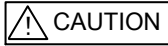


## Before Installation

Please read these instructions carefully and keep for future reference.

The information in this document is subject to change without notice. For updates please refer to our website.



- Do not use the products outside the rated power supply voltage range specified in the Specifications. It may cause a fire or damage to equipment.
- Do not disassemble, repair, or modify the products. It may cause a fire or electric shock.
- Make sure to turn the power off before commencing any wiring work. Otherwise it may cause electric shock or damage to equipment.
- Do not use any tester other than the one specified for testing. It may cause damage to equipment.

## Note

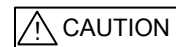
- Follow the requirements for the installation of the products in accordance with the Specifications. Otherwise it may cause malfunction.
- The products should not be installed in the following places, as it may cause damage to equipment:
  - Place with plenty of air flow (close to a ventilation fan, air conditioner, or place with drafts)
  - Place close to heating appliance
  - Place with a constantly high temperature or humidity
  - Place with lots of dust or insects
  - Place with exhaust gas such as garage
  - Place where oil, dust, iron powder, chemicals, or hydrogen sulphide may occur or affect the products

These instructions explain how to install and test UL Listed Nittan detectors and bases.

For the details of each product, please refer to "Instruction Manual" on the website: <http://www.nittan.com>

Table 1: UL Listed Product Instruction Manual

Product category	Model number	Manual part number	Version
Control Panel	NFU-7000 series	LT-894NIT	Rev.2.1
Detector	EVA-PY	DW1401832	Rev.K1
	EVA-PYH	DW1401831	Rev.K1
	EVA-H2	DW1401833	Rev.K1
	EVA-H2-H		
	EVA-DPH	DW1401834	Rev.K1
EVCA-P(-Z)	DW1500110	Rev.K2	
Base	EVA-UB4	DW1401959	Rev.K1
	EVA-UB4-6		
	EVA-STB-RL	DW1401853	Rev.K1
	EVA-STB-SCI	DW1401852	Rev.K1
EVA-S6 Base	DW1401960	Rev.K1	
Module	EVA-DIP-SCI	DW1401989	Rev.K1
	EVA-DOP-SCI	DW1401991	Rev.K1
	EVA-DOP-AC240V-SCI	DW1401992	Rev.K1
	EVA-SCI	DW1401994	Rev.K1
	EVA-SCM-SCI	DW1401995	Rev.K1
	EVA-MiniIP	DW1401993	Rev.K1
EVA-ZMU-SCI	DW1401990	Rev.K1	
End of line	PCE	DW1401961	Rev.K1
Adapter Mounting Plate	STBA-ADP	DW1402124	Rev.K1



Install the detectors/bases in accordance with these instructions, applicable NFPA standards, local codes, and the authorities having jurisdiction. Failure to follow these instructions may result in failure of detectors to initiate an alarm condition. Nittan is not responsible for detectors and bases that have been improperly installed, tested, or maintained.

Table 2: Electrical box for base

BASE Model	Applicable electrical box		
	3-1/2" Oct	4" Oct	4" Square
EVA-UB4	✓	-	-
EVA-UB4-6	✓	✓	✓
EVA-S6 Base	✓	✓	✓
EVA-STB-RL	✓	-	-
EVA-STB-RL with STBA-ADP	-	✓	✓
EVA-STB-SCI	✓	-	-
EVA-STB-SCI with STBA-ADP	-	✓	✓

Connect wiring to the detectors/bases as shown in the Section2. Detectors and bases may be mixed on the same initiating loop as long as the number of two-wire powered detectors does not exceed the specifications of the control panel. For the specifications of detectors/bases, see Table 3.

