Instruction Manual

For Sliding Door

Sensor System

APEX
SENSE THE DIFFERENCE

CONTENTS

G550, SEPT. 99

Horton
AUTOMATICS

5.042d

1. INSTRUCTIONS TO INSTALLER

- This door is to be installed by a trained and experienced installer with knowledge of local codes and ANSI A156.10 standards for power operated doors.
- To ensure safe and proper operation, the door must be installed and adjusted to conform to Horton Automatics recommendations, all code requirements and ANSI A156.10.
- If there are any questions about these instructions, call Horton Automatics Technical Assistance.

- Give caution to owner: If a potentially hazardous situation is suspected, the door should be taken out of automatic service until a professional inspection is made and the problem is corrected.
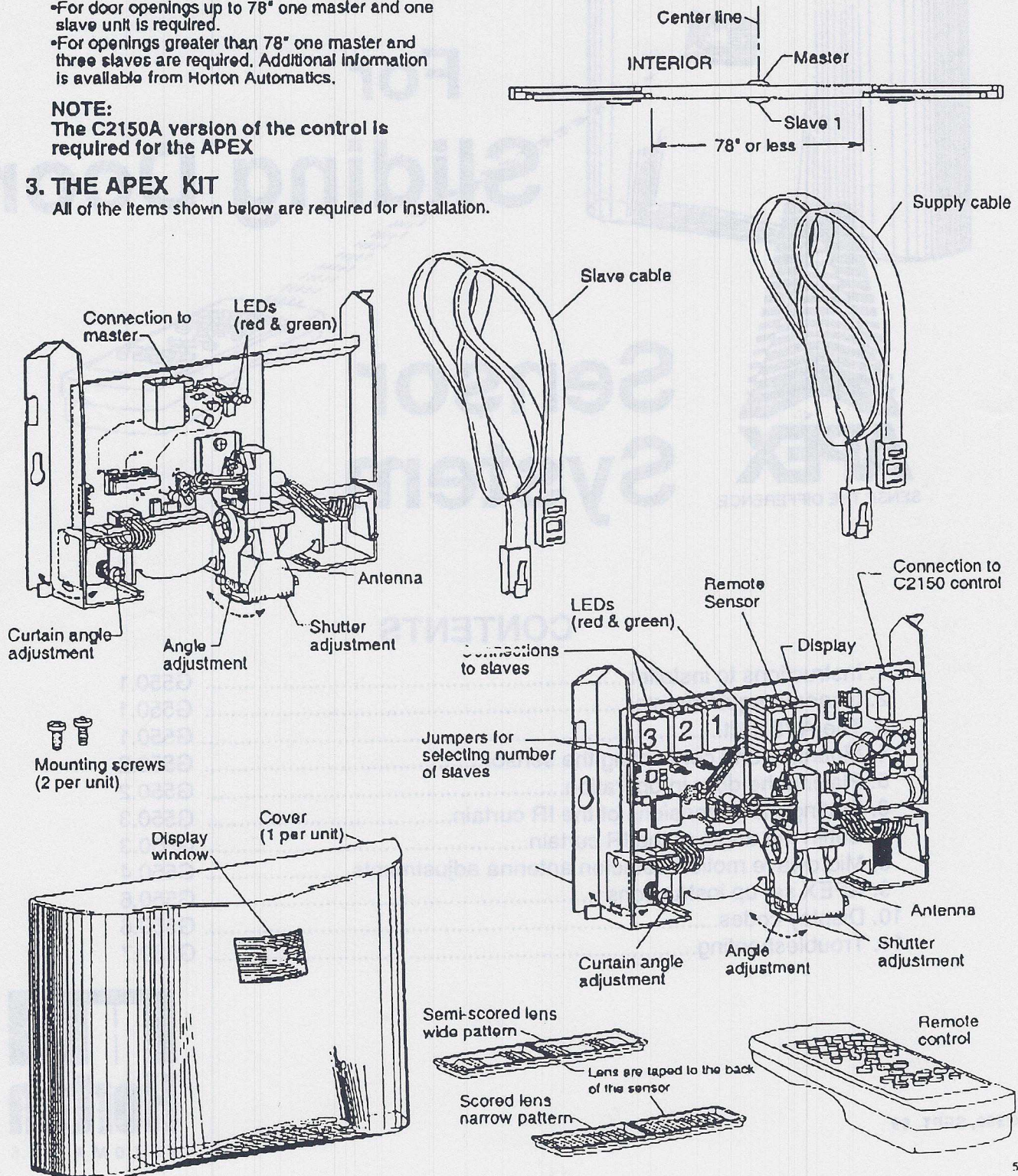
2. GENERAL REQUIREMENTS

