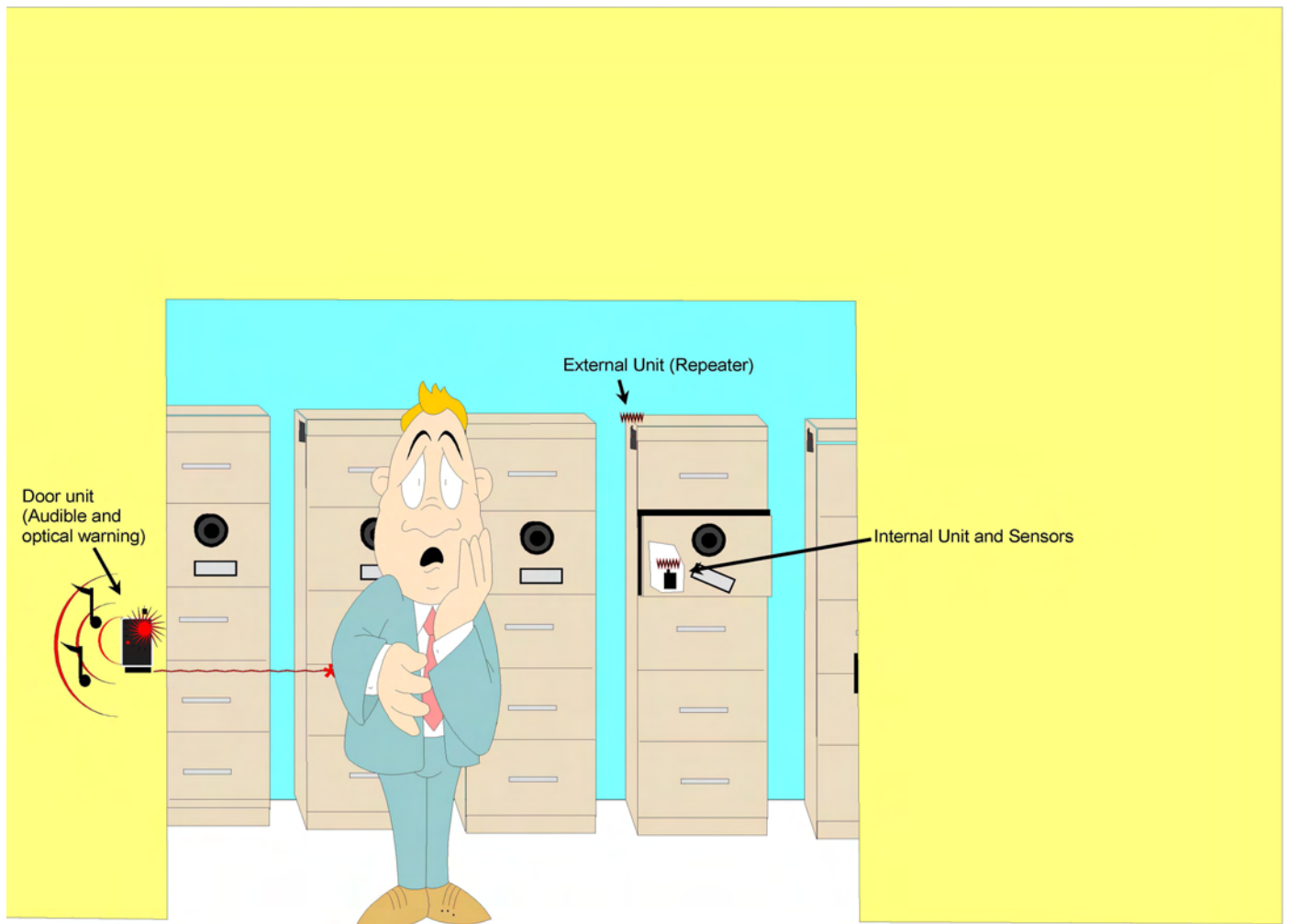


Installation Of Secure Safe



INTRODUCTION

Thank you for taking an active part in your facilities security and purchasing the National Nuclear Security Administration's Secure Safe System.

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FCC Compliance Statements

Radiation Exposure Statement to comply with CFR47 RF exposure requirements in section 1.1307.

All persons must maintain a minimum separation distance of 0.5 cm (0.2 inches) from the antenna for RF exposure compliance.

Door Unit Part no. 1475382

This device 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.

Modifications to the Door unit not expressly approved by Honeywell FM&T could void the user's authority to operate this equipment.

Internal Unit Part no. 1475381

FCC ID VGKSSSINT

This device 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.

Modifications to the Internal unit, not expressly approved by Honeywell FM&T could void the user's authority to operate this equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

External Unit Part no. 1475383

FCC ID VGKSSSEXT

This device 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.

Modifications to the Internal unit, not expressly approved by Honeywell FM&T could void the user's authority to operate this equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

1. SCOPE

This specification defines the procedures for installation and maintenance of the Secure Safe System. Safe design and construction varies from manufacturer to manufacturer. This manual addresses installation of the most common safes.

2. OPERATION OF SECURE SAFE SYSTEM

- An **Internal Unit** is located in each drawer that has a lock. The 3.6 v lithium battery powered Internal Unit monitors the status of the lock and the drawer position. The Internal Unit “sleeps” most of the time to conserve battery power, but once a second it awakens and checks the status of the lock and drawer position. If and only if there is a change from the previous second status the new status will be broadcast. The signal broadcast by the Internal Unit is greatly attenuated by the structure of the closed safe, as no mechanical alterations (i.e. holes drilled, sheet metal deformed, or shielding plates removed) to the safe is allowed in this installation.
- One **External Unit** is designed to be located adjacent to each drawer containing an Internal Unit. The External Unit “Repeats” the attenuated signal of the Internal Unit. One External Unit, mounted between two safes, may be used to monitor locked drawers adjacent to one another. One External Unit can be programmed to respond to a max of five locked drawers. However, because of the low levels of RF emitted from each Internal Unit, it may not be possible for one External Unit to be positioned in near enough proximity to receive all transmissions. The External Unit has four LEDs monitoring Transmit (red), drawer status (green closed and locked red open), low Internal Unit battery (red), and hard drive status*. The External Unit is powered by a 5-volt DC wall power supply.
- One **Door Unit** can manage signals from 5 Internal Units. A separate Door Unit monitors each of the exits of a secured area. If the beam across the exit is broken a high intensity red Led flashes and an audible alarm plays for a few seconds. Five LEDs on the Door Unit indicates which drawer(s) are not secured RED and which are secure GREEN. Three other LEDs on the Door Unit indicate RF received, Internal Unit low battery, and exit Beam status. Five other LEDs indicate the hard drive status*. The Door Unit is powered by a 12 volt DC wall power supply.
- For best results locate safes in a room or cubical with a single entrance/exit opening of 6 feet or less. This will prevent alarm being set off by normal office traffic. If multiple exits are used a Door Unit will be required for each exit. Only the Door Unit that has its beam broken will alarm.

