



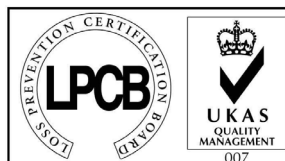
Document No