Installation and Operating Instructions

SM 100 Wireless Synchronization Module

1168800

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The Garrett SM 100 Wireless Synchronization Module allows the operation of multiple Garrett PD 6500i walk- through metal detectors to operate in close proximity without the need for power line phase or wired synchronization. This feature is especially important when the units are operated from battery power. A master unit can control a cluster of slave units within approximately 20 feet. A cluster consists of one master unit and as many slave units as space allows. Sixteen radio channels are available to allow the configuration of multiple clusters within a venue.

1. Indicators

1.1.1 The module has two LEDs. The Communication Status LED indicates the status of communication between the host walk-through and the sync module. The Walk-Through Link LED is used to confirm that the SM 100 is connected and communicating to the host walk-through. The LED is illuminated when the connection is made and will blink at 15 second intervals and whenever the Operate button on the walkthrough control panel is pressed, indicating data is being transferred. The Radio Link LED will illuminate when the following conditions are met: 1) one SM 100 in a cluster is set to master and is active; 2) the frequency settings of the slave walk-throughs is the same as the master; and 3) the distance between master and a slave module is within acceptable limits based on environmental conditions.

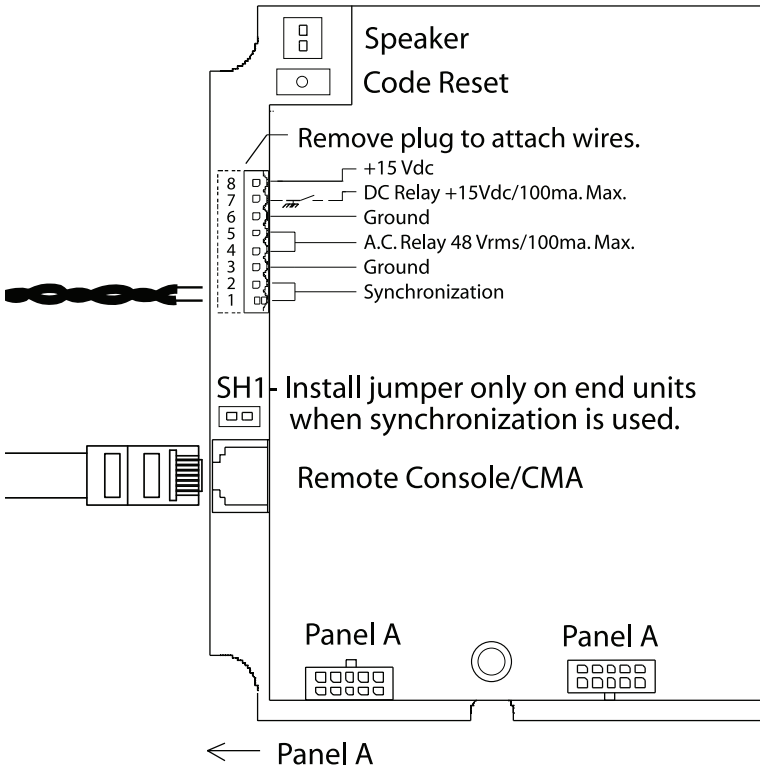
1.2 Installation

1.2.1 Connecting the module requires removal of the control module cover located inside the control unit of the walk-through. Disconnect the power cord, remove the three screws holding the cover, and remove. Connect the communication cable (provided) to the RJ-45 connector located on the left side of the circuit board. Connect the twisted wires (provided) to pins 1 and 2 of the plug-wire terminal connector. These SYNC wires provide the synchronization pulses to/from the sync module depending on SYNC status and must be connected correctly.

Connect the black (or dark colored) wire to pin 1 and the red (or light colored) wire to pin 2. *See Figure 1.*

CAUTION—An incorrect connection will cause unwanted interference between two or more detectors.

Figure 1



1.2.2 The SM 100 may be installed on top of or inside the detection unit of the PD-6500i. External placement provides additional range. Internal placement protects the module from weather and tampering. Use the attaching strips to position the module as shown in Figure 2.