3. MATERIALS AND EQUIPMENT

Secure Safe System Overview

- Internal Unit Assembly (P/N 1475384-000-SSS) contains:
 - Internal Unit (P/N 1475381-101-SSS)
 - Battery Holder / Battery – Supplies power for the Internal Unit.
 - Magnetic Sensor / Magnet – Senses drawer closed state.
 - Magnetic Sensor Mount - Positions the sensor
 - Optical Sensor PWA and cable – Senses drawer lock state
 - Optical Sensor Mount – Used with some safe designs
 - Velcro – Used to attach the secure safe system components
 - Double sided foam tape– Used to attach the secure safe system components.
 - Loctite® 811 glue- Used to attach optical sensor PWA and Magnetic sensor.
- External Unit Assembly (P/N 1475386-101-SSS) contains:
 - External Unit (P/N 1475383-101-SSS)
 - Velcro – Used to attach the secure safe system components
 - 5-volt DC power supply
- Door Unit Assembly (P/N 1475385-101-SSS) contains:
 - Door Unit (P/N 1475382-101-SSS)
 - Reflector – Used with Door Unit's beam to detect entry and exit of safe area.
 - Velcro – Used to attach the secure safe system components
 - Double sided foam tape– Used to attach the secure safe system components.
 - 12-volt DC Power supply
- Programming Cable – Programs the Internal, External, and Door Units for proper operation from hyper terminal.

Tools required

- Phillips Head Screw Driver
- Small Flat Head Screw Driver
- Scissors (for cutting Velcro and foam tape)
- Alcohol (for cleaning)

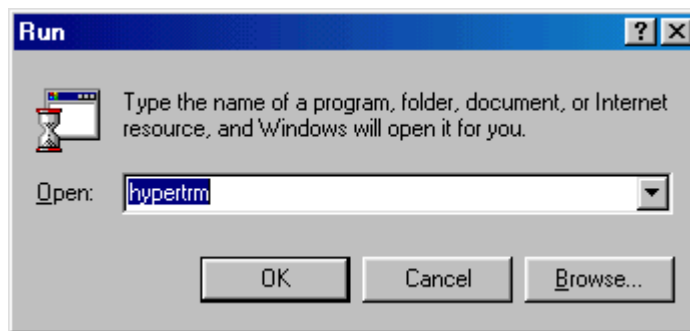
4. PROGRAMMING UNITS

NOTE: The programming of the secure safe units requires Microsoft Hyper Terminal and a serial port on the computer.

Setting up Hyper Terminal

Step 1- Load HyperTerminal:

- Click Start > Run
- In the box which appears type in: **HYPERTRM**
- Click OK.



If you see the error message 'Cannot find HYPERTRM' you will need to install HyperTerminal:

Using Windows:

- Click Start > Settings > Control Panel > Add / Remove Programs.
- In Add / Remove Programs select Properties and then click the Windows Setup tab.
- Double-click Communications
- Check the box for HyperTerminal
- Click OK, and then OK again to install.
- **Note:** You may be asked for your Windows installation disk for this procedure.

Note: Using Non Windows OS will require an installation of a shareware version of hyper terminal and will not be supported.

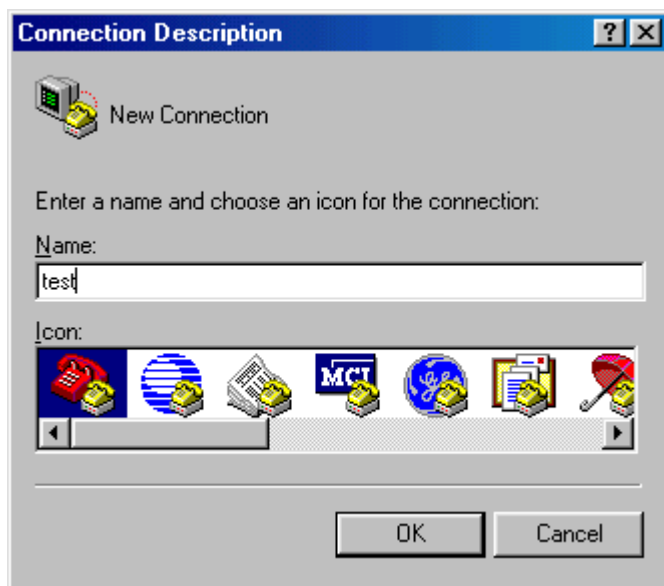
Step 2- When HyperTerminal starts you will be presented with a '**Location Information**' dialogue box.

- Click '**Cancel**' to continue.
- It will ask you if you are sure you want to cancel. Click '**Yes**'
- Finally Click '**OK**'



Step 3- You will then be presented with a '**Connection Description**' dialogue box.

- Type '**SecureSafe**' into the text box.
- Click '**OK**'



You will be presented with another '**Location Information**' dialogue box.

- Click '**Cancel**' to continue.
- It will ask you if you are sure you want to cancel. Click '**Yes**'
- Finally Click '**OK**'

Step 4- You will be presented with a '**Connect To**' Dialog Box

- Click on the arrow for the '**Connect Using**' drop down box
- Select your COM Port: (The serial port your hyper terminal cable is connected to, select COM1 if you only have one serial port)
- Click '**OK**'



Step 5- You will be presented with a '**COMx Properties**' Dialog Box (where x is the COM port you selected)

- Click on the arrow for the '**Bits Per second**' drop down box and select '**9600**'
- Click on the arrow for the '**Flow Control**' drop down box and select '**None**'
- Check to ensure the other properties as the same as the figure below.
- Click '**OK**'



Step 6- A blank terminal window will open. Close the Hyper Terminal Program.

- Click File > Exit

Step 7- You will be prompted to save your connection.

- Click '**Yes**' to disconnect.
- Click '**Yes**' to Save.
- You have now set up a Hyper Terminal connection to the Secure Safe Devices.

Note: Now that you have set up a connection, any time you need to connect to Secure Safe you only need to follow Steps 1 & 2 in the next section.

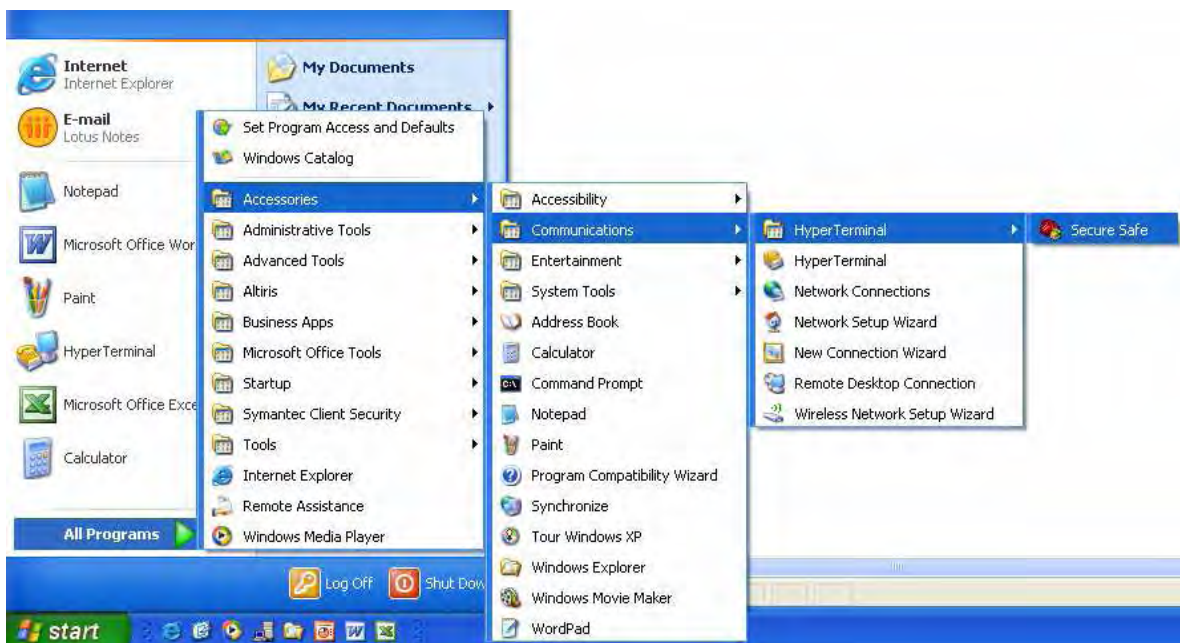
Opening the Secure Safe Hyper Terminal Connection

Step 1- Open the Secure Safe Hyper Terminal Connection.

