



INSTALLATION INSTRUCTION FOR HOCHIKI ANALOG SENSORS/BASES

These instructions apply to all Hochiki America NS DCP (Digital Communication Protocol) analog sensors and bases.

These units must be installed and maintained in accordance with applicable N.F.P.A. standards, local codes and any authority having jurisdiction. Please refer to N.F.P.A. 72 National Fire Alarm and Signaling Code for installation guidelines and testing procedures. Also refer to Hochiki America Technical Bulletin HA-96 Analog /Analog 2 for testing, cleaning, and maintenance.

Smoke detectors should be tested upon completion of installation and at least semiannually thereafter, in accordance with N.F.P.A. 72, section on "Inspection, Testing and Maintenance".

To install the detector, insert the detector into the base. Turn the detector clockwise until it stops. Tighten tamper screw. Use "3M" Weatherban #606 nonflammable sealing compound to seal field wiring conduit openings in the mounting back box. Compliance with this request may reduce the occurrence of the "STACK EFFECT".

SENSOR SPECIFICATIONS

| CATEGORY | SMOKE SENSORS | | | | HEAT SENSOR | | MULTI-CRITERIA SENSORS | | |
|--------------------------------|--------------------------------|--|---|--|--------------------------------|--|---|--|--|
| Model | AIE-EA | ALG-V | ALK-V/ALK-D | ALN-V | ATG-EA | ATJ-EA | ACA-V | ACC-V | ACD-V |
| Applied Voltage (Maximum) | 41.0 VDC | 41.0 VDC | 41.0 VDC | 41.0 VDC | 41.0 VDC | 41.0 VDC | 41.0 VDC | 41.0 VDC | 41.0 VDC |
| Operating Voltage Range (S-SC) | 24 - 40.7 VDC | 24 - 40.7 VDC | 22.9 - 39.5 VDC | 24 - 41.0 VDC | 24 - 41.0 VDC | 24 - 41.0 VDC | 24 - 41.0 VDC | 24 - 41.0 VDC | 24 - 41.0 VDC |
| Sensitivity Range | 0.55 - 1.15 %/ft | 300 fpm: 0.88 - 3.57 %/ft* 2000 fpm: 0.88 - 2.81 %/ft** 4000 fpm: 0.88 - 2.52 %/ft** | 300 fpm: 0.50 - 3.80 %/ft* 2000 fpm: 0.50 - 2.74 %/ft** 4000 fpm: 0.50 - 2.68 %/ft** 0 - 4000 fpm: 0.50 - 2.68 %/ft** (ALK-D only) | 300 fpm: 0.70 - 4.00 %/ft* 2000 fpm: 0.70 - 3.86 %/ft** 4000 fpm: 0.70 - 2.65 %/ft** | Fixed: 135 - 150°F | Fixed: 135 - 190°F Rate of Rise: 15°F/m | 300 fpm: 0.88 - 3.57 %/ft* 300 fpm: 0.88 - 3.11 %/ft** 2000 fpm: 0.88 - 2.81 %/ft** 4000 fpm: 0.50 - 2.52 %/ft** | 300 fpm: 0.70 - 4.00 %/ft* 2000 fpm: 0.70 - 3.86 %/ft** 4000 fpm: 0.70 - 2.65 %/ft** | 300 fpm: 0.77 - 3.47 %/ft* 2000 fpm: 0.77 - 3.56 %/ft** 4000 fpm: 0.77 - 4.00 %/ft** Fixed: 135 - 150°F (57-65°C) Rate of Rise: 15°F/m (8.3°C) |
| Current Consumption (S-SC) | 350µA Typical 460µA Maximum | 350µA Typical 540µA Maximum | 350µA Typical 800µA Maximum | 450µA Typical 540µA Maximum | 350µA Typical 500µA Maximum | 350µA Typical 500µA Maximum | 450µA Typical 540µA Maximum | 450µA Typical 540µA Maximum | 600µA Maximum 30 mA Max. Alarm Current |
| Device Type Code | A8 Hex | 88 Hex | 88 Hex (ALK-V) 89 Hex (ALK-D) | 88 Hex | 98 Hex | 98 Hex | D8 Hex | D8 Hex | D9 Hex |
| Operating Temperature | 14 - 122°F (-10 - 50°C) | 14 - 122°F (-10 - 50°C) | 14 - 122°F (-10 - 50°C) | 14 - 122°F (-10 - 50°C) | 14 - 122°F (-10 - 50°C) | 14 - 122°F (-10 - 50°C) | 14 - 122°F (-10 - 50°C) | 14 - 122°F (-10 - 50°C) | 14 - 122°F (-10 - 50°C) |
| UL Listed Ambient Temperature | 32 - 100°F (0 - 37.8°C) | 32 - 100°F (0 - 37.8°C) | 32 - 100°F (0 - 37.8°C) | 32 - 120°F (0 - 49°C) | 32 - 115°F (0 - 47°C) | 32 - 120°F (0 - 49°C) | 32 - 100°F (0 - 37.8°C) | 32 - 120°F (0 - 49°C) | 32 - 120°F (0 - 49°C) |
| Storage Temperature | -4 - 140°F (-20 - 60°C) | -4 - 140°F (-20 - 60°C) | -4 - 140°F (-20 - 60°C) | -4 - 140°F (-20 - 60°C) | -4 - 140°F (-20 - 60°C) | -4 - 140°F (-20 - 60°C) | -4 - 140°F (-20 - 60°C) | -4 - 140°F (-20 - 60°C) | -4 - 122°F (-20 - 50°C) |
| Dimension | 3.94"D X 1.50"H | 3.94"D X 1.75"H | 3.94"D X 1.50"H | 3.94"D X 1.56"H | 3.94"D X 1.56"H | 3.94"D X 1.56"H | 3.94"D X 1.90"H | 3.94"D X 1.56"H | 3.94"D X 1.56"H |
| Environment | Indoor Use Only | Indoor Use Only | Indoor Use Only | Indoor Use Only | Indoor Use Only | Indoor Use Only | Indoor Use Only | Indoor Use Only | Indoor Use Only |
| Visual Alarm/Power Indicator | Dual LED | Dual LED | Dual LED | Dual LED | Dual LED | Dual LED | Dual LED | Dual LED | Dual LED |
| CO Sensor Response Time | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 70 ppm 60 - 240 min. |

