

# NITTAN



# EV-PS

## Analogue Addressable Photoelectric Smoke Sensor (With Integral Sounder) instruction manual



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• Evolution • EV-PS • Photoelectric sensor/sounder instruction manual



Quality System Certificate No. 041  
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## evolution.....

The *EV-PS* analogue addressable Photoelectric smoke sensor forms part of a range of analogue addressable fire sensors from Nittan (UK) Ltd called *evolution*.

The *EV-PS* together with the *EV-PH*, *EV-H*, *EV-P* are all elegantly designed, low profile fire sensors which are aesthetically pleasing, thus enabling them to blend unobtrusively into modern working environments.

The evolution analogue addressable range all feature the very latest technological advancements such as ASIC design, increasing reliability and performance.

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## Section 1 - INTRODUCTION

The *EV-PS* is an attractively-styled, low profile photoelectric smoke sensor for use with Nittan 'evolution' protocol control panels.

The *EV-PS* has a chemically etched, stainless steel insect screen therefore reducing the ingress of insects and airborne contaminants.

### EV-PS features:

- \* Optical detector, detecting visible particles of combustion
- \* Built in sounder
- \* Built in Dual Line SCI (DSCI Variant)
- \* EEPROM addressable (hand held programmer)
- \* Low profile, stylish appearance
- \* Supplied with protective dust cover, (remove during commissioning)
- \* Low monitoring current
- \* OMNIVIEW™ 360° LED fire alarm indicator
- \* Remote indicator output
- \* 'EV-PSBCN' auxiliary output
- \* Compatible with UB-6 and EV-PSBCN bases

## Section 2 - SENSOR MODELS

The *EV-PS* Photoelectric smoke sensor (with Sounder) has two terminals for connection onto the two wire loop, the DSCI variant has four (+/- in , +/- out). Terminal 3 provides a switched current sink function which operates when the detector goes into Alarm (under CIE control). This is suitable for the operation of an auxiliary function such as a remote Indicator. Terminal 3 (RIL) is limited to 2mA. Terminal 2 provides a pulsed output to drive the dedicated EV-PSBCN base (which is a non-addressed Beacon only base module).

The *EV-PS* DSCI has a built in Short Circuit Isolator (SCI). This is offered in a Dual Line Isolator form, where it will break BOTH the +ve and -ve lines (by the means of 2 x Dual FET's). The Isolator is of the 'Semi Active' type, where in the event of a Short Circuit on the loop, the Isolator will automatically Isolate. Panel intervention (either automatically or by Engineer action), is necessary to RESET the Isolator. However, if the Short is still present, the Isolator will re-Isolate immediately.

## Section 3 - BASE MODELS

A variety of bases are available for use with the *EV-PS* sensors. It is important to use the correct base for each application. The available base models are:

- i) **UB-6 base:** For standard use with EV-PS series photoelectric sensor.
- ii) **EV-PSBCN base**
- iii) **UB-4-EV:** For Non-Isolated version.

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## Section 4 - INSTALLATION

In normal use, the *EV-PS* sensor will be installed at ceiling level. Pass the field wiring through the cable hole in the centre and from the rear of the base. Offer up and affix the base to the ceiling or conduit fitting with screws via the base mounting holes. Connect the field wiring to the base terminals, as detailed on page 9 making sure the wiring does not obstruct fitting of the detector head. Fit the sensor head by inserting it into the base and turning clockwise until the notch in the detector rim aligns with base locking screw. The OMNIVIEW™ 360° alarm indicator permits visibility from any angle.

**Note: The address must be set before the sensor is fitted into place**

Fit the plastic dust cover supplied over the sensor to keep out dust etc, until the system is commissioned. If the dust cover is not fitted and the environment is slightly dusty, such as when building work is being completed, for example, problems of false alarms are likely to occur after commissioning unless cleaning of the sensor is undertaken. At commissioning, the dust cover should be removed and discarded.

**NOTE: THE PLASTIC DUST COVER MUST BE REMOVED FROM THE SENSOR IN ORDER FOR THE SENSOR TO FUNCTION CORRECTLY.**

## Section 5 - MAINTENANCE AND CLEANING

### Maintenance:

The *EV-PS* sensor is a high quality product engineered for reliability. If proper preventative maintenance is not carried out, there is a likelihood of malfunction, including false alarms.

### Servicing:

Servicing of the system should be carried out in accordance with the requirements of BS 5839 Part 1, Fire Detection and Alarm Systems for Buildings: Code of Practice for System Design, Installation and Servicing.