- For door openings up to 78" one master and one slave unit is required.
- For openings greater than 78" one master and three slaves are required. Additional information is available from Horton Automatics.
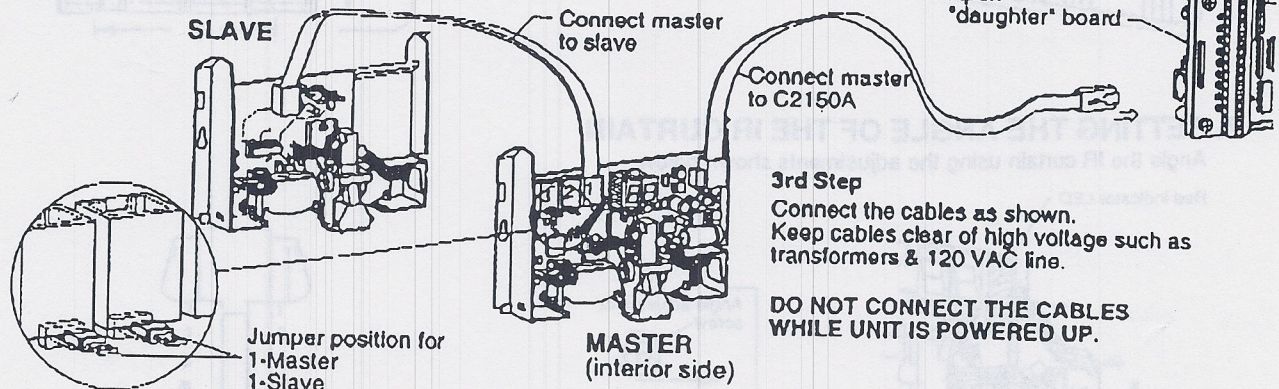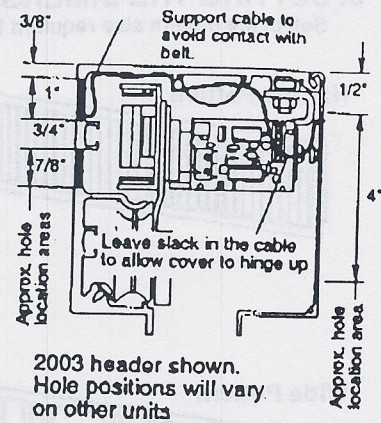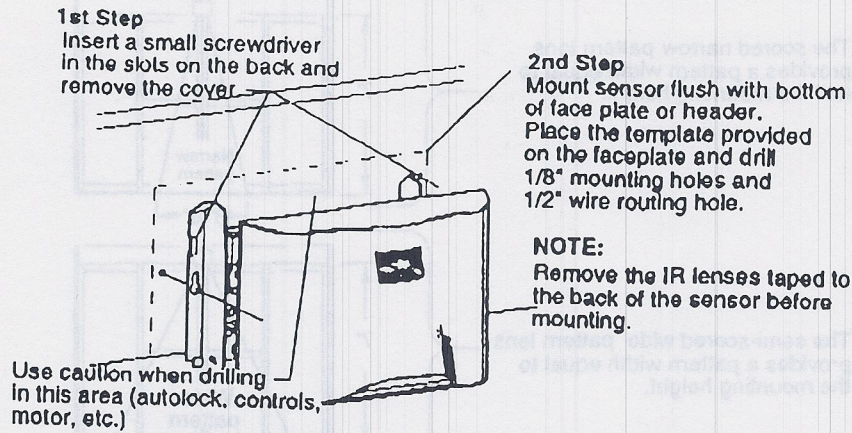
NOTE:
The C2150A version of the control is required for the APEX

3. THE APEX KIT

All of the items shown below are required for installation.