- * = Open Area Application
- ** = Duct Application

Note:

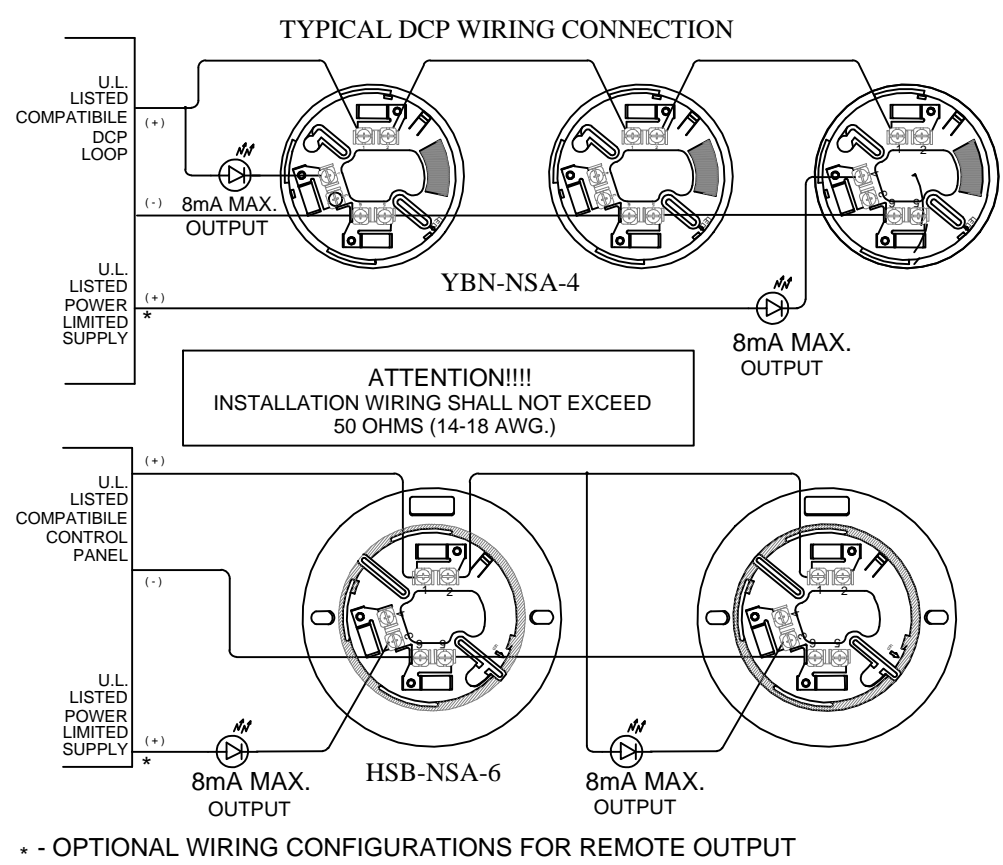
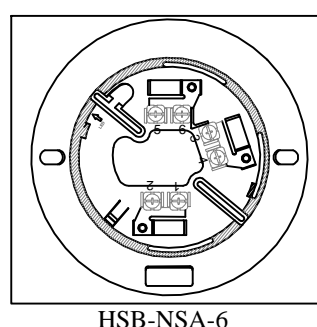
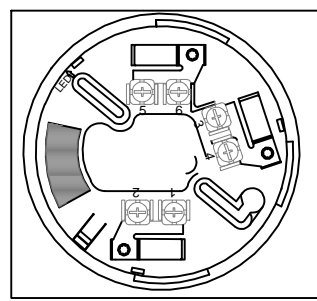
- 1) An average of 6.75mA (communication current) per Loop of SLC devices, must be factored into the panel battery backup calculations.
- 2) The total worst case current consumption for both communication and Alarm LED's for all detectors above is 30mA @ 39.5VDC.
- 3) See control panel for proper address setting and testing procedure.