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The maintenance procedures described below should be conducted with the following frequency:

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**One month after installation:**      **Routine Inspection and every 3 months after.**

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**Every 6 months:**                              **Operational Test.**

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**Every 12 months:**                              **Functional Test and Clean.**

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All above frequencies of maintenance are dependent on ambient conditions.

**Routine Inspection**

- i) Ensure the sensor head is secure and undamaged.
  
- ii) Check the smoke entry apertures are in no way obstructed.
  
- iii) Ensure the surface of the sensor's outer cover is clean. If there are deposits due to the presence of oil vapour, dust etc, then the sensor should be cleaned in accordance with the cleaning instructions detailed later in this manual. It may be advisable to ensure that such cleaning is conducted regularly in the future.

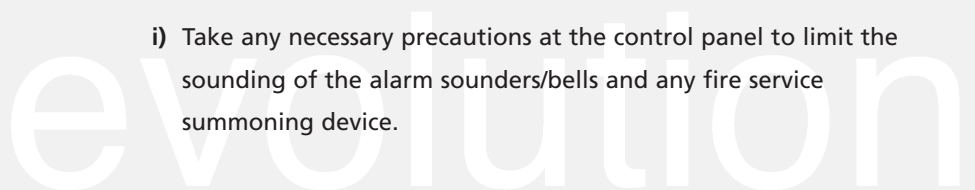
- iv) Ensure no equipment which may generate combustion products has been installed in the vicinity of the detector since the last routine inspection. If such equipment has been installed, then you should notify the Fire Safety Officer or other competent authority that its presence may cause false alarms.

**Operational Test**

The purpose of the Operational Test is to confirm the sensor's correct operation in response to a smoke condition.

**Note: When carrying out site testing of Analogue Addressable Evolution detectors, the CIE shall be set to test mode prior to beginning the tests.**

- i) Take any necessary precautions at the control panel to limit the sounding of the alarm sounders/bells and any fire service summoning device.





ii) Introduce a discrete amount of smoke into the sensor head, e.g. using a 'Detector Testers - Solo' smoke test head, alternatively Detector Testers "Testifire" smoke test equipment maybe used. Check that the sensor gives an alarm condition within 15 seconds. Check the LED indicator on the EV-PS sensor illuminates and any remote indicator LED fitted also illuminates.

iii) After the sensor has given the alarm condition, reset the sensor from the control panel. It may be necessary to allow a short time to elapse before resetting the sensor, to allow any residual smoke from the test to disperse.

iv) Before proceeding to the next sensor, ensure that the sensor previously tested does not re-operate due to the presence of residual smoke.

#### **Functional Tests:**

The functional test checks the sensor operation. These sensors may be returned to our factory for Functional Testing.

#### **Cleaning:**

**Note: The sensor head should NOT be disassembled.**

i) Carefully remove the sensor head from its base.

ii) Use a soft, lint-free cloth, moistened with alcohol for sticky deposits, to clean the plastic casing.

iii) Using a soft bristle brush (e.g. an artist's paint- brush) carefully brush between the vanes in a linear motion away from the smoke entry apertures

iv) It is permissible to blow dust from the chamber, without removing the cover, using a clean air line.

v) If the unit needs further cleaning, or is damaged or corroded, please return the complete sensor to Nittan (UK) Ltd. for service.

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## Section 6 - SPECIFICATIONS

Model Reference:	- EV-PS EV-PS-DSCI
Computer Reference:	- F20N82501 F20N82500
Sensor Type:	- Photoelectric smoke sensor
Sensitivity:	- Nominal 4.5%/m
Operating Current:	- 200 microamps fire alarm (LED on) 5.2mA Sounder on 3.1 mA RIL 2mA
Standard:	- EN54 Part 7:2001 A2 EN54 Part 3:2001 EN54 Part 17:2005
Mass:	- 145g (excluding base)
Charging Time:	- 1 minute
Ambient Temperature Range:	- -10 °C to +55 °C
IP Rating:	- 42C
Sounder Type	- Type A Indoor
Sounder Device	- Piezo
Power Consumption	- 150mW Max (Sounder)
Sounder Output	- 83 - 88db (A-weighted)
Sounder Tones	- Standard two tone 750Hz/1000Hz 0.5/0.5sec Only
Certified to standard: CE certificate:	- 0845-CPD-232.1710

## Section 7 - ENVIRONMENTAL PARAMETERS

### Temperature Considerations:

Over the range from -10 °C to +55 °C

### Humidity:

Relative Humidity of up to 95%, measured at 50 °C, non condensing.