4. MOUNTING & CONNECTING THE SENSOR

1st Step
Insert a small screwdriver in the slots on the back and remove the cover.

2nd Step
Mount sensor flush with bottom of face plate or header. Place the template provided on the faceplate and drill 1/8" mounting holes and 1/2" wire routing hole.

NOTE:
Remove the IR lenses taped to the back of the sensor before mounting.

Use caution when drilling in this area (autolock, controls, motor, etc.)

Support cable to avoid contact with belt.

Leave slack in the cable to allow cover to hinge up.

Approx. hole location areas

2003 header shown. Hole positions will vary on other units

3/8"   1"   3/4"   7/8"   1/2"   4"

SLAVE

Connect master to slave

Connect master to C2150A

Apex "daughter" board

3rd Step
Connect the cables as shown. Keep cables clear of high voltage such as transformers & 120 VAC line.

DO NOT CONNECT THE CABLES WHILE UNIT IS POWERED UP.

Jumper position for
1-Master
1-Slave

MASTER
(interior side)

5. PLACING THE DOOR IN OPERATION

1st Step
Before turning the APEX on-
Check all physical adjustments by pressing the DOWN button. The door will cycle through the factory pre set parameters of open & close speed, open check, braking etc. If these settings are acceptable then proceed to step 2.
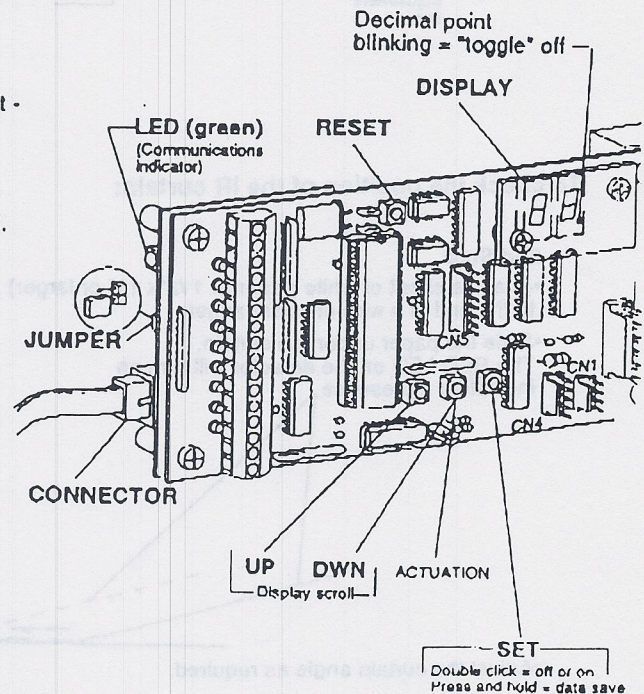If changes are required see H202 C2150 Quick Start Instructions.

2nd Step
Turning on the APEX
IMPORTANT: This must be done after the door operation is set -

- Double click the SET button and "toggle" the control off.

- Scroll down to the "*RP*" parameter.
  The APEX will not function with the "*RP*" parameter turned off.

- Change from *oF* to *on*.

- Double click the SET button and "toggle" on.

- Perform a data save.

- Press the RESET to insure the systems are communicating.
  The C2150 display will show *on*
  The green LED (1-blink per sec.)
  Will confirm communication between the C2150A and the APEX.

If *CE* appears in the display, faulty communication is occuring between the APEX and the C2150.
- Check the connector plug for proper insertion.
- The Jumper (see figure above) must be on ONE pin only.
If the problem continues contact Tech. assistance at Horton Automatics.