Figure 2

(Above) Wireless Synchronization Module mounted internally.

(Above) Wireless Synchronization Module mounted externally.

1.3 Configuration

1.3.1 For large installations, the walk-through detectors should be organized into one or more clusters. Each cluster will consist of one master and multiple slaves. It is recommended that a slave unit be placed within 20 feet of its master unit. Checkpoint spanning greater distances may require multiple clusters. Use frequency offsets and a minimum distance of 10 feet between clusters to ensure proper operation.

The SM 100 modules are used to synchronize the operation of the units to eliminate unit-to-unit interference. The configuration of SM 100 module is controlled by the settings of the walkthrough to which it is attached. The settings that control the operation are described in the PD 6500i User Manual. Refer to the section for Multiple Walkthrough Site Installation for configuration and spacing requirements. The SM 100 modules will be used in place of the Synchronization Wires. Remember that the master unit must always be operational if more than one unit in a cluster is switched on. The settings of each walkthrough must be as follows:

- **Synchronization**—Make this selection through the menu setting on the PD 6500i. Set the Synchronization of one unit in each cluster to master and all others in the cluster to slave.
- **Line Sync**—
  - Set the Line Sync for each master to Off which also sets the unit to Channel 1
  - For slave Units, switch Line Sync to OFF to allow the selection of the Frequency value. Line Sync must then be switched ON for Channel selection and operation.
- **Channel**—Alternate the Channel settings on adjacent units between 1 and 2 starting with the master unit which will always be in Channel 1.
- **Frequency**—
  - The Frequency setting provides a means for frequency offsets which are used to allow multiple walkthrough units or multiple walkthrough clusters to operate without interference within a venue. Adjustments to frequency can also be useful in eliminating interference from other walkthrough unit or from other electrical interference. The allowable frequency range for this application is between 1970 and 2300. Refer to the manual for detailed information on frequency selection.
  - This frequency number is also the unique identifier that places a walkthrough into a synchronization cluster. For a SM 100 in the master mode to be recognized, the walkthrough to which the slave SM 100 is connected must be set to the same frequency as the SM 100 master unit.
  - This number also controls the radio channel of the synchronization system. Each block of 39 consecutive frequencies are assigned to one radio channel. When operating multiple clusters of walk-through detectors at a venue, select frequency numbers for each cluster that are at least 39 numbers apart.
- **M Filter**—Switch M Filter to OFF on each unit when operating multiple clusters in close proximity.

1.4 Operation

1.4.1 1. Power on each walkthrough unit and verify that the LEDs on the wireless sync module light up as described above.
2. The Link Status LED should glow continuously (solid) to indicate proper radio frequency communication.
3. The Communication Status LED should blink at least once every 15 seconds.
3. Always verify that all SM 100 modules are connected and configured properly. Observe the bar graph activity and the ready light on each unit for a period of time to be sure there is no interference between units. If interference is observed, check the settings on each unit and/or switch the slave units off one at a time until the interference disappears. Re-check the settings and the connection of the sync wires on pins 1 and 2 of the connector on the unit causing the problem.

For more information on walkthrough synchronization, please read the PD 6500i User Manual.

1.5 Limitation of the Wireless Sync Module

1.5.1 The wireless sync modules communicate using radio frequency waves in the 2.4G Hz spectrum. As such, any physical obstacle that might block the transmission of these waves could degrade functioning of this module. Examples of such obstacles include thick walls and metal barriers.

1.5.2 Successful reception of signal on the wireless sync module is limited to approximately a 20 feet radius from the master unit. This distance may be reduced if there are obstacles between the master and slave units.

1.6 Regulatory

1.6.1 This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Any modifications to this equipment without the approval of the manufacturer will void the user's authority to operate the equipment.

This product complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference including interference that may cause undesired operation of this device.

Ce produit est conforme avec Industrie Canada, exempts de licence standard RSS (s). Son fonctionnement est soumis aux deux conditions suivantes: (1) ce dispositif ne peut pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence y compris les interférences qui peuvent causer un mauvais fonctionnement de ce dispositif.

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