



Dual Action BG-12L

BG-12 Series Manual Pull Stations

Document: 50964 Revision: B ECN: 98-461 08/04/99

Description

The BG-12 Series Pull Stations are non-coded manual pull stations which provide a Fire Alarm Control Panel (FACP) with a single alarm initiating input signal. The BG-12 series includes both single-action and dual-action models equipped with either a hex or key lock / reset. A single-action pull-station is activated by a single pull-down of the alarm handle. The dual-action versions require pushing in the handle, then pulling the handle down for activation. The BG-12 series manual pull stations are UL listed and meet the ADA requirement of a 5-lb. maximum pull force to activate. Operating instructions are molded into the handle along with Braille text. Molded terminal numbers can be found adjacent to the wiring terminals.

BG-12 Series Models available:

- **BG-12S** – Single action with 'pigtail' connections and a hex lock reset. Pigtail wires are provided for connection to the FACP Initiating Device Circuit (IDC).
- **BG-12** – Dual action model with screw terminal connections and a hex lock reset.
- **BG-12L** – Same as BG-12 except with a key lock reset.
- **BG-12LSP** – Same as BG-12L except with both English and Spanish operating instructions.

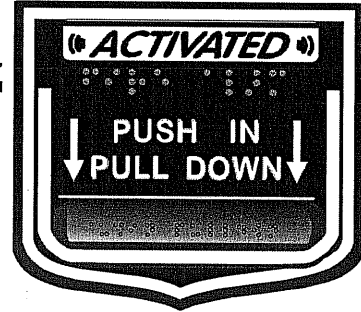
Switch Contact Rating

All switch contacts are rated for 0.25 A at 30 volts (AC or DC).

Installation

Surface mount the BG-12 pull station to a SB-10 surface backbox. Semi-flush mount the BG-12 to a standard single gang, double-gang, or 4-inch (10.16cm) square electrical box. Mount the optional Trim Ring (BG-TR) if necessary when semi-flush mounting the unit.

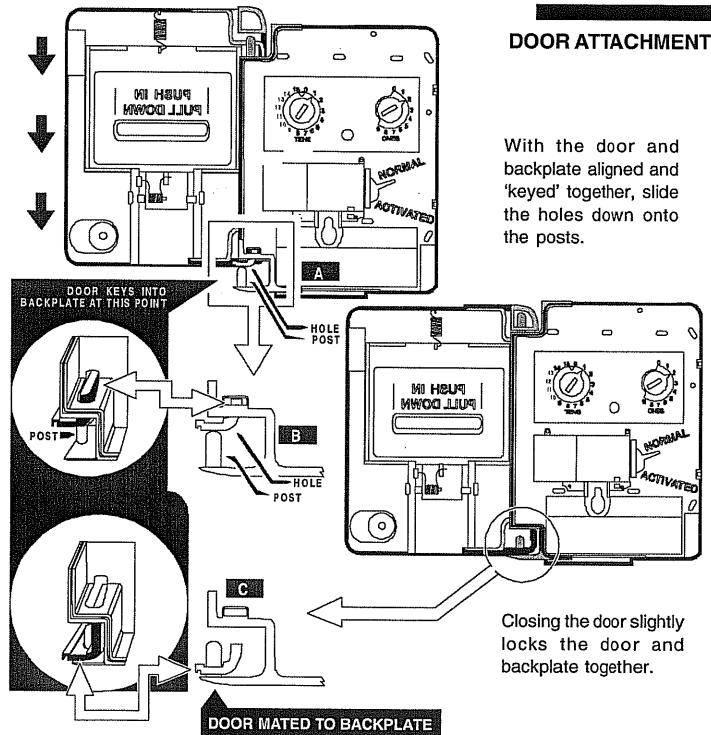
The word 'ACTIVATED' is displayed



on the pull station's pulled-down handle

If, during mounting of the pull station, the door becomes detached, complete the following steps to reattach the door to the backplate. The door cannot be connected to the pull station if the unit is mounted to the backbox.

1. Position the door and backplate side by side in the full open position. (i.e. 180-degrees with respect to each other.)
2. With the backplate position fixed, move the door behind the backplate, as shown in the illustration below, part A.
3. Align the hinge posts and holes by bringing the door up to meet the backplate, paying particular attention to the 'keying' that occurs when the door's post hole is aligned to the backplate's hinge post. Refer to the illustration, part B.
4. With the two pieces aligned and 'keyed' together, slide the holes down onto the posts. Refer to the illustration, part C.
5. Holding the backplate, close the door slightly to lock the door and backplate together.



With the door and backplate aligned and 'keyed' together, slide the holes down onto the posts.

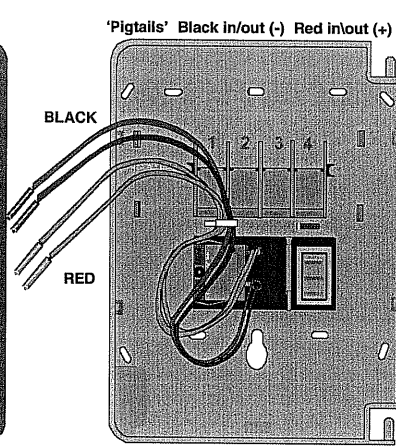
Closing the door slightly locks the door and backplate together.



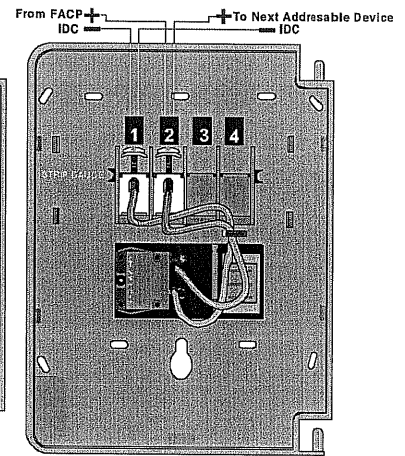
Single Action BG-12S



Dual Action BG-12L (Shown Activated)



Single Action BG-12S Pigtails



Dual Action BG-12, 12L, 12LSP Wiring

WARNING! Do not loop wiring under any terminals. Break wire run to maintain IDC supervision.

Wiring Instructions for the BG-12, BG-12L and BG-12LSP

- 1) If semi-flush mounting, proceed to step 4.
- 2) Mount the backbox *before* wiring to the pull station.
- 3) Before mounting the station, pull all necessary wiring through the backbox and optional BG-TR.
- 4) Remove the correct amount of wire insulation. The pull station backplate is molded with a strip gauge to measure the amount of insulation to be removed.
- 5) Connect the wiring from the fire alarm control panel's IDC, or any previous device on the IDC, to terminals 1 and 2 on the pull stations terminal strip. Connect the next device on the IDC or End-of-Line Resistor (ELR) to terminals 1 and 2.
- 6) Maintain consistent polarity with all connections throughout the IDC.

Wiring Instructions for the BG-12S

Follow instructions 1 through 3 above, and then proceed with steps 4 and 5 following:

- 4) Connect the field wiring from the FACP's IDC or the previous device on the IDC, to the pull station's pigtails. Connect the positive (+) IDC wire to a red pigtail, and the negative (-) IDC wire to a black pigtail. Next, connect the positive (+) wire going to the next device or an ELR to the remaining red positive (+) pigtail. Connect the negative (-) wire going to the next device or an ELR to the remaining black negative (-) pigtail.
- 5) Maintain consistent polarity with all connections throughout the IDC.

Operation

To activate a single-action pull station, simply pull-down the handle. To activate dual-action stations, push-in, then pull-down the handle. The word 'ACTIVATED' appears after the handle is pulled down. The pull station remains in the activated position until reset.

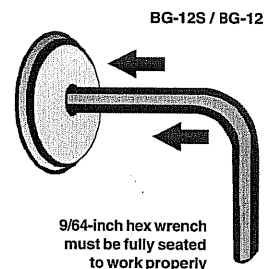
1) To reset the **BG-12S** and **BG-12** hex lock pull stations, work the supplied 9/64-inch hex wrench into the lock until firmly seated and turn counterclockwise 1/4-turn.

To reset the **BG-12L** and **BG-12LSP** key lock stations, insert the key and turn counterclockwise 1/4-turn.

2) Open the door until the handle returns to the 'NORMAL' position.

3) Close and lock the door. Closing the door automatically resets the switch to the 'NORMAL' position.

Note – Opening the pull station door will not activate or deactivate the alarm switch.



WARNING

Install the pull station in accordance with the supplied instructions, applicable NFPA standards, national and local Fire and Electrical codes and the requirements of the Authority Having Jurisdiction (AHJ). Conduct regular testing of the devices using the appropriate NFPA standards. Failure to follow these directions may result in failure of the device to report an alarm condition. Fire •Lite is not responsible for devices that have been improperly installed, tested or maintained.

For ADA compliance, if the clear floor space only allows forward approach to an object, the maximum forward reach height allowed is 48-inches (121.92cm). If the clear floor space allows parallel approach by a person in a wheelchair, the maximum side reach height allowed is 54-inches (137.16cm).



BG-12L de Doble Acción

Estaciones Pulsadoras Manuales de la Serie BG-12

Documento: 50964 Revisión: B ECN: 98-461 08/04/99

Descripción

Las Estaciones Pulsadoras de la Serie BG-12 son estaciones manuales no codificadas cuales proporcionan a un Panel de Control de Alarma contra Incendios (FACP) con una señal de entrada de iniciación de alarma. La serie BG-12 incluye los modelos de acción singular y acción doble equipados con un rearme por cerradura de llave o cerradura de llave hexagonal. Una estación de acción singular es activada halando el manubrio. Primero empujando el manubrio de alarma y luego bajandolo, activa a la estación de doble acción. Las estaciones pulsadoras de la serie BG-12 son reconocidas por UL y llenan los requisitos de ADA de una fuerza de hale máxima de 5-lb. para activarla. Las instrucciones están moldeadas en el manubrio. Los números de terminal moldeados pueden ser encontrados adjunto a los terminales de alambrado.

Modelos disponibles de la Serie BG-12:

- **BG-12S** – Acción singular con conexiones de cable flexible y un rearme de cerradura hexagonal. Los cables flexibles son proporcionados para la conexión al Circuito del Dispositivo de Iniciación (IDC) del FACP.
- **BG-12** – Modelo de doble acción con conexiones de terminal y rearme por cerradura hexagonal.
- **BG-12L** – Igual a la BG-12 pero con rearme por cerradura de llaves.
- **BG-12LSP** – Igual a la BG-12L pero con instrucciones de funcionamiento en Inglés y Español.

Parámetros de Contacto del Interruptor

Todos los contactos de interruptor son clasificados para 0.25 A en 30 voltios (AC o DC).

Instalación

Instale en la superficie la estación BG-12 a una caja posterior de superficie SB-10. Instale semi empotrada la BG-12 a una caja eléctrica cuadrada de 4-pulgadas (10.16cm) de grupo doble o singular. Instale el Anillo Embellecedor (BG-TR) si es necesario cuando la unidad está siendo semi-empotrada.

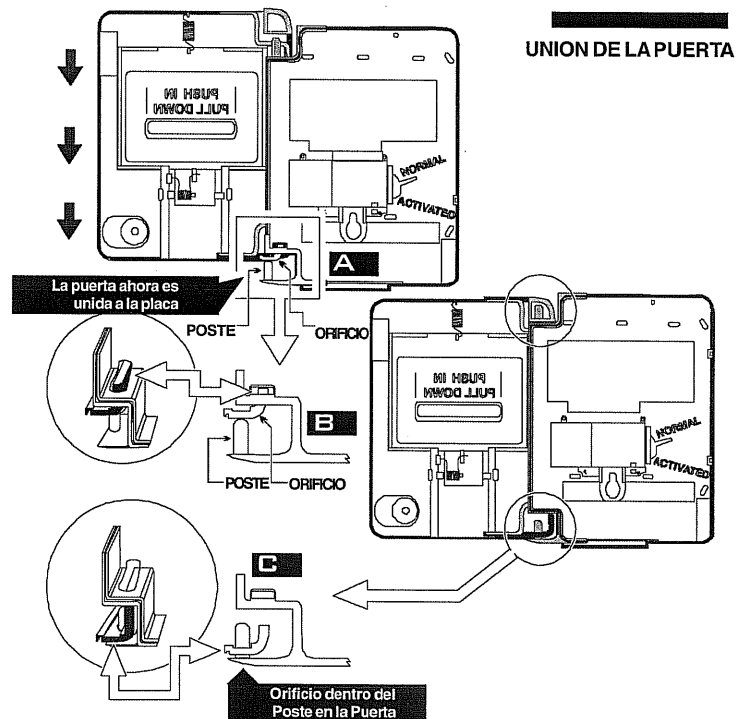
La palabra 'ACTIVATED' es mostrada

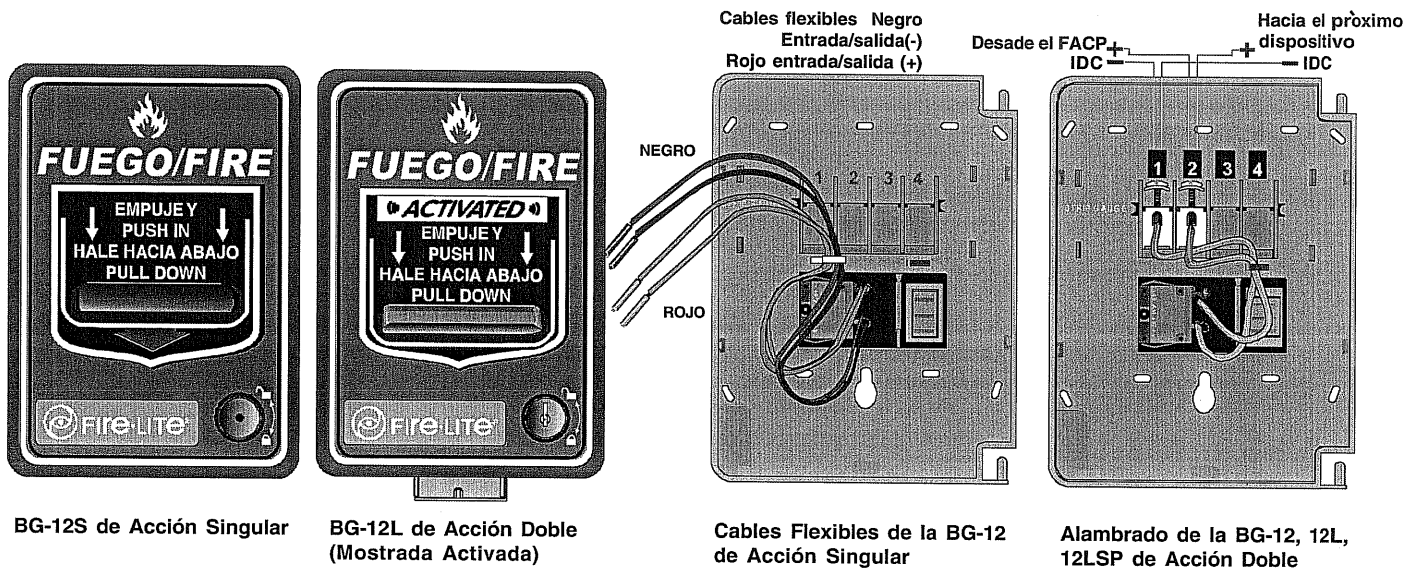


en el manubrio de hale de la estación

Si, mientras se instalando la estación, la puerta se separa, complete los siguientes pasos para unir la puerta a la placa posterior. La puerta no puede ser conectada a la estación pulsadora si la unidad está instalada en la caja posterior.

1. Coloque la puerta y la placa posterior de lado a lado en la posición de abierto completo. (es decir 180-grados con respecto la una a la otra.)
2. Con la placa posterior fijada en lugar, mueva la puerta detrás de la placa posterior, como es mostrado en el dibujo debajo, parte A.
3. Alinee los postes y orificios de la bisagra juntando la puerta con la placa posterior, poniendo atención a como las piezas caen en su lugar cuando los orificios de la puerta son alineados con los postes de la bisagra de la placa posterior. Refiérase al dibujo, parte B.
4. Con las dos piezas alineadas y juntas. deslice los orificios hacia abajo dentro de los postes. Refiérase al dibujo, parte C.
5. Agarrando la placa posterior, una la puerta y la placa posterior para cerrarlas.





BG-12S de Acción Singular

BG-12L de Acción Doble (Mostrada Activada)

Cables Flexibles de la BG-12 de Acción Singular

Alambrado de la BG-12, 12L, 12LSP de Acción Doble

¡Advertencia! No enlace el alambrado debajo de los terminales. Rompa la corrida de alambre para mantener la supervisión.

Instrucciones de Alambrado para la BG-12, BG-12L y la BG-12LSP

- 1) Si está semi-empotrando, proceda al paso 4.
- 2) Antes de instalar la estación, hale todo el alambrado necesario a través de la caja posterior y el BG-TR opcional.
- 3) Instale la caja posterior o el BG-TR *antes* de alambrear la estación.
- 4) Remueva la cantidad correcta de aislación del alambre. La placa posterior de la estación está moldeada con un medidor para medir la cantidad de aislación que necesita ser removida.
- 5) Conecte el alambrado desde el IDC del panel de control, o cualquier dispositivo previo en el IDC, a los terminales 1 y 2 en el bloque de conexiones de la estación. Conecte el proximo dispositivo en el IDC o el Resistor de Fin-de-Línea (ELR) a los terminales 1 y 2.
- 6) Mantenga la polaridad consistente con todas las conexiones a través del IDC.

Instrucciones de Alambrado para la BG-12S

Siga las instrucciones 1 a la 3 arriba, y luego proceda con los pasos 4 y 5:

- 4) Conecte el alambrado de campo desde el IDC del FACP o desde el dispositivo previo en el IDC, a los cables flexibles de la estación. Conecte el alambre del IDC positivo (+) al cable flexible rojo, y el alambre del IDC (-) al cable flexible negro. Luego, conecte el alambre positivo (+) que está yendo al próximo dispositivo o a un ELR al cable flexible positivo(+) rojo restante. Conecte el alambre negativo (-) que está yendo al proximo dispositivo o a un ELR al cable flexible negativo (-) negro restante.
- 5) Mantenga la polaridad consistente con todas las conexiones a través del IDC.

Funcionamiento

Para activar una estación de acción singular, simplemente hale hacia abajo el manubrio. Para activar las estaciones de acción doble, empuje y luego hale el manubrio hacia abajo. La palabra 'ACTIVATED' aparecerá después de que el manubrio haya sido halado. La estación queda en la posición de activado hasta el rearme.

1) Para rearmar las estaciones de cerradura hexagonal **BG-12S** y **BG-12**, entre la llave hexagonal de 9/64 pulgadas dentro de la cerradura hasta que está sentada firmemente y girela hacia la izquierda.

Para rearmar las estaciones de cerradura de llave **BG-12L** y **BG-12LSP**, entre la llave y girela hacia la izquierda.

2) Abra la puerta hasta que el manubrio regrese a la posición 'NORMAL'.

3) Cierre la puerta. Al cerrar la puerta el interruptor es rearmado a la posición de 'NORMAL'.

Nota – Abriendo la puerta de la estación no activara o desactivara el interruptor de alarma.



AVISO

Instale la estación de acuerdo a las instrucciones proporcionadas, normas de NFPA aplicables, códigos Eléctricos y de Fuego locales y nacionales y los requisitos de la Autoridad Teniendo la Jurisdicción (AHJ). Conduzca pruebas regulares de los dispositivos utilizando las normas apropiadas de NFPA. Falla de seguir estas instrucciones puede resultar en falla del dispositivo de reportar una condición de alarma. Fire•Lite no es responsable por dispositivos que hayan sido instalados, probados o mantenidos inapropiadamente.