Decimal point blinking = "toggle" off

DISPLAY

LED (green)
(Communications indicator)

RESET

JUMPER

CONNECTOR

UP   DWN   ACTUATION
Display scroll

SET
Double click = off or on
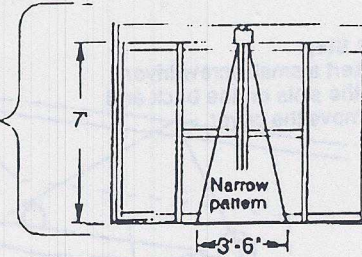Press and hold = data save

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6. SETTING THE DIMENSIONS OF THE IR CURTAIN

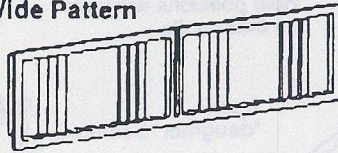Select the pattern size required for the opening.
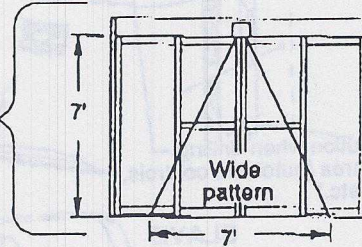
Narrow Pattern
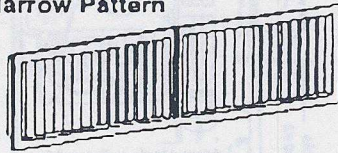
The scored narrow pattern lens provides a pattern width equal to half the mounting height.
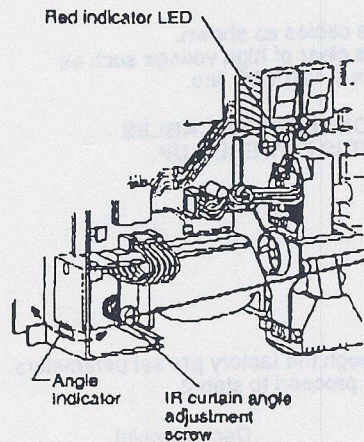
Wide Pattern

The semi-scored wide pattern lens provides a pattern width equal to the mounting height.

7. SETTING THE ANGLE OF THE IR CURTAIN

Angle the IR curtain using the adjustments shown below.

Red indicator LED

Angle indicator

IR curtain angle adjustment screw

Angle adjustment screw

Curtain moves 2" per turn.

Curtain moves 2" per turn.

Minimum 3" (max 5") from the face of the sliding door. (each side)
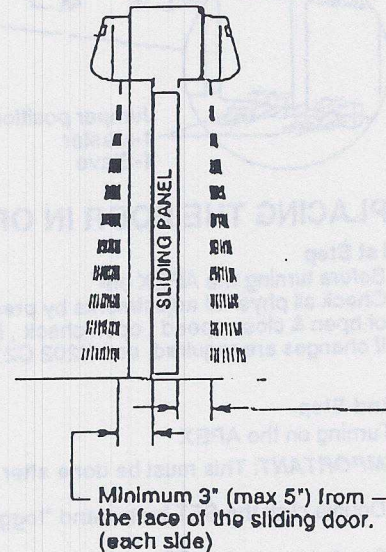
To check the position of the IR curtain:

2nd Step

- Attach a sheet of white paper (8 1/2"x 11" or larger) to the end of a wire or coat hanger.
- Slide the paper under the curtain. The RED LED on the detector will turn on indicating a presence.
- Adjust the curtain angle as required.
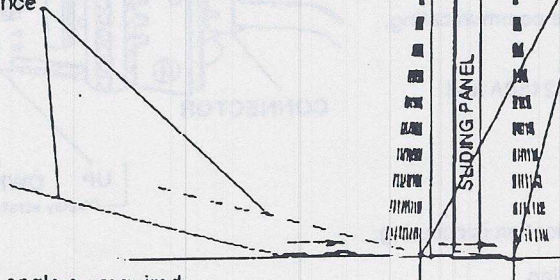
1st Step

- Mark the floor (with tape) 3" to 5" from the face of the sliding door.

NOTE:
Horton recommends one safety beam be used at 24" to 26" above the floor. The light curtain should be set 3" to 5" from the sliding door.

OR

If no safety beam is used the light curtain must be set to a MAXIMUM of 3" from the sliding door.

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8. MICROWAVE MOTION DETECTOR ANTENNA ADJUSTMENTS

The following information is provided as a general guide to adjusting the APEX. See section 9 for set up instructions.