WARNING!!!!

Failure to follow these instructions may result in the failure of the detector to initiate an alarm condition. Hochiki America is not responsible for detectors that have been improperly installed, tested or maintained.

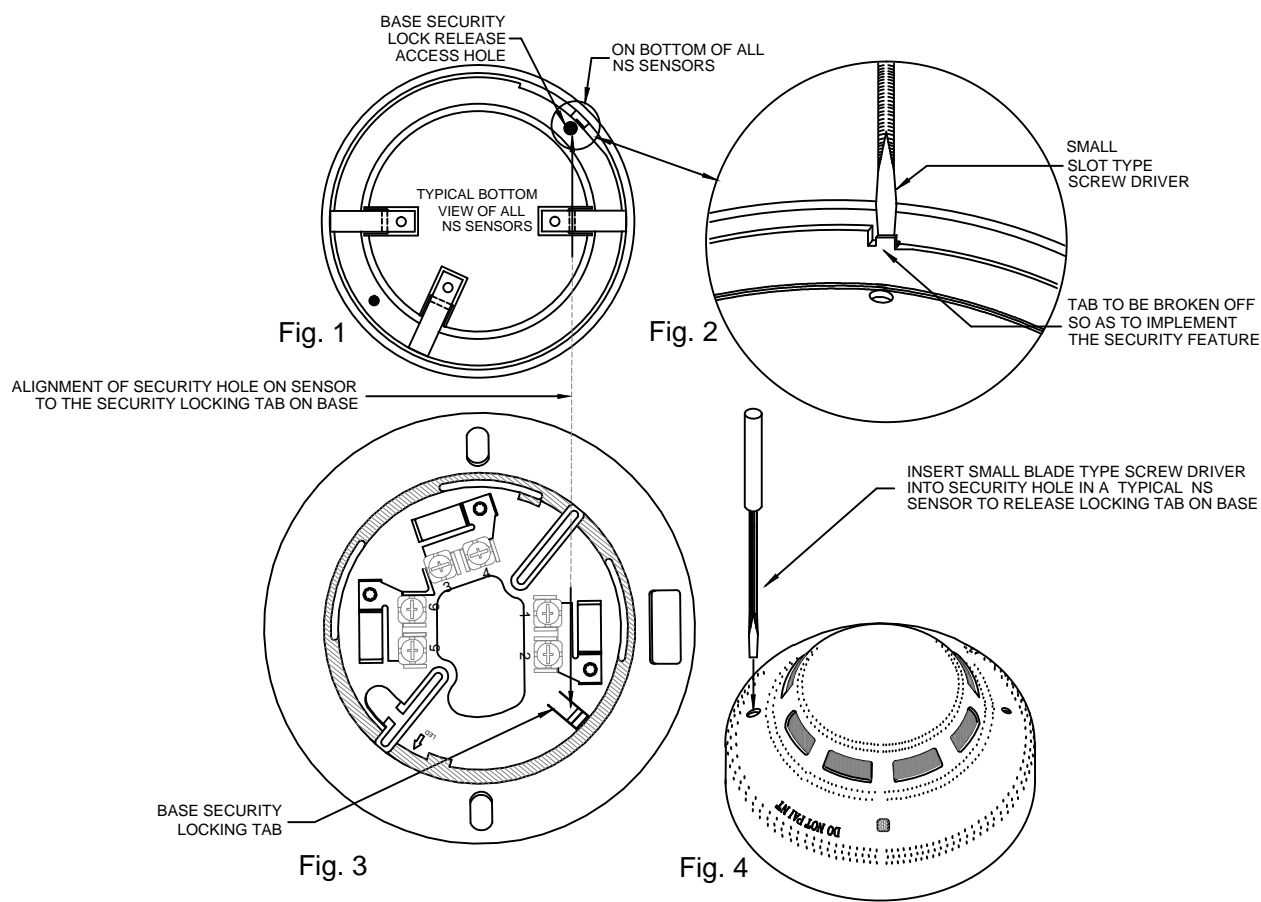
CARBON MONOXIDE IS AN ODORLESS, COLORLESS, TASTELESS GAS. WHEN UNIT IS IN ALARM, MOVE TO FRESH AIR IMMEDIATELY!