- Click Start > All Programs > Accessories > Communications > Hyper Terminal > SecureSafe

Step 2- When HyperTerminal starts again you will be presented with a '**Location Information**' dialogue box.

- Click '**Cancel**' to continue.
- It will ask you if you are sure you want to cancel. Click '**Yes**'
- Finally Click '**OK**'



Setting up the Secure Safe Units

Note: EACH INTERNAL, EXTERNAL, AND DOOR UNIT MUST HAVE **MATCHING AND UNIQUE** DRAWER ID/TAGS FOR SECURE SAFE TO OPERATE CORRECTLY. It is best to keep a **record** of the drawer ID's to ensure that this occurs.

Step 1. Using a Philips screw driver remove the backing of each (internal, external, and door) unit to expose the circuit board.

Note: Program your Door Unit first to ensure that units properly coincide with each other.

Attach respective power supply or battery pack to Unit.

Take your Secure Safe programming cable and plug it into the serial port of your computer.

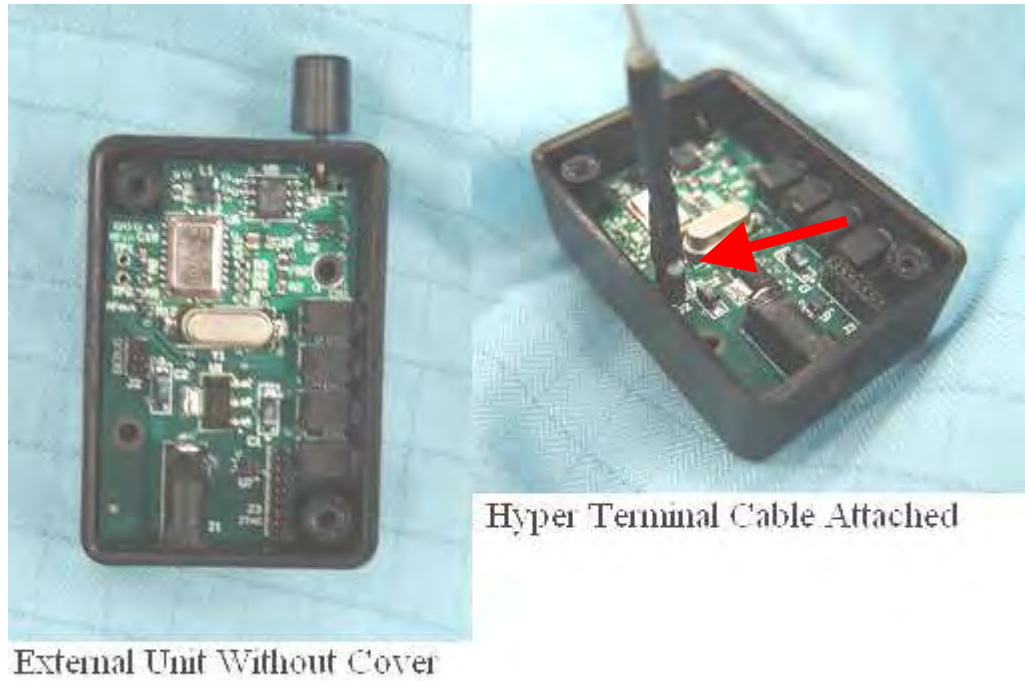
Connect the other end of your cable to the Unit circuit board as shown. Line the white marking on the end of the cable in the same fashion as shown in the pictures to assure proper pin connection.



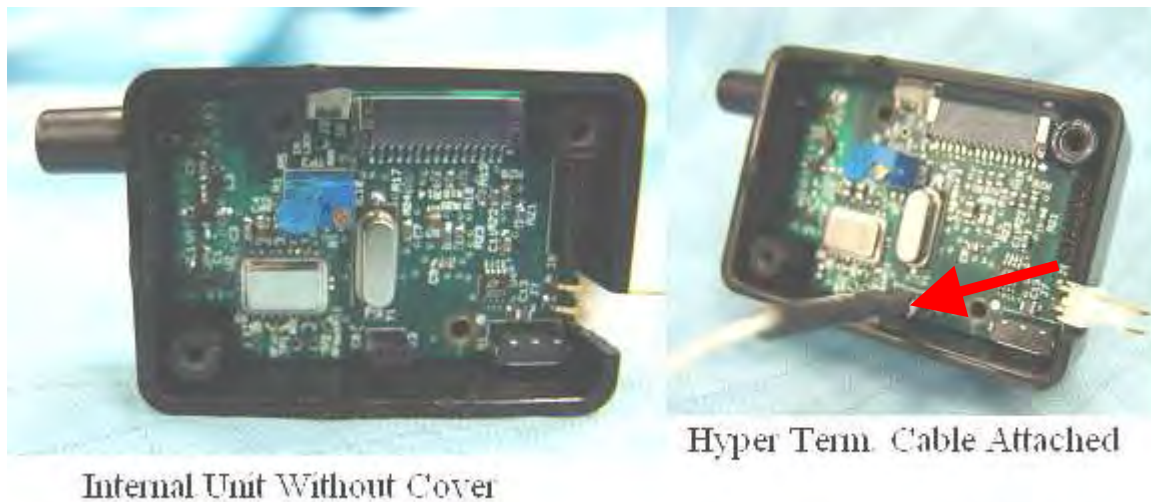
Door Unit Without Cover



Hyper Terminal Cable Attached



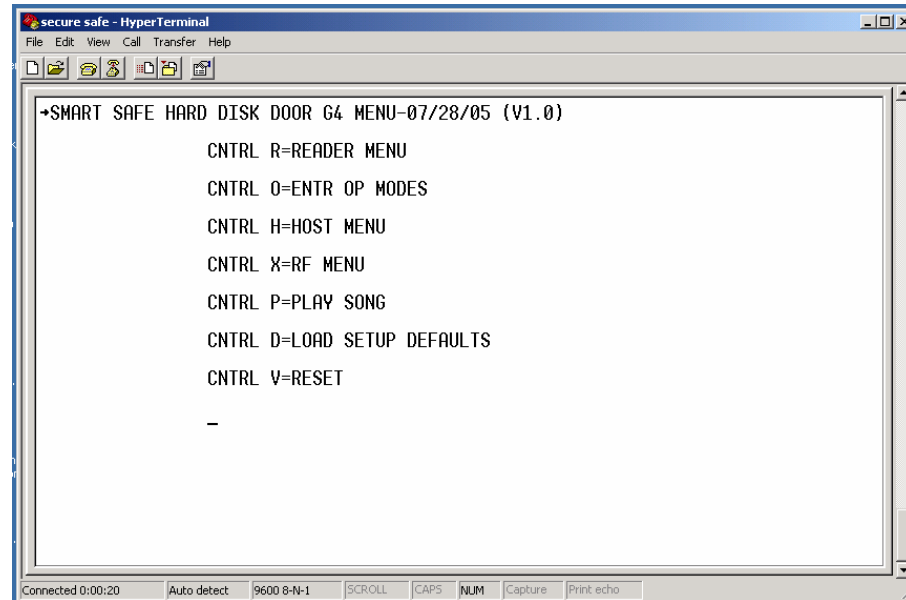
Locate pin 1 of Programming cable as shown with arrow.