Shutter positions:
As the shutter is closed the detection pattern widens.

position 1 — position 2 — position 3 — position 4
WIDE ————————————————————————→ NARROW

Antenna angle:
Bottom view of antenna shown

20°   23°   27°   31°   35°

Each notch = 4°

Microwave antenna
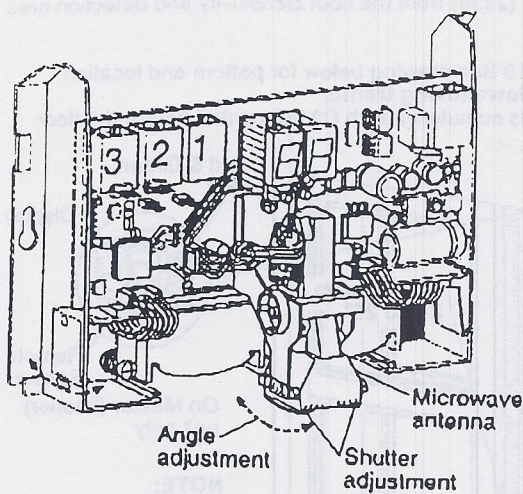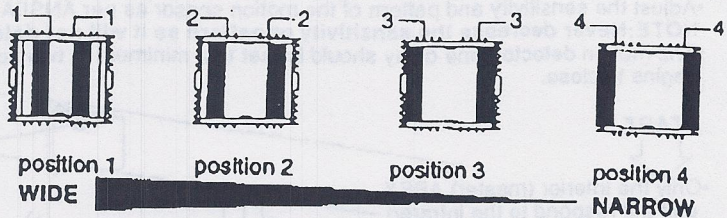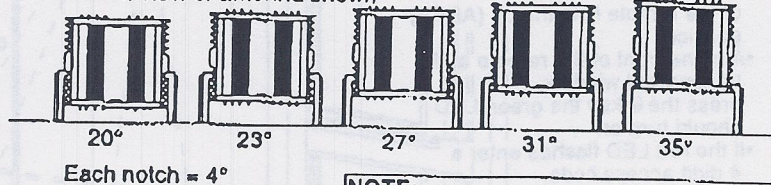Angle adjustment
Shutter adjustment

NOTE:
Set up detection pattern as per the diagram in section 9, page 505.5

DETECTION PATTERNS VERSES SENSITIVITY ADJUSTMENT

ANSI 156.10 requires motion detector pattern sensitivity be adjusted to detect a 28" high person moving at the rate of 6" per second towards the center of the door.

Wide Pattern
(Shutter position #1)

Narrow Pattern
(Shutter position #4)
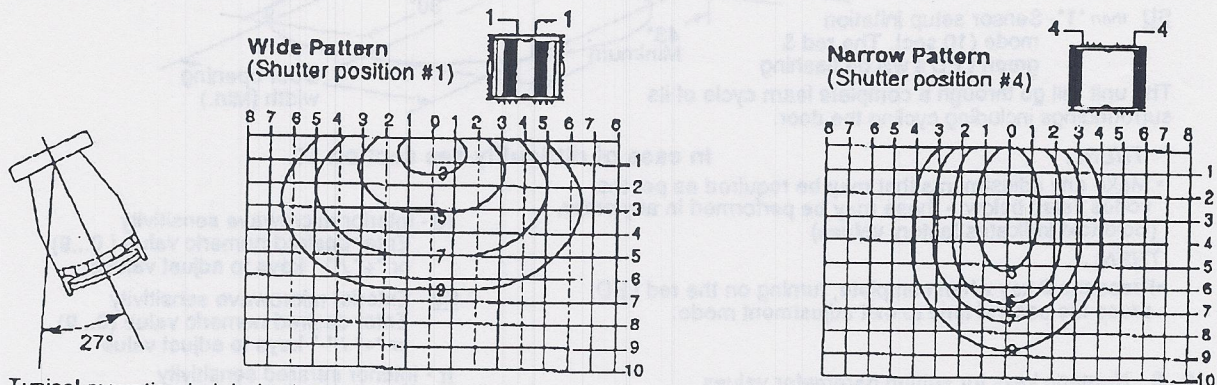
Typical mounting height is 7'-2" · Antenna angle is 27°