| BASE SPECIFICATIONS | |
|--------------------------------|--|
| CATEGORY | BASE |
| Model | YBN-NSA-4 HSB-NSA-6 |
| Applied Voltage (Maximum) | 41.0 VDC 41.0 VDC |
| Operating Voltage Range (S-SC) | 24 - 40.7 VDC 24 - 40.7 VDC |
| Alarm Current (S-SC) | 8mA Typical 8mA Typical |
| Remote LED Current | 8mA Typical 8mA Typical |
| Operating Temperature | 14 - 122°F (-10 - 50°C) 14 - 122°F (-10 - 50°C) |
| UL Listed Ambient Temperature | 32 - 194°F (0 - 90°C) 32 - 194°F (0 - 90°C) |
| Storage Temperature | -4 - 140°F (-20 - 60°C) -4 - 140°F (-20 - 60°C) |
| Dimension | 5.87"D X 0.47"H 4.13"D X 0.31"H |
| Environment | Indoor Use Only Indoor Use Only |
| Mounting Box Compatibility | 3"-O 3"-O, 4"-O, 4"-S |



INSTRUCTION FOR IMPLEMENTING THE SECURITY FEATURE

The following instructions will enable the user to activate the security feature and to release the base security locking tab so as to remove the sensor from the base.



- 1) Take any sensor and turn it over to view the bottom as shown in Fig. 1. Using a small blade type screw driver break the tab as shown in Fig. 2. This will allow the base security locking tab, as shown in Fig. 3 to stay elevated. This will prevent the sensor from being removed from its base.
- 2) To remove the sensor from its base, take a small diameter screw driver and insert it into the large hole on the outer rim of the sensor (see Fig. 4). Use caution when pushing the base security locking tab down. Only use enough force to remove the sensor. While pushing the tab down rotate the sensor counterclockwise enough to clear the base security locking tab. Once this is accomplished the sensor can be completely removed.

CAUTION!!! DO NOT USE EXCESSIVE FORCE WHEN UNLOCKING THE BASE SECURITY LOCKING TAB

In-duct Applications for the ALK-D/ALN-V/ACD-V Photoelectric Smoke Sensors

The ALK-D/ALN-V/ACD-V photoelectric smoke sensor is rated to provide early detection of smoke and products of combustion present in air moving through an HVAC duct supply, return, or both. These sensors can be used to prevent the recirculation of smoke in areas by the air handling system's fan and blowers. Complete systems may be shut down in the event of smoke detection.

The ALK-D/ALN-V/ACD-V sensors can be utilized in applications where the standard external mount duct detectors cannot be used. Examples include plenum spaces, air ducts, or applications requiring detection in extremely low or no air velocity. The ALK-D/ALN-V/ACD-V is rated for 0 to 4000ft./minute air flow.