# 1. Specifications

## Detector

Table 3: Detector/base specifications

Detector	EVA-PYH	EVA-PY	EVA-DPH
Detector Element	Smoke : LED (Peak wavelength: 630 nm) PD (High-output, high-speed silicon photodiode) Heat: Thermistor (Negative temperature coefficient)	LED (Peak wavelength: 630 nm) PD (High-output, high-speed silicon photodiode)	Smoke : Blue LED (Peak wavelength: 465 nm) Particle : IR LED (Peak wavelength: 940 nm) PD (High sensitivity, Low dark current photodiode) Heat: Thermistor (Negative temperature coefficient)
LED Visual Indicator	Stand-by - Flashing green LED Alarm - Solid red LED with flashing green	Stand-by - Flashing green LED Alarm - Solid red LED with flashing green	Stand-by - Flashing green LED Alarm - Solid red LED with flashing green
Operating Voltage Range	20 VDC to 38 VDC Peak	20VDC to 38VDC Peak	20 VDC to 38 VDC Peak
System Voltage	35VDC	35VDC	35VDC
Stand-by Current	200 µA	200 µA	200 µA
Alarm Current (with red LED)	5 mA	5 mA	5 mA
Sensitivity (Only for smoke Detector)	0.66 %/Ft. to 3.49 %/Ft.	0.69 %/Ft. to 2.86 %/Ft.	0.5 %/Ft. to 0.96 %/Ft.
Fixed Heat Alarm Temperature	57°C (135°F)	—	57°C (135°F)
Rate of Rise Detection	Responds to greater than 8.3°C (15°F)/min.	—	Responds to greater than 8.3°C (15°F)/min.
UL Ambient Installation Temperature	0°C to +38°C (32°F to 100°F)	0°C to +38°C (32°F to 100°F)	0°C to +38°C (32°F to 100°F)
Operating Temperature	-10°C to +55°C (14°F to 131°F)	-10°C to +55°C (14°F to 131°F)	-10°C to +55°C (14°F to 131°F)
Storage Temperature	-20°C to +60°C (-4°F to 140°F)	-20°C to +60°C (-4°F to 140°F)	-20°C to +60°C (-4°F to 140°F)
Relative Humidity	≤ RH95% non-condensing	≤ RH95% non-condensing	≤ RH95% non-condensing
Address	1-254 (decimal)	1-254 (decimal)	1-254 (decimal)
Maximum quantity per loop	254 units *1	254 units *1	254 units *1
Standard	UL268 and UL521	UL268	UL268 and UL521

EVA-H2,H2-H	
Sensing Element	Thermistor (Negative temperature coefficient)
LED Visual Indicator	Stand-by - Flashing green LED Alarm - Solid red LED with flashing green
Operating Voltage Range	20 VDC to 38 VDC Peak
System Voltage	35 VDC
Stand-by Current	200 µA
Alarm Current (with red LED)	5 mA
Fixed Alarm Temperature (Model - EVA-H2)	57°C (135°F)
Rate of Rise Detection (Model - EVA-H2)	Responds to greater than 8.3°C (15°F)/min.
Fixed Alarm Temperature (Model - EVA-H2-H)	83°C (181.4°F)
UL Ambient Installation Temperature (Model - EVA-H2)	0°C to 38°C (32°F to 100°F)
UL Ambient Installation Temperature (Model - EVA-H2-H)	0°C to 65.6°C (32°F to 150°F)
Operating Temperature (Model - EVA-H2)	-10°C to +55°C (14°F to 131°F)
Operating Temperature (Model - EVA-H2-H)	-10°C to +65.6°C (14°F to 150°F)
Storage Temperature	-20°C to +60°C (-4°F to 140°F)
Charging Time	1 minute
Relative Humidity	≤ RH95% non-condensing
Address	1-254 (decimal)
Maximum quantity per loop	254 units *1
Standard	UL521

EVCA-P(-Z)*2	
Detector Type	Photoelectric Smoke Detector
LED Visual Indicator	Alarm - Solid red LED
Operating Voltage Range	12VDC to 32VD Peak
System Voltage	24VDC
stand-by Current	30µA ave. at 24VDC
Alarm Current	EVCA-P 68mA max. 47.5mA at 24VDC EVCA-P-Z 68mA max. When connected to EVA-ZMU-SCI: 20.5mA
Voltage Ripple	20% maximum
Sensitivity	1.78 %/Ft. to 3.60 %/Ft.
Alarm Characteristics	EVCA-P 6VDC in series with 375R between + (Terminal 3) and - (Terminal 1, 6) at 25°C EVCA-P-Z 6VDC between + (Terminal 3) and - (Terminal 1, 6) at 25°C
UL Ambient Installation Temperature	0°C to +49°C (32°F to 120°F)
Operating Temperature	-10°C to +55°C (14°F to 131°F)
Storage Temperature	-20°C to +60°C (-4°F to 140°F)
Relative Humidity	≤ RH95% non-condensing
Maximum quantity per Module	20 units *1
Start-up Time	20 seconds
Standard	UL 268