Step 2. Follow the Opening the Secure Safe Hyper Terminal Connection in the section above.

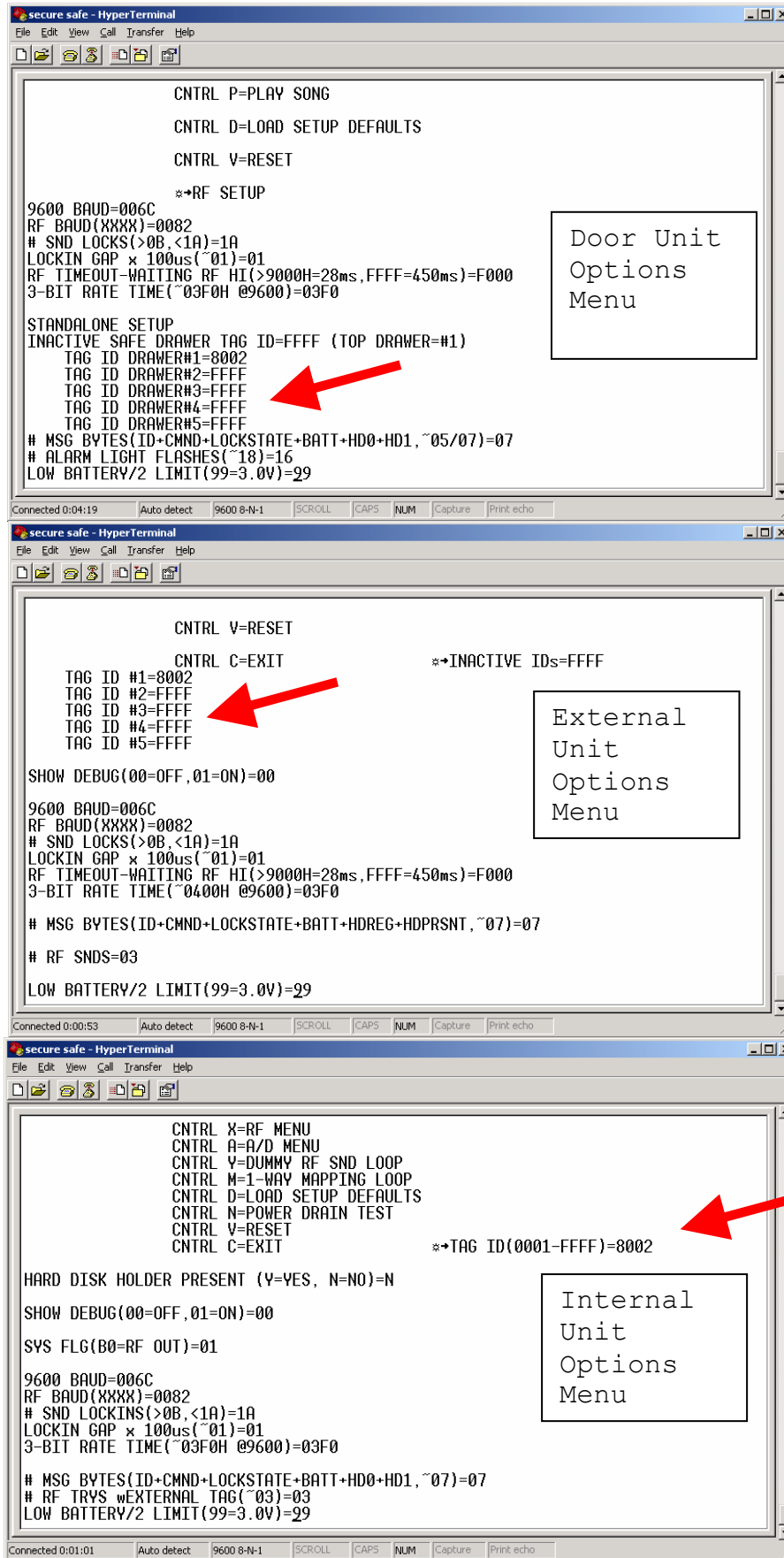
Step 3. A blank terminal window will open. You should now be communicating directly between the serial port and the unit. To confirm this, hold the **'CTRL'** button and press **'C'**

If you are communicating, the unit will pull up a menu screen similar to the picture below.



Step 4. Upon viewing the menu hold the '**CTRL**' button and press '**O**' this will pull up the **Options** menu. You will then be presented with a series of Options. **DO NOT CHANGE ANYTHING EXCEPT THE DRAWER TAG/ID CODES.**

- Press 'Enter' until you reach the Drawer Tag/ID section as pictured below. You may then program the drawer code with any unique four digit hexadecimal number you choose. FFFF defaults the drawer to being inactive.
- The Door Unit and External Unit have five programmable tags to be used with five Internal Units. Each drawer code needs to be unique unless they are not in use, which requires the code to be FFFF.
- The Internal Units only have one programmable tag.
- For the system to work the Door Unit tag must be the same as the Internal and External tag it corresponds to.



Step 5. After programming the Drawer Tags Press **‘Enter’** until you reach the initial menu.

Step 6. After programming the Door Unit repeat Steps 1-8 for the corresponding Internal and External Units.

Step 7. Unplug and replace back covers on each of the units.

5. PRE-TESTING SECURE SAFE SYSTEM (Optional)

Step 1. Plug in power cords of the External Unit and Door Unit.

Step 2. Connect the battery, magnetic switch and lock sensor cables to the Internal Unit.

Step 3. Place a magnet next to the magnetic sensor and a reflective surface near the front of the Optical Lock Sensor. This simulates a closed locked safe. The safe should be in the “secure” state, ensure that the appropriate LED on External Unit and the Door Unit is green.

Step 4. Place the reflector in front of the beam on the Door Unit (BEAM LED will turn green when the reflector is aligned) and then block the beam and check to see that the LED for BEAM on the Door Unit is red. Remove the block and check to see the BEAM LED turns green. When all safe drawers are shut and locked (as simulated above) and the beam is broken the Alert LED should not light and no sound should be made by the Door Unit.

Step 5. Remove the magnet from the Magnetic Sensor and check to see that the RF LED’s on both the External Unit and Door Unit flash green. These LED’s should flash any time a signal is received.