Para el cumplimiento con ADA, si el piso claro solamente permite el alcance frontal a un objeto, la altura de alcance delantera permitida es 48 pulgadas (121.92cm). Si el piso claro permite el alcance paralelo por una persona en una silla de ruedas, la altura máxima de lado permitida es 54 pulgadas (137.16cm).



Installation and Maintenance Instructions for H355, H355R, and H355HT Intelligent Plug-In Temperature Sensors

This sensor must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72.

Before installing sensors, please read the system wiring and installation manual thoroughly. This manual provides detailed information on sensor spacing, placement, zoning, and special applications. Copies of these manuals are available from Fire•Lite.

GENERAL DESCRIPTION

Models H355, H355R, and H355HT are intelligent sensors that utilize a state-of-the-art thermistor sensing circuit for fast response. These sensors are designed to provide open area protection with 50 foot spacing capability. Model H355 is a fixed temperature sensor with 135° F fixed temperature alarm. Model H355R is a rate-of-rise temperature sensor with 135° F fixed temperature alarm. Model H355HT is a high temperature sensor with 190° F fixed temperature alarm.

Two LEDs on each sensor light to provide a local, visible sensor indication. Remote LED annunciator capability is available as an optional accessory (Part No. RA400Z).

Models H355, H355R, and H355HT require compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.

SPECIFICATIONS

Diameter:	6.1 inches (155 mm) installed in B350LP
Height:	2.1 inches (51 mm)
Weight:	4.8 ounces (137 gm)
Installation Temperature:	-4°F to 100°F (-20°C to 38°C); H355 and H355R -4°F to 150°F (-20°C to 66°C); H355HT
Operating Humidity Range:	10% to 93% Relative Humidity Noncondensing
Mounting:	B350LP flanged base
Voltage Range:	15 to 32 Volts DC Peak
Standby Current:	300 μ A @ 24 VDC (one communication every 5 sec.with LED blink enabled)
LED Current:	6.5 mA @ 24 VDC
Fixed Temperature Rating:	135°F (57°C); H355 and H355R 190°F (88°C); H355HT
Rate of Rise Detection:	Responds to greater than 15°F/min.; H355R

CAUTION: Do not loop wire under terminals 1 or 2.
Break wire run to provide supervision of connections.

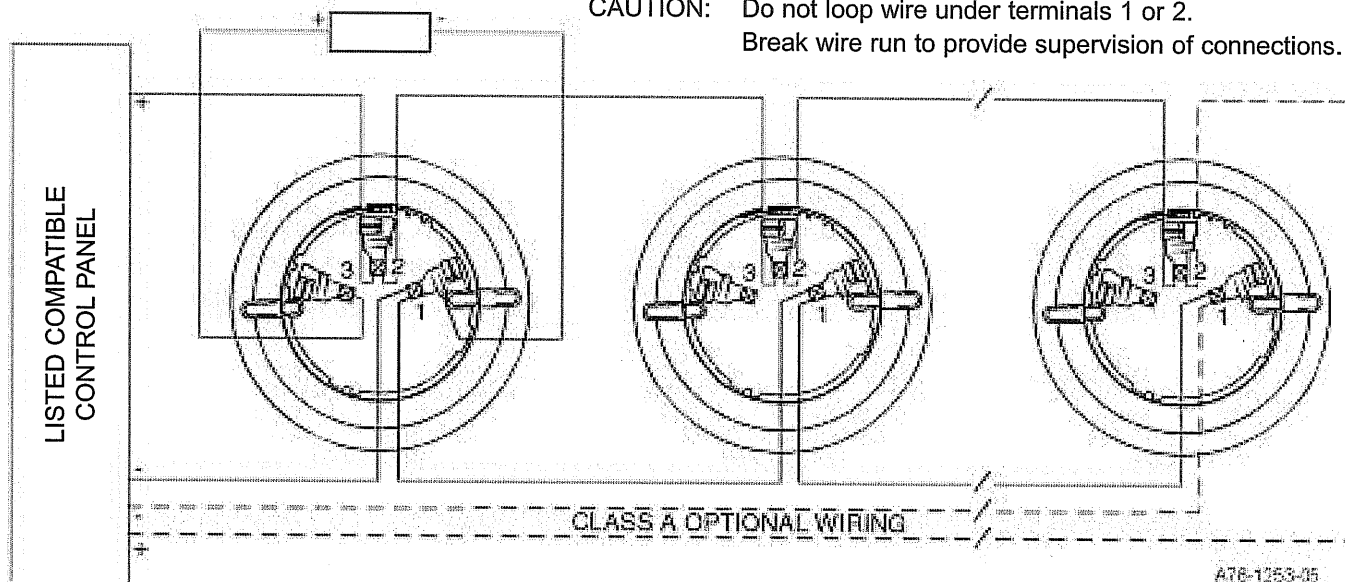


Figure 1

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WIRING GUIDE

All wiring must be installed in compliance with the National Electrical Code, applicable local codes and the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.

Remove power from the communication line before installing sensors.

1. Wire the sensor base (supplied separately) per the wiring diagram, see Figure 1.
2. Set the desired address on the sensor address switches, see Figure 2.
3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place.
4. After all sensors have been installed, apply power to the control unit and activate the communication line.
5. Test the sensor(s) as described in the TESTING section of this manual.

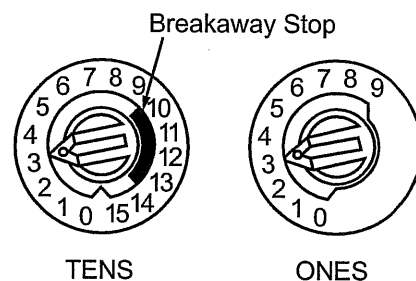


Figure 2

A78-2745-00

TAMPER RESISTANCE

The sensor base includes a tamper proof feature which when activated prevents removal of the sensor without the use of a tool. See the installation instruction manual for the sensor base for details in using this feature.

TESTING SENSITIVITY

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All sensors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72.

A. Test Magnet (p/n M02-04-01 or M02-09-00)

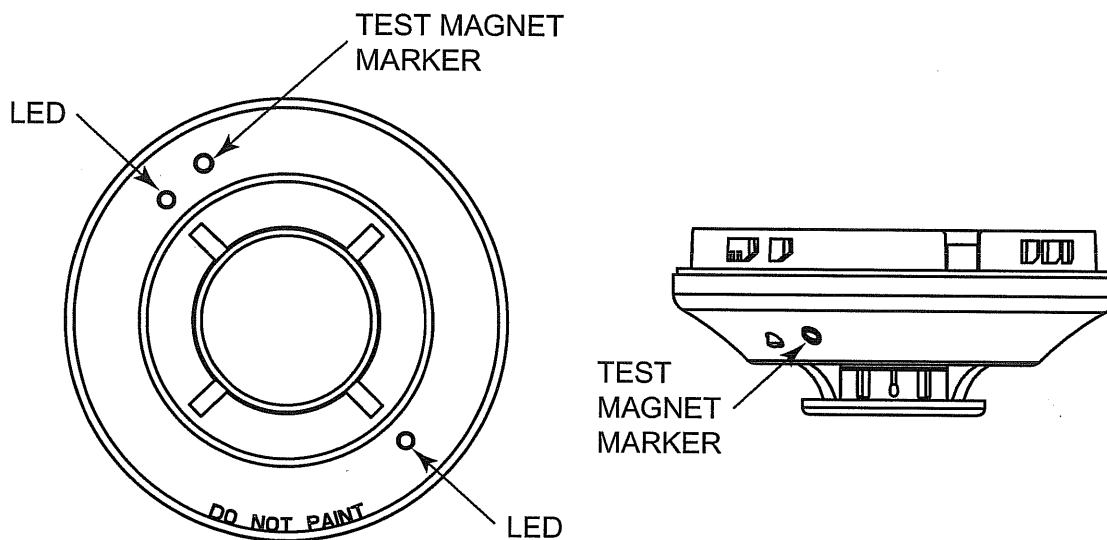
1. Place the optional test magnet against the cover in the magnet test area, as shown in Figure 3, to activate the test feature.
2. The LEDs should latch on within 10 seconds, indicating alarm and annunciating the panel.
3. Reset the detector at the system control panel.

B. Direct Heat Method (Hair dryer of 1000 – 1500 watts)

1. From the side of the detector, direct the heat toward the sensor. Hold the heat source about 6 inches (15 cm) away to prevent damage to the cover during testing.
2. The LEDs on the detector should light when the temperature at the detector reaches the alarm setpoint. If the LEDs fail to light, check the power to the detector and the wiring in the detector base.
3. Reset the detector at the system control panel.

Detectors that fail these tests should be cleaned as described under MAINTENANCE and retested. If the detectors still fail these tests, they should be returned for repair.

Figure 3. Views showing position of test magnet.

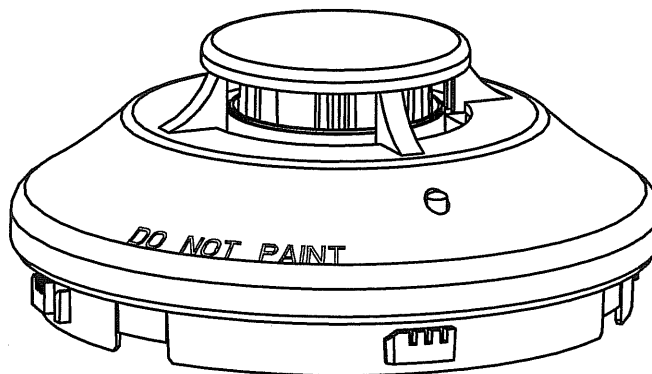


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MAINTENANCE

NOTE: Before cleaning notify the proper authorities that the system is undergoing maintenance, and therefore the system will temporarily be out of service. Disable the loop or system undergoing maintenance to prevent unwanted alarms.

It is recommended that the sensor be removed from its mounting base for easier cleaning and that sensors be cleaned at least once a year. Use a vacuum cleaner to remove dust from the sensing chamber.



A78-1944-02

Figure 4

Please refer to insert for the Limitations of Fire Alarm Systems

FCC Statement

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.

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.

SD355, SD355T and AD355 Addressable Photoelectric Smoke Sensors Installation and Maintenance Instructions

This sensor must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72.

GENERAL DESCRIPTION

Model SD355, SD355T and AD355 are addressable sensors that combine a state-of-the-art photoelectronic sensing chamber with communications. The sensors transmit an analog representation of smoke density over a communication line to a control panel. Rotary decade switches are provided for setting the sensor's address.

Two LEDs on the sensor are controlled by the panel to indicate sensor status. An output is provided for connection to an optional remote LED annunciator (P/N RA400Z). Models AD355 and SD355T combine a photoelectronic sensing chamber and 135°F (57.2°C) fixed temperature heat detector.

SPECIFICATIONS

Operating Voltage Range:	15 to 32 VDC
Standby Current:	300µA @ 24 VDC (one communication every 5 seconds with LED blink enabled)
Max. Alarm Current (LED on):	6.5 mA @ 24 VDC
Operating Humidity Range:	10% to 93% Relative Humidity, noncondensing
Operating Temperature Range:	0° to 49°C (32° to 120°F); SD355
Operating Temperature Range:	0° to 38°C (32° to 100°F); SD355T and AD355
Height:	2.1 inches (51 mm) installed in B350LP Base
Diameter:	6.2 inches (155 mm) installed in B350LP Base
Weight:	5.2 oz. (147 g)

SPACING

Fire-Lite recommends spacing sensors in compliance with NFPA 72. In low air flow applications with smooth ceilings, space sensors 30 feet apart. For specific information regarding sensor spacing, placement, and special applications, refer to NFPA 72 or the *System Smoke Detector Application Guide* available from Fire-Lite.

WIRING INSTRUCTIONS

All wiring must be installed in compliance with the National Electrical Code, applicable local codes, and any special requirements of the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color-coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.

Remove power from the communication line before installing sensors.

1. Wire the sensor base (supplied separately) per the wiring diagram, see Figure 1.
2. Set the desired address on the sensor address switches, see Figure 2.

NOTE: Some panels support extended addressing. In order to set the sensor above address 99 on compatible systems, carefully remove the stop on the upper rotary switch with thumb or as shown in Figure 2.

3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place.
4. After all sensors have been installed, apply power to the control unit and activate the communication line.
5. Test the sensor(s) as described in the **TESTING** section of this manual.

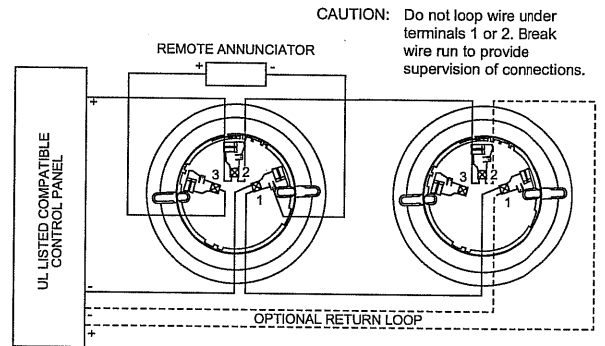


Figure 1. Wiring Diagram

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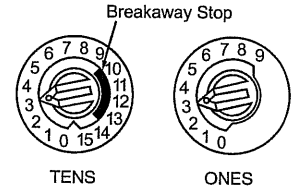


Figure 2. Rotary Address Switches

A78-2745-00

CAUTION

Dust covers provide limited protection against airborne dust particles during shipping. Dust covers must be removed before the sensors can sense smoke. Remove sensors prior to heavy remodeling or construction.

TAMPER-RESISTANCE

Models SD355, SD355T and AD355 include a tamper-resistant capability that prevents its removal from the bracket without the use of a tool. Refer to the base manual for details on making use of this capability.

TESTING

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All sensors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72. The sensor can be tested in the following ways:

A. Functional: Magnet Test (P/N M02-04-01 or M02-09-00)

This sensor can be functionally tested with a test magnet. The test magnet electronically simulates smoke in the sensing chamber, testing the sensor electronics and connections to the control panel.

1. Hold the test magnet in the magnet test area as shown.
2. The sensor should alarm the panel.

Two LEDs on the sensor are controlled by the panel to indicate sensor status. Coded signals, transmitted from the panel, can cause the LEDs to blink, latch on, or latch off. Refer to the control panel technical documentation for sensor LED operation and expected delay to alarm.

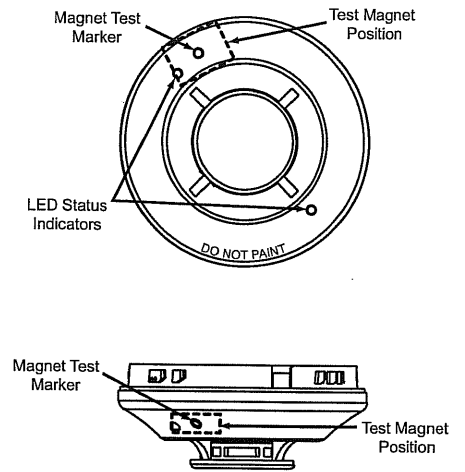


Figure 3.

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B. Smoke Entry: Aerosol Generator (Gemini 501)

The GEMINI model 501 aerosol generator can be used for smoke entry testing. Set the generator to represent 4%/ft to 5%/ft obscuration as described in the GEMINI 501 manual. Using the bowl shaped applicator, apply aerosol until the panel alarms.

For AD355, smoke entry testing should be performed immediately following the magnet test. Magnet test initiates an approximately 10 minute period when the detector's signal processing software routines are not active. Failure to first perform the magnet test will introduce a time delay before the detector alarms.

C. Direct Heat Method (Hair dryer of 1000-1500 watts). SD355T and AD355 only.

A hair dryer of 1000-1500 watts should be used to test the thermistors. Direct the heat toward either of the two thermistors, holding the heat source approximately 12 inches from the detector in order to avoid damaging the plastic housing. The detector will reset only after it has sufficient time to cool. Make sure both thermistors are tested individually.

A sensor that fails any of these tests should be cleaned as described under **CLEANING**, and retested. If the sensor fails after cleaning, it must be replaced and returned for repair.

When testing is complete, restore the system to normal operation and notify the proper authorities that the system is back in operation.

CLEANING

Before removing the detector, notify the proper authorities that the smoke detector system is undergoing maintenance and will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

1. Remove the sensor to be cleaned from the system.
2. Remove the sensor cover by pressing firmly on each of the four removal tabs that hold the cover in place.
3. Vacuum the screen carefully without removing it. If further cleaning is required continue with Step 4, otherwise skip to Step 7.
4. Remove the chamber cover/screen assembly by pulling it straight out.
5. Use a vacuum cleaner or compressed air to remove dust and debris from the sensing chamber.
6. Reinstall the chamber cover/screen assembly by sliding the edge over the sensing chamber. Turn until it is firmly in place.
7. Replace the cover using the LEDs to align the cover and then gently pushing it until it locks into place. Make sure that the thermistors do not become bent under the cover on SD355T and AD355 models.
8. Reinstall the detector.
9. Test the detector as described in **TESTING**.
10. Reconnect disabled circuits.
11. Notify the proper authorities that the system is back on line.

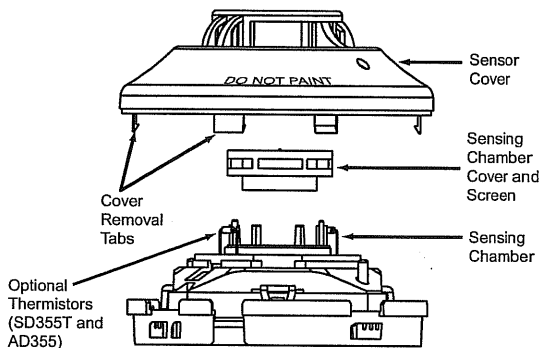


Figure 4.

A78-2734-03

Please refer to insert for the Limitations of Fire Alarm Systems

FCC Statement

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.

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.

MMF-301 Monitor Module Installation Instructions

Specifications

Nominal Operating Voltage:	15-32 VDC
EOL resistance:	47K ohms
Maximum IDC Resistance:	1,500 Ohms
Temperature Range:	32° to 120° F (0° to 49° C)
Humidity:	10 to 93% noncondensing
Dimensions:	1.3" H x 2.75" W x 0.5" D
Wire length:	6" minimum

Before Installing

This information is included as a quick reference installation guide. Refer to the control panel installation manual for detailed system information. If the modules will be installed in an existing operational system, inform the operator and local authority that the system will be temporarily out of service. Disconnect power to the control panel before installing the modules.

NOTICE: This manual should be left with the owner/user of this equipment.

General Description

The MMF-301 monitor module can be installed in a single gang junction box directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting (see Figure 1). The MMF-301 is intended for use in intelligent, two-wire systems where the individual address of each module is selected using rotary switches. It provides a two-wire initiating circuit for normally open contact fire alarm and security devices. This module can be used to replace an M301 module in existing systems.

Compatibility Requirements

To ensure proper operation, this module should only be connected to listed compatible system control panels only.

Mounting and Wiring

NOTE: This module is intended to be wired and mounted without rigid connections inside a standard electrical box. All wiring must conform to applicable local codes, ordinances, and regulations.