## Base

EVA-UB4/EVA-UB4-6	
UL Ambient Installation Temperature Range	0°C(32°F) to 38°C(100°F)
Operating Temperature Range	-10°C(14°F) to 83°C(181.4°F)
Storage Temperature	-20°C(-4°F) to 60°C(140°F)
Max Relative Humidity	UP to 95% RH, non-condensing
Environment	Indoor dry use only
Terminal	AWG 12-20
Conformity	UL268 and UL521

EVA-STB-SCI	
SLC Applied Voltage	Rated Range 20 VDC to 38VDC
SLC Current Consumption	Standby 100µA Activated(SCI Isolation) 22mA
SLC Line impedance	Up to 50ohms, 2km (1.24mile)*1
SCI On Resistance	0.2ohms (max)
SCI Fault Detection Voltage	10V (min)
Visual Indicator (Status LED)	SCI LED (yellow)
UL Ambient Installation Temperature	0°C(32°F) to 38°C(100°F)
Operating Temperature	-10°C(14°F) to 55°C(131°F)
Storage Temperature	-20°C(-4°F) to 60°C(140°F)
Max Relative Humidity	UP to 95% RH, non-condensing
Environment	Indoor dry use only
Terminal	Terminal for SLC: AWG 12 to 20
Standard	UL268 and UL521

EVA-STB-RL	
SLC Applied Voltage	Rated Range 20 VDC to 38VDC
SLC Current Consumption	Standby 24µA Alarm/Activated 110µA
SLC Line impedance	Up to 50ohms, 2km (1.24mile)*1
RELAY	Switching capacity DC 30V/1A resistive
UL Ambient Installation Temperature	0°C(32°F) to 38°C(100°F)
Operating Temperature	-10°C(14°F) to 55°C(131°F)
Storage Temperature	-20°C(-4°F) to 60°C(140°F)
Max Relative Humidity	UP to 95% RH, non-condensing
Environment	Indoor dry use only
Terminal	Terminal for SLC: AWG 12 to 20 Terminal for Relay: AWG 14 to 22
Standard	UL268 and UL521

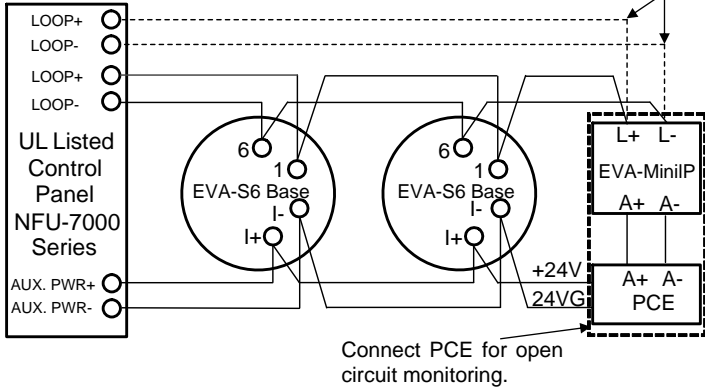
EVA-S6 Base	
SLC Applied Voltage	Rated Range 20VDC to 38VDC
AUX. Supply Voltage	Rated Range 16VDC to 33VDC
SLC Current Consumption	Standby 0.5mA Alarm 1.4mA
AUX. Current Consumption	Standby 0.5mA Alarm 20mA
SLC Line impedance	UP to 50ohms, 2km (1.24mile) *1
AUX. Supply Line impedance	1.76 ohms@85 bases in alarm
UL Ambient Installation Temperature Range	0°C(32°F) to 38°C(100°F)
Operating Temperature	-10°C(14°F) to 55°C(131°F)
Storage Temperature	-20°C(-4°F) to 60°C(140°F)
Max Relative Humidity	UP to 95% RH, non-condensing
Environment	Indoor dry use only
Address	1-254(dec)
Maximum quantity per loop	127 units *1
Terminal	AWG 12 - 20
Conformity	UL268 and UL464

- \*1 Refer to the Installation and Operation Manual of control panel NFU-7000 series to determine correct loop load and maximum loop resistance for devices connected to each loop.
- \*2 EVCA-P(-Z) can be connected with the analog addressable module EVA-ZMU-SCI only.

