TrueAlert ES Addressable UL Listed Multi-Candela Weatherproof Notification Appliances Installation Instructions

Cautions, Warnings, and Regulatory Information

IMPORTANT: When the notification appliance emits light or sound, it indicates the possibility of an emergency situation that requires immediate attention of all occupants.

SAFETY: Always install, maintain, and test notification appliances within their specifications. Failure to follow all safety precautions and instructions may result in loss of life and property due to non-functioning notification appliances. Some notification appliances use high voltage. To avoid electrical hazards and avoid damage to appliances, make sure that the electrical power for the Notification Appliance Circuit is disconnected at the control panel before installing, repairing, or internally adjusting any notification appliances. Even with electrical power removed, some notification appliances (such as visible strobes) store a high voltage charge. The high voltage can cause injury resulting in death from electrical shock. DO NOT TOUCH EXPOSED CIRCUITRY.

LOCATION REFERENCE: Location and quantity of appliances required must conform to the applicable local standards and guidelines (the National Fire Alarm and Signaling Code (NFPA 72); ULC Standard CAN/ULC-S524, Installation of Fire Alarm Systems; the appropriate model building codes, etc.) and specific requirements of the Local Authority Having Jurisdiction (AHJ). These notification appliances are not intended for installation within hazardous locations as defined by the National Electrical Code (NEC) or NFPA.

UL listed TrueAlert ES Addressable weatherproof product identification reference

Type	Colors	Models		Operation	UL Compliance
Fig 1: Wall Mount Visible Only (VO)	- Red - White	**Complete Devices:** 49VO-WRFO 49VO-WRSO 49VO-WRFO-BA 49VO-WWFO-BA 49VO-WRSO-BA **Components:** 49VO-APPLW-O 49VO-APPLW-O-BA **Backboxes:** 4905-9828(red) 4905-9829(white) 49WPBB-AVVOWR (red) 49WPBB-AVVOWW (white)	**Covers:** 49VOC-WRFIRE-O 49VOC-WWFIRE-O 49VOC-WRALT-O 49VOC-WWALT-O 49VOC-WRFEU-O 49VOC-WWFEU-O 49VOC-WRBLNG-O 49VOC-WWBLNG-O 49VOC-WRS-O 49VOC-WWS-O	These appliances are compatible with 4100ES Fire Alarm Control Panels (FACP), configured with EPS controllers and optional 4009 IDNAC Repeater accessories. They provide a VO or A/V warning of an alarm condition when activated by compatible Simplex FACPs.	The horn appliance complies with the outdoor requirements of UL464. The strobe appliance complies with UL1638 outdoor use requirements when set for the WP75 and WP185 candela output levels. When set for the 15 and 75 candela output levels, these appliances comply with UL1971 requirements for outdoor appliances above the temperature range of 0° to 49° C.
Fig 2: Wall Mount Audible Visible (A/V)	- Red - White	**Complete Devices:** 49AV-WRFO 49AV-WRFO-BA 49AV-WWFO-BA **Components:** 49AV-APPLW-O 49AV-APPLW-O-BA **Backboxes:** 4905-9828 (red) 4905-9829 (white) 49WPBB-AVVOWR (red) 49WPBB-AVVOWW (white)	**Covers:** 49AVC-WRFIRE-O 49AVC-WWFIRE-O 49AVC-WRALT-O 49AVC-WWALT-O 49AVC-WRFEU-O 49AVC-WWFEU-O 49AVC-WRBLNG-O 49AVC-WWBLNG-O 49AVC-WRS-O 49AVC-WWS-O		

Note: For information about device testing, see *4100ES Fire Alarm System Operator's Manual (579-197)*.