1. Connect the red (+) and black (-) wires to the positive and negative loop power leads of the Signaling Line Circuit (SLC).
2. Connect the violet (+) and yellow (-) wires to a two-wire, normally open initiating loop.
3. Install the specified EOL resistor value to terminate the initiating loop.
4. Set the address on the module per job drawings.

NOTE: Some panels support extended addressing. In order to set the module above address 99 on compatible systems, carefully remove the stop on the upper rotary switch with thumb in the direction shown in Figure 1.

5. Install the module in the desired mounting location.

Figure 1:

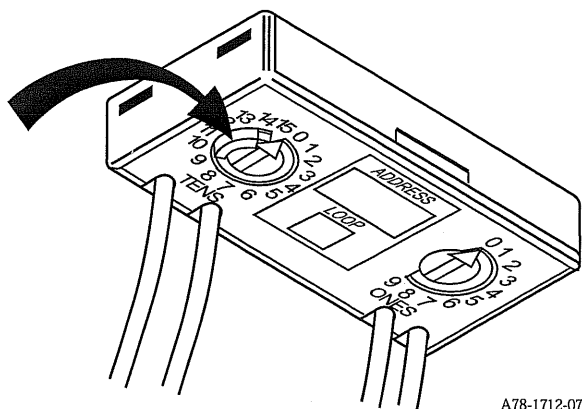
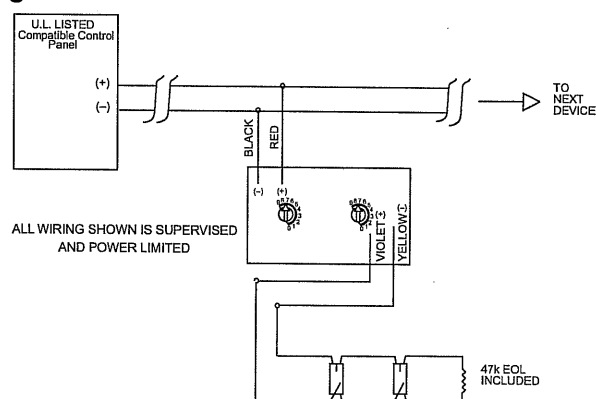


Figure 2. Typical 2-wire style B Initiating Device Circuit (IDC) configuration:



ANN-80 Series Product Installation Document

PN 52749:D1 8/17/10 10-490

The ANN-80 Series Remote Fire Annunciators and Indicators (ANN-80, ANN-80-W, ANN-80C) are compact, backlit LCD displays designed for use with compatible FACP's Fire Alarm Control Panels. The displays mimic the FACP display and are capable of displaying English-language text of system point status including device type, independent point alarm, trouble or supervisory zone and custom alpha labels programmed into the FACP. Refer to the FACP manual installation section for detailed system information and wiring.

NOTE: Installation and wiring must be done in accordance with NFPA 72 and local ordinances.

Specifications

■ TB1 Terminals 1 & 2

Operating Voltage Range: 18 VDC to 28 VDC
Current Consumption @ 24 VDC nominal (filtered and nonresettable):

- Normal/Standby (no activity): 37.0 mA
- Trouble Condition: 39.0 mA
- Alarm: 40.0 mA
- AC Fail (not backlit): 15.0 mA

■ TB1 Terminals 3 & 4

ANN-BUS rated at 5.5 VDC and 60 mA max.

■ Dimensions

6 7/8"W x 5 3/8"H x 1 3/8"D

Mounting

The ANN-80 Series plastic enclosures can be surface or semi-flush mounted in a single, double or 4" square electrical box.

To mount the ANN-80 Series enclosure:

1. Open the ANN-80 Series cover by turning the key switch counterclockwise to the ON (Unlocked) position.
2. Push in the snap latch tab located on the right side while pulling the cover open.
3. Pull wire through 7/8" hole in backplate and feed through wire channel to lower left corner of backplate before routing to terminal block (refer to appropriate FACP manual).

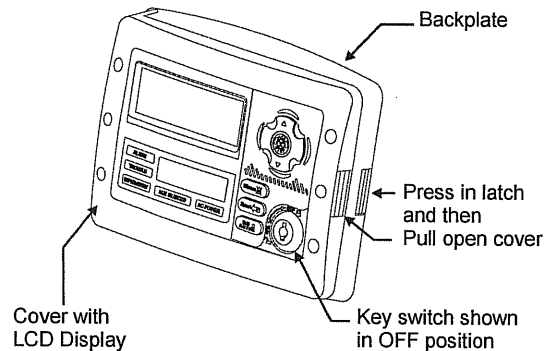


Figure 1 Opening the ANN-80 Series

4. The cover must remain attached to the backplate while mounting the annunciator to the electrical box/wall. The cover cannot be reattached or removed after the annunciator has been mounted.
5. If the cover should become detached from the backplate, reattach as shown below.

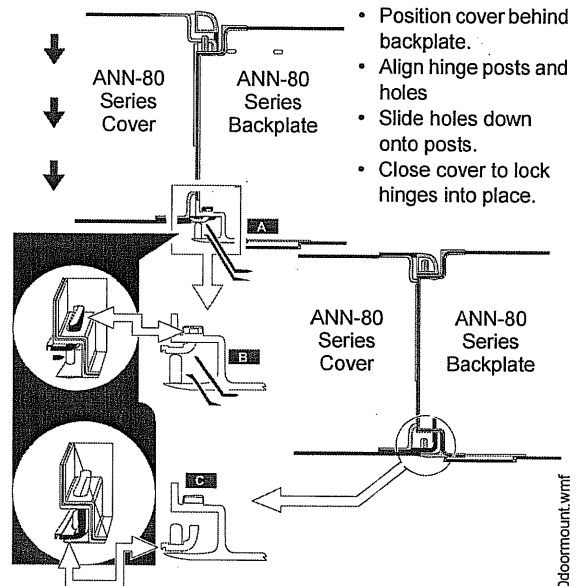


Figure 2 Cover Reattachment

6. Surface or Semi-flush mount the ANN-80 to a single, double or 4" square electrical box. The ANN-SB80KIT(-R/-B/-W) is an available kit that contains two plastic backboxes that can be used to surface mount the ANN-80 Series.

ann-80_iso2.wmf

ann80doormount.wmf

Wiring the ANN-80 Series to the FACP

Refer to Table 1 and Figure 3 for wiring connections.

ANN-80 Series Terminals (TB1)	FACP ANN-BUS Terminals
Terminal 1 (-)	(-)
Terminal 2 (+)	(+)
Terminal 3 (A)	A (ANN-BUS)
Terminal 4 (B)	B (ANN-BUS)

Table 1 ANN-80 Series to FACP Connections

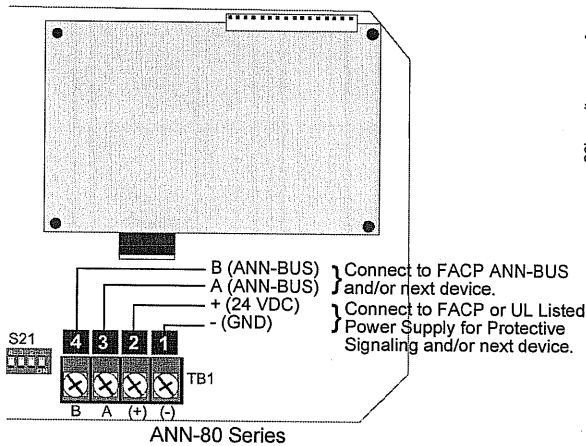


Figure 3 Wiring the ANN-80 Series to an FACP

Notes:

1. All connections/sources are to be power-limited and supervised.
2. 12 - 18 AWG (0.75 - 3.25 mm²) wire for 24 VDC circuit is acceptable.
3. Power wire distance limitation is set by 1.2 volt maximum line drop from source to end of circuit.
4. Maximum distance from FACP to last ANN-BUS device must not exceed 6,000 feet (1,800 m). Refer to Wiring Distance Table in appropriate FACP manual for wire gauge and distance limitations.

Setting the DIP Switches

Each ANN-BUS device requires a unique address. ANN-80 Series DIP switch S21 is used to set the address. This address will be displayed on the LCD display as the Station ID number.

A maximum of 8 devices can be connected to the FACP ANN-BUS communication circuit. ANN-BUS device addresses do not need to be sequential and can be set to any number between 01 and 08. Note that 00 is not a valid address. The following illustrates the DIP switch settings for each address (ID Number):

ID Number (Address)	DIP Switch S21
(not valid) 00	
01	
02	
03	
04	
05	
06	
07	
08	

BEAM355, BEAM355S Single-ended Reflected Type Projected Beam Smoke Detector

One FireLite Place
Northford, CT 06472
Phone: 203.484.7161

SPECIFICATIONS

GENERAL

Range:	16 to 230 Feet (5 to 70m) 230 to 328 Feet (70 to 100m) using optional accessory BEAMLRK
Sensitivity:	25% to 50% Total Obscuration in 6 levels Level 1 = 25% Level 2 = 30% Level 3 = 40% Level 4 = 50% Level 5 = 30% to 50% (Acclimate) Level 6 = 40% to 50% (Acclimate)
Spacing:	30 to 60 Feet (9.1 to 18.3m)
Response Time:	ALARM: - 20 seconds typical; TROUBLE: - 30 seconds typical
Trouble Conditions:	Beam Blockage (96% or More Obscuration) Improper Initial Alignment Self-compensation limit reached (service needed) In Alignment mode
Test/Reset Features:	Integral Sensitivity Test Filter (BEAM355S only, requires additional external power supply) Sensitivity Filter (Incremental scale on reflector) Local Alarm Test Switch Local Alarm Reset Switch Remote Test and Reset Switch Capability
Indicators:	ALARM - Remote Output, Local LED (red); TROUBLE - Remote Output, Local LED (yellow), Blink Pattern Indicates Trouble Diagnostics NORMAL OPERATION - Local LED (flashing green with communication) ALIGNMENT AIDS - Optical Gunsight (coarse adjustment), 00 to 99 Digital Display (fine adjustment) SENSITIVITY - Digital Display Readout in Percent Obscuration
Style 7 Operation:	On-board isolators provide style 7 operation. (may be disabled via shunts on circuit board)

ENVIRONMENTAL

Temperature:	-22°F to 131°F (-30°C to 55°C); NOTE: for applications below 32°F (0°C) see Special Applications section of this manual.
Humidity:	10% to 93% RH Non-condensing

Mechanical

Shipping Weight:	3.9 lbs. (1.77 kg)
Shipping Size:	15" × 10.5" × 6.5" (381mm × 267mm × 165mm)
Mounting:	Wall only without optional accessories
Wiring:	Plug-in Terminal Blocks (12 to 22AWG)
Adjustment Angle:	± 10° Horizontal and Vertical
Paintable Trim Ring:	May be painted using enamel or acrylic type paints

ELECTRICAL

Voltage:	15 to 32 VDC
Standby Current:	Avg. Standby - 2mA Max. (1 communication every 5 sec. LED flashing, SLC @ 24 V) Max. Alarm (LED on): 8.5mA Max. Max. Trouble (LED on): 4.5mA Max. Max. Alignment: 20mA Max.
External Supply (BEAM355S only):	VOLTAGE - 15 to 32 VDC CURRENT - 0.5A Max.
Remote Output (alarm)	VOLTAGE - 15 to 32 VDC; NOTE: Output voltage same as device input voltage. CURRENT - 15mA maximum; 6mA minimum; NOTE: Output current is limited by 2.2Kohm resistor

GENERAL DESCRIPTION

Fire•Lite Model BEAM355/BEAM355S is a long range projected beam smoke detector designed to provide open area protection. It is to be used with UL-listed compatible control panels only. The detector consists of a transmitter/receiver unit and a reflector. Smoke entering the area between the transmitter/receiver and reflector causes a reduction in signal. When the obscuration reaches alarm thresholds (chosen at the transmitter/receiver unit), the detector generates an alarm signal. Complete blockage of the beam causes a trouble signal. Slow changes in obscuration due to a build up of dirt or dust on the lens of the detector are compensated for by a microcontroller that continuously monitors the signal strength and periodically updates the alarm and

trouble thresholds. When the self-compensation circuit reaches its limit, the detector generates a trouble signal, indicating the need for service.

Three LEDs on the detector indicate the current status: a red LED for alarm, a yellow LED for trouble, and a blinking green LED for standby operation. Note: The panel controls the status of the red and green LEDs. The local reset button is accessible by removing the outer paintable trim ring. The yellow LED will blink in specific patterns to provide a diagnostic aid when diagnosing the cause of a trouble signal. It will also blink the amount of drift compensation that has been used at the conclusion of the test. Trouble signals automatically reset upon removing the cause of trouble. Red and yellow LEDs can be

remotely connected to the remote Alarm and Trouble outputs. These outputs mimic the functions of the detector's red and yellow LEDs. In addition to these indicators, there is a dual digital display that reads 00 to 99. This display is used to indicate the signal strength of the beam in alignment mode and to indicate the sensitivity setting of the detector in percent obscuration when setting the sensitivity of the detector. No additional equipment is needed for alignment of the beam.

SPECIAL APPLICATIONS

Due to the inherent capabilities of projected type beam detectors they are often installed in locations where spot-type detection is impractical. Projected type beam smoke detectors are ideally suited for environmental conditions that might include high ceilings, dusty and dirty environments, or environments that experience temperature extremes. Often these conditions present special problems for the installation of spot-type detectors and even greater problems for their proper maintenance. Due to the inherent flexibility of mounting locations and large coverage area of projected type beam detectors often the conditions above can be addressed or minimized.

Some examples of applications for beam detectors might include freezers, aircraft hangars, cold storage warehouses, shipping warehouses, enclosed parking facilities, sporting arenas and stadiums, concert halls, barns, or stables. Some of these environments might be considered too hostile for spot-type smoke detectors. If the environment is considered to be hostile then the colder alarm threshold settings should be used.

Before installing the transmitter/receiver unit or reflector in these types of applications special consideration should be given to ensure proper operation of the beam detector. The beam detector should not be installed in environments where there is no temperature control and condensation or icing is likely. Condensation or icing of the reflector surface or the outer surface of the transmitter/receiver unit will obscure the light beam resulting in a false alarm. If elevated humidity levels and rapidly changing temperatures can be expected then condensation will likely form and the application should not be considered acceptable for the beam detector. The beam detector should not be installed in locations where the transmitter/receiver unit, the reflector, or the optical pathway between them may be exposed to outdoor conditions such as rain, snow, sleet, or fog. These conditions will impair the proper operation of the detector and must be avoided.

APPROVED ACCESSORIES

The following accessories can be purchased separately for use with this beam detector.

BEAMLRK

The BEAMLRK allows Fire•Lite reflected beam detectors to be installed at separations between 230 and 328 feet (70 to 100 meters). At these distances, four 8 inch x 8 inch reflectors must be used to provide enough reflected infrared light. This kit includes 3 additional reflectors with new test scale legends. The reflector included with the transmitter/receiver unit is the fourth reflector to be used. This kit is not compatible with the multi-mount kit (BEAMMMK).

BEAMMMK

The BEAMMMK allows Fire•Lite reflected beam detectors and reflectors to be mounted to either a vertical wall or the ceiling. The kit allows for additional alignment range in cases where the detector and reflector cannot be mounted within 10° of each other. The kit includes the hardware necessary to mount either a single transmitter/receiver unit or a single reflector. (To mount the transmitter/receiver the surface mount kit, BEAMSMK, must also be used). If the transmitter/receiver and the reflector require additional alignment range two kits are required. The kit is not compatible with the long-range reflector kit (BEAMLRK).

BEAMSMK

The BEAMSMK allows Fire•Lite reflected beam detectors to be mounted when surface wiring is used. This kit must be used when mounting the transmitter/receiver unit with the multi-mount kit (BEAMMMK).

6500-MMK

The 6500-MMK provides a heavy-duty multi-mount bracket for installations prone to building movement or vibration. It offers similar tilt and swivel flexibility found on the BEAMMMK. (To mount the transmitter/receiver to the 6500-MMK, the surface mount kit, 6500-SMK, must be used).

6500-SMK

The 6500-SMK allows the transmitter/receiver to be mounted to the 6500-MMK heavy duty multi-mount kit.

BEAMHK

The BEAMHK allows the transmitter/receiver unit to operate in environments prone to the formation of condensation. Condensation forming on the beam detector unit may result in trouble or false alarm conditions. BEAMHK will lessen the likelihood of condensation by maintaining the unit at a temperature that is slightly higher than the surrounding air. Please refer to the BEAMHK installation manual for operation instructions.

BEAMHKR

The BEAMHKR allows the reflector to operate in environments prone to the formation of condensation. Condensation forming on the reflector may result in trouble or false alarm conditions. BEAMHKR will lessen the likelihood of condensation by maintaining the reflector at a temperature that is slightly higher than surrounding air. The kit requires a 24V power supply. When used with the long-range reflector kit (BEAMLRK), it is necessary to purchase and install four BEAMHKR kits. Please refer to the BEAMHKR installation manual for operation instructions.

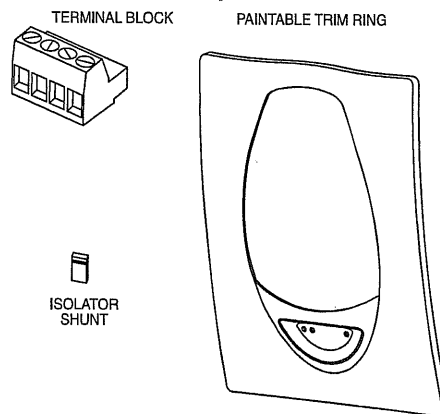
RTS451/KEY

The remote test accessory allows for the beam detector to be tested remotely. The test accessory provides test and reset functions and green and red LED's that mimic the LED's on the detector.

PARTS LIST

Description	Quantity
Transmitter/Receiver Unit	1
Paintable Trim Ring	1
Reflector	1
Plug-in Terminal Blocks	3
Isolator Shunts	2
Instruction Manual	1
Orange Sticky Paper	1

PARTS DIAGRAM (NOT TO SCALE)



C0306-00

DETECTOR PLACEMENT

This section of the manual discusses the placement of projected beam detectors. Though this information is based upon industry expertise, it is intended to be used only as a technical guide. Always comply with the requirements of applicable codes and standards such as, NFPA 72, National Fire Alarm Code, as well as directives of the Authority Having Jurisdiction (AHJ).

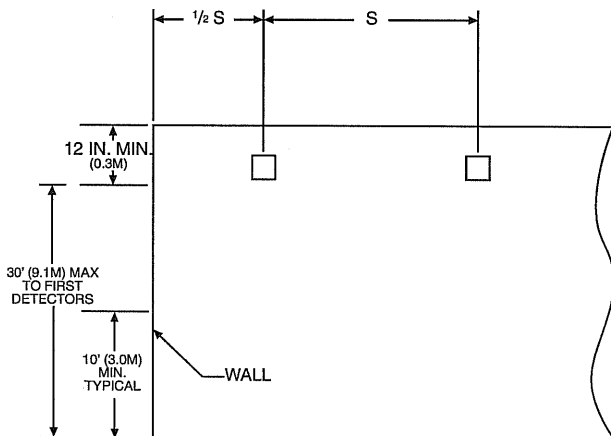
Projected beam detectors are usually located with their beams parallel to the ceiling. However, they can be mounted vertically or at any angle to protect the area involved. Since beam detectors sense the smoke buildup over a distance, they are ideal for locations with high ceilings. They can also be mounted on a wall or ceiling below the level of a spot type detector, reducing the effects of air stratification. Some typical locations would include large areas with high ceilings such as atriums, warehouses, and factories.

