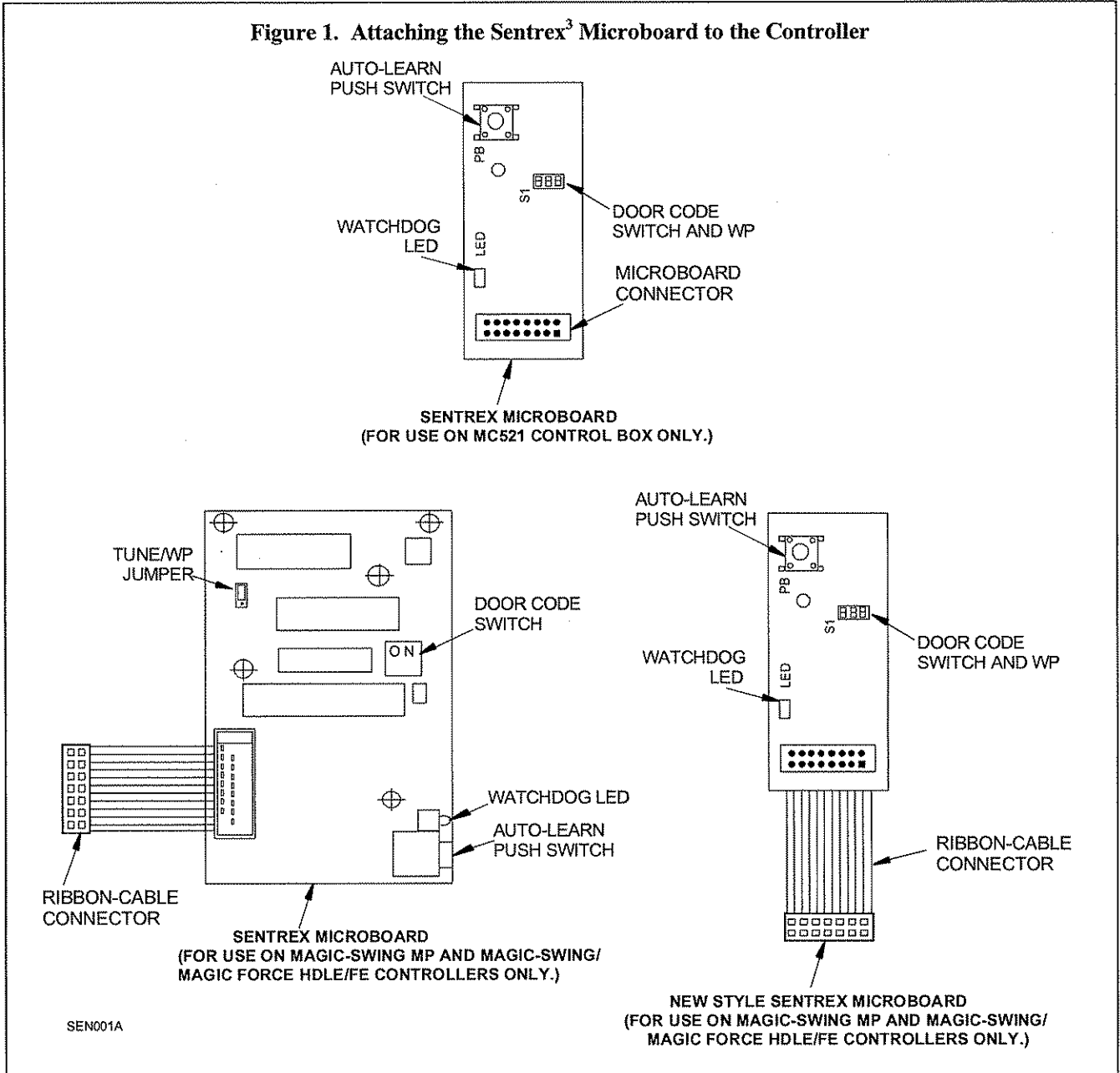
To avoid injury to personnel and damage to equipment, do not disconnect cables or wires while power is applied.

- 4.2.1 DEENERGIZE incoming electrical power to door.
- 4.2.2 REMOVE cover from control box.