Mounting instructions

1. Select the mounting location and install the weatherproof backbox using stainless steel screws suitable for the mounting surface. See Figure 3 for mounting and location information.
2. Attach the housing to the weatherproof backbox, ensuring there is even contact with the gasket around the periphery.
3. Use the mounting holes indicated in Figure 3, to secure the housing to the backbox. Use a torque wrench to tighten the screws to 5-7 inch-pounds, do not over-tighten.
4. Attach the cover to the weatherproof backbox using the screws provided. Use a torque wrench to tighten the screws to 5-7 inch-pounds, do not over-tighten.
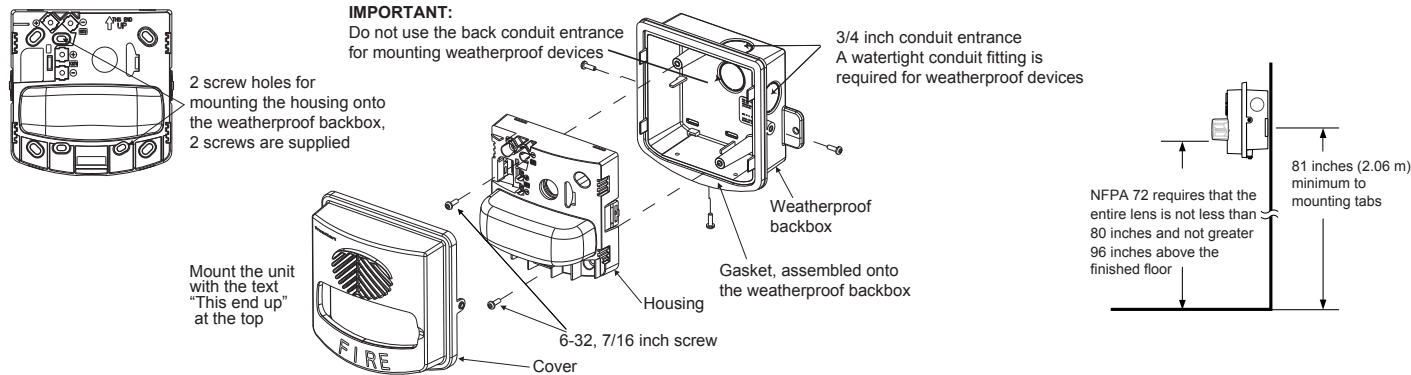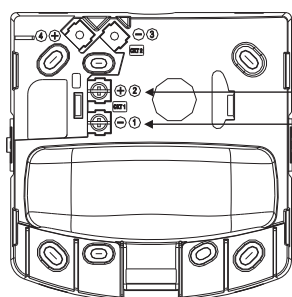

Fig 3: Mounting instructions

Wiring instructions

WARNING: Ensure that all power is disconnected before starting the installation.

1. At the electrical box, connect the contractor wiring to the CKT + and CKT - terminals at the front of the strobe unit.
2. To ensure proper continuity, use a torque wrench to tighten the terminal block screws to 12-15 inch-pounds.
3. Ensure that correct polarity is maintained for each strobe unit.
4. Signal line circuit (SLC) wiring must be twisted pair (TWP). CKT terminals accept two wires: 12-18 American Wire Gauge (AWG) TWP.

IMPORTANT: Do not bring the conduit through the rear of the electrical box. Strip the lead insulation to 3/8 inches maximum.
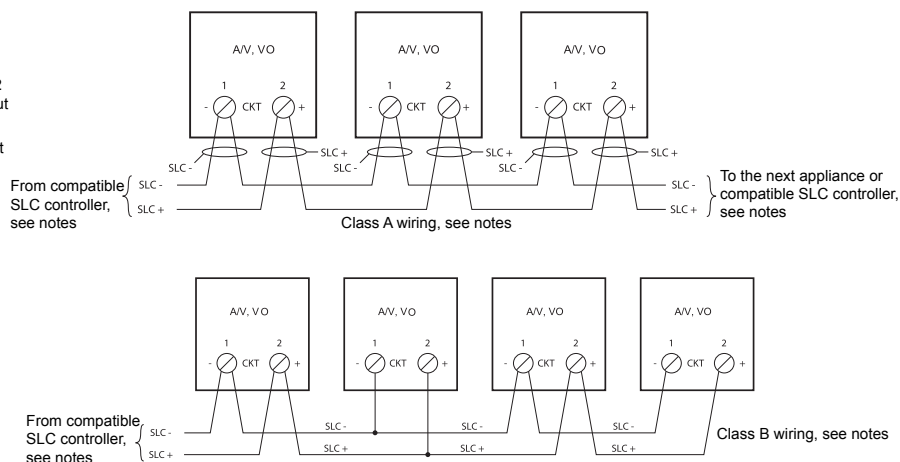

Fig 4: Wiring instructions

Wiring notes

- Assign a maximum of 63 devices to a circuit. The maximum devices with active appliances on a circuit is 50. The maximum wire resistance between appliances is 26 ohms. See the field wiring diagrams of the driving compatible fire alarm control panel for further instructions.
- Notification appliances are rated using an individual module label.
- Maintain the correct polarity on the terminal connections.

- TrueAlert SLC wiring connections are supervised and power-limited.
- These appliances are rated to the operating voltage limits of 23-31 VDC. The appliance may fail to operate as intended, and cause permanent damage to this equipment if it operates outside of these limits.
- Only operate the TrueAlert ES A/V and VO devices using a compatible power supply.
- T-tapping is not permitted on Class A wiring.