## Section 8 - EMC

### Installation

The installation shall be in accordance with the regulations either of the approval body for an approved system, or otherwise, to the national code of practice/ regulations for the installation of the fire alarm system, e.g. BS 5839 part 1.

### Electromagnetic Compatibility (EMC)

On a site where there is an unusually high level of potential electrical interference, e.g. where heavy currents are being switched or where high levels of R.F. are prevalent, care then must be taken in the type and routing of cables. Particular care should be given to the separation of zone wiring from the cable carrying the interference.





## Section 9 - ADDRESS SETTING (EV-AD2)

### 1 Stand by mode

EV-AD2 will switch to STAND-BY MODE to save battery power if there is no key operation for more than one minute after finishing changing device addresses. During the STAND-BY MODE, 7 segment LED is blank. Power LED is lit.

To return EV-AD2 from STAND-BY MODE press any key.

### 2 Instruction

1. EV-AD2 requires two 9v PP3 batteries.
  - a) Before inserting the batteries, confirm the EV-AD2 is switched off and check polarity of battery, or damage could result.
2. Turn the power switch ON.
  - a) For one second, all LED's are lit and the buzzer sounds.
3. Plug the device onto the base.
4. Press the [Search] Key
  - a) Buzzer sounds, then the EV-AD2 starts transmitting to the detector.
  - b) Do not remove the detector when transmitting, or damage could result.
5. The 7 segment LED reads [Customer code], [Type of detector], [Address] in turn.
  - a) The buzzer sounds, ERROR LED lights and the 7 segment LED displays an ERROR CODE when an unsupported or defective device is connected.

0.01 → 12.3 → 003.  
 Customer Code    Type of detector    Address  
 (Note - Dot position)

The 7 segment LED distinguishes the Customer Code, Type and Address by the dot position in the LED.

The information displayed by the 7 segment LED cycles every second and stops whilst displaying the [address] at the end of the second cycle. Pressing any key at any time during the information collection cycle, forces the EV-AD2 to display the address, and await new address selection.

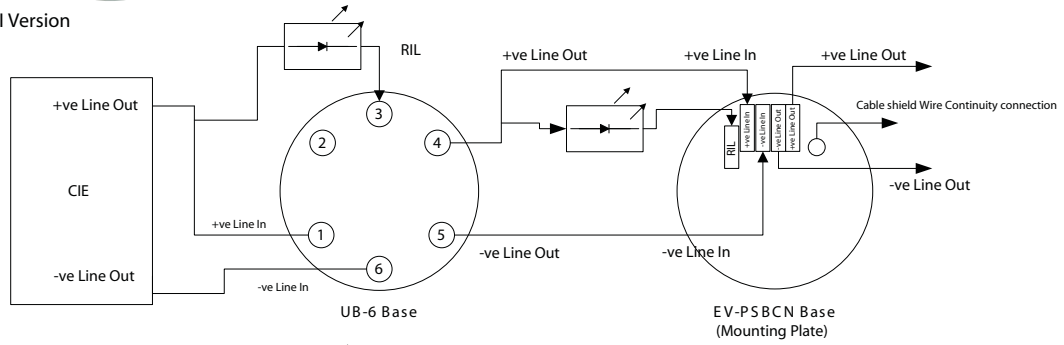
6. +100, +10, +1 keys are used to select the new address.
7. Press the [Set] key
  - a) The buzzer sounds, and all LED's are turned off. The EV-AD2 then starts transmitting to the detector.
  - b) Do not remove the detector.
8. The 7 segment LED shows the new address and "complete" LED lights. If an unsupported or defective device is connected the buzzer sounds, ERROR LED is lit and the 7 segment LED reads ERROR CODE.
9. To continue changing the address for another detector, change the detector and then repeat from step 3. To finish changing addresses, turn the POWER SW off.