## 2. Connections

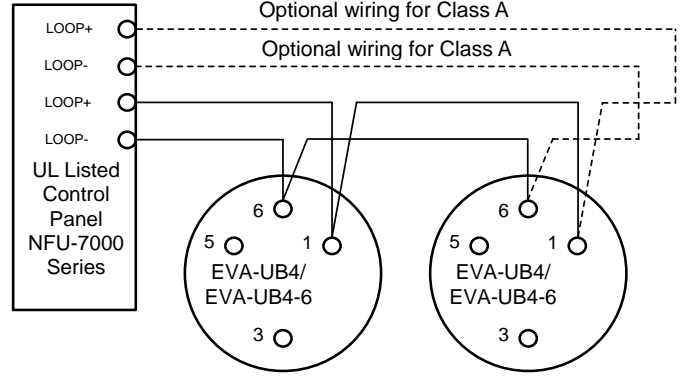
### EVA-S6 Base

Connect to UL Listed analog detector  
EVA-PY, EVA-PYH, EVA-H2 or  
EVA-DPH.  
Optional wiring for Class A



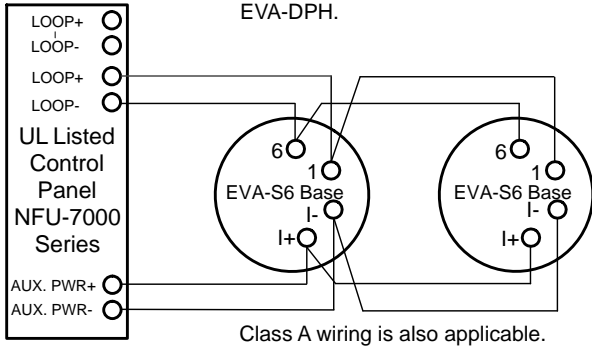
### EVA-UB4/EVA-UB4-6

Connect to UL Listed analog detector  
EVA-PY, EVA-PYH, EVA-H2, EVA-DPH  
or EVA-H2-H.  
Optional wiring for Class A



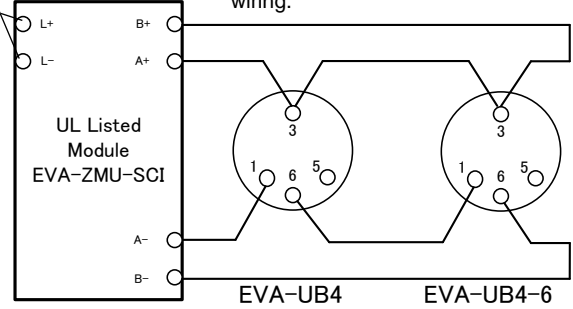
### EVA-S6 Base

Connect to UL Listed analog detector  
EVA-PY, EVA-PYH, EVA-H2 or  
EVA-DPH.



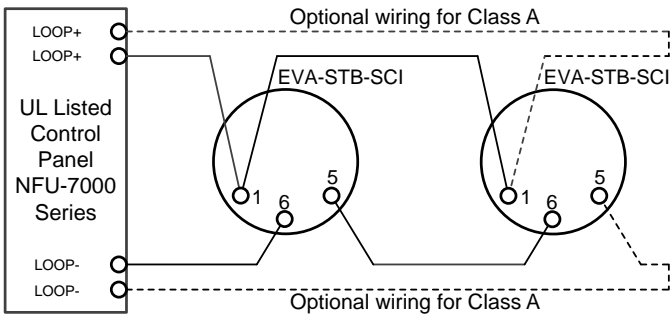
To UL Listed control  
panel NFU-7000 series

Connect to UL Listed two wire  
detector EVCA-P(-Z) for Class A  
wiring.