NOTE: Projected beam smoke detectors should always be mounted to stable mounting surfaces. See the MOUNTING LOCATION section for details.

Some fire codes specify spacing on a given center-to-center distance between detectors under ideal conditions. This spacing is based on rooms with smooth ceilings and no physical obstructions between the contents being protected and the detectors. Moreover, they are also based on a maximum ceiling height, and on the assumption that the value and the combustible nature of the contents of the room being protected do not warrant greater protection or closer spacing.

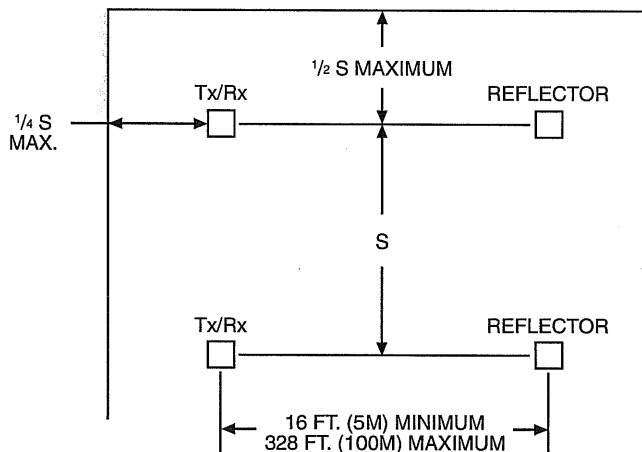
In a room with a smooth ceiling, detectors should be spaced horizontally between 30 and 60 feet (9.1 to 18.3m). One-half that spacing between the beam and the sidewall may be used as a guide. See Figure 1. The beam detector can be mounted with the transmitter/receiver on one wall and the reflector on the opposite wall, or both suspended from the ceiling, or any wall/ceiling combination. In the case of the ceiling mount, the distance from the end walls should not exceed one-quarter of the selected spacing (7.5 ft. [2.3m] maximum if the spacing is 30 ft. [9.1m]). See Figure 2.

FIGURE 1. SPACING FOR SMOOTH CEILING (SIDE VIEW):



C0254-02

FIGURE 2. SPACING FOR SMOOTH CEILING (TOP VIEW):

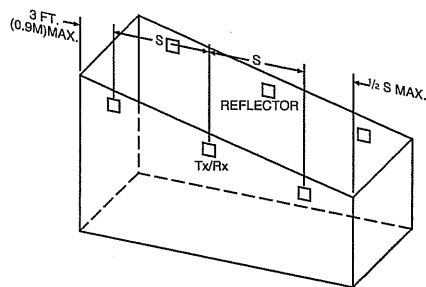


C0255-00

In the case of peaked or sloped ceilings, codes may specify spacing of detectors by using horizontal spacing from the peak of the roof or ceiling. Figures 3 and 4 show the spacing for both the shed type and peaked type sloped ceilings.

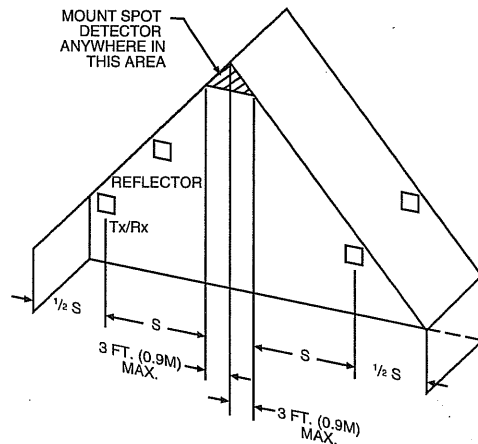
On smooth ceilings, beam smoke detectors should generally be mounted a minimum of 12 inches (0.3m) from the ceiling or beneath structural obstructions such as joists, ducts, etc. See Figure 1. In many cases, however, the location and sensitivity of the detectors shall be the result of an engineering evaluation that includes the following: ceiling heights above 30 feet (9.1 m) - refer to the "Single-Ended Reflected Beam Smoke Detector" application guide A05-0095 for more information regarding the effects of stratification, structural features, size and shape of the room and bays, occupancy and uses of the area, ceiling height, ceiling shape, surface and obstructions, ventilation, ambient environment, burning characteristics of the combustible materials present, and the configuration of the contents in the area to be protected.

FIGURE 3. SLOPED CEILING (SHED TYPE):



C0256-00

FIGURE 4. SLOPED CEILING (PEAKED TYPE):



C0257-02

MOUNTING LOCATIONS

Beam detectors require a stable mounting surface for proper operation. A surface that moves, shifts, vibrates, or warps over time will cause false alarm or trouble conditions. Initial selection of a proper mounting surface will eliminate false alarms and nuisance trouble signals.

Mount the detector on a stable mounting surface, such as brick, concrete, a sturdy load-bearing wall, support column, structural beam, or other surface that is not expected to experience vibration or movement over time. DO NOT MOUNT the beam detector on corrugated metal walls, sheet metal walls, external building sheathing, external siding, suspended ceilings, steel web trusses, rafters, nonstructural beam, joists, or other such surfaces.

In cases where only one stable mounting surface as defined above can be used, the transmitter/receiver unit should be mounted to the stable surface and the reflector should be mounted to the less stable surface. The reflector has a much greater tolerance for the unstable mounting locations defined above.

MOUNTING INSTRUCTIONS

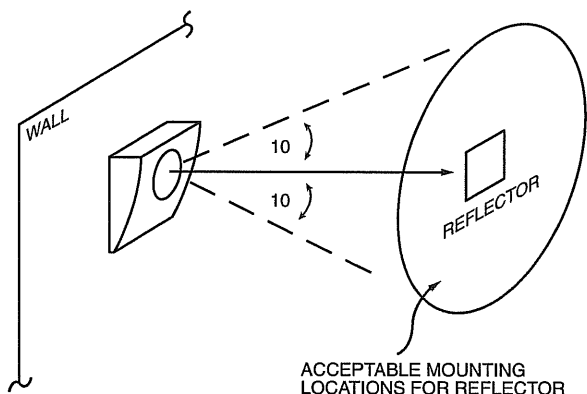
The transmitter/receiver unit may be mounted over a recessed junction box. The cavity behind the detector is then used for routing of the wiring from the junction box to the terminal blocks on the detector. The transmitter/receiver unit should be mounted to the wall such that unit covers the recessed junction box in the wall completely. If the junction box is not recessed then you may use the surface mount kit (BEAMSMK). See the BEAMSMK installation instructions for surface mounting instructions. The transmitter/receiver unit can be mounted to the wall using the supplied drilling template (see Appendix II). The detector base has 4 primary mounting keyholes, one in each corner of the base. All four hole locations should be used to provide a secure mounting. The outer housing of the beam detector is held to the base using four screws. In order to mount the detector you must remove the outer housing first.

The reflector can be mounted to the wall using the supplied drilling template (see Appendix III). The reflector has 4 mounting holes, one in each corner. All four hole locations should be used to provide a secure mounting. The reflector must be mounted such that it is within 10° in both the X and Y planes of the transmitter/receiver unit. See Figure 5a. The reflector must also be mounted such that plane of the reflector is perpendicular to the optical

line of sight to the transmitter/receiver unit. The maximum tolerance for non-perpendicular mounting locations is 10°. See Figure 5b. If the reflector cannot be mounted within 10° of the transmitter/receiver unit then the multi-mount kit (BEAMMMK) or the heavy-duty multi-mount kit (6500-MMK) may be used to provide greater angular adjustment of the transmitter/receiver unit. If the perpendicular plane of the reflector cannot be mounted within 10° of the optical line of sight then the multi-mount kit can be used for the reflector. See BEAMMMK or 6500-MMK instructions.

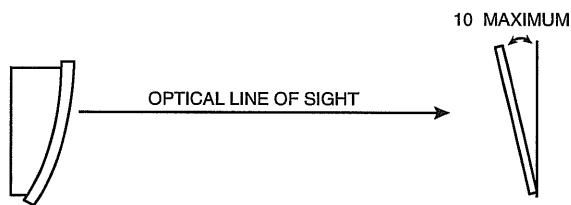
To aid in locating the reflector in the alignment mirror at long distances a bright orange sticky backed piece of paper is provided. Remove the protective backing from the orange sticker. Temporarily affix the orange paper next to the reflector using the sticky backing of the paper. The location of the sticky paper is not critical. It may be placed anywhere near the reflector as long as it is not covering the reflective surface of the reflector. This sticky paper should be removed once the installation is completed.

FIGURE 5A. REFLECTOR MOUNTING GUIDELINES



C0258-00

FIGURE 5B. REFLECTOR MOUNTING GUIDELINES



C0259-00

MOUNTING CONSIDERATIONS FOR SINGLE ENDED BEAM DETECTORS

There must be a permanent clear line of vision between the detector and the reflector. Reflective objects must not be near the line of vision between the detector and reflector. Reflective objects too near to the line of sight can reflect the light beam from the transmitter to the receiver. If this occurs, the detector will not be able to distinguish these reflections from those of the reflector and the protected space will be compromised. Reflective objects should be a minimum of 15 inches (38.1cm) from the line of sight between the detector and reflector. In cases where reflective objects cannot be avoided, the complete reflector blockage test can be used to determine if the installation is acceptable. See Testing and Maintenance Section of this manual.

Light sources of extreme intensity such as sunlight and halogen lamps, if directed at the receiver, can cause a dramatic signal change resulting in fault and alarm signals. To prevent this problem direct sunlight into the transmitter/receiver unit should be avoided. There should be a minimum of 10° between the pathway of the light source and detector and the line of sight between detector and reflector.

Operation of the detector through panes of glass should be avoided. Since single ended beam detectors operate on a reflection principle, a pane of glass perpendicular to the line of sight between the detector and the reflector can reflect the light beam from the transmitter to the receiver. If this occurs, the detector will not be able to distinguish these reflections from those of the reflector and the protected space will be compromised.

Panels of glass will also absorb some of the light as it passes through it. This absorption of light will reduce the acceptable installed distance between the

detector and the reflector.

In cases where operation through panes of glass cannot be avoided some specific installation practices can help to minimize the effects of the glass. These practices include: avoid penetration of multiple panes of glass, position the glass so that it is not perpendicular to the line of sight between the detector and the reflector, (A minimum of 10° off perpendicular should be considered), and make certain that the glass is smooth, clear and mounted securely. The complete reflector blockage test can be used to determine if the installation is acceptable. See Testing and Maintenance Section of this manual.

Where high ceilings (in excess of 30 feet or 9.1 meters) are present additional beam smoke detectors mounted at multiple heights may be required to detect smoke at lower levels. See the Detector Placement section in this installation manual.

WIRING INSTALLATION GUIDELINES

Always install all wiring in compliance with the National Electrical Code, and/or the applicable local codes, and any special requirements of the local authority having jurisdiction. Proper wire gauges and suitable means for strain relief should be used. The conductors used to connect beam smoke detectors to control panels and accessory devices should be color-coded to reduce the likelihood of wiring errors. Improper connections can prevent a system from responding properly in the event of a fire.

Installation wire used for the beam detector shall be no smaller than 22 AWG (1.0 mm2). For best system performance, all wiring should be twisted pair and installed in separate grounded conduit. Do NOT mix fire system wiring in the same conduit as any other electrical wiring. Shielded cable may be used to provide additional protection against electrical interference.

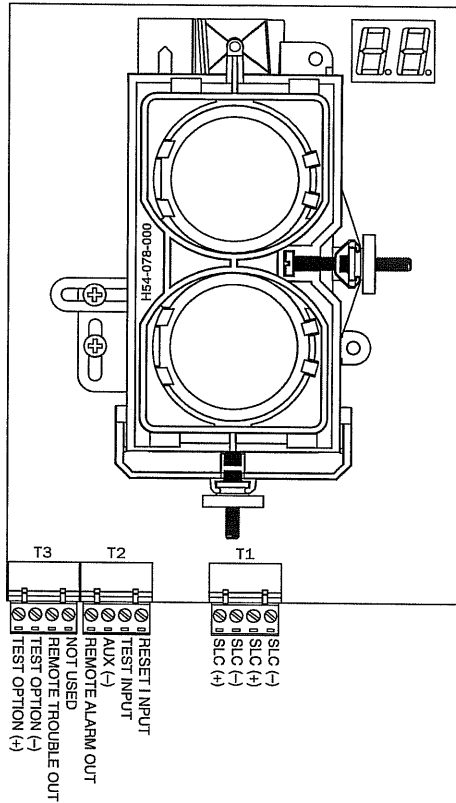
When installing the beam smoke detector in applications where the head unit will be mounted to either a wall or the ceiling using the multi-mount kits (BEAMMMK or 6500-MMK) flexible conduit will be used. The surface mount kits (BEAMSMK or 6500-SMK) and multi-mount kits (BEAMMMK or 6500-MMK) must be installed with the cable before wiring the unit, according to the instructions supplied with the kit.

When the detector has been mounted over a recessed junction box, all wiring should be routed out of the box and behind the detector to the bottom of the detector where the terminal blocks are located. When installing the wiring in the junction box be sure to leave enough wire in the box to connect to the terminal blocks. (Approximately 9 inch (23cm) of wire outside of the junction box will be required for proper installation). All wiring to the detector is done via pluggable terminal blocks. In order to properly make electrical connections strip approximately 1/4 inch (6mm) of insulation from the end of the wire, sliding the bare end of the wire under the clamping plate screw.

Figure 6 shows all the wiring connections to the transmitter/receiver unit. Figure 7 shows the proper wiring diagram for either class A or class B operation. Figure 8 shows the connections that are necessary when using one of the optional remote test stations. Figure 9 shows the remote output for alarm indication.

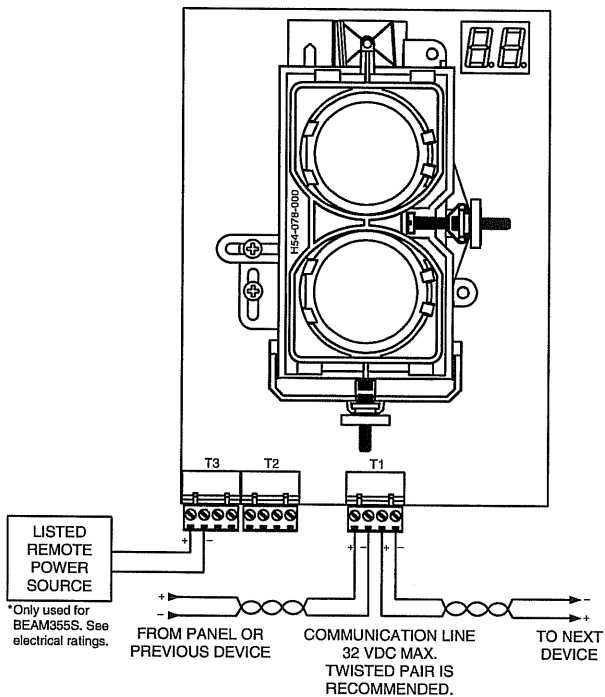
WARNING: Disable the zone or system before applying power to the beam detector to prevent unwanted alarms. When applying power to the beam detector before the alignment procedure has been completed the detector may enter alarm or fault.

FIGURE 6. WIRING CONNECTIONS AT DETECTOR



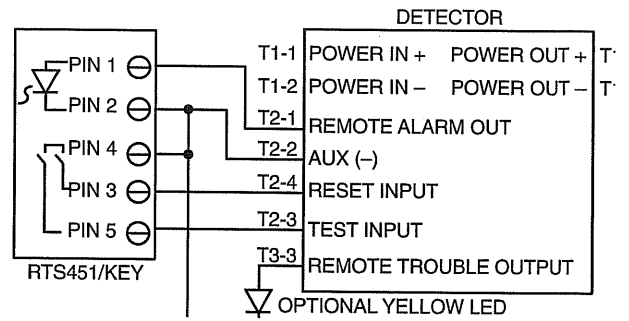
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FIGURE 7. WIRING DIAGRAM



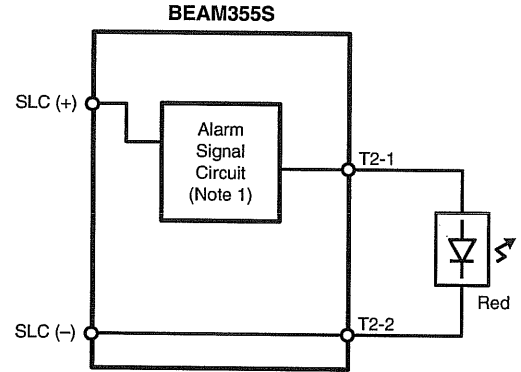
C0337-01

FIGURE 8. WIRING DIAGRAM (RTS451)



C0328-01

FIGURE 9. WIRING DIAGRAM (RTS451)



Note 1: See electrical ratings section of this manual for circuit output ratings.

C0329-00

INSTALLATION / ALIGNMENT

Reference Figures 10 through 14 for installation, alignment, and maintenance.

The alignment of the BEAM355/BEAM355S is divided into four steps: coarse alignment, fine adjustment, final gain adjustment, and final verification. It is necessary for all four steps to be executed properly to ensure proper alignment of the product. If the detector and reflector are mounted per Mounting Locations and Mounting Instructions sections of this manual and the alignment procedures are executed properly, false alarms and nuisance trouble signals will be minimized.

PRE-ALIGNMENT CHECKLIST

- Ensure that both the detector and reflector are mounted securely to stable surfaces.
- Ensure that all wiring is correct.
- Ensure that terminal blocks are fully seated into their receptacles on the detector.
- Complete any wiring dressing to minimize movement to the detector once the alignment procedure is completed.
- Ensure that the appropriate number of reflectors are used for the installed distance. Distances between 230 and 328 Feet (70 – 100m) require additional reflectors (4 total). The BEAMLRK accessory should be used in these cases.
- Ensure that the line of sight between the detector and reflector is clear and that reflective objects are not too near. See Mounting Instructions for more details.
- Ensure that both the detector and reflector are mounted within their operational parameters for off axis angles. See Mounting Instructions for more details.
- Disable the zone or system to prevent unwanted alarms before applying power.
- Ensure power to the detector is "ON".
- Ensure that the appropriate address is set on the code wheels.

You are now ready to begin the alignment procedure.

STEP 1. COARSE ALIGNMENT

Refer to Figures 11 and 12 for this step.

1. Ensure that both of the optics lock-down screws are loosened so that the optics will move freely.
2. Looking through the alignment mirror at both the alignment sight and reflector simultaneously locate the position of the reflector in the optical sight. This step will require some practice. It is necessary to train your eyes to shift focus between the reflector and the mirror in order to locate the reflector. If the distance between the reflector and the detector is large it is helpful to place a brightly colored object on the wall near the reflector to aide in seeing the reflector in the alignment mirror.
3. Once the reflector has been located, begin to adjust both the horizontal and vertical alignment knobs so that the reflector becomes centered in the alignment mirror. Take care in this step. If the optics are incorrectly aligned in this step, it will not be possible to proceed with the fine adjustment step.

STEP 2. FINE ADJUSTMENT

Refer to Figures 10 through 12 for this step.

In this step you will be fine-tuning the optics to the reflector. To provide feedback of the signal level coming from the reflector the dual digital display readout will be used. Due to the large distance range that the detector can operate over it is necessary that the detector operate with many different settings of "electronic amplifier gain". The detector is capable of determining the appropriate gain setting and then setting it itself via on-board processing algorithms. There are no external gain settings on the detector that must be set by the operator. Periodically throughout the fine adjustment step the detector will need to re-adjust its "electronic amplifier gain" setting. When this occurs it will be indicated by the dual digital readout as "-". When this occurs, cease any further adjustment until the display again reads a number value.