27°

Sensitivity Adjustment (remote control values 0-9)	1 (wide) depth x width	2 depth x width	3 depth x width	4 (narrow) depth x width
3	3 1/2' x 6'	4' x 5'	4 1/2' x 4'	5 1/2' x 3'
5	4' x 8'	5 1/2' x 8'	6' x 7'	6 1/2' x 4'
7	5 1/2' x 10'	6' x 9'	6 1/2' x 8'	7 1/2' x 6'
9*	6 1/2' x 13'	7' x 10'	7 1/2' x 9'	8' x 8'

* It is generaly not required to set the sensitivity above 7

The detection pattern may be shifted left or right by keeping one shutter stationary and moving the other. See example below. The right side remains in the wide position and the left side is moved to the narrow position.
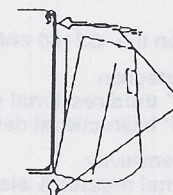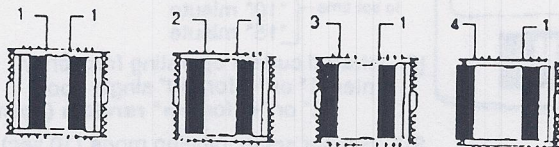
NOTE:
To avoid disturbing the antenna adjustment, replace the cover by starting at the bottom and snapping the top in.

9. APEX SET UP INSTRUCTIONS

• Activating switches must be located where door operation may be observed by the person actuating it.
• ANSI standard requires a motion detector be placed on each side of the door and be active while the door is open (except the last 6" 150mm of closing). The detector pattern may be reduced to 24"(610) on the control side for one-way traffic
• Mount sensors on the door header or above at a height of 7ft (2134) to 8ft (2438) from the floor. Sensitivity and detection area may not meet ANSI standards if detector is placed higher.
• Walk test the pattern from various angles and speeds.
• Adjust the sensitivity and pattern of the motion sensor as per ANSI A156.10 See drawing below for pattern and location.
  NOTE: Never decrease the sensitivity or pattern so it will not detect slow moving traffic.
• The motion detector time delay should be set to a minimum of two seconds cumulative with C2150 control before the door begins to close.

START

• Only the interior (master) APEX unit will respond to the infrared remote control.
• Insure the slide switch on the side of the remote is in the up (APEX) position.
• Aim the front of the remote at the transparent window, press the ⊖ key the green LED should turn on
• If the red LED flashes enter a 4 digit access code.

THEN PRESS...

SU then "1"- Sensor setup initation mode (10 sec). The red & green LED's will be flashing

The unit will go through a complete learn cycle of its surroundings including cycling the door.

THEN...

• Make any adjustments that may be required as per the codes listed below. - these may be performed in any order. (Bold text indicates factory values)

THEN...

• Press the ⊖ key when complete, turning on the red LED; press the second time to exit adjustment mode.

0...9 - Numeric keys for setting parameter values

F1 - If pressed after the unlock ⊖ key, will set the C2150 into the parameter mode. (not used to adjust the APEX)

⊖ - Unlock APEX to enter the adjustment mode. Green LED should turn on.
  If red LED flashes - enter 4 digit access code.
  Access code creation:
  • Power up the sensor   • Wait at least one minute
  • Push the unlock key   • Push the lock key
  • Enter 4 digit access code to be stored
  • Push the lock key

SC - Sensor count - set active sensors
  Enter "1" for master only ;
        "2" for master & 1 slave (normal)
        "3" for master & 2 slaves⎫ SELDOM
        "4" for master & 3 slaves⎭ USED
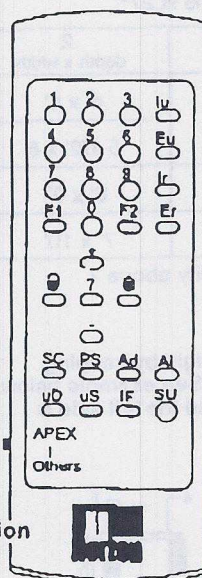 (jumpers on master must be set accordingly)

PS - Parameter save = d5 on the C2150 only

uD - Microwave direction detection
  Enter "1" or "-" for "Un" unidirectional detection
        "2" or "+" for "bi" bidirectional detection

uS - Microwave detection sensitivity
  Enter "1" for "LL" normal master & slaves
        "2" for "hh" high master & slaves
        "3" for "Lh" normal master & high slaves
        "4" for "hL" high master & normal slaves

Iu - Interior microwave sensitivity
  Enter desired numeric value (0...9) or "+" / "-" keys to adjust values.