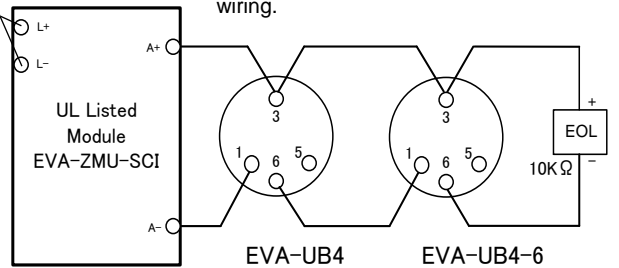
### EVA-STB-SCI

Connect to UL Listed analog detector  
EVA-PY, EVA-PYH, EVA-H2 or  
EVA-DPH.



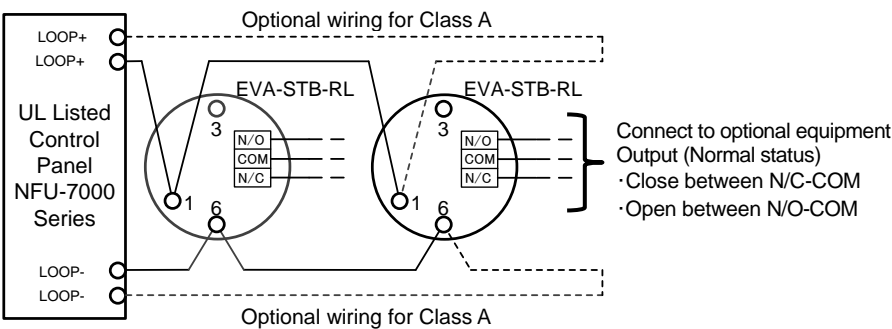
To UL Listed control  
panel NFU-7000 series

Connect to UL Listed two wire  
detector EVCA-P(-Z) for Class B  
wiring.



### EVA-STB-RL

Connect to UL Listed analog detector  
EVA-PY, EVA-PYH, EVA-H2 or  
EVA-DPH.



### 3. Installation

SLC line impedance is 50Ω at maximum and the maximum length is 2km.

Please refer to “Terminal” of the Specifications below for cables. Refer to the control panel and/or module instruction manual to determine correct maximum loop load and maximum loop resistance for devices connected to each loop.

#### 3.1 Wiring method

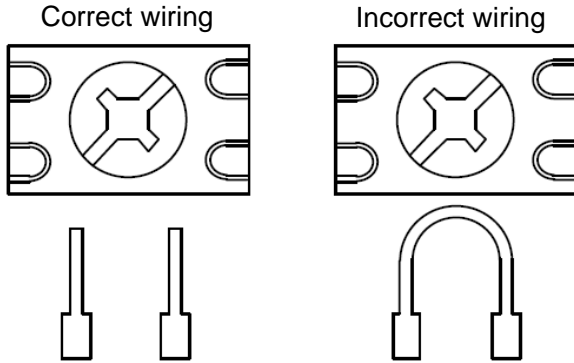


Figure.1: Correct and incorrect wiring

#### CAUTION

- For system monitoring –Do not use looped wire under terminals. Break wire run to provide monitoring of connections.
- Do not connect different gauge cables at one terminal in order to prevent loosening.
- Do not connect cables in reverse polarity. Failure to connect the polarity correctly could result in damage to equipment.

#### 3.2 Tamper Resistance Feature

The EVA-UB series, EVA-S6 Base, and EVA-STB series of smoke/heat detector mounting bases have a tamper- resist feature that works in conjunction with the detectors. When this feature is enabled, the detectors cannot be removed from the base without the use of a small hexagonal wrench. To avoid unauthorized removal of the detector, turn the locking screw in the mounting base counterclockwise until the screw extends out about 4 mm (3/16”) from the rim of the base, as shown in the FIG 2.