4.2.3 Refer to Figure 1, and CONNECT the Sentrex³ microboard as follows:

- For MC521 controller, CONNECT Sentrex³ microboard connector to MC521 connector J401
- For Magic-Swing or Magic-Swing/Magic-Force HDLE/FE controller, CONNECT Sentrex³ microboard ribbon cable connector to connector J2.

Figure 1. Attaching the Sentrex³ Microboard to the Controller



NOTE

The older 515741 Sentrex³ microboard connects to the Magic-Swing MP or Magic-Swing/Magic-Force HDLE/FE controller control box with three nylon snap on standoffs.

The newer 515741 Sentrex³ microboard connects to the Magic-Swing MP or Magic-Swing/Magic-Force HDLE/FE controller control box with one nylon snap on a single standoff.

The Sentrex³ microboard connects to the MC521 control box with one standoff under the microboard and another standoff on top of the microboard.

- 4.2.4 FASTEN the Sentrex³ microboard to the control box as required.
- 4.2.5 CONNECT the flex-link cable into the terminal block as follows:

Position	Magic-Swing Controller TB/Wire Color	MC521 Controller TB/Wire Color
1	TB2-Red	TB1-Red
2	TB2-Green	TB1-Green
3	TB2-White	TB1-White
4	TB2-Black	TB1-Black

- 4.2.6 PERFORM applicable action:
 - For Magic-Swing controller, INSERT the flex-link cable connector into connector TB2.
 - For MC521 controller, INSERT the flex-link cable connector into connector TB1.
- 4.2.7 On the Sentrex³ microboard, SET switch S1 dip switch No. 1 to "ON" and dip switch No. 2 to "OFF."
- 4.2.8 PERFORM applicable action:
 - For Magic-Swing controller, CONNECT JP3 to the "TUNE" position on the older microboard. For the newer microboard SET S1 dip switch No. 3 to "ON." (ON is the TUNE position)
 - For MC521 controller, SET S1 dip switch No. 3 to "ON." (ON is the TUNE position.)
- 4.2.9 SET the rotary switch on the back of each sensor head as follows:

Switch Setting	Sensor Function
0	Door 1 operate sensor
1	Door 1 operate sensor
2	Door 1 safety sensor
3	Door 1 safety sensor

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- 4.2.10 If necessary, SET UP temporary cardboard walls to define the desired zone.
- 4.2.11 DISCONNECT or MUTE the activation sensor before the auto-learn process.
- 4.2.12 SET door function switch to "ON."

NOTE

During the auto-learn process in the following steps, all persons must be clear of the detection zone. If someone needs to pass through the doorway, the auto-learn process can be interrupted by setting the door function switch to "HOLD OPEN," and manually pushing the door open to allow the pedestrian to pass. When the zone is clear, set the door function switch back to "ON," and the door will automatically return to the position it was in before the interruption.

During the auto-learn process, any other Sentrex door within line of sight must be deenergized.

- 4.2.13 ENSURE all persons are clear of the detection zone when performing the auto-learn process in the following step.
- 4.2.14 DEENERGIZE any other Sentrex door within line of sight.
- 4.2.15 ENERGIZE 115 VAC line power to control box, and immediately PRESS and HOLD the Auto-Learn switch on the Sentrex³ microboard for 2 seconds. The following shall occur:
 - In approximately 15 seconds, the door will open and then close to count the motor revolutions for the 90° door position.
 - The door will then re-open and step closed in 12 increments—adjusting the sensor zone at each step.
 - The LED on the sensor head will blink once in each of the 12 steps to verify zone setting.
 - When the system has completed the auto-learn cycle, the door will open and then close for final verification.
- 4.2.16 If the door opens, closes, and re-opens but does not go into stepping/tuning mode, PERFORM the following:
 - a. Temporarily INCREASE the open-check speed.
 - b. ENSURE that the Hold-Open Time Delay is adjusted to minimum.
 - c. DEENERGIZE 115 VAC line power to control box.
 - d. ENERGIZE 115 VAC line power to control box.
 - e. PRESS the Auto-Learn switch on the Sentrex³ microboard. The door shall retune.

4.2.17 DEENERGIZE 115 VAC line power to control box.

NOTE

If nearby doors have Sentrex³ systems, the door codes should be different from one another.