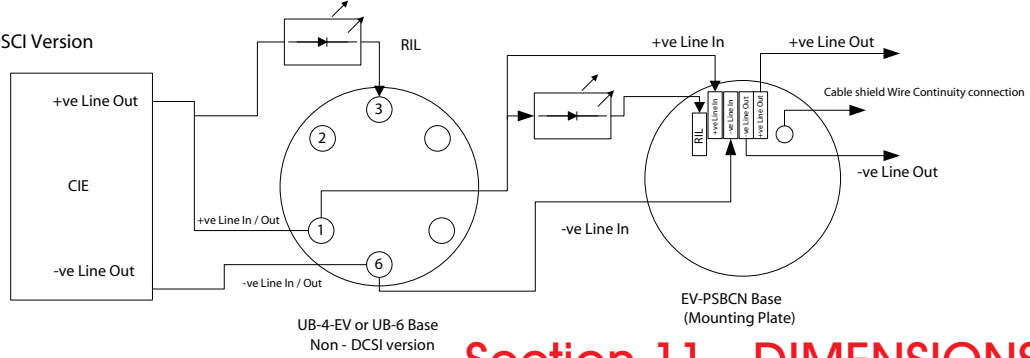


## Section 10 - CONNECTIONS

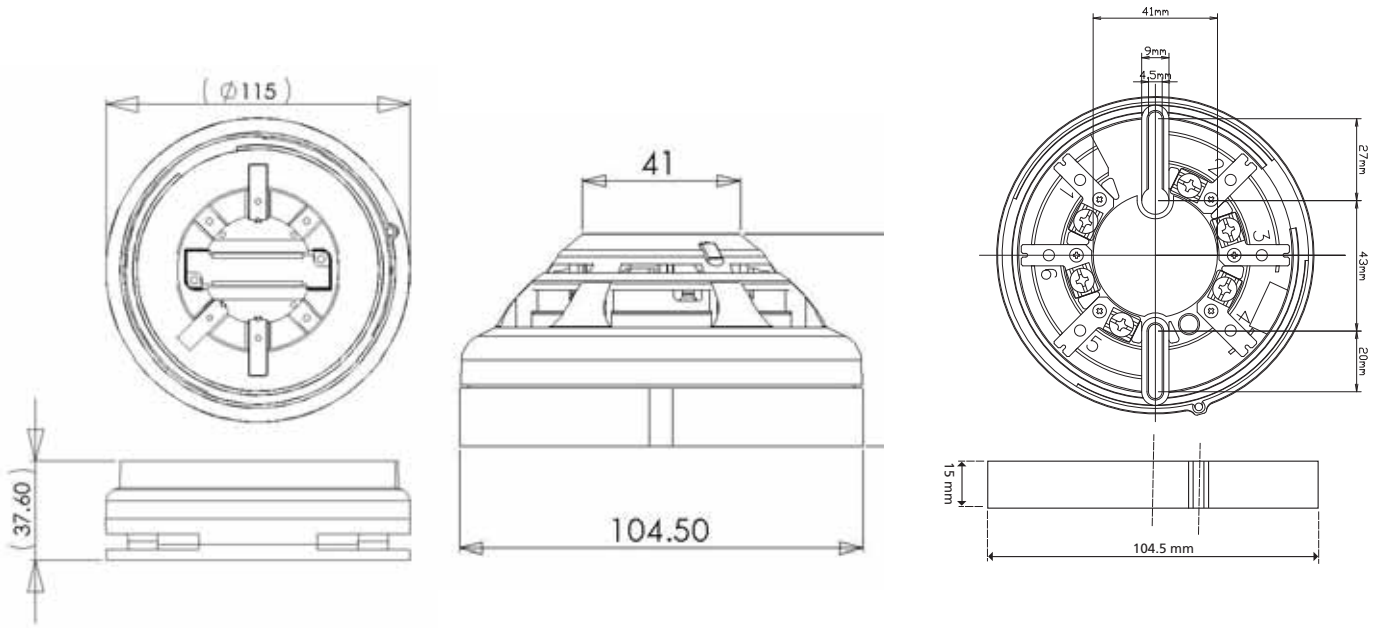
DSCI Version



Non DSCI Version



## Section 11 - DIMENSIONS





# RoHS

## Section 12 - DISPOSAL

This symbol on the EV-PS indicates that this product must not be disposed of with household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office or your household waste disposal service.

## Section 13 - ROHS COMPLIANCE STATEMENT

(RoHS compliant and lead-free)

This product complies with the European Union RoHS (Restriction of Hazardous Substances) directive 2002/95/EC which restricts the use of the following six hazardous materials in the manufacture of electronic and electrical equipment.

- Lead (Pb)
- Hexavalent Chromium
- Mercury (Hg)
- Cadmium (Cd)
- Polybrominated biphenyls (PBB's)
- Polybrominated diphenyl ethers (PBDE's)

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