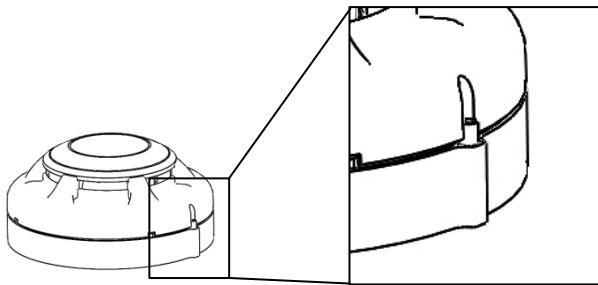


Figure.2: Position of the locking screw to lock the detector

Note: If the detector is installed on a high ceiling where a tool (such as a ladder) is needed, it is not recommended to use the locking screw.

#### 3.3 Use of dust cover

If the dust cover is not used during construction work, the exposure to a slightly dusty environment can cause false alarms after installing the detectors.

After the installation is completed, remove and discard the dust cover.

#### 3.4 Use of detector guard

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

- Notes:
- In the event of a false alarm, clean and re-install the detector.
  - If the detector still gives false alarms replace the detector.

### 4. Testing

- Notes:
- 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).
  - When carrying out site testing of the detector, the control panel must be set to “One Man Walk Test” mode prior to the test.

Sensors offer maximum performance when tested and maintained in compliance with NFPA 72. The sensor may be tested in the following ways:

#### 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 15cm (6 inches) away to prevent damage to the cover during testing.
2. The red LEDs on the detector should light when the temperature at the heat detector reaches the alarm set point. If the red LED indicator fails to light, check the power to the detector and the wiring in the detector base.
3. Reset the heat detector at the control panel. Detectors that fail these tests should be cleaned in accordance with MAINTENANCE Section in the instruction manual of the detector and retested. If the detectors still fail these tests they should be returned for repair.

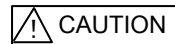
## Direct Heat Method

### (Heat Calibur HO-HC11 Heat Detector Tester)

1. Turn Master Power switch on and press the Power button. LCD Display and LED's should light.
2. Select Test Type by pressing the Test Type ↑ button, the LED will light to display selected test type:
  - a. ROR - Rate of Rise Temperature Test
  - b. FIXED - Fixed Temperature Test
3. Select Test Mode by pressing the Test Mode ↑ button, the LED will light to display selected test mode:
  - c. STD - Standard Test Mode
  - d. MULTI - Multiple Test Mode
4. Select Temperature Range by pressing the Temp Range ↑ button, the LED will light to display selected Temperature Range:
  - a. HIGH - High Temperature Range (190°F-210°F) - EVA-H2-H
  - b. LOW - Low Temperature Range (100°F-135°F) - EVA-H2, EVA-PYH, EVA-DPH
5. Press and hold Start Test button for 2 seconds until "Ready" is displayed on LCD.
6. Place the Heat Detector Tester over the detector to be tested to start the test, press the outer ring against the ceiling to start test.
  - a. When the test has started a beep will sound, the test will continue as long as the outer ring makes contact with the ceiling.
  - b. Hold the Heat Detector Tester over detector until the detector alarms.
7. Remove the Heat Detector Tester from the detector to stop testing. The Heat Detector Tester will beep twice when test is stopped, the fan will continue to run for 15 seconds to cool unit.

If the unit is not removed before set test length (60-90 seconds), the unit beeps twice and the display flashes between "Error", and "Timeout" to reflect that test stopped before the detector alarmed.
8. If testing is complete, turn the Master Power switch off.
9. The red LEDs on the detector should light with the green LED flashing when the temperature at the detector reaches the alarm set point. If the red LED indicator fails to light, check the power to the detector and the wiring in the detector base.

10. Reset the heat detector at the control panel. Detectors that fail these tests should be cleaned in accordance with MAINTENANCE Section in the instruction manual of the detector and retested. If the detectors still fail these tests they should be returned for repair.



Do not use heat guns used for paint stripping or soldering pipes as these heat guns generate sufficient heat to damage heat detectors.

### For the smoke detector testing (Go / No-Go)

1. For EVA-PY and EVA-PYH

To test the optical detector, introduce a certain amount of aerosol into the detector's head, using HSI FIRE & SAFETY Aerosol canned smoke testers "25S" or "30S". Please follow the manufacturer's recommendations on their use.

#### For EVA-DPH

Use Smoke Detector Sensitivity Analyzer Model 501-B (Gemini Scientific Corp.) to test the function of the EVA-DPH.