Setting the address

Each addressable TrueAlert ES notification appliance has a unique address that is set using an eight-position DIP switch (SW1). Assign a unique SLC address in the range 1 to 127 (Figure 5). However, the total appliance loading available may be less due to appliance current requirements.

To set the address, complete the following steps:

1. Remove the cover from the device. See Figure 5.
2. Use a non-metallic stylus, or the equivalent to set the switches.
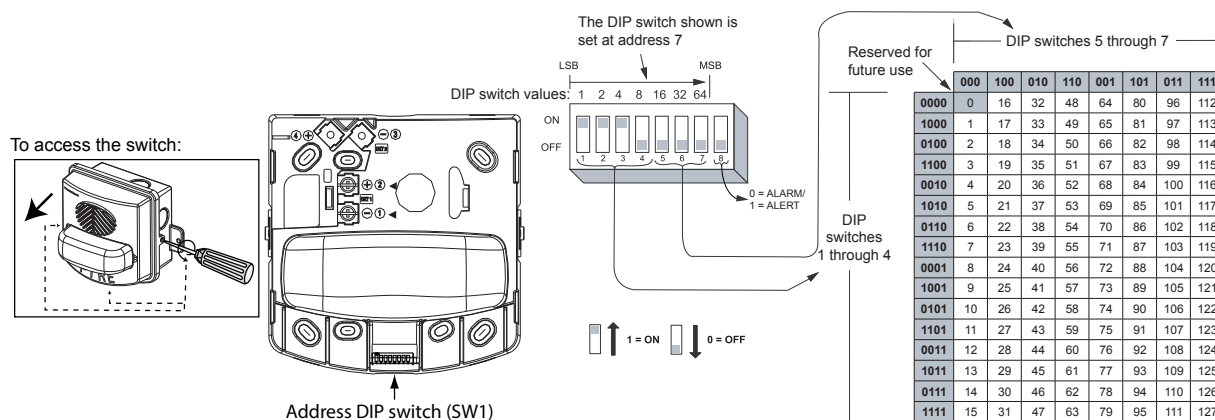3. Record the set address.

| | DIP switches 5 through 7 | | | | | | | |
	000	100	010	110	001	101	011	111
0000	0	16	32	48	64	80	96	112
1000	1	17	33	49	65	81	97	113
0100	2	18	34	50	66	82	98	114
1100	3	19	35	51	67	83	99	115
0010	4	20	36	52	68	84	100	116
1010	5	21	37	53	69	85	101	117
0110	6	22	38	54	70	86	102	118
1110	7	23	39	55	71	87	103	119
0001	8	24	40	56	72	88	104	120
1001	9	25	41	57	73	89	105	121
0101	10	26	42	58	74	90	106	122
1101	11	27	43	59	75	91	107	123
0011	12	28	44	60	76	92	108	124
1011	13	29	45	61	77	93	109	125
0111	14	30	46	62	78	94	110	126
1111	15	31	47	63	79	95	111	127

Fig 5: Setting the DIP switch address

Setting the strobe candela setting

1. The jumpers are factory set to FACP. Use this setting when programming the candela setting at the 4100ES FACP. The candela setting is visible through the strobe lens.
2. For manual selection, pull up the jumper and position the pins to select the correct candela setting: 15, 75, WP75, WP185 candela or FACP.

Note: To avoid a programming mismatch trouble, an authorized service personnel must program one of the four candela outputs for each appliance. For additional information, see the *4100ES Programmer's Manual* (574-849).

Setting the device configuration

Use the Device Configuration switch (SW3), on the back of the device, to configure certain options for the horn and strobe directly on the device. See Figure 6.