NOTE: For correct installation guidelines please refer to NFPA 72 (National Fire Alarm and Signaling Code), NFPA 90A (Standard for Installation of Air Conditioning and Ventilation Systems), NFPA 92 (Standard for Smoke Control Systems), and NFPA 5000 (Building Construction and Safety Code).

To verify correct installation, the air velocity should be measured and found to be between 0 and 4000 ft./minute. Use of a velocity meter such as the ALNOR 6000AP or equivalent will be required.

The ACD-V is not intended as a substitute for open area protection.

Location Requirements:

These guidelines contain general information on duct smoke detector installation, but does not preclude NFPA or other information listed. Hochiki America Corporation assumes no responsibility for improperly installed duct detectors or applications. When installing the ALK-D/ALN-V/ACD-V please consider the items following below.

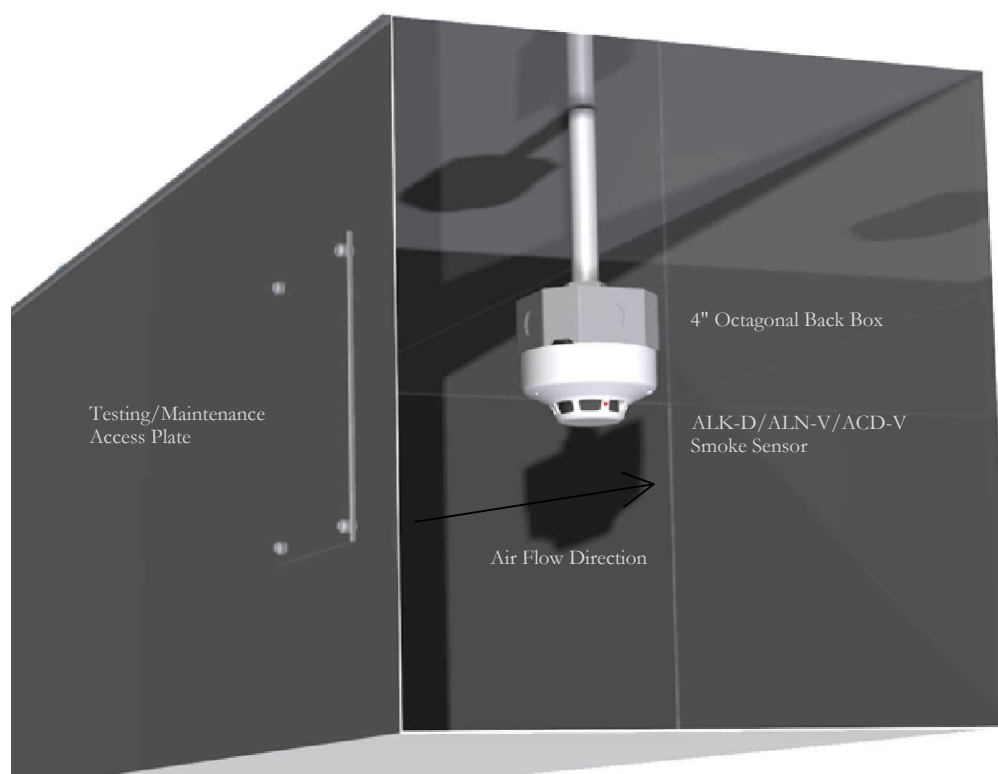
- 1) Uniform non-turbulent airflow (laminar) must be present at site where the smoke detector is to be mounted. Determination that the airflow is between 0 and 4000 ft./minute is required.
- 2) To minimize the impact of turbulence and stratification on detector performance, a duct detector should be placed as far as possible of any obstruction or bend in the ductwork.
- 3) Identify a location that meets all the requirements of code compliance. Examples of such locations could be air supply, air return, or both. Make sure the location chosen allows easy access for inspection and serviceability.
- 4) When installing detectors on the return side, install duct units prior to the air being exhausted from the building or diluted with outside air.

- 5) When installing detectors downstream of filters, be aware that filter fires may be detected, but if the filters themselves become blocked, insufficient air flow in the duct may affect detector response. Duct detectors installed in the supply air side may monitor upstream equipment and/or filters.
- 6) Where possible, install duct detectors upstream of air humidifiers and downstream of dehumidifiers.
- 7) To prevent nuisance alarms, the duct detector should not be mounted in areas of extreme high or low air temperatures. Areas of high humidity, or areas that contain excessive gases or dust should be avoided.