Please follow the manufacturer's recommendations on their use except aerosol concentration setting.

Set the concentration of the analyzer to 1.0 %/ft. for this testing.

#### For EVCA-P(-Z)

To test the optical detector, introduce a certain amount of aerosol into the detector's head, using Solo 330 Aerosol Dispenser with Solo A3 Smoke Detector Tester (No Climb Products Ltd.). Please follow the manufacturer's recommendations on their use.

2. For EVA-PY and EVA-PYH

Check that the detector gives an alarm condition within 15 seconds. Check the red LED indicator is on and the green LED is flashing on the detector. If the red LED indicator fails to light, check the power to the detector and the wiring in the detector base.

#### For EVA-DPH

Check that the detector gives an alarm condition within 40 seconds after the aerosol introduced into the detector's head. Check the red LED indicator is on and the green LED is flashing on the EVA-DPH combination detector. If the red LED indicator fails to light, check the power to the detector and the wiring in the detector base.

**For EVCA-P(-Z)**

Check that the detector gives an alarm condition within 15 seconds. Check the red LED indicator lights on the EVCA-P(-Z) smoke detector. If the red LED indicator fails to light, check the power to the detector and the wiring in the detector base.

3. After the detector has given the alarm condition, the detector automatically is reset by the control panel. It may be necessary to allow a short time to elapse before resetting the detectors, to allow any residual aerosol from the test to disperse.
4. Detectors that fail these tests should be cleaned in accordance with MAINTENANCE Section in the instruction manual of the detector and retested. If the detectors still fail these tests they should be returned for repair.
5. Before proceeding to the next detector, ensure that the detector previously tested does not re-operate due to the presence of residual aerosol.

**For the smoke detector sensitivity**

1. **For EVA-PY, EVA-PYH and EVA-DPH**

Detector sensitivity can be tested using Smoke Detector Sensitivity Analyzer Model 501-B (Gemini Scientific Corp.).

Please follow the manufacturer's recommendations on their use.

For EVA-PY and EVA-PYH:

Where the sensitivity limits for the Analyzer are 0.6 %/ft.  
- 1.3 %/ft.

For EVA-DPH:

Where the sensitivity limits for the Analyzer are 0.3 %/ft.  
- 0.5 %/ft.

**For EVCA-P(-Z)**

Detector sensitivity can be tested using Detector Sensitivity Tester "Trutest" (No Climb Products Limited). Please follow the manufacturer's recommendations on their use.

Where the sensitivity limits for the tester are 1.78 %/ft. - 3.60 %/ft.

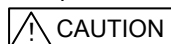
2. **For EVA-PY, EVA-PYH and EVA-DPH**

Check that the detector gives an alarm condition within 40 seconds after the aerosol of which the concentration controlled with the Analyzer was introduced into the detector's head. Check the red LED indicator is on and the green LED is flashing on the detector. If the red LED indicator fails to light, check the power to the detector and the wiring in the detector base.

**For EVCA-P(-Z)**

Check the red LED indicator lights on the EVCA-P(-Z) smoke detector within the sensitivity limits. If the red LED indicator fails to light in the range, check the power to the detector and the wiring in the detector base.

3. After the detector has given the alarm condition, the detector automatically is reset by the control panel. It may be necessary to allow a short time to elapse before resetting the detectors, to allow any residual aerosol from the test to disperse.
4. If the detector has a history of nuisance alarm, check that the detector doesn't give an alarm condition within 50 seconds when the aerosol less than low sensitivity limit was introduced into the detector's head.
5. Detectors that fail these tests should be cleaned in accordance with MAINTENANCE Section in the instruction manual of the detector and retested. If the detectors still fail these tests they should be returned for repair.



Do not disassemble, repair, or modify the products. It may cause a fire or electric shock.

6. Before proceeding to the next detector, ensure that the detector previously tested does not re-operate due to the presence of residual aerosol.
7. FOR WARRANTY SERVICE, RETURN TO:  
OVERSEAS BUSINESS DIVISION  
NITTAN COMPANY, LIMITED  
1-54-5 SASAZUKA, SHIBUYA-KU, TOKYO  
151-8535, JAPAN  
<http://www.nittan.com>