1. Ensure that neither you nor any other objects are in the line of sight between the detector and the reflector.
2. Depress the Alignment switch once. Both the digital display and the yellow LED should turn on indicating that alignment mode has been entered. The display should begin reading "- -" signifying an electronic gain adjustment. After a few moments the display will indicate a numeric value near 20. If the display reads "Lo" then the detector is not receiving enough light from the reflector. Go back and repeat the course alignment step and verify that the proper number of reflectors is used for the installed distance.

NOTE: The display will continue to read "Lo" until the detector receives enough light from the reflector to continue with the fine adjustment step.

NOTE: In alignment mode (indicated by the yellow LED and the numeric display) the sensitivity select and test switches are disabled.

3. With the display reading a numeric value, begin adjusting the horizontal and vertical alignment knobs one at a time in the direction that increases the numeric signal level on the display. Continue adjusting each axis one at a time going back and forth between them until a peak value is indicated. If a value of 90 is achieved, the detector will re-adjust the electronic gain once again. This will be indicated by a "- -" reading on the display. When this happens halt any further adjustment until the display again reads a numeric value. This process may occur more than once during the fine adjustment step.

NOTE: Each time the display reads a value of 90 or greater the detector will reduce the electronic gain. Each time the display reads a value of 10 or less the detector will increase the electronic gain.

4. Once satisfied that it is not possible to achieve a higher reading on the display depress the alignment switch to complete the fine adjustment step. The digital display readout will turn "OFF" and the yellow LED will remain "ON".

NOTE: It may not be possible to achieve a value near 90 on the display during the last adjustment iteration. The final value of the display will not likely be near 90. This is normal. It is due to the detector reducing its electronic gain each time a value of 90 is achieved. When this occurs the detector resumes with less electronic gain than previously when 90 was achieved. Less gain makes it more difficult to achieve higher values. Final values anywhere between 20 and 90 are acceptable if no further increase can be achieved.

NOTE: The alignment procedure is not complete yet.

At this time it is possible to set the sensitivity of the detector using the sensitivity switch and digital display. See the Sensitivity Selection section of this manual for further details.

STEP 3. FINAL GAIN ADJUSTMENT

Refer to Figure 13 for this step.

In this step, the detector will electronically adjust its internal gain one final time. It is necessary to complete this step with the outer housing installed since the housing will change the amount of light received from the reflector.

1. Tighten the optics lock down screws so the optics are secure.
2. Install the outer housing of the detector. The housing is installed by tightening four screws, one in each corner of the housing. The screws are captivated in the plastic of the housing and cannot fall out during assembly.

NOTE: The housing contains a gasket seal that protects the detector circuitry from corrosion and moisture sources. To ensure that the gasket seal performs correctly it is necessary to fully tighten all four of the screws that hold the outer housing in place.

3. Remove the protective film from the front surface of the outer housing.
4. To initiate the final electronic gain adjustment, the reset switch must be depressed. Once depressed the yellow LED will begin to blink. This indicates that the detector is adjusting the electronic gain setting. Once complete, the yellow LED will stop blinking and the green LED will begin blinking. This indicates that the gain adjustment was successful.

NOTE: Use caution not to block the line of sight between the detector and reflector in this step.

5. Install the outer aesthetic ring by snapping it onto the outer housing.

NOTE: If the outer aesthetic ring has been painted ensure that the paint is completely dry before proceeding with this step.

STEP 4. FINAL VERIFICATION

This step is required to ensure the detector has been setup correctly and will detect smoke at the proper sensitivity level.

1. With the detector functioning (indicated by the green LED blinking), completely block the reflector with an opaque material. (Due to the high optical efficiency of the reflector the selection of the opaque material used to block the reflector is not critical. Acceptable materials include, but aren't limited to, this manual or the cardboard packaging inserts.) See Figure 14. The detector should enter the fault condition (indicated by the fault relay and the yellow LED (see Appendix I). If the detector does not enter the trouble condition there is a problem with the installation refer to the troubleshooting section in Appendix I for further assistance.
2. Complete a sensitivity test of the detector. Refer to the Sensitivity Testing section of this manual for the appropriate procedure.
3. If the orange sticky paper was used to aid in the location of the reflector in the alignment mirror it should be removed now. It is no longer necessary.

Congratulations. You have completed the final installation and alignment procedure.

FIGURE 10. SWITCH LOCATIONS

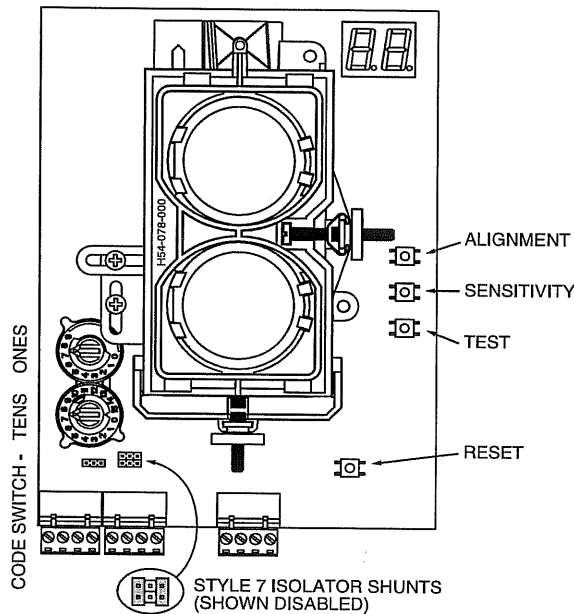


FIGURE 11. ALIGNMENT ADJUSTMENT LOCATIONS

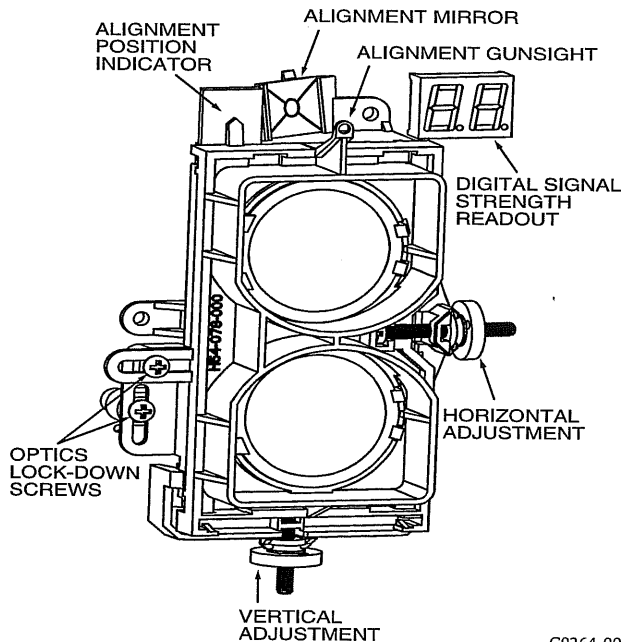


FIGURE 12. COARSE ALIGNMENT PROCEDURE

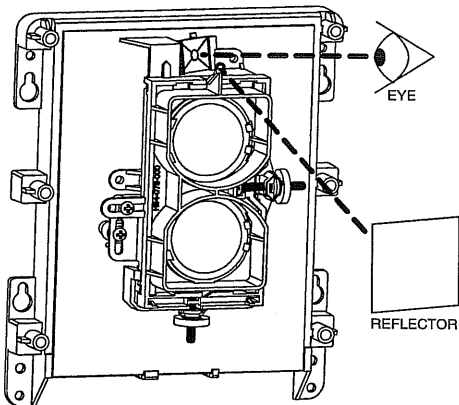
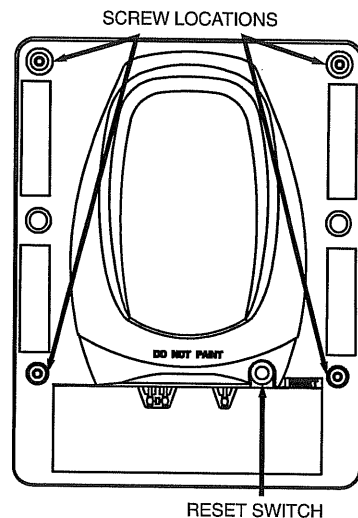


FIGURE 13. HOUSING SCREW LOCATIONS



C0266-00

SHORT CIRCUIT ISOLATION

The detector includes an on-board circuit isolator that allows for NFPA72 style 7 operation. In cases where style 7 operation is not desired the isolator can be disabled using the two shunts on the circuit board. See Figure 10 for jumper locations. When the jumpers are present the isolator is disabled. This is the default state.

SENSITIVITY SELECTION

The detector has six sensitivity selections. Each of these selections is only acceptable over a specific distance separation between the detector and the reflector per UL268. The chart below is used to determine which selections are acceptable for your installed distance. The sensitivity of the detector can be set only when the housing is removed and the detector is not in the fine adjustment step of the alignment mode, indicated by the illumination of the dual digital display. To set the sensitivity depress the sensitivity button one time. See Figure 10. Once the switch is pressed the digital display will illuminate and read the current sensitivity setting in percent obscuration. To change the sensitivity continue to depress the sensitivity switch until the desired setting is achieved. The digital display will turn off automatically if no further switch presses occur.

Sensitivity Setting	% Obscuration	Display Reading	Acceptable Distance Between Detector and Reflector (Feet)	Acceptable Distance Between Detector and Reflector (meters)
Level 1	25	25	16.4 to 120	5.0 to 36.6
Level 2	30	30	25 to 150	7.6 to 45.7
Level 3	40	40	60 to 220	18.3 to 67
Level 4	50	50	80 to 328	24.4 to 100
Acclimate Level 1	30 to 50	A1	80 to 150	24.4 to 45.7
Acclimate Level 2	40 to 50	A2	80 to 220	24.4 to 67

In addition to the four standard sensitivity selections the detector has two Acclimate settings. When either of these settings is chosen the detector will automatically adjust its sensitivity using advanced software algorithms to select the optimum sensitivity for the environment. The sensitivity will be continuously adjusted within the ranges specified in the chart above.

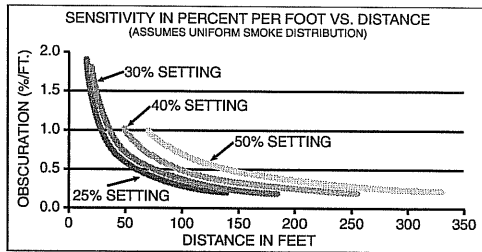
SENSITIVITY

Total obscuration can be converted to percent per foot, assuming uniform smoke density for the entire length of the beam. The charts below converts total obscuration to percent per foot for all acceptable sensitivity settings.

C0263-00

C0264-00

C0265-00



C0268-00

SENSITIVITY TESTING

NOTE: Before testing, notify the proper authorities that the smoke detector system is undergoing maintenance, and therefore the system will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

Detectors must be tested after installation and following periodic maintenance. The sensitivity of the BEAM355/BEAM355S may be tested as follows:

NOTE: Before testing the detector, check for the presence of the flashing green LED at the receiver, making sure not to disturb or block the beam. If it does not flash and the detector is not in trouble or alarm, power has been lost to the detector (check the wiring).

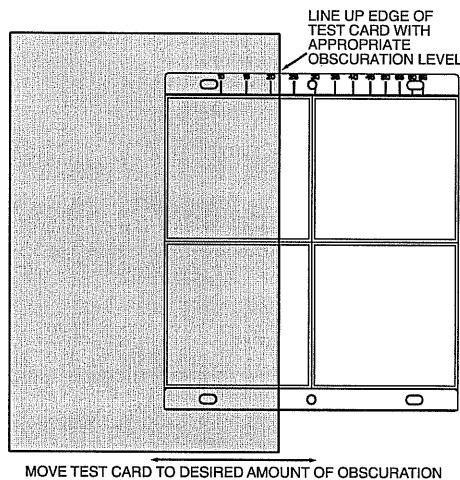
A. Calibrated Test Filter

The sensitivity of the detector can be tested using an opaque material to cover the reflector by an amount indicated by the graduated scale on the reflector. (Due to the high optical efficiency of the reflector the selection of the opaque material used to block the reflector is not critical. Acceptable materials include, but aren't limited to, this manual or the cardboard packaging inserts.)

Refer to Figure 14 for this procedure.

1. Verify the sensitivity setting of the detector in % obscuration. See the Sensitivity Selection section of this manual for sensitivity determination if sensitivity is unknown.
2. Place the blocking material over the reflector, lining it up with the graduated marks that are 10 less than the detector's setting in % obscuration. The detector should not alarm or fault. Keep the material in place for a minimum of 1 minute.
3. Place the blocking material over the reflector lining it up with the graduated marks that are 10 more than the detectors setting in % obscuration. The detector should enter alarm within 1 minute.

FIGURE 14. REFLECTOR TEST CARD PROCEDURE



C0267-00

4. The detector can be reset with the reset switch on the detector unit or remote reset.
5. Notify the proper authorities that the system is back on line.

If the detector fails this test several steps should be taken to determine if the detector is faulty or simply needs to be re-adjusted before returning the unit. These steps include:

1. Verify all wiring connections and appropriate power is applied to the detector.

2. Verify that the optical line of sight is free from obstructions and reflective objects.
3. Apply the maintenance procedure in this manual. Repeat the test procedure. If the detector still fails the test procedure proceed with step 4.
4. Repeat the alignment procedure in this manual. If the alignment procedure is successful repeat the test procedure. If the detector still fails the test it should be returned.

NOTE: For the BEAM355S the external power supply must be connected for the test switch to work.

B. Test Switch

The detector can be tested using the local test switch on the transmitter/receiver unit or remotely using the remote test station.

The remote test station can be used with the BEAM355/BEAM355S beam smoke detector. Follow instructions included with the test station for proper use. See Figure 8 (Remote Test Station) for wiring diagram.

The BEAM355S is equipped with an integral sensitivity test feature that consists of a calibrated test filter attached to a servo motor inside the detector optics. When a test is initiated using the remote test station or local test switch the test filter is moved in the pathway of the light beam. The on-board micro-processor then determines if the proper level of signal reduction is received at the receiver. If the proper level of signal reduction is received the detector will enter alarm. If the proper level of signal reduction was not achieved, indicating that the sensitivity of the detector is out of tolerance, the detector will enter the trouble condition.

Always perform a complete reflector blockage test as in step 4 of the Installation/Alignment procedure to ensure that the pathway between the detector and reflector is clear.

NOTE: For the BEAM355 this test does not satisfy the requirements of NFPA72 for periodic maintenance and sensitivity verification of beam type detectors. For the BEAM355S this test in conjunction with the complete reflector blockage test (see step 4 of the Installation/Alignment procedure in this manual) does satisfy the requirements of NFPA72 for periodic maintenance and sensitivity verification of beam type detectors.

If the detector fails this test several steps should be taken to determine if the detector is faulty or simply needs to be re-adjusted before returning the unit. These steps include:

1. Verify all wiring connections and appropriate power is applied to the detector.
2. Verify that the optical line of sight is free from obstructions and reflective objects.
3. Apply the maintenance procedure in this manual. Repeat the test procedure. If the detector still fails the test procedure proceed with step 4.
4. Repeat the alignment procedure in this manual. If the alignment procedure is successful repeat the test procedure. If the detector still fails the test it should be returned for repair.

NOTE: For the BEAM355S, the external power supply must be connected for the test switch to work.

MAINTENANCE

NOTE: Before cleaning the detector, notify the proper authorities that the smoke detector system is undergoing maintenance, and therefore the system will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

1. Carefully clean the outer housing lens face. A damp soft cloth with a mild soap may be used. Avoid products with solvents or ammonia.
2. Carefully clean the reflector. A damp soft cloth with a mild soap may be used. Avoid products with solvents or ammonia.
3. Notify the proper authorities that the system is back on line.

PAINTING

The outer aesthetic ring may be painted using a spray or brush type paint of appropriate type. See specification section of this manual for paint types.

NOTE: Never paint the flat lens surface of the outer housing.

SPECIAL NOTE REGARDING SMOKE DETECTOR GUARDS

Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

APPENDIX I. OPERATION MODES AND TROUBLESHOOTING GUIDE

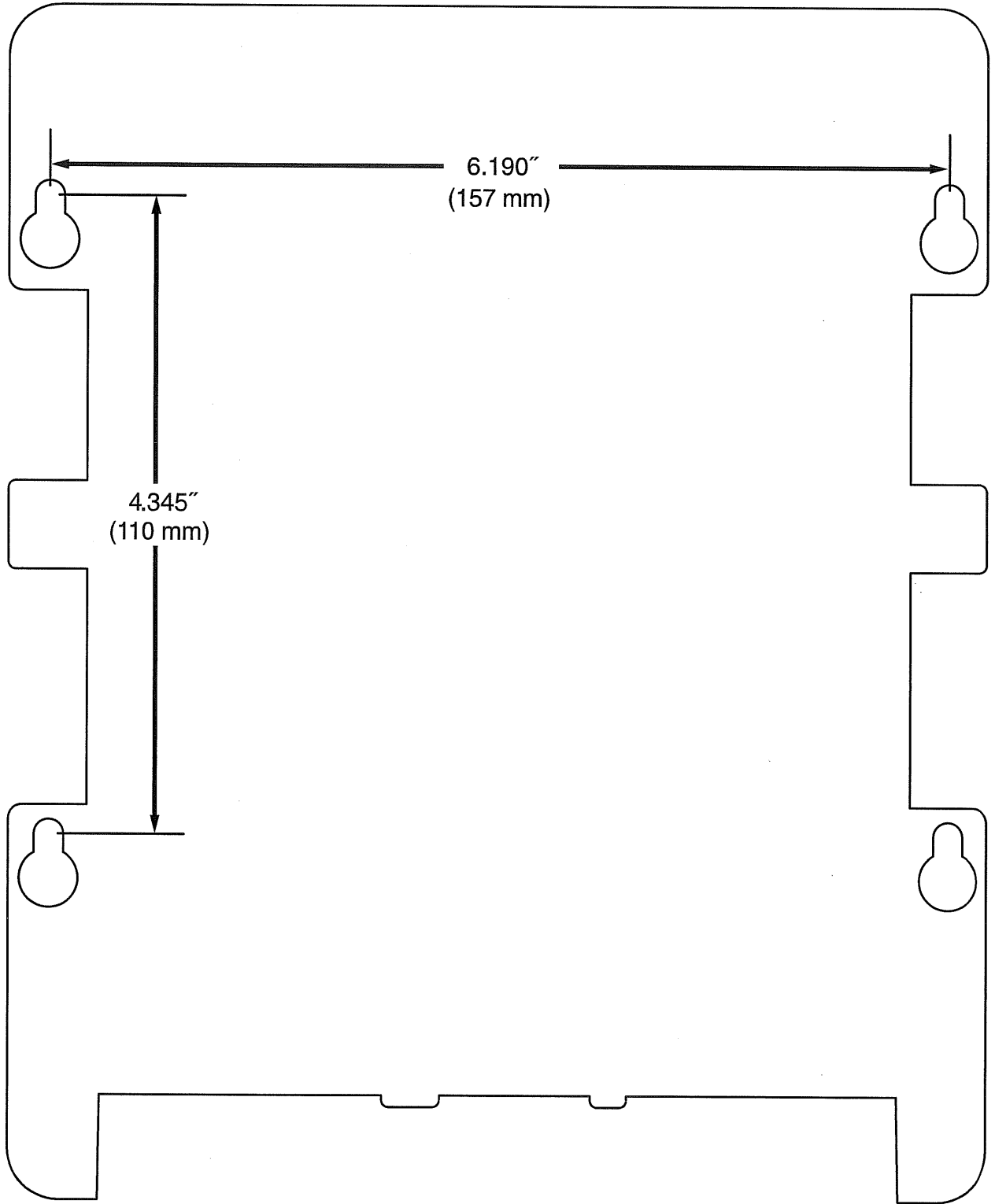
Modes	*Red See Note Below	Yellow and Remote Trouble Output	*Green See Note Below	Remote Alarm Output	Dual Digital Display	Initiating means	Comments & Troubleshooting Tips
Normal	Off	Off	Blink	Blink	Off	Successful completion of initialization or detector reset	
Alignment	Off	On	Blink	Blink	On, Relative amount of signal 0-99, or – if automatic gain resetting, or Lo if signal is too low	Alignment Switch	
Alarm	On	Off	Off	On	Off	Smoke, Test Filter, RTS451 Test Stations	
Trouble-Drift Comp Elevated Signal	Off	3 Quick Blinks	Blink	Blink	Off	Long Term Drift Reference Out of Range	<ul style="list-style-type: none"> Sunlight into detector or reflector. Re-Align detector.
Trouble-Drift Comp Reduced Signal	Off	2 Quick Blinks	Blink	Blink	Off	Long Term Drift Reference Out of Range	<ul style="list-style-type: none"> Clean detector and reflector.
Trouble-Signal Over Range	Off	2 Quick Blinks	Blink	Blink	Off	Increase of Reflected Signal	<ul style="list-style-type: none"> Inspect line of sight between detector and reflector for reflective objects in the pathway.
Trouble-Beam Blockage Response	Off	4 Quick Blinks	Blink	Blink	Off	Beam Blockage	<ul style="list-style-type: none"> Remove blockage. Faulty unit.
Initialization-Power on	Off	Blink until complete	Blink	Blink	Off	Apply Power from discharged state.	
Initialization-alignment exit	Off	Blink until complete	Blink	Blink	Off	Depressing RESET switch after alignment	
Local Test (BEAM355S) Pass Result	On	Blinking the amount of drift used	Off	On	Off	Panel or RTS451/ KEY	Remains in alarm until reset or time-out
Local Test (BEAM355S) Fail Result	Off	On until reset or time-out	Blink	Blink	Off	Panel or RTS451/ KEY test input	Remains in fault until reset or time-out
Local Test (BEAM355) Fail	Off	On until reset or time-out	Blink	Blink	Off	Panel or RTS451/ KEY test input	Remains in fault until reset or time-out
Local Test (BEAM355) Pass Result	On	Blinking the amount of drift used	Off	On	Off	Panel or RTS451/ KEY	Remains in alarm until reset or time-out