4.2.18 If other Sentrex³ systems are installed nearby, refer to the following table, and, using switch S1 dip switches on the Sentrex³ microboard, SELECT the applicable door code.

Single Door Code	Dip Switch 1	Dip Switch 2
0	On	On
1	On	Off
2	Off	On
3	Off	Off

4.2.19 PERFORM applicable action:

- On the Magic-Swing control box Sentrex³ older microboard, CONNECT jumper JP3 to the “WP” (write protect) position. For the newer microboard SET S1 dip switch No. 3 to “OFF.” (OFF is the write protect) position.
- On the MC521 control box Sentrex³ microboard, SET switch S1 dip switch No. 3 to “OFF.” OFF is the WP (write protect) position.

4.2.20 Using the screws provided, FASTEN the control box cover to the control box.

4.2.21 Refer to the applicable sensor manual, and ADJUST the operate sensor sensitivity and time delay.

4.2.22 Refer to the following as applicable, and ADJUST the control box time delay.

- Stanley Access Technologies document No. 204027, “Magic-Swing™, Magic-Force™, and Bifold MC521 Control Box Quick-Reference Guide”
- Stanley Access Technologies document No. 203959, “Magic-Swing™ and Magic-Force™ HDLE/FE Microprocessor Control Box Quick-Reference Guide”

4.2.23 WALK TEST the system.

4.3 Installing Sentrex³—Double Door Configuration

4.3.1 Refer to Section 4.1, and PERFORM initial controller adjustments.

4.3.2 DEENERGIZE 115 VAC line power to control box.

4.3.3 REMOVE cover from control box.

4.3.4 Refer to Figure 1, and CONNECT the Sentrex³ microboard as follows:

- For MC521 controller, CONNECT Sentrex³ microboard connector to MC521 connector J401.
- For Magic-Swing controller, CONNECT Sentrex³ microboard ribbon cable connector to connector J2.

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NOTE

The Sentrex³ microboard connects to the Magic-Swing control box with three nylon snap on standoffs.
The Sentrex³ microboard connects to the MC521 control box with one standoff under the microboard and another standoff on top of the microboard.

4.3.5 FASTEN the Sentrex³ microboard to the control box as required.

4.3.6 CONNECT the flex-link cable into the terminal block as follows:

Position	Magic-Swing Controller TB/Wire Color	MC521 Controller TB/Wire Color
1	TB2-Red	TB1-Red
2	TB2-Green	TB1-Green
3	TB2-White	TB1-White
4	TB2-Black	TB1-Black

4.3.7 PERFORM applicable action:

- For Magic-Swing controller, INSERT the flex-link cable connector into connector TB2.
- For MC521 controller, INSERT the flex-link cable connector into connector TB1.

4.3.8 On the Sentrex³ microboard, SET switch S1 dip switches as follows:

- For door 1, SET dip switch No. 1 to "ON" and dip switch No. 2 to "OFF."
- For door 2, SET dip switch No. 1 to "OFF" and dip switch No. 2 to "ON."