Step 6. With the magnet removed, break the reflected beam on the Door Unit and check to see that the alarm sounds; the Alert LED flashes, a tune is played, and the appropriate LED on the Door Unit has turned red.

Step 7. Replace the magnet over the Magnetic Sensor and remove the reflector from the Optical Lock Sensor. The appropriate LED on the Door Unit should change from red to green when replacing the magnet and then back to red with the removal of the reflector.

Step 8. Break the Door Unit’s reflected beam to see if the alarm sounds.

Step 9. Repeat steps for each Internal Unit that is going to be installed.

6. Installation

Note: Clean all surfaces with isopropyl alcohol based cleaner before using adhesive or tape.

6.1 Preparing the Safe

Step 1. Open the safe drawer with combination lock (figure 6.1).



Fig. 6.1

Step 2. In the drawer remove screws from the access panel directed by figure 6.2.



Fig. 6.2

Step 3. Remove the access panel and set aside (figure 6.3).



Fig 6.3

Step 4. Remove all the cover plates from the lock compartment (figure 6.4) and set aside

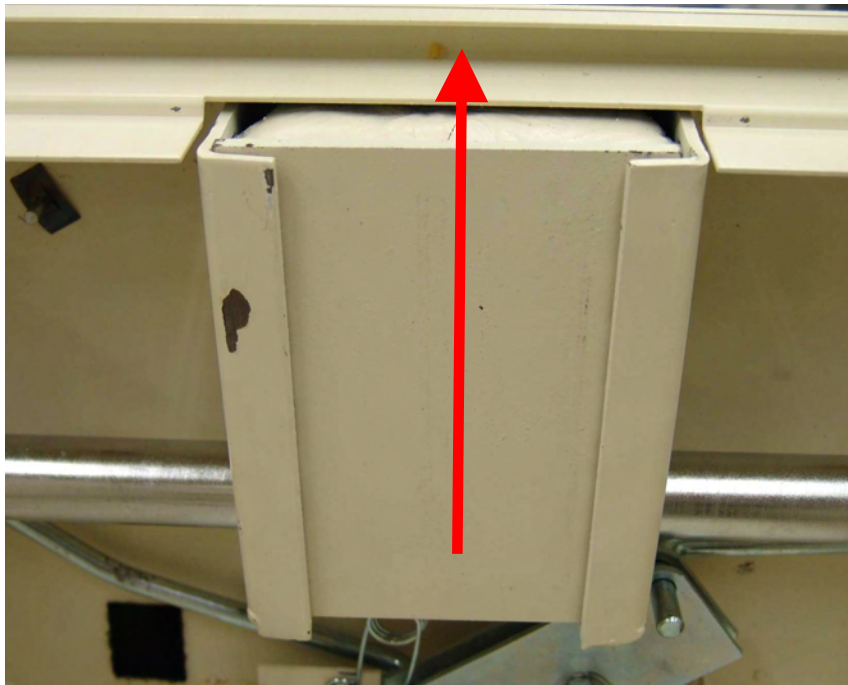


Fig. 6.4

6.2 Internal Unit location

Secure Internal Unit to the inside of the safe drawer with Velcro strip (cut strips to fit).

Note: Place Internal Unit where room allows. It is usually best to position it on the side of the drawer nearest the External Unit. Do not have to follow figure 6.5 as long as the unit and wires are secure and out of the way of the panels and locking mechanism

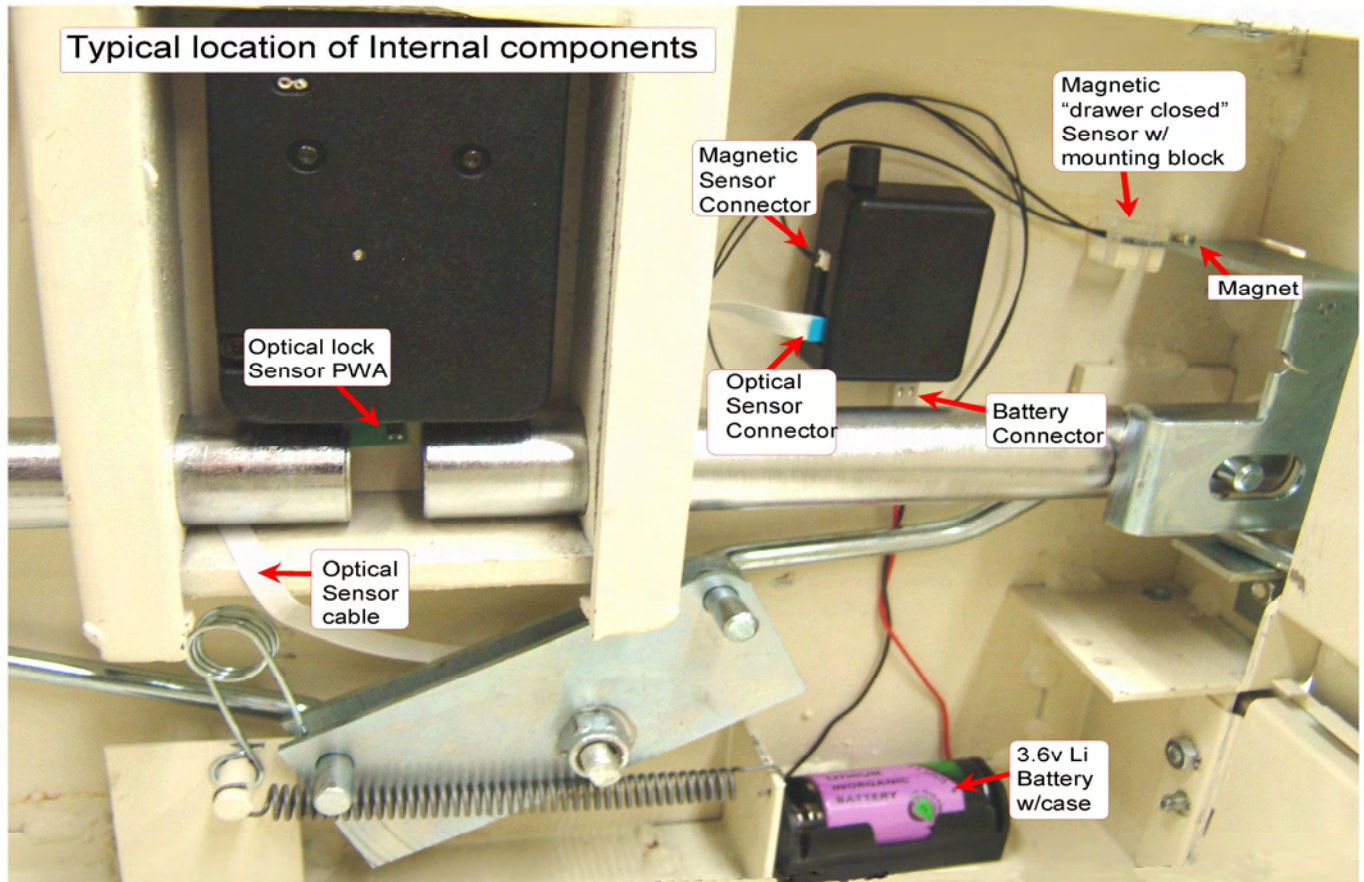


Fig. 6.5

6.3 Battery Pack Location

Attach the Battery Pack on the inside compartment of the drawer using Velcro and secure its wires.