Note: Green and Red LEDs are controlled by the control panel.

Blinks output by Yellow LED and Remote Trouble Output once the device has passed a local remote test:

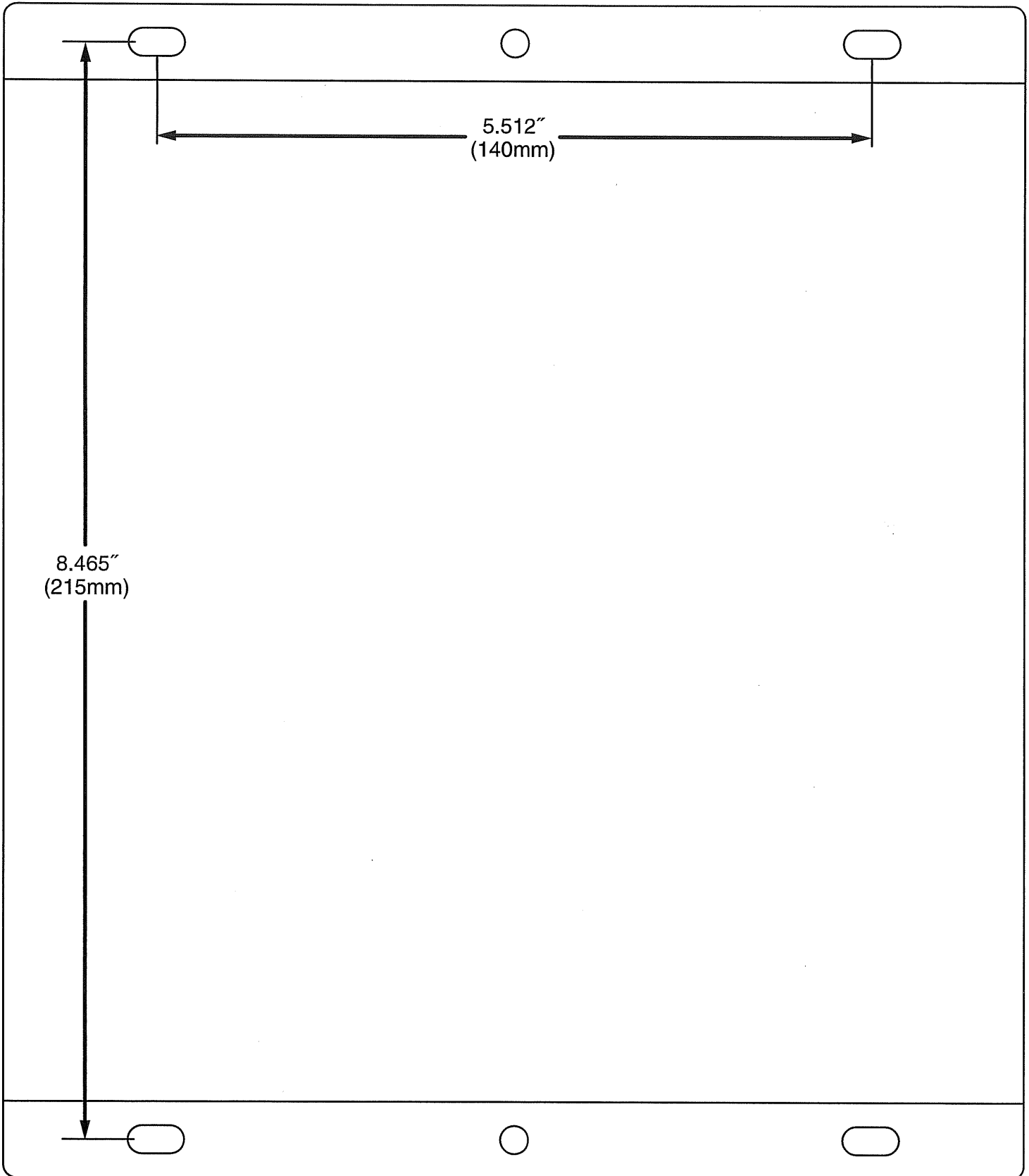
Percent the detector has drifted	Number of blinks output
<10%	None
<20%	1
<30%	2
<40%	3
<50%	4
<60%	5
<70%	6
<80%	7
<90%	8
<100%	9

APPENDIX II. DETECTOR DRILLING TEMPLATE



Scale = 1:1

APPENDIX III. REFLECTOR DRILLING TEMPLATE



Scale = 1:1

Please refer to insert for the Limitations of Fire Alarm Systems

FCC Statement

This projected beam smoke detector 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if

not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Thank you for using our products.

**INSTALLATION INSTRUCTIONS
 SERIES AH-WP INDOOR/OUTDOOR AUDIBLE HORN APPLIANCES**

Use this product according to this instruction manual. Please keep this instruction manual for future reference.


GENERAL:


Cooper Wheelock's AH-WP Audible Horn Appliances are designed to provide a selectable continuous horn or code 3 tone when connected directly to the Fire Alarm Control Panel (FACP), or provide a synchronized code 3 horn when used in conjunction with a Sync Module (SM), Dual Sync Module (DSM) or Wheelock's Power Supplies. The AH-WP Appliances are UL Listed under UL Standard 464 for Audible Signal Appliances. The AH-24WP is ULC Listed under Standard CAN/ULC-S525-99 for Audible Signaling Appliances. They are listed for indoor and outdoor use and can be mounted to a 4" backbox (See Mounting Options).


AH-WP Appliances can be field set to provide either High (HI) dBA, Medium (MED) dBA or Low (LO) dBA sound output.

All AH-WP models are designed for use with either filtered DC (VDC) or unfiltered Full-Wave-Rectified (FWR) input voltage. All inputs are polarized for compatibility with standard reverse polarity supervision of circuit wiring by a FACP.

NOTE: The code 3 horn incorporates the temporal pattern (1/2 second on, 1/2 second off, 1/2 second on, 1/2 second off, 1/2 second on, 1-1/2 off and repeat) specified by ANSI/NFPA for standard emergency evacuation signaling. The code 3 horn shall be used only for fire evacuation signaling and not for any other purpose.

NOTE: All CAUTIONS and WARNINGS are identified by the symbol . All warnings are printed in bold capital letters.

 **WARNING: THE AH-WP APPLIANCE IS A "FIRE ALARM DEVICE - DO NOT PAINT."**

 **WARNING: PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS, CAUTIONS AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

SPECIFICATIONS:

Table 1: UL/ULC Listed Models and Ratings

Model	Regulated Voltage (VDC/VRMS)	UL Voltage Range (VDC/VRMS)	ULC Voltage Range (VDC/VRMS)	Maximum RMS Current (AMPS)					
				DC			FWR		
				Lo	Med	Hi	Lo	Med	Hi
AH-24WP	24	16-33	20-31	0.021	0.043	0.080	0.041	0.051	0.090
AH-12WP	12	8-17.5	----	0.058	0.108	0.192	0.059	0.109	0.209

Model AH-12WP is not ULC listed.

Table 1A: ULC Current Ratings 24VDC Models

Model	ULC Voltage (VDC/VRMS)	Average Current (AMPS)		
		Lo	Med	Hi
AH-24	20.0	.014	.020	.035
	24.0	.017	.025	.050
	31.0	.021	.030	.065

Table 2: dBA Sound Output for 24VDC Models

Description	Volume	Reverberant dBA Per UL 464			Anechoic Per CAN/ULC-S525-99		
		16.0VDC	24VDC	33.0VDC	16.0VDC	24VDC	33.0VDC
Continuous Horn	Low	80	83	86	88	90	92
	Medium	85	88	91	90	95	97
	High	88	91	93	92	97	99
Code 3 Horn	Low	75	79	82	88	90	92
	Medium	80	84	86	90	95	97
	High	84	87	90	92	97	99

Description	Volume	Reverberant Per UL 464		
		8.0VDC	12VDC	17.5VDC
Continuous Horn	Low	80	83	86
	Medium	85	88	91
	High	88	91	93
Code 3 Horn	Low	75	79	82
	Medium	80	84	86
	High	84	87	89

NOTES:

- All models are UL/ULC Listed for indoor and outdoor use with a temperature range of -31°F to +151°F (-35°C to 66°C) and maximum humidity of 98% RH.

-3 dBA: 48 degrees left, 41 degrees right
-6 dBA: 50 degrees left, 58 degrees right

⚠ WARNING: CHECK THE MINIMUM AND MAXIMUM OUTPUT OF THE POWER SUPPLY AND STANDBY BATTERY AND SUBTRACT THE VOLTAGE DROP FROM THE CIRCUIT WIRING RESISTANCE TO DETERMINE THE APPLIED VOLTAGE TO THE SIGNALING APPLIANCE.

⚠ WARNING: FOR UL APPLICATIONS THESE APPLIANCES WERE TESTED TO THE OPERATING VOLTAGE LIMITS OF 16-33 VOLTS FOR 24V MODELS AND 8-17.5 VOLTS FOR 12V MODELS USING FILTERED (DC) OR UNFILTERED FULL-WAVE-RECTIFIED (FWR). DO NOT APPLY 80% AND 110% OF THESE VOLTAGE VALUES FOR SYSTEM OPERATION.

⚠ WARNING: FOR ULC APPLICATIONS THESE APPLIANCES WERE TESTED TO THE OPERATING VOLTAGE LIMITS OF 20-31 VOLTS FOR 24V MODELS AND 10.5-15.6 VOLTS FOR 12V MODELS USING FILTERED (DC) OR UNFILTERED FULL-WAVE-RECTIFIED (FWR). APPLY 80% AND 110% OF THESE VOLTAGE VALUES FOR SYSTEM OPERATION.

⚠ WARNING: MAKE SURE THAT THE TOTAL RMS CURRENT, TOTAL AVERAGE CURRENT AND TOTAL PEAK CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO THE SYSTEM'S PRIMARY AND SECONDARY POWER SOURCES, NAC CIRCUITS, SM, DSM SYNC MODULES OR WHEELOCK'S POWER SUPPLIES DO NOT EXCEED THE POWER SOURCES' RATED CAPACITY OR THE CURRENT RATINGS OF ANY FUSES ON THE CIRCUITS TO WHICH THESE APPLIANCES ARE WIRED. OVERLOADING POWER SOURCES OR EXCEEDING FUSE RATINGS COULD RESULT IN LOSS OF POWER AND FAILURE TO ALERT OCCUPANTS DURING AN EMERGENCY, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

When calculating the total currents: Use Table 1 to determine the highest value of "RMS Current" for an individual AH Appliance (across the expected operating voltage range of the AH Appliance) or use Table 1A to determine the highest value of "Rated Average Current" of an individual AH Appliance (across the expected voltage range of the AH Appliance), then multiply these values by the total number of AH Appliances; be sure to add the currents for any other appliances, powered by the same source and include any required safety factors.

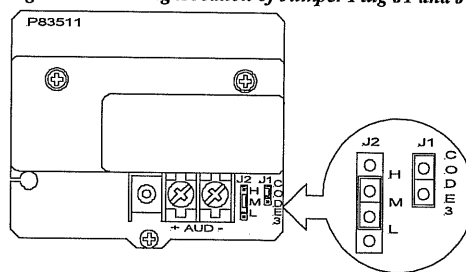
If the peak current exceeds the power supplies' peak capacity, the output voltage provided by the power supplies may drop below the listed voltage range of the appliances connected to the supply and the voltage may not recover in some types of power supplies. For example, an auxiliary power supply that lacks filtering at its output stage (either via lack of capacitance and/or lack of battery backup across the output) may exhibit this characteristic.

⚠ CAUTION: Audible Horn appliances are not designed to be used on coded systems in which the applied voltage is cycled on and off.

⚠ WARNING: THE AUDIBLE HORN APPLIANCES MUST BE FIELD SET TO THE DESIRED TONE AND dBA SOUND OUTPUT LEVEL BEFORE THEY ARE INSTALLED. THIS IS DONE BY PROPERLY INSERTING A JUMPER PLUG IN ACCORDANCE WITH THESE INSTRUCTIONS. INCORRECT SETTINGS WILL RESULT IN IMPROPER PERFORMANCE, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

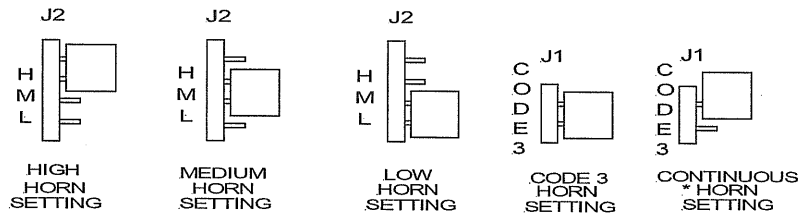
SOUND OUTPUT (SPL) SETTINGS:

Figure 1: Showing Location of Jumper Plug J1 and J1.



Factory setting is on Medium dB and Code 3.

Figure 2: Jumper Plug Settings for High, Medium, Low dB, Code 3 Horn and Continuous Horn Setting



(Use needle nose pliers to pull and properly insert the jumper plug.)

No jumper plug is needed for continuous horn setting. However, it is recommended that the jumper plug be retained in the unit for future use (if needed) as shown in Figure 2.

NOTE: The Audible Horn must be set for code 3 when used with the sync module.

* Continuous horn operation without sync module.

WIRING INFORMATION:

Figure 3:

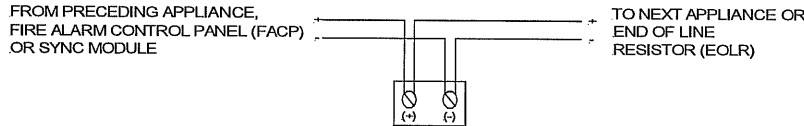
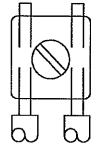


Figure 4:



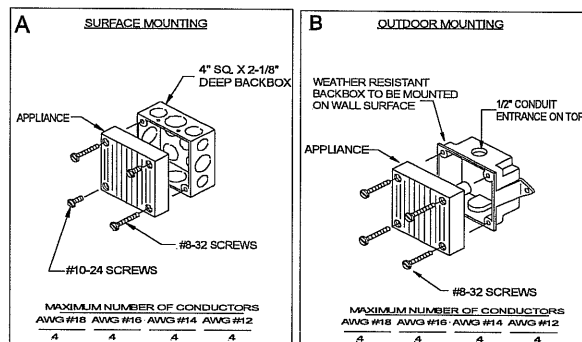
Refer to Sync Module instruction sheets SM (P83123) DSM (P83177) and Wheelock's Power Supplies for additional information.

1. AH-WP Appliances have in-out wiring terminals that accepts two #12 to #18 American Wire Gauge (AWG) wires at each screw terminal. Strip leads 3/8" inches for connection to screw terminals.
2. Break all in-out wire runs on supervised circuit supervision as shown in Figure 4. The polarity shown in the wiring diagrams is for the operation of the appliances. The polarity is reversed by the FACP during supervision.

MOUNTING OPTIONS:

CAUTION: The following figures show the maximum number of field wires (conductors) that can enter the backbox used with each mounting option. If these limits are exceeded, there may be insufficient space in the backbox to accommodate the field wires and stresses from the wires could damage the product.

Although the limits shown for each mounting option comply with the National Electrical Code (NEC), Cooper Wheelock recommends use of the largest backbox option shown and the use of approved stranded field wires, whenever possible, to provide additional wiring room for easy installation and minimum stress on the product from wiring.



MOUNTING NOTES:

CAUTION: Check that the installed product will have sufficient clearance and wiring room prior to installing backboxes and conduit, especially if sheathed multiconductor cable or 3/4" conduit fittings are used.

1. For weather resistant installation, use outdoor mounting option.
2. All models can be surface mounted to a 4" square by 2-1/8" deep electrical backbox (Figure A) or a weatherproof backbox (Figure B).
3. Mounting hardware for each mounting option is supplied. For proper mounting, be sure to use the mounting screws supplied with the unit.
4. Conduit entrances to the backbox should be selected to provide sufficient wiring clearance for the installed product.
5. Use care and proper techniques to position the field wires in the backbox so that they use minimum space and produce minimum stress on the product. This is especially important for stiff heavy gauge wires with thick insulation or sheathing.
6. When terminating field wires, do not use more lead length than required. Excess lead length could result in insufficient wiring space for the signaling appliance.
7. Do not pass additional wires (used for other than the signaling appliance) through the backbox. Such additional wires could result in insufficient wiring space for the signaling appliance.
8. The knock-out opening on the backbox is sized for a 1/2" conduit and matching connector. Be sure that a proper watertight conduit fitting is used to connect the backbox for outdoor/severe environment applications.

These appliances can produce a distinctive three pulse Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72.