4.3.9 PERFORM applicable action:

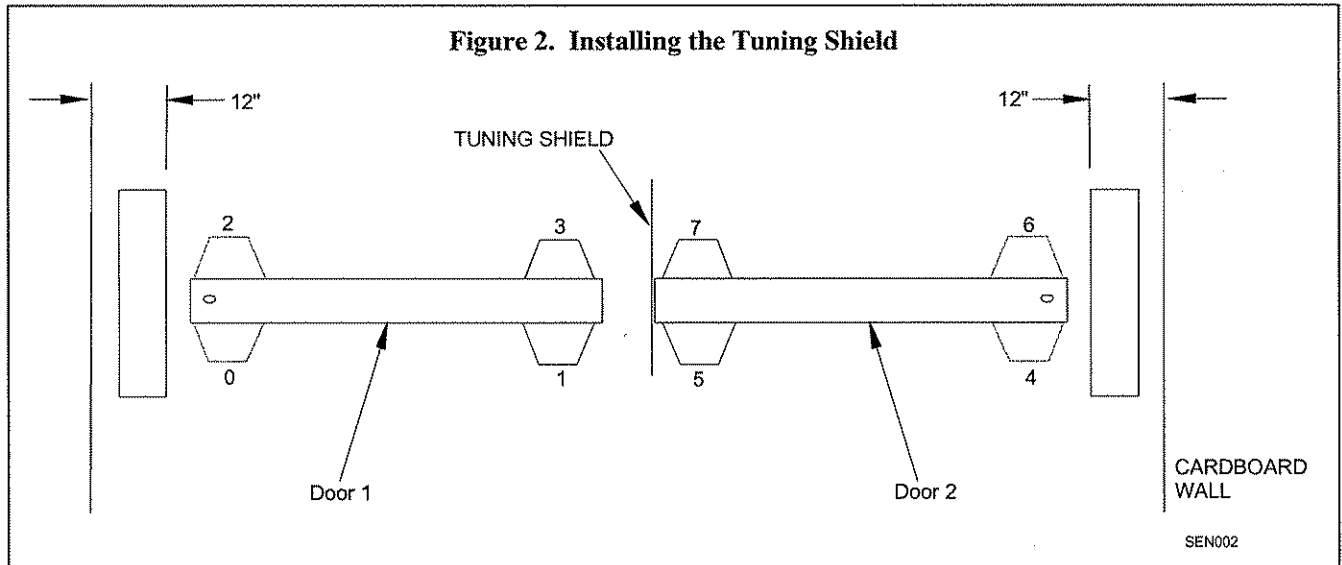
- On the Magic-Swing control box Sentrex³ microboard, CONNECT jumper JP3 to the "TUNE" position on the older microboard. For the newer microboard SET S1 dip switch No. 3 to "ON." (ON is the TUNE position.)
- On the MC521 control box Sentrex³ microboard, SET S1 dip switch No. 3 to "ON." (ON is the TUNE position.)

4.3.10 SET the rotary switch on the back of each sensor head as follows:

Switch Setting	Sensor Function
0	Door 1 operate sensor
1	Door 1 operate sensor
2	Door 1 safety sensor
3	Door 1 safety sensor
4	Door 2 operate sensor
5	Door 2 operate sensor
6	Door 2 safety sensor
7	Door 2 safety sensor

4.3.11 If necessary, SET UP temporary cardboard walls to define the desired zone.

4.3.12 Refer to Figure 2, and INSTALL tuning shield on door that is *not* to be tuned.



4.3.13 SET door function switch to "ON."

NOTE

During the auto-learn process in the following steps, all persons must be clear of the detection zone. If someone needs to pass through the doorway, the auto-learn process can be interrupted by setting the door function switch to "HOLD OPEN," and manually pushing the door open to allow the pedestrian to pass. When the zone is clear, set the door function switch back to "ON," and the door will automatically return to the position it was in before the interruption.

- 4.3.14 ENSURE all persons are clear of the detection zone when performing the auto-learn process in the following step.
- 4.3.15 ENERGIZE 115 VAC line power to control box, and immediately PRESS and HOLD the Auto-Learn switch on the Sentrex³ microboard for 2 seconds. The following shall occur:
- In approximately 15 seconds, the door will open and then close to count the motor revolutions for the 90° door position.
 - The door will then re-open and step closed in 12 increments—adjusting the sensor zone for the door that is being tuned at each step.
 - The LED on the sensor head will blink once in each of the 12 steps to verify zone setting.
 - When the system has completed the auto-learn cycle, the doors will open and the sensors will be operational.
- 4.3.16 If the door opens, closes, and re-opens but does not go into stepping/tuning mode, PERFORM the following:
- a. Temporarily INCREASE the open-check speed.
 - b. ENSURE that the Hold-Open Time Delay is adjusted to minimum.
 - c. DEENERGIZE 115 VAC line power to control box.
 - d. ENERGIZE 115 VAC line power to control box.
 - e. PRESS the Auto-Learn switch on the Sentrex³ microboard. The door shall retune.
- 4.3.17 DEENERGIZE 115 VAC line power to control box.
- 4.3.18 REMOVE the tuning shield.
- 4.3.19 To tune the second door, PERFORM the following:
- a. SET switch S1 dip switches on Sentrex³ microboard as follows:
 - For door 1, SET dip switch No. 1 to "ON" and dip switch No. 2 to "OFF."
 - For door 2, SET dip switch No. 1 to "OFF" and dip switch No. 2 to "ON."
 - b. PERFORM applicable action:
 - On the Magic-Swing control box Sentrex³ older microboard, CONNECT jumper JP3 to the "TUNE" position. On the newer microboard SET S1 dip switch "ON". (ON is the TUNE position.)
 - On the MC521 control box Sentrex³ microboard, SET S1 dip switch No. 3 to "ON." (ON is the TUNE position.)
 - c. If necessary, SET UP temporary cardboard walls to define the desired zone.
 - d. Refer to Figure 2, and INSTALL tuning shield on door that is *not* to be tuned.