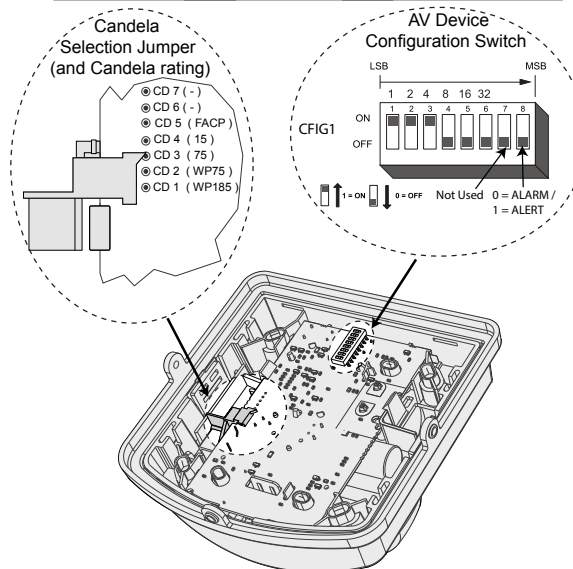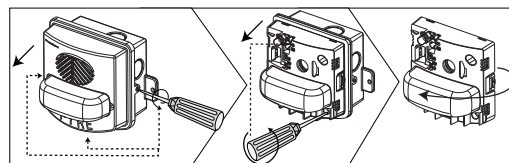| A/V only	
Position 1	Configuration Control: OFF to enable Local Audible control (positions 2-7 below), ON for Panel control.
Position 2	Audible Volume: High (OFF), Low (ON).
Position 3	CAN Horn mode: switch must be set to OFF.
Position 4	Legacy NAC mode: switch must be set to OFF.
Position 5, 6, 7	These switches must be set to OFF.
Position 8	Strobe Clear/Color domes: switch must be set to OFF.

Fig 6: Setting the strobe and device configuration

Device specifications

Table 1: Environmental specifications

Rated voltage range	Special application 23-31 VRMS
Temperature range	WP75/WP185: -31°F to 151°F (-35°C to +66°C)
	Other: 32°F to 120°F (0°C to 49°C)
Humidity range	10% to 98%, non-condensing at 104°F (40°C)
Connections	Terminal for 18 AWG to 12 AWG (0.82 mm² to 3.31 mm²)

Table 2: UL1638 candela (CD) ratings

	Straight out from unit	Vertical below unit		(Left/right) horizontal)	
Angle	0°	45°	90°	45°	90°
WP75 minimums (over temperature range)	75	69	17	60	28
WP 75 typical CD (at 25°C)	165	86	22	74	35
WP185 minimums (over temperature range)	185	90	21	81	40
WP185 typical CD (at 25°C)	220	112	27	101	50

Table 3: Sound pressure level measurement (dBA)

Reverberant room at ten feet in accordance with UL464 (See Note 2)	Voltage (Vrms)	Horn Mode Steady	Horn Mode Coded (See Note 1)
High volume setting using addressable controller (See Note 3)	23 (Min.)	81.3	76.4
	31 (Max.)	82.1	78.8
Low volume setting using addressable controller (See Note 3)	23 (Min.)	73.8	69.9
	31 (Max.)	77.0	72.2
Anechoic room at 10 feet in accordance with ULC S525			
High volume setting	23 (Min.)	87.4	87.2
	31 (Max.)	89.2	89.2
Low volume setting	23 (Min.)	81.0	80.6
	31 (Max.)	84.0	82.8

Note

1. The coded category covers both Temporal and March time cadences.

2. Reverberant dBA measurements are a minimum UL rating based on sound power level measurements made in UL's reverberant test chamber.

3. High and low volume settings are configured with DIP Switch (SW4) on the controller.

4. Settings with ratings below 75dB should only be used for Private Mode Notification.

Table 4: Current draw

Application	Candela selection	Appliance type	Maximum RMS operating current
UL1638, to -35°C	WP75	VO	212 mA
		A/V	238 mA
	WP185	VO	239 mA
		A/V	274 mA
UL1638, to 0°C	WP75	VO	160 mA
		A/V	163 mA
	WP185	VO	185 mA
		A/V	189 mA
UL1971 (0 TO 49°C)	15	VO	60 mA
		A/V	80 mA
	75	VO	160 mA
		A/V	165 mA

Table 5: Percent of rated light output at any candela setting (room temperature) (15cd and 75 cd only)

Vertical dispersion			Horizontal dispersion		
Y-plane angle	UL Req output	Typical output	X-Plane angle	UL Req output	Typical output
0	100%	249%	0	100%	249%
5	90%	168%	±5	90%	176%
10	90%	145%	±10	90%	157%
15	90%	164%	±15	90%	167%
20	90%	160%	±20	90%	165%
25	90%	138%	±25	90%	152%
30	90%	143%	±30	75%	167%
35	65%	180%	±35	75%	167%
40	46%	165%	±40	75%	148%
45	34%	147%	±45	75%	129%
50	27%	150%	±50	55%	117%
55	22%	141%	±55	45%	113%
60	18%	147%	±60	40%	112%
65	16%	137%	±65	35%	99%
70	15%	133%	±70	35%	95%
75	13%	105%	±75	30%	91%
80	12%	85%	±80	30%	89%
85	12%	61%	±85	25%	80%
90	12%	36%	±90	25%	60%