⚠ CAUTION: If Audible Horn appliances are operated within 15 inches of a person's ear, they can produce a sound pressure level that exceeds the maximum 120dBA permitted by ADA and OSHA rules. Exposure to such sound levels can result in damage to a person's hearing.

⚠ CAUTION: Check the installation instructions of the manufacturers of other equipment used in the system for any guidelines or restrictions on wiring and/or locating Notification Appliance Circuits (NAC) and notification appliances. Some system communication circuits and/or audio circuits, for example, may require special precautions to assure electrical noise immunity (e.g. audio crosstalk).

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 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: 1) Reorient or relocate the receiving antenna, 2) Increase the separation between the equipment and receiver, 3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, and 4) Consult the dealer or an experienced radio/TV technician for help.

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Cooper Wheelock, Inc. products must be used within their published specifications and must be PROPERLY specified, applied, installed, operated, maintained, and operationally tested in accordance with these instructions at the time of installation and at least twice a year or more often in accordance with local, state and federal codes, regulations and laws. Specification, application, installation, operation, maintenance, and testing must be performed by qualified personnel for proper operation in accordance with all of the latest National Fire Protection Association (NFPA), Underwriters' Laboratories (UL), Underwriters' Laboratories of Canada (ULC), National Electrical Code (NEC), Occupational Safety and Health Administration (OSHA), local, state, county, province, district, federal and other applicable building and fire standards, guidelines, regulations, laws and codes including, but not limited to, all appendices and amendments and the requirements of the local authority having jurisdiction (AHJ). Cooper Wheelock, Inc. products when properly specified, applied, installed, operated, maintained, and operationally tested as provided above are warranted against mechanical and electrical defects for a period of three years from date of manufacture (as determined by date code). Correction of defects by Cooper Wheelock, Inc providing repairs or a replacement shall be at Cooper Wheelock, Inc.'s sole discretion and shall constitute fulfillment of all warranty obligations. The foregoing limited warranty shall immediately terminate in the event any part not furnished by Cooper Wheelock, Inc. is installed in the product. The foregoing limited warranty specifically excludes any software required for the operation of or included in a product. **COOPER WHEELOCK, INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY OTHER KIND, EXPRESS, IMPLIED OR STATUTORY WHETHER AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER MATTER.**

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In no case will Cooper Wheelock, Inc.'s liability exceed the purchase price paid for a product.

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Thank you for using our products.

INSTALLATION INSTRUCTIONS
SERIES RSS AND RSSP MULTI-CANDELA STROBE APPLIANCES
(WALL MOUNT VERSIONS)

Use this product according to this instruction manual. Please keep this instruction manual for future reference.

GENERAL:

Wheelock's Series RSS and RSSP Multi-Candela Strobes can provide a non-synchronized strobe appliance when connected directly to a fire alarm control panel (FACP), or provide a synchronized strobe appliance when used in conjunction with a Sync Module (SM), Dual Sync Module (DSM) or a Wheelock power supply utilizing the Wheelock sync protocol. The Series RSS and RSSP Multi-Candela Strobe Appliances are UL Listed under Standard 1971 (Signaling Devices for the Hearing Impaired) for indoor Fire Protection Service and ULC Listed under Standard CAN/ULC-S526-02 for indoor Fire Protective Service. The Multi-Candela Strobe provides four selectable light output intensities in one unit. These strobes are listed for **wall mount only** with the backboxes specified in these instructions (see mounting options). RSS models have an integrated strobe mounting plate that can be mounted to a single-gang, double-gang, 4" backbox, 100mm European backbox or SHBB surface backbox. The strobes use a xenon flashtube with solid state circuitry enclosed in a polycarbonate lens to provide maximum visibility and reliability for effective visible signaling. All inputs are polarized for compatibility with standard reverse polarity supervision of circuit wiring by the FACP.

NOTE: All Canadian installations should be in accordance with the Canadian Standard for the Installation of Fire Alarm Systems - CAN/ULC-S524-01 and Canadian Electrical Code, Part 1. Final acceptance is subject to the authority having jurisdiction (AHJ).

⚠ WARNING: PLEASE READ THESE INSTRUCTIONS CAREFULLY. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS, CAUTIONS AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, CANDELA SETTING, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

SPECIFICATIONS:

Model	Regulated Voltage (VDC/VRMS)	Voltage Range Limit Per UL 1971 (VDC/VRMS)	Voltage Range Per CAN/ULC-S526-02 (VDC/VRMS)	Strobe Candela (cd)	Mounting Options
RSS-24MCW	24	16.0-33.0	20.0-31.0	15/30/75/110	A,B,C,D
RSSP-24MCW	24	16.0-33.0	20.0-31.0	15/30/75/110	E,F

Product	Series
Multitone Appliances	AMT, MT, MT4
Horns	AH, NH
Motor Bells	MB-G6/G10
Speakers	ET-1010/1080, ET70, E70
Chimes	CH70

NOTES:

1. Strobes will produce 1 flash per second over the "Regulated Voltage" range.
2. These strobes meet the required light distribution patterns defined in UL 1971 and ULC-S526-02.
3. All models are listed by UL/ULC for indoor use with a temperature range of +32°F to +120°F (0°C to +49°C) and maximum humidity of 93% ± 2% RH. The effect of shipping and storage temperatures shall not adversely affect the performance of the appliance when it is stored in the original cartons and is not subjected to misuse or abuse.

⚠ WARNING: CANDELA SETTING WILL DETERMINE THE CURRENT DRAW OF THE PRODUCT.

Maximum RMS Current					
Voltage		15cd	30cd	75cd	110cd
DC	16-33VDC	0.060	0.092	0.165	0.220
FWR	16-33VRMS	0.102	0.155	0.253	0.347

When calculating the total currents use Table 2 to determine the highest value of RMS current for an individual strobe, then multiply these values by the total number of strobes. Be sure to add the currents for any other appliances, including audible signaling appliances powered by the same source, and to include any required safety factors.

NOTE: The maximum number of strobes on a single notification appliance circuit shall not exceed 50.

⚠ CAUTION: These notification appliances are UL Listed as "Regulated". They are intended to be used with FACPs whose notification circuits are UL Listed as "Regulated." These appliances shall not be used on UL Listed "Special Application" notification circuits unless the appliances are identified to be compatible in the installation instructions of the FACP or unless the FACP is identified to be compatible in this instruction manual.

⚠ WARNING: THESE APPLIANCES WERE TESTED TO THE REGULATED VOLTAGE LIMITS OF 16.0-33.0 VOLTS FOR 24V MODELS USING FILTERED DC OR UNFILTERED FULL-WAVE-RECTIFIED VOLTAGE. DO NOT APPLY VOLTAGE OUTSIDE OF THIS RANGE.

⚠ WARNING: CHECK THE MINIMUM AND MAXIMUM OUTPUT OF THE POWER SUPPLY AND STANDBY BATTERY AND SUBTRACT THE VOLTAGE DROP FROM THE CIRCUIT WIRING RESISTANCE TO DETERMINE THE APPLIED VOLTAGE TO THE STROBES. THE MAXIMUM WIRE IMPEDANCE BETWEEN STROBES SHALL NOT EXCEED 35 OHMS.

⚠ CAUTION: Strobes are not designed to be used on coded systems in which the applied voltage is cycled on and off.

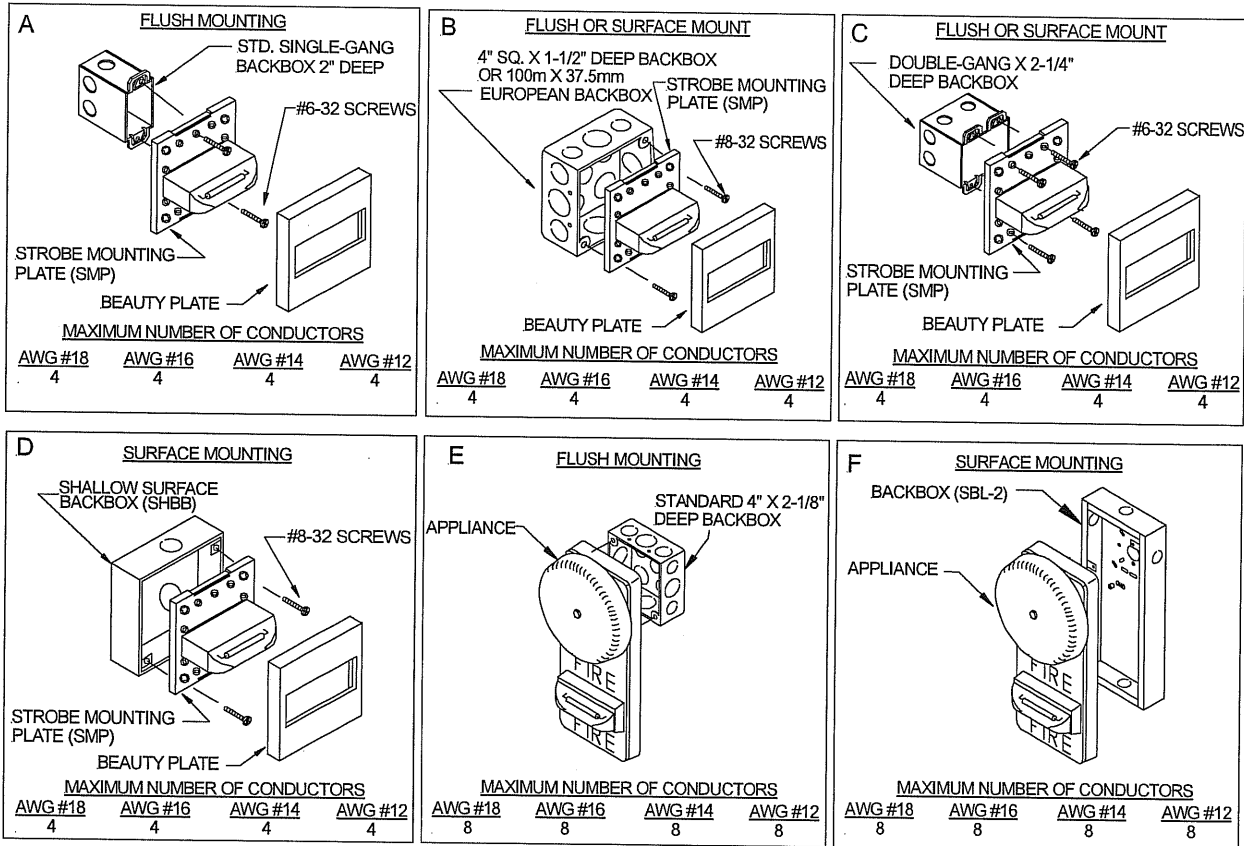
⚠ WARNING: MAKE SURE THAT THE TOTAL RMS CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO THE SYSTEM'S PRIMARY AND SECONDARY POWER SOURCES, NOTIFICATION APPLIANCE CIRCUITS, SM, DSM SYNC MODULES, OR WHELOCK POWER SUPPLIES DOES NOT EXCEED THE POWER SOURCES' RATED CAPACITY OR THE CURRENT RATINGS OF ANY FUSES ON THE CIRCUITS TO WHICH THESE APPLIANCES ARE WIRED. OVERLOADING POWER SOURCES OR EXCEEDING FUSE RATINGS COULD RESULT IN LOSS OF POWER AND FAILURE TO ALERT OCCUPANTS DURING AN EMERGENCY, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

WIRING AND MOUNTING INFORMATION:

⚠ CAUTION: The following figures (A-F) show the maximum number of field wires (conductors) that can enter the backbox used with each mounting option. If these limits are exceeded, there may be insufficient space in the backbox to accommodate the field wires and stresses from the wires could damage the product.

⚠ CAUTION: Check that the installed product will have sufficient clearance and wiring room prior to installing backboxes and conduit, especially if sheathed multiconductor cable or 3/4" conduit fittings are used.

Although the limits shown for each mounting option comply with the National Electrical Code (NEC), Wheelock recommends use of the largest backbox option shown and the use of approved stranded field wires, whenever possible, to provide additional wiring room for easy installation and minimum stress on the product from wiring.



Figures E and F are shown with optional 6" bell. See Table 1A for other possible appliance combinations.

Figure 1: Wiring Diagrams

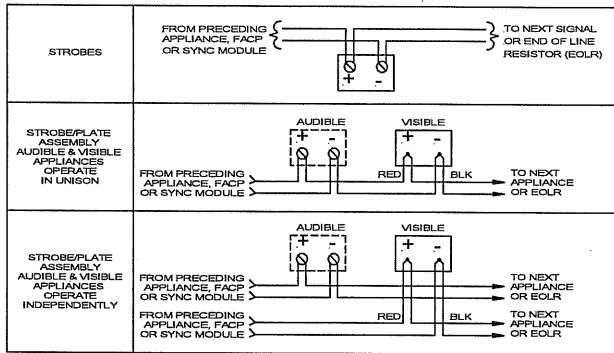
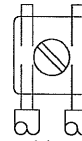


Figure 2:



- All strobe appliances have in-out wiring terminals that accepts two #12 to #18 American Wire Gauge (AWG) wires at each screw terminal. Strip leads 3/8 inches and connect to screw terminals.
- Break all in-out wire runs on supervised circuits to ensure integrity of circuit supervision as shown in Figure 2. Strobe/Plate assembly has two red leads and two black leads for in-out wiring. The polarity shown in the wiring diagrams is for the operation of the appliances. The polarity is reversed by the FACP during supervision.

Refer to instruction sheets for SM (P83123), DSM (P83177) or Wheelock power supplies for additional information.

1. This RSS model can be flush mounted to a standard single-gang backbox (Figure A), 4" or 100mm backbox (Figure B) or double-gang backbox (Figure C). It can also be surface mounted to a 4" or 100mm backbox (Figure B), double-gang backbox (Figure C) or the SHBB (Figure D). The RSSP model can be flush mounted to a 4" backbox (Figure E) or surface mounted to a SBL-2 backbox (Figure F). Mounting hardware for each mounting option is supplied.
2. Conduit entrances to the backbox should be selected to provide sufficient wiring clearance for the installed product. Do not pass additional wires (used for other than the signaling appliance) through the backbox. Such additional wires could result in insufficient wiring space for the signaling appliance.
3. When terminating field wires, do not use more lead length than required. Excess lead length could result in insufficient wiring space for the appliance.
4. Use care and proper techniques to position the field wires in the backbox so that they use minimum space and produce minimum stress on the product. This is especially important for stiff, heavy gauge wires and wires with thick insulation or sheathing.
5. This RSS model has an integrated Strobe Mounting Plate (SMP) which must be oriented correctly when it is mounted to the backbox. Turn the SMP so that the arrow above the words "Horizontal Strobe" points to the top side.
6. Move the selector switch to the desired candela setting. The setting is indicated by a pointer and can be seen on the bottom side of the lens. See Figures 3 and 4 below.
7. Mount the SMP first to the backbox. Next slide the beauty plate over the SMP until the 2 snaps of the beauty plate engage with the SMP.
8. The beauty plate can be removed from the strobe assembly once engaged. First, gently insert a screwdriver into one of the slots located on the top and bottom edges of the beauty plate. Second, gently pull away from the wall with the inserted screwdriver to disengage the snap. Third, repeat the first and second steps for the second slot. Finally, gently lift the beauty plate away from the SMP.

Figure 3:

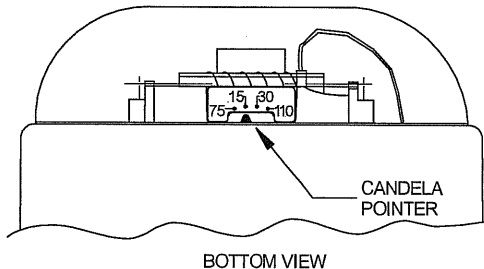
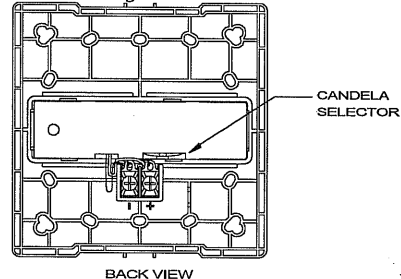


Figure 4:



NOTE: The RSS/RSSP Multi-Candela come pre-set at 15cd.

⚠ WARNING: THE CANDELA SELECT SWITCH MUST BE FIELD SET TO THE REQUIRED CANDELA INTENSITY BEFORE INSTALLATION. WHEN CHANGING THE SETTING OF THE CANDELA SELECT SWITCH, MAKE CERTAIN THAT IT "CLICKS" IN PLACE. AFTER CHANGING THE CANDELA SETTING, THE APPLIANCE MUST BE RETESTED TO VERIFY PROPER OPERATION. IMPROPER SETTING OF THE CANDELA SELECT SWITCH MAY RESULT IN OPERATION AT THE WRONG CANDELA, WHICH COULD RESULT IN A CURRENT DRAW EXCEEDING THE POWER SUPPLY'S CAPACITY.

⚠ WARNING: REMOVAL OF THE COVER AT THE BACK OF THE MOUNTING PLATE COULD RESULT IN SEVERE ELECTRIC SHOCK.

⚠ WARNING: THE RSS STROBE APPLIANCE IS A "FIRE ALARM DEVICE - DO NOT PAINT."

⚠ WARNING: WHEN INSTALLING STROBES IN AN OPEN OFFICE OR OTHER AREAS CONTAINING PARTITIONS OR OTHER VIEWING OBSTRUCTIONS, SPECIAL ATTENTION SHOULD BE GIVEN TO THE LOCATION OF THE STROBES SO THAT THEIR OPERATING EFFECT CAN BE SEEN BY ALL INTENDED VIEWERS, WITH THE INTENSITY, NUMBER, AND TYPE OF STROBES BEING SUFFICIENT TO MAKE SURE THAT THE INTENDED VIEWER IS ALERTED BY PROPER ILLUMINATION, REGARDLESS OF THE VIEWER'S ORIENTATION. FAILURE TO DO SO COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

The 110cd setting is Listed for use in sleeping or non-sleeping areas when installed in accordance with appropriate NFPA Standards and the Authority Having Jurisdiction.

⚠ WARNING: INSTALLATION OF WHEELOCK 110 CANDELA STROBE PRODUCTS IN SLEEPING AREAS SHOULD BE WALL MOUNTED AT LEAST 24" BELOW THE CEILING AS FOLLOWS: (1) THE ON-AXIS (DIRECTLY IN FRONT OF LENS) LIGHT OUTPUT SHOULD BE DIRECTED AT THE EYELIDS OF THE SLEEPING PERSON, E.G., PILLOW END OF BED, BED HEAD; (2) NO PART OF THE BED SHALL BE MORE THAN SIXTEEN (16) FEET FROM THE STROBE NOTIFICATION APPLIANCE. INSTALLERS MUST ADVISE OWNERS AND OPERATORS OF BUILDINGS WITH SLEEPING OCCUPANTS, E.G., HOTELS AND MOTELS, TO WARN GUESTS, RESIDENTS AND EMPLOYEES TO NOT MOVE THE BED LOCATION TO A POSITION VIOLATING POINTS (1) AND (2) ABOVE OR SERIOUS INJURY AND/OR LOSS OF LIFE MAY OCCUR DURING A FIRE EMERGENCY.