- e. REPEAT steps 4.3.14 through 4.3.18 to tune the second door.
- 4.3.20 When door tuning is complete, SET door codes as follows:
 - a. DEENERGIZE 115 VAC line power to control box.
 - b. For pairs of doors in close proximity, SET door codes as follows:
 - For pair 1, SET S1 dip switch No.1 and No. 2 to “ON.”
 - For second pair, SET S1 dip switch No. 1 to “ON” and No. 2 to “OFF.”
- 4.3.21 PERFORM applicable action:
 - On the Magic-Swing control box Sentrex³ older microboard, CONNECT jumper JP3 to the “WP” (write protect) position. On the newer microboard SET switch S1 dip switch No. 3 to “OFF.” OFF is the WP (write protect) position.
 - On the MC521 control box Sentrex³ microboard, SET switch S1 dip switch No. 3 to “OFF.” OFF is the WP (write protect) position.
- 4.3.22 Using the screws provided, FASTEN the control box cover to the control box.
- 4.3.23 Refer to the applicable sensor manual, and ADJUST the operate sensor sensitivity and time delay.
- 4.3.24 Refer to the following as applicable, and ADJUST the control box time delay.
 - Stanley Access Technologies document No. 204027, “Magic-Swing™, Magic-Force™, and Bifold MC521 Control Box Quick-Reference Guide”
 - Stanley Access Technologies document No. 203959, “Magic-Swing™ and Magic-Force™ HDLE/FE Microprocessor Control Box Quick-Reference Guide”
- 4.3.25 WALK TEST the system.

4.4 Performing the Closeout Procedure

- 4.4.1 ENSURE glass and metal surfaces are clean.
- 4.4.2 ENSURE door installation area is clean and free of debris.
- 4.4.3 COMPLETE Work Order and REPORT your actions to Building Superintendent.

4.5 Troubleshooting the Sentrex³ System

4.5.1 Refer to Table 4-1 for troubleshooting recommendations.

Table 4-1. Troubleshooting Recommendations

Symptom	Recommendation
No sensor LED blinks during the auto-learn cycle.	On MC521 control box, is TB1 wired correctly? On Magic-Swing control box, is TB2 wired correctly? If yes, check for broken wiring on the flex-link cable. If no, correct wiring as applicable.
Door stays open with no sensor LED on.	Does safety sensor LED flash once every 10 seconds while the door is open? If no, use an ohmmeter to check continuity through the flex-link cable. If the wires are intact, replace defective safety sensor. If there is a broken wire, replace the flex-link cable.
Sensors on multiple door installation seem to be cross-talking (ghosting).	Are door code switch settings properly selected? If no, select different codes for each door. If yes, check with electrician to determine if all doors are on the same phase. If not, call factory for assistance.
Door starts going through the tuning steps starting from full open and the door suddenly closes.	Separate the wires in the header. Keep motor wires isolated from the Sentrex ³ flex-link cable and the encoder cable.

Attachment 1
Documents, Definitions, Tools, Equipment, Materials, and Consumables
(Sheet 1 of 1)

Documents

- Stanley Access Technologies document No. 204027, "Magic-Swing™, Magic-Force™, and Bifold MC521 Control Box Quick-Reference Guide" or Stanley Access Technologies document No. 203959, "Magic-Swing™ and Magic-Force™ HDLE/FE Microprocessor Control Box Quick-Reference Guide," as applicable.

Definitions

- None

Tools and Equipment (including, but not limited to)

- Screwdriver kit
- Ohmmeter
- Voltmeter

Materials (including, but not limited to)

- None

Consumables (including, but not limited to)

- Temporary cardboard walls to define the desired zone
- Clean rags