Electrical Installation:

For electrical installation and wiring, please refer to page 1 of this installation instruction.

Mechanical Installation:



Mounting:

Mount the YBN-NSA-4 bases to the 4 inch octagonal back box using the base adaptor provided. Wire the mounting base as shown on page 2 of these instructions. Install the smoke sensor onto the base and proceed to testing.

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

Operational Testing:

To ensure the proper operation of the ALK-D/ALN-V/ACD-V smoke sensor, verify that the sensors have been connected to a compatible control panel and the LEDs on the sensors are flashing to indicate communication with the control panel. Using the TSE-A100 smoke generating pole, transfer smoke into the smoke sensor. The sensor will go into alarm. During an alarm condition the LEDs on the sensors will not flash but latch on Red. The fire alarm control panel may be reset to clear the alarm condition.

Maintenance:

Each installation location must be assessed on its own merits. If the protected area is very dirty, the smoke sensors may need to be checked more frequently (perhaps on a quarterly or semi-annual basis). The best method of cleaning the smoke sensors is to blow out the chamber and labyrinth with clean, dry, compressed air. Alcohol and a soft bristled brush may be used if the sensor chamber is extremely dirty.

Do not use cleaning fluids or chemicals to clean the sensors that are not outlined in this instruction. Improper cleaning and handling of the sensor could void the warranty. Contact your local code or AHJ for required maintenance schedules.

Testifire 1000 or 2000 with TS3 or TC3:

1. Insert the battery baton, hold the Testifire head unit by the handle and depress the upper spring button on the battery baton. Align the button with the location hole in the handle and push the battery baton into the handle until the button springs up through the location hole.
2. Insert the other end of the battery baton into the Solo access pole and depress the lower spring button. Align it with the location hole and push the battery baton further into the pole until the button springs up through the hole.
3. Remove the capsule from its outer carton and Anti-Static bag.
4. Remove the spring clip protector cap from the new capsule.
5. Holding the capsule by spring clips with the label on the underside, carefully insert the new capsule into the capsule port. Push it into position, ensuring that the clips spring out positively on both sides of the capsule.
6. Close the access cover securely.
7. Program the tester to the following options available: Smoke, Heat or CO.
8. Raise Testifire over the sensor. The sensor should touch the base of the inner clear cup.
9. Lower Testifire from the sensor.

Testifire's LED Indications:

| | |
|---------------------------------|--|
| Blue Solid: | Smoke test in progress |
| Red Solid: | Heat test in progress |
| Green Solid: | CO test in progress |
| Green Slow Flashing: | Standby mode |
| Green Fast Flashing: | Operational mode |
| Red Flashing: | Battery needs charging, but still operational |
| Alternating Red/Green Flashing: | Timeout indication (after 2 minutes of continuous testing on one stimulus or combination of stimuli) |
| Red Solid: | Error |
| Green Solid: | CO cooling |
| Alternating Red/Green | CO cooling phase wait until standby mode status before continuing to test CO |