Caution: Make sure the terminals on the lithium battery case are not touching the metal of the drawer. Shorting the battery could cause it to overheat and explode.

Note: Place battery pack where room allows (battery must be accessible for replacement) figure 6.5 is an example. Pack and wires must be secured and out of the way of the panels and locking mechanism. Small strips of Velcro may be used to secure wires.

Attach the Battery Pack wires to the Internal Unit. Verify that the plug is fully inserted.

6.3 Optical Lock Sensor Installation

1. During this procedure the corresponding External Unit must be near and power up to assist in installation. Remove the cover from the Internal Unit.
2. Plug the Magnetic sensor into the Internal Unit and place the magnet in contact with the sensor. This simulates the drawer closed condition.
3. Push the interlock lever in or up so you can affectively spread open the locking bolts shown in figure 6.6 and insert the Optical Lock Sensor.



Fig. 6.6 Interlock Locations

Mosler safe interlock (slides up when closed)



Hamilton safe interlock (push in when closed)

4. Plug the flat cable to the Internal Unit and in to the optical sensor PWA connector.
5. Align the Optical Lock Sensor in the lock compartment so that it is triggered **ONLY** when the locking bar is **fully** deployed (figure 6.7 & 6.8). Sensor must be place as low as possible and still detect the fully deployed bar. Tape the Lock Sensor in place until the correct position is found.

SUGGESTED LOCK SENSOR PWA MOUNTING LOCATION
FOR SAFES WITH LOCK BAR IS NEARER THE FRONT WALL.
(HAMILTON SAFES)

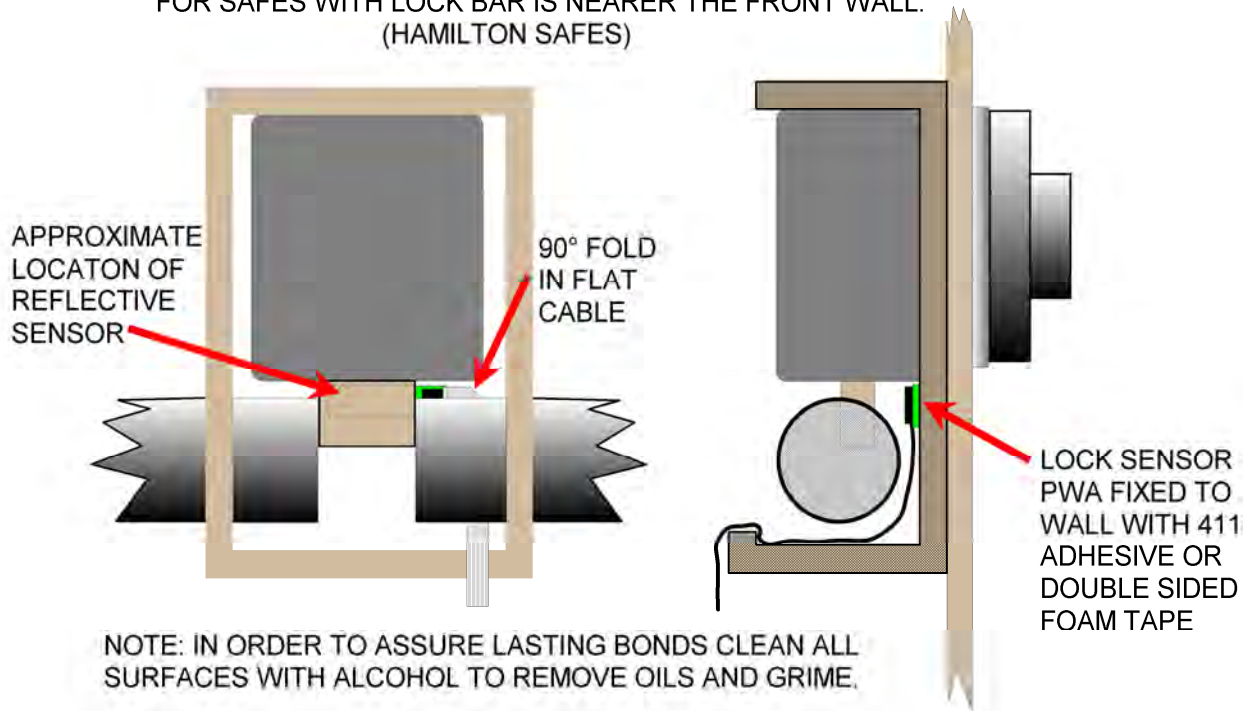


Fig 6.7

SUGGESTED LOCK SENSOR PWA MOUNTING LOCATION
FOR SAFES WITH LOCK BAR IS NEAR THE OPENING.
(MOSLER SAFES)

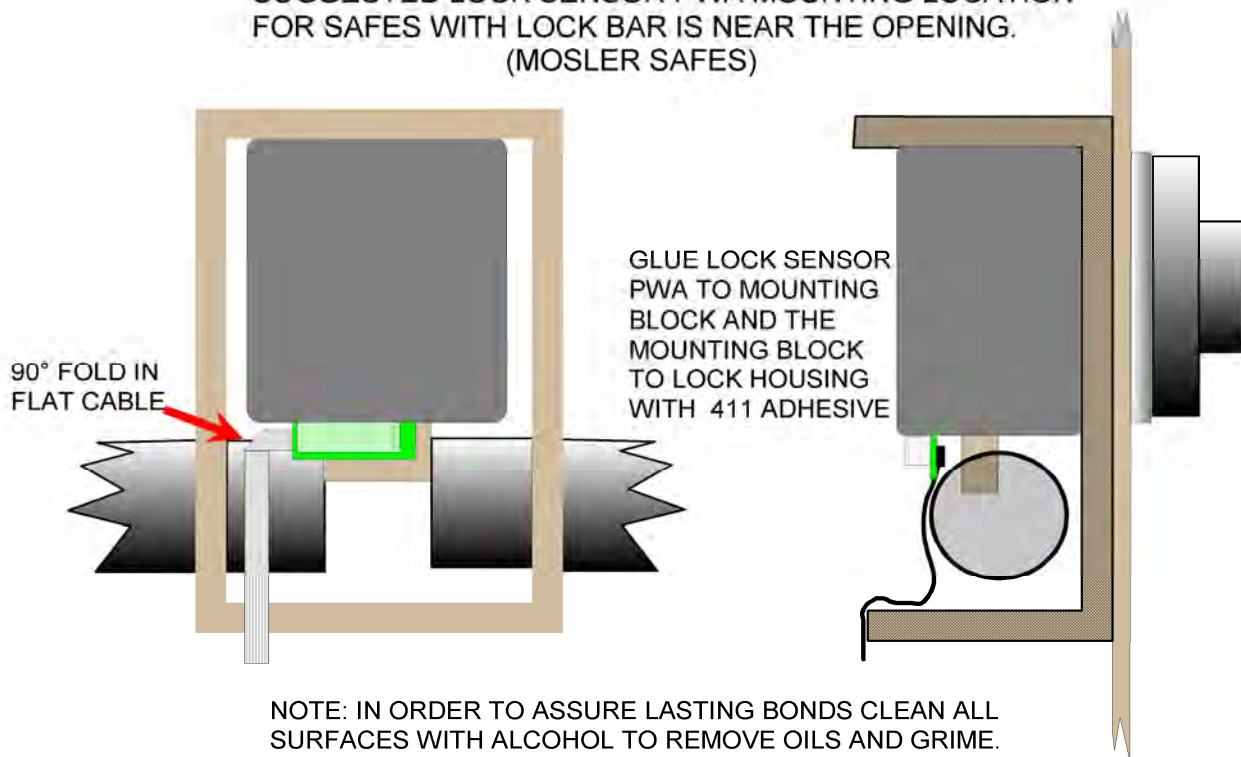


Fig. 6.8

6. Once the Lock Sensor is in place, replace the cover plates to the lock compartment (figure 6.9).



Fig. 6.9

7. Adjust the potentiometer (Photocell sensitivity) until the lock is no longer detected (Red LED on External Unit). Then increase the sensitive until the lock is detected (Green LED on External Unit) and then an additional turn (figure 6.10).