⚠ WARNING: A SMALL POSSIBILITY EXISTS THAT THE USE OF MULTIPLE STROBES WITHIN A PERSON'S FIELD OF VIEW, UNDER CERTAIN CIRCUMSTANCES, MIGHT INDUCE A PHOTO-SENSITIVE RESPONSE IN PERSONS WITH EPILEPSY. STROBE REFLECTIONS IN A GLASS OR MIRRORED SURFACE MIGHT ALSO INDUCE SUCH A RESPONSE. TO MINIMIZE THIS POSSIBLE HAZARD, WHEELOCK STRONGLY RECOMMENDS THAT THE STROBES INSTALLED SHOULD NOT PRESENT A COMPOSITE FLASH RATE IN THE FIELD OF VIEW WHICH EXCEEDS FIVE Hz AT THE OPERATING VOLTAGE OF THE STROBES. WHEELOCK ALSO STRONGLY RECOMMENDS THAT THE INTENSITY AND COMPOSITE FLASH RATE OF INSTALLED STROBES COMPLY WITH LEVELS ESTABLISHED BY APPLICABLE LAWS, STANDARDS, REGULATIONS, CODES AND GUIDELINES.

NOTE: NFPA 72/ANSI 117.1 conform to ADAAG Equivalent Facilitation Guidelines in using fewer, higher intensity strobes within the same protected area.

⚠ CAUTION: Check the installation instructions of the manufacturers of other equipment used in the system for any guidelines or restrictions on wiring and/or locating Notification Appliance Circuits and notification appliances. Some system communication circuits and/or audio circuits, for example, may require special precautions to ensure immunity from electrical noise (e.g., audio crosstalk).

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 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: 1) Reorient or relocate the receiving antenna, 2) Increase the separation between the equipment and receiver, 3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, and 4) Consult the dealer or an experienced radio/TV technician for help.

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IMPORTANT: READ SEPARATE "GENERAL INFORMATION" SHEET FOR INFORMATION ON THE PLACEMENT, LIMITATIONS, INSTALLATION, FINAL CHECKOUT, AND PERIODIC TESTING OF NOTIFICATION APPLIANCES.

Limited Warranty

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WHEELOCK'S LIABILITY ON ANY CLAIM OF ANY KIND, INCLUDING NEGLIGENCE AND BREACH OF WARRANTY, FOR ANY LOSS OR DAMAGE RESULTING FROM, ARISING OUT OF, OR CONNECTED WITH THIS CONTRACT, OR FROM THE MANUFACTURE, SALE, DELIVERY, RESALE, REPAIR OR USE OF ANY PRODUCT COVERED BY THIS ORDER SHALL BE LIMITED TO THE PRICE APPLICABLE TO THE PRODUCT OR PART THEREOF WHICH GIVES RISE TO THE CLAIM. WHEELOCK'S LIABILITY ON ANY CLAIM OF ANY KIND SHALL CEASE IMMEDIATELY UPON THE INSTALLATION IN THE PRODUCT OF ANY PART NOT FURNISHED BY WHEELOCK. IN NO EVENT SHALL WHEELOCK BE LIABLE FOR ANY CLAIM OF ANY KIND UNLESS IT IS PROVEN THAT OUR PRODUCT WAS A DIRECT CAUSE OF SUCH CLAIM. FURTHER, IN NO EVENT, INCLUDING IN THE CASE OF A CLAIM OF NEGLIGENCE, SHALL WHEELOCK BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE PRECEDING LIMITATION MAY NOT APPLY TO ALL PURCHASERS.

Thank you for using our products.

INSTALLATION INSTRUCTIONS SERIES RSS MULTI-CANDELA STROBE APPLIANCES (CEILING MOUNT VERSIONS)

Use this product according to this instruction manual. Please keep this instruction manual for future reference.

GENERAL:

Wheelock's Series RSS Multi-Candela Strobes can provide a non-synchronized strobe appliance when connected directly to a fire alarm control panel (FACP), or provide a synchronized strobe appliance when used in conjunction with a Sync Module (SM), Dual Sync Module (DSM) or Wheelock power supplies utilizing Wheelock sync protocol. The Series RSS Multi-Candela Strobe Appliances are UL Listed under Standard 1971 (Signaling Devices for the Hearing Impaired) for indoor Fire Protection Service and ULC Listed under Standard CAN/ULC-S526-02 for indoor Fire Protective Service. The Multi-Candela strobe provides four selectable light output intensities in one unit. These strobes are listed for ceiling mount only, with the backboxes specified in these instructions (See wiring and mounting information). RSS models have an integrated strobe mounting plate (SMP) that can be mounted to a single-gang, double-gang, 4" backbox, 100mm European backbox or SHBB surface backbox. The strobes use a xenon flashtube with solid state circuitry enclosed in a polycarbonate lens to provide maximum visibility and reliability for effective visible signaling. All inputs are polarized for compatibility with standard reverse polarity supervision of circuit wiring by the FACP.

NOTE: All Canadian Installations should be in accordance with the Canadian Standard for the Installation of Fire Alarm Systems - CAN/ULC-S524-01 and Canadian Electrical Code, Part 1. Final acceptance is subject to Authorities Having Jurisdiction.

⚠ WARNING: PLEASE READ THESE INSTRUCTIONS CAREFULLY. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS, CAUTIONS AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, CANDELA SETTING, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

SPECIFICATIONS:

Model	Regulated Voltage (VDC/VRMS)	Voltage Range Limit Per UL 1971 (VDC/VRMS)	Voltage Range Per CAN/ULC-S526-02 (VDC/VRMS)	Strobe Candela (cd)	Mounting Options
RSS-24MCC	24	16.0-33.0	20.0-31.0	15/30/75/95	A,B,C,D
RSS-24MCCR	24	16.0-33.0	20.0-31.0	15/30/75/95	A,B,C,D

NOTES:

1. Strobes will produce 1 flash per second over the "Regulated Voltage" range.
2. These strobes meet the required light distribution patterns defined in UL 1971 and ULC-S526-02.
3. All models are listed by UL/ULC for indoor use with a temperature range of +32°F to +120°F (0°C to +49°C) and maximum humidity of 93% ± 2% RH. The effect of shipping and storage temperatures shall not adversely affect the performance of the appliance when it is stored in the original cartons and is not subjected to misuse or abuse.

⚠ WARNING: CANDELA SETTING WILL DETERMINE THE CURRENT DRAW OF THE PRODUCT.

Maximum RMS Current Draw					
Voltage		15cd	30cd	75cd	95cd
DC	16-33VDC	0.065	0.105	0.189	0.249
FWR	16-33VRMS	0.110	0.170	0.280	0.375

When calculating the total currents: Use Table 2 to determine the highest value of "RMS Current" for an individual strobe, then multiply these values by the total number of strobes. Be sure to add the currents for any other appliances, including audible signaling appliances, powered by the same source and include any required safety factors.

NOTE: The maximum number of strobes on a single notification appliance circuit shall not exceed 50.

⚠ CAUTION: These notification appliances are UL Listed as "Regulated". They are intended to be used with FACP's whose notification circuits are UL Listed as "Regulated." These appliances shall not be used on UL Listed "Special Application" notification circuits unless the appliances are identified to be compatible in the installation instructions of the FACP or unless the FACP is identified to be compatible in this instruction manual.

⚠ WARNING: THESE APPLIANCES WERE TESTED TO THE REGULATED VOLTAGE LIMITS OF 16.0-33.0 VOLTS FOR 24V MODELS USING FILTERED DC OR UNFILTERED FULL-WAVE-RECTIFIED VOLTAGE. DO NOT APPLY VOLTAGE OUTSIDE OF THIS RANGE.

⚠ CAUTION: Strobes are not designed to be used on coded systems in which the applied voltage is cycled on and off.

⚠ WARNING: CHECK THE MINIMUM AND MAXIMUM OUTPUT OF THE POWER SUPPLY AND STANDBY BATTERY AND SUBTRACT THE VOLTAGE DROP FROM THE CIRCUIT WIRING RESISTANCE TO DETERMINE THE APPLIED VOLTAGE TO THE STROBES. THE MAXIMUM WIRE IMPEDANCE BETWEEN STROBES SHALL NOT EXCEED 35 OHMS.

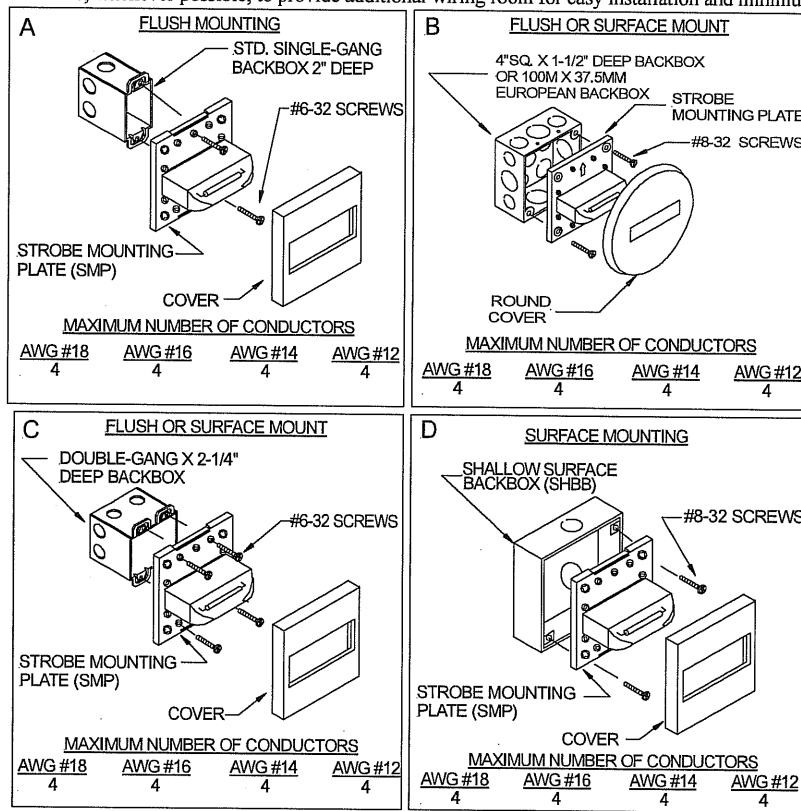
⚠ WARNING: MAKE SURE THAT THE TOTAL RMS CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO THE SYSTEM'S PRIMARY AND SECONDARY POWER SOURCES, NOTIFICATION APPLIANCE CIRCUITS, SM, DSM SYNC MODULES, OR WHEELLOCK POWER SUPPLIES DOES NOT EXCEED THE POWER SOURCES' RATED CAPACITY OR THE CURRENT RATINGS OF ANY FUSES ON THE CIRCUITS TO WHICH THESE APPLIANCES ARE WIRED. OVERLOADING POWER SOURCES OR EXCEEDING FUSE RATINGS COULD RESULT IN LOSS OF POWER AND FAILURE TO ALERT OCCUPANTS DURING AN EMERGENCY, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

WIRING AND MOUNTING INFORMATION:

⚠ CAUTION: The following figures show the maximum number of field wires (conductors) that can enter the backbox used with each mounting option. If these limits are exceeded, there may be insufficient space in the backbox to accommodate the field wires and stresses from the wires could damage the product.

⚠ CAUTION: Check that the installed product will have sufficient clearance and wiring room prior to installing backboxes and conduit, especially if sheathed multiconductor cable or 3/4" conduit fittings are used.

Although the limits shown for each mounting option comply with the National Electrical Code (NEC), Wheelock recommends use of the largest backbox option shown and the use of approved stranded field wires, whenever possible, to provide additional wiring room for easy installation and minimum stress on the product from wiring.



NOTE: All Mounting Options are available with the Round Cover as shown in Mounting Option B.

Figure 1: Wiring Diagram

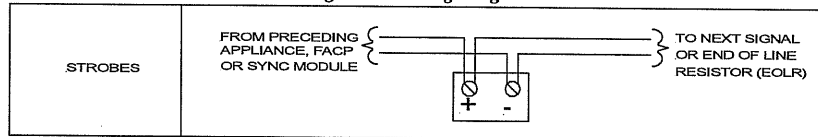
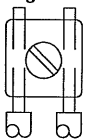


Figure 2:

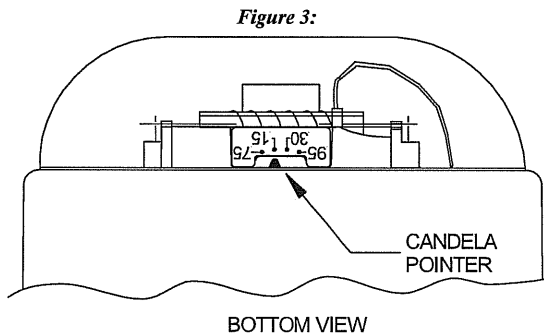


1. All Strobe Appliances have in-out wiring terminals that accepts two #12 to #18 American Wire Gauge (AWG) wires at each screw terminal. Strip leads 3/8 inches and connect to screw terminals.
2. Break all in-out wire runs on supervised circuits to assure integrity of circuit supervision as shown in Figure 2. The polarity shown in the wiring diagrams is for the operation of the appliances. The polarity is reversed by the FACP during supervision.

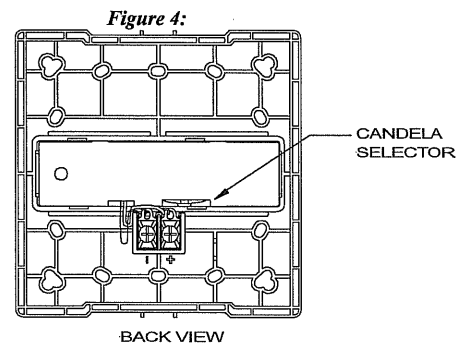
Refer to instruction sheets for SM (P83123), DSM (P83177) or Wheelock power supplies for additional information.

MOUNTING PROCEDURES:

1. This RSS model can be flush mounted to a standard single-gang backbox (Figure A), 4" or 100mm backbox (Figure B) or double-gang backbox (Figure C). It can also be surface mounted to a 4" or 100mm backbox (Figure B), double-gang backbox (Figure C) or the SHBB (Figure D). Mounting hardware for each mounting option is supplied.
2. Conduit entrances to the backbox should be selected to provide sufficient wiring clearance for the installed product. Do not pass additional wires (used for other than the signaling appliance) through the backbox. Such additional wires could result in insufficient wiring space for the signaling appliance.
3. When terminating field wires, do not use more lead length than required. Excess lead length could result in insufficient wiring space for the appliance.
4. Use care and proper techniques to position the field wires in the backbox so that they use minimum space and produce minimum stress on the product. This is especially important for stiff, heavy gauge wires and wires with thick insulation or sheathing.
5. This RSS model has an integrated Strobe Mounting Plate (SMP) which must be oriented correctly when it is mounted to the backbox. Turn the SMP so that the arrow above the words "Horizontal Strobe" points to the top side.
6. Move the selector switch to the desired candela setting. The setting is indicated by a pointer and can be seen on the bottom side of the lens. See Figures 3 and 4 below.
7. Mount the SMP first to the backbox. Next slide the cover over the SMP until the 2 snaps of the cover engage with the SMP.
8. The cover can be removed from the strobe assembly once engaged. See Figure 5.

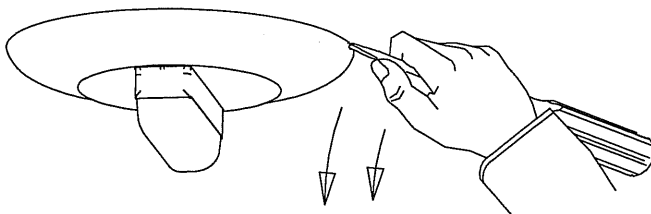


NOTE: The RSS Multi-Candela come pre-set at 15cd.



⚠ WARNING: THE CANDELA SELECT SWITCH MUST BE FIELD SET TO THE REQUIRED CANDELA INTENSITY BEFORE INSTALLATION. WHEN CHANGING THE SETTING OF THE CANDELA SELECT SWITCH, MAKE CERTAIN THAT IT "CLICKS" IN PLACE. AFTER CHANGING THE CANDELA SETTING, THE APPLIANCE MUST BE RETESTED TO VERIFY PROPER OPERATION. IMPROPER SETTING OF THE CANDELA SELECT SWITCH, MAY RESULT IN OPERATION AT THE WRONG CANDELA, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

Figure 5: Cover Removal



1. Hold flat screwdriver near the tip and insert the tip about 1/8" into one of the slots in the cover as shown.
2. Pull straight down as shown to pop off cover.

⚠ CAUTION: Prying, turning or pivoting with screwdriver in order to remove the cover may result in damage to ceiling.

⚠ WARNING: REMOVAL OF THE COVER AT THE BACK OF THE MOUNTING PLATE COULD RESULT IN SEVERE ELECTRIC SHOCK.

⚠ WARNING: THE RSS STROBE APPLIANCE IS A "FIRE ALARM DEVICE - DO NOT PAINT."

⚠ WARNING: WHEN INSTALLING STROBES IN AN OPEN OFFICE OR OTHER AREAS CONTAINING PARTITIONS OR OTHER VIEWING OBSTRUCTIONS, SPECIAL ATTENTION SHOULD BE GIVEN TO THE LOCATION OF THE STROBES SO THAT THEIR OPERATING EFFECT CAN BE SEEN BY ALL INTENDED VIEWERS, WITH THE INTENSITY, NUMBER, AND TYPE OF STROBES BEING SUFFICIENT TO MAKE SURE THAT THE INTENDED VIEWER IS ALERTED BY PROPER ILLUMINATION, REGARDLESS OF THE VIEWER'S ORIENTATION. FAILURE TO DO SO COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

⚠ WARNING: A SMALL POSSIBILITY EXISTS THAT THE USE OF MULTIPLE STROBES WITHIN A PERSON'S FIELD OF VIEW, UNDER CERTAIN CIRCUMSTANCES, MIGHT INDUCE A PHOTO-SENSITIVE RESPONSE IN PERSONS WITH EPILEPSY. STROBE REFLECTIONS IN A GLASS OR MIRRORED SURFACE MIGHT ALSO INDUCE SUCH A RESPONSE. TO MINIMIZE THIS POSSIBLE HAZARD, WHELOCK STRONGLY RECOMMENDS THAT THE STROBES INSTALLED SHOULD NOT PRESENT A COMPOSITE FLASH RATE IN THE FIELD OF VIEW WHICH EXCEEDS FIVE (5) Hz AT THE OPERATING VOLTAGE OF THE STROBES. WHELOCK ALSO STRONGLY RECOMMENDS THAT THE INTENSITY AND COMPOSITE FLASH RATE OF INSTALLED STROBES COMPLY WITH LEVELS ESTABLISHED BY APPLICABLE LAWS, STANDARDS, REGULATIONS, CODES AND GUIDELINES.

NOTE: NFPA 72/ANSI 117.1 conform to ADAAG Equivalent Facilitation Guidelines in using fewer, higher intensity strobes within the same protected area.

⚠ CAUTION: Check the installation instructions of the manufacturers of other equipment used in the system for any guidelines or restrictions on wiring and/or locating Notification Appliance Circuits (NAC) and notification appliances. Some system communication circuits and/or audio circuits, for example, may require special precautions to assure immunity from electrical noise (e.g. audio crosstalk).

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 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: 1) Reorient or relocate the receiving antenna, 2) Increase the separation between the equipment and receiver, 3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, and 4) Consult the dealer or an experienced radio/TV technician for help.

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IMPORTANT: READ SEPARATE "GENERAL INFORMATION" SHEET FOR INFORMATION ON THE PLACEMENT, LIMITATIONS, INSTALLATION, FINAL CHECKOUT, AND PERIODIC TESTING OF NOTIFICATION APPLIANCES.

Limited Warranty

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