Eu - Exterior microwave sensitivity
  Enter desired numeric value (0...9) or "+" / "-" keys to adjust value

Ir - Interior infrared sensitivity
  Enter "1" or "-" for "Lo" value
        "2" or "+" for "hi" value

Er - Exterior infrared sensitivity
  Enter "1" or "-" for "Lo" value
        "2" or "+" for "hi" value

F2 - Factory use only

+ - Increase displayed parameter value

⊖ - Lock APEX - Press once, red LED illuminates
              Press again, exit adjust mode

? - Display value of current parameter

- - Decrease displayed parameter value

Ad - Actuate door mode
  Enter "1" for door hold open mode
        "2" for door closed mode
        "3" for normal automatic mode

AI - Auto-adapt time of infrared curtains
                    ⎡ "1" minute reset time
  Use + or - | "5" minute
  to set time ─ | "10" minute
                    ⎣ "15" minute

IF - Infrared curtain operating frequency
  Enter "1" or "-" for "SI" single door
        "2" or "+" for "rn" random (normal)

SU - Sensor setup initation mode (10 sec)
  Enter "1" complete setup including cycling door
        "2" to restore factory default parameter value
        "3" setup without cycling door

In case of difficulty see section 10

Red & Green LED
Display
Safety beam at 24" to 26"
Remote Sensor
On Master (interior) unit only
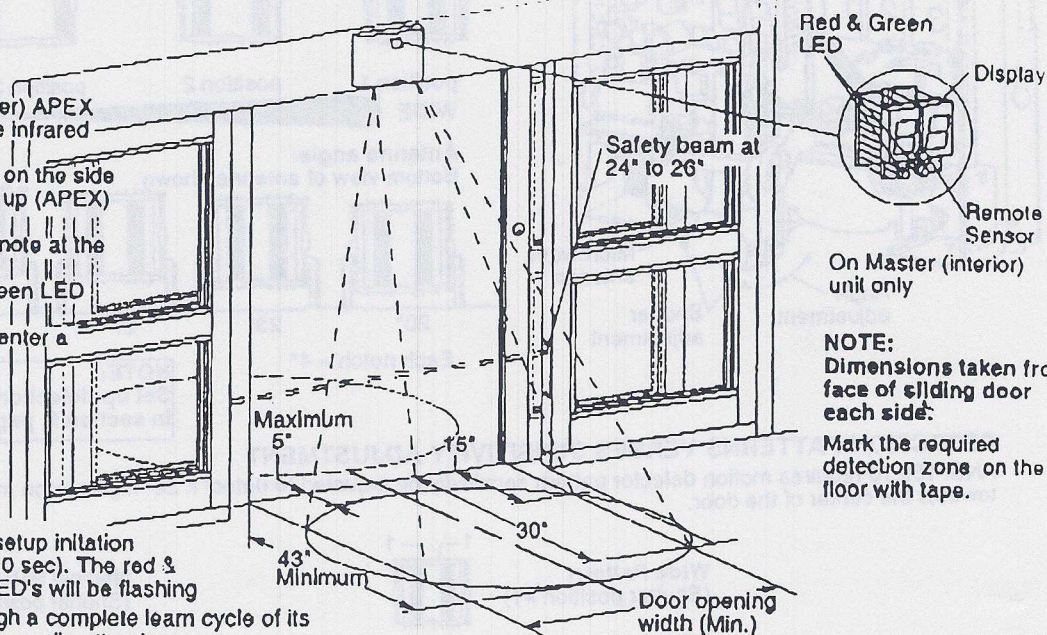
NOTE:
Dimensions taken from face of sliding door each side:
Mark the required detection zone on the floor with tape.

Maximum 5"
15"
30"
43" Minimum
Door opening width (Min.)