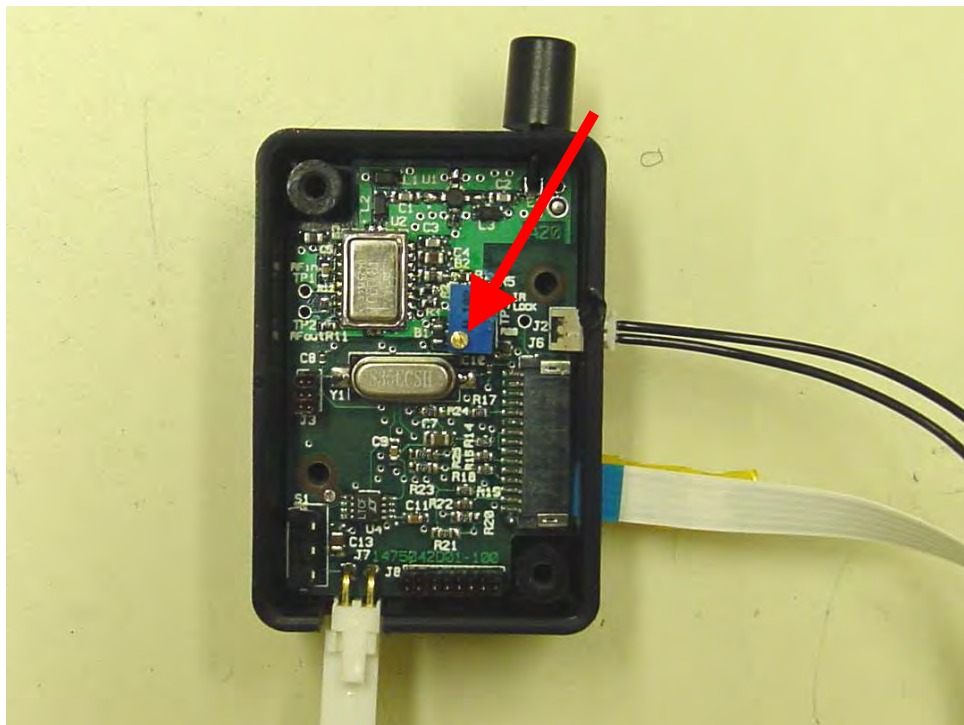


Fig 6.10

8. Unlock the safe and turn the handle to withdraw the steel bolts. If the sensor detects the reflection from the retracted bolts (green Led on External Unit) when the drawer is open, reduce the gain of the sensor until the External shows unlocked red led. Trip the interlock Turn the handle and lock the safe. Verify the External Unit switches to Green. If this cannot be done try to reposition the reflective sensor near the center where the bolts come together. If all fails the ends of the locking bolts facing the sensor may be painted with a non-reflective paint (not-supplied).
9. Remove the covers and secure the Optical sensor PWA with 811 adhesive or double sided foam tape. Replace the covers.

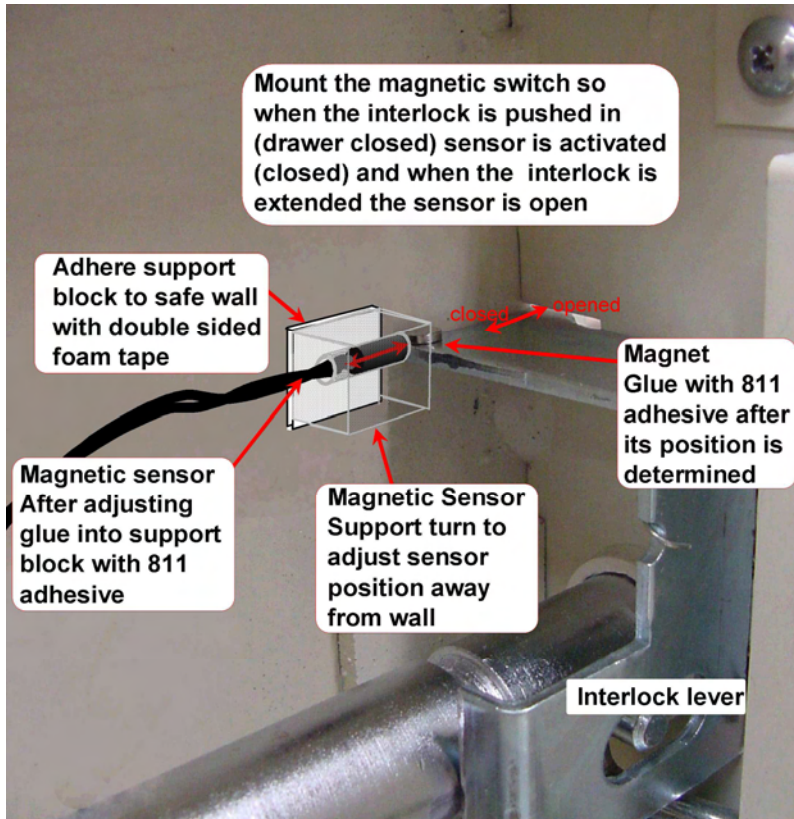
6.4 Magnetic Switch Installation

Depending on the safe type placement of the Magnetic sensors may not be possible in the locations suggested in this instruction. Alternate locations for the magnetic sensor are possible as long as the sensor is able to detect when the door is closed.