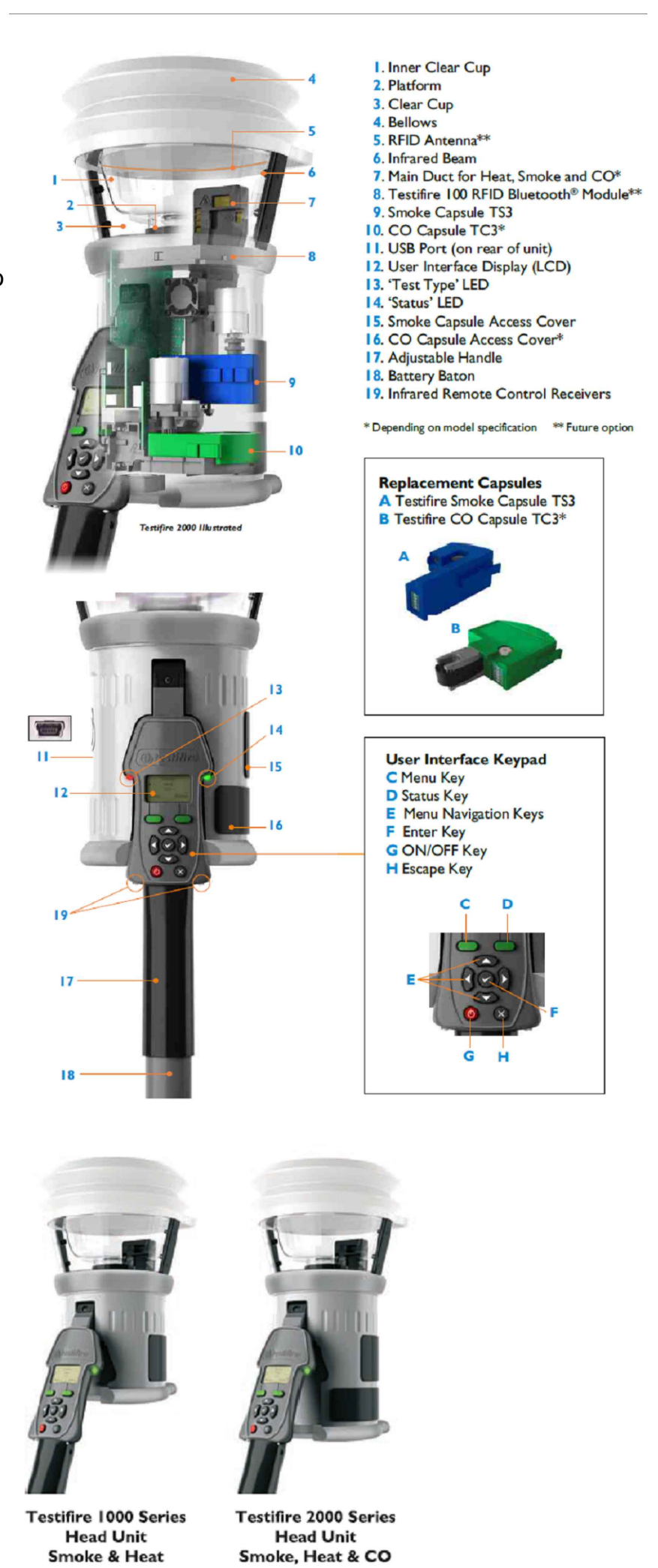
The Hochiki ACD-V is a Multi Criteria Sensor. The ACD-V is capable of Smoke, Heat and CO Detection individually along with many criteria combinations based upon the activation mode setting of the detector (the activation mode is set through panel programming). To perform the detector test(s), the sensor must first be placed in an individual Activation Mode which will allow detection based upon a single criteria. The single criteria activation mode may or may not be the normal operation activation mode of this particular sensor. Once sensor testing has been completed; it is essential that the activation mode be restored to the original setting. Prior to testing any sensor, care should be exercised to ensure proper disabling of live signals and notification circuits of the Fire Alarm Control Panel. Failure to exercise this procedure may result in false alarm signals which could place life and property in jeopardy.

To view or alter Activation Modes on the FireNET series of Panels (Please consult your manufacture for other panels):

Enter Level 2 password or Insert "Enable Access" Key > Turn Key to right. You are Now in Access Level 2.
 Arrow Button down to Access Level 3.
 Enter Level 3 Password: _ _ _ _
 Go to: Edit Configuration > Edit Device Attribute > Edit Device on Loop: Select ACD-V (Enter) > Edit Modes > Select:
 DAY: +S+FT+RoR+CO+COHb (Enter)
 NIGHT: +S+FT+RoR+CO+COHb (Enter)

Using the Testifier 2000, all three Criteria of the Sensor can be tested individually.

Restore activation mode of sensor to original setting



- 1. Inner Clear Cup
 - 2. Platform
 - 3. Clear Cup
 - 4. Bellows
 - 5. RFID Antenna**
 - 6. Infrared Beam
 - 7. Main Duct for Heat, Smoke and CO*
 - 8. Testifire 100 RFID Bluetooth® Module**
 - 9. Smoke Capsule TS3
 - 10. CO Capsule TC3*
 - 11. USB Port (on rear of unit)
 - 12. User Interface Display (LCD)
 - 13. 'Test Type' LED
 - 14. 'Status' LED
 - 15. Smoke Capsule Access Cover
 - 16. CO Capsule Access Cover*
 - 17. Adjustable Handle
 - 18. Battery Baton
 - 19. Infrared Remote Control Receivers
- * Depending on model specification ** Future option