Remote control keys: 1 2 3 Iu / 4 5 6 Eu / 7 8 9 Ir / F1 0 F2 Er / SC PS Ad AI / uD uS IF SU
APEX / Others

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10. APEX CODE DISPLAYS Codes are arranged in alphanumeric order (NOTE: D = Display, P = Parameter, E = Error, V=Value)

CODE	DISPLAY MEANING	TYPE	VERSION
Rd	Parameter see section 9	P	2.18
RI	Parameter see section 9	P	2.18
RP	Turn on to enable see section 5 step 2	P	2.18
RU	Parameter see section 9	P	2.19
bI	Value for Ud parameter see section 9	V	2.18
Cd	Short display which indicates IR curtains were turned off by double click of switch A	D	2.19
CE	Communication error see section 5 step 2	E	2.18
CE	Communication error see section 5 step 2	E	
dE	Door error see section 5	E	
Er	Parameter see section 9 display shows exterior IR curtain is active	DP	2.18
EU	Parameter see section 9 display shows exterior microwave (motion) is active	D	2.18
hh	Value for US parameter see section 9	V	2.18
hI	Value for Ir & Er parameter see section 9	V	2.18
HL	Value for Er parameter see section 9	V	2.18
IF	Parameter for infrared curtain see section 9	P	2.18
Ir	Parameter see section 9 display shows interior IR curtain is active	P	2.18
IU	Parameter see section 9 display shows interior radar (motion) is active	P	2.18
Lh	Value for US parameter see section 9	P	2.18
Lo	Value for Ir & Er parameter see section 9	V	2.18
rn	Value for IF parameter see section 9	V	2.18
SI	Value for IF parameter see section 9	V	2.18
SU	Parameter see section 9	V	2.18
Ud	Parameter see section 9	P	
Uh	Value for Ud parameter see section 9	P	2.18
US	Parameter see section 9	V	2.18

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11. TROUBLE SHOOTING

SYMPTOMS	PROBABLE CAUSES	CORRECTIVE ACTION
Displays LE	APEX and C2150 not communicating	Go to section 6 step 2
Displays dE	No response from door	Press the DOWN button to see if the door opens. If it does make sure the toggle is on & the day night jumper is in place (CN2 pin 15 &16 on the C2150 board) and the AC parameter is at 1. If the door dosen't open consult the C2150 instructions.
Door keeps opening & closing after set up Displays IU Displays EU Displays Ir Displays Er	 Interior radar (motion)is activated Exterior radar (motion)is activated Interior infared curtain is activated Exterior infared curtain is activated	 Change angle and sensitivity of motion detector see sect 8 Change angle and sensitivity of motion detector see sect 8 Change angle of curtain see sect 6&7 Change angle of curtain see sect 6&7
Door hangs open after set up Displays IU Displays EU Displays Ir Displays Er	Number of detectors set wrong or cable to master is installed wrong Interior radar (motion)is activated Exterior radar (motion)is activated Interior infared curtain is activated Exterior infared curtain is activated	Change the jumpers to the correct number of sensors see sect 4 Verify cable to master see sect 4 Change angle and sensitivity of motion detector see sect 8 Change angle and sensitivity of motion detector see sect 8 Change angle of curtain see sect 6&7 Change angle of curtain see sect 6&7
Sensor no longer responds to remote	Access code is wrong Batteries are dead	Disconnect and reconnect the power supply to the sensor and then press unlock then lock follower by a new access code. (Note:This is only possible during the first minute after powering up. Replace batteries
The slave dosen't function	The cable to the master isn't connected The setting for the number of detectors is incorrect The cable to the master is not connected in the right place.	Verify the connection see sect 4 Change the setting to the correct number of detectors see sect 4 Verify the position of the connector see sect 4
The small red LED is on or flashing on the slave. Random detections	Electrical distrubance Defect in slave cable	Change the way the cable is positioned. Route cable around the transformer. Replace the slave cable
The master and slave do not work in the unidirectional mode.	The jumpers are in the "left" position. Remember that the unidirectional mode only works with 1 master and 1 slave.	Move the jumpers to the "right" position see sect. 4
Slaves 2 and 3 do not function correctly.	The jumpers are in the "right" position.	Move the jumpers to the "left" position see sect. 4

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