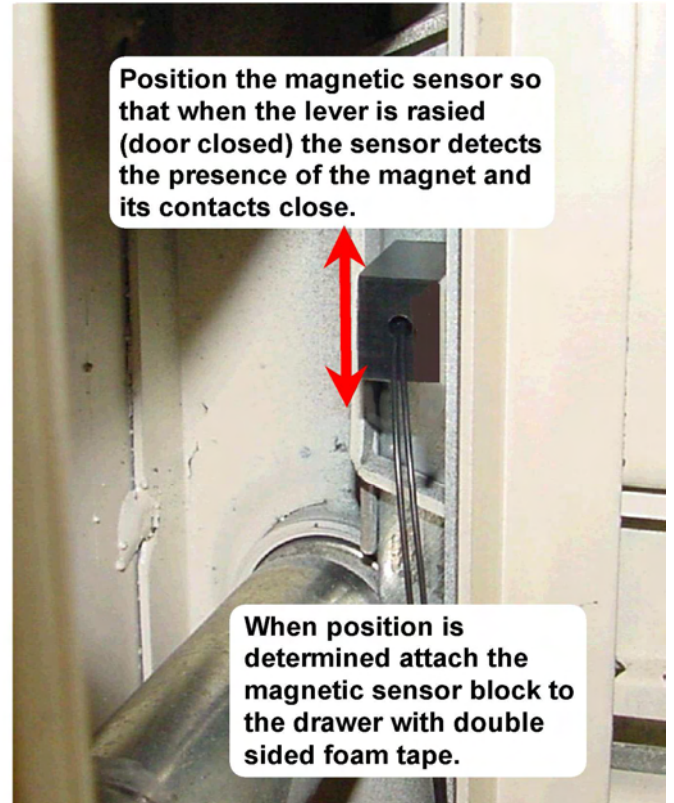
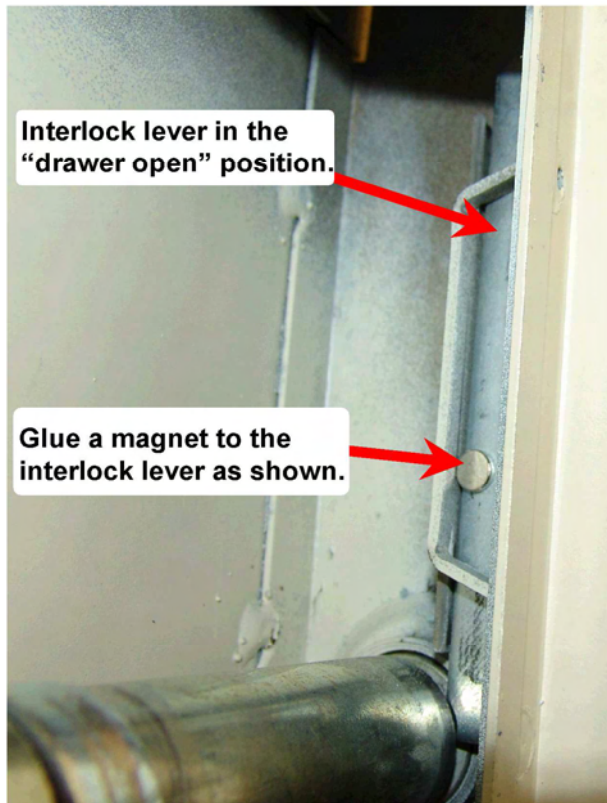
If the safe doesn't have interlocks, the sensor and block may have to be placed in a position that is outside of the access panel. Some safes have a gap in the bottom edge of the drawer below the lock. The magnet can be glued on the surface below the drawer and the sensor mounted in the gap in the sheet metal above the magnet.

For safes with multiple drawers and one lock that locks all drawers. A good indicator that the drawer is closed is the position of the interlock mechanism. (See figure 6-6)

1. Attach magnet to the interlock lever in a fashion that will have the magnet move away from the magnetic sensor when the drawer is opened. An example of this can be found in figure 6.8. Glue the magnet with supplied adhesive.
 2. Keeping the door open, raise or push in interlocks to release the locking bolt. Lock the safe to activate the optical sensor on the lock.
 3. Raise or push in interlocks to simulate a closed Drawer. Position the Magnetic sensor block near the magnet when the drawer is closed 3. Insert the sensor in to the opening in the mounting block. (Sensor should already be plugged into the Internal Unit during sec. 6.3.)
 4. Position the magnetic sensor in the block to turn on the green led on the External Unit when the interlocks are raised or pushed in and red when the interlocks are allowed to return to their normal positions.
- Note the sensor must discriminate between the interlocks being tripped manually-slight movement in the interlock lever, and when the drawer is closed-larger movement in the interlock lever. Temporarily tape the sensor in this position.
5. Secure its wires in such a way that the access panel will not damage them when it is replaced.
 6. Unlock the lock and twist the handle to withdraw the bolts. Close the drawer and lock it the external indicator should turn from red to green. Open the safe and verify the indicator switches to red.
 7. Glue the magnetic sensor into place using the supplied 811 adhesive.



Sensor location on Hamilton safe



Sensor location on Mosler safe

Fig 6.8 Typical drawer closed sensor installation

6.6 Access Panel

Once internal installation is completed and verified to operate correctly reinsert and secure the access panel.

6.7 External Unit

Attach the External Unit to the outside safe next to the drawer containing the corresponding Internal Unit with Velcro. Then plug into power supply (figure 6.9). For the best results, the External Unit should be mounted on the side of the safe nearest the Internal Unit.



Fig 6.9 External Unit Placement

6.8 Door Unit



Fig. 6.10 Door Unit

The Door Unit may be placed on either side of the exit by removing the screw at bottom and reversing the photo detector. Then replace the screw in ether insert in the bottom of the housing. Photo detector may be turned to almost any direction to accommodate the layout. Attach the Door Unit to one side of the exit opening with Velcro.

Plug in the Door Unit with the 12v power supply.

Align and mount reflector on opposite side of door frame (figure 6.11). When the beam is aligned the BEAM LED will glow green. One method of alignment is to hold the reflector near the photo detector to get the green LED and increase the distance until the opening is spanned. Attach the reflector with Velcro.

Note: The photo detectors have a gain adjustment. For best results max gain should be set. Push and hold the button on back of the Photo detector for a few seconds to reset the gain to max.



Fig. 6.11

Note: Place the unit in a fashion that guarantees a beam break occurs when a person exits the area. More than one exit route requires a system at each exit. Cubical or half walls may be used to funnel traffic from a secured area. More than five locked drawers require more than one Door Unit at each exit.

On the bottom of the Door Unit the smaller hole is for the adjustment of the volume level of the tunes that Secure Safe plays. Adjust with small flat head screw driver to desired volume (figure 6.12)

Reflective sensor Gain Adjustment

Volume Adjustment



Fig. 6.12

6.9

Final Verification

Step 1. Shut and lock the drawer, make sure that the RF LED's on both the External and Door Unit flash green and that the appropriate LED on the Door Unit and External Unit changes from red to green.

Step 2. Break the beam on the Door Unit when all drawers are shut and locked. The Beam LED should change to red during the time the beam is broken. The red Alert LED should not flash and no sound should come from the unit.

Step 3. Unlock one of the drawers and then break the beam. The appropriate LED for the drawer/safe should turn red, the Alert LED should flash and the one of the alarm sounds should be heard from the Door Unit.

If your system passes the final verification you have now completed the secure safe installation.

7.

GENERAL MAINTENANCE

Secure Safe is a low maintenance, highly reliable system.

It is recommended that the battery connected to the Internal Unit be replaced once a year or when the low battery light comes on. Replace with 3.6 volt lithium c-cell only.

When the Battery is replaced, a system inspection is recommended including the following:

Door Unit -	Clean the beam emitter and reflector to ensure quality beam detection. Make sure the power supply is safely routed and not damaged.
Inside the safe -	Ensure the sensors are still in their correct positions and the cables are securely fastened to the transmitter.
Outside the safe -	Confirm that the transmitter is secured to the side of the safe. Confirm that the power supply cord is undamaged and safely routed.

For assistance or questions Email: imoore@kcp.com. Please include description of problem and phone number. We will reply by email or phone the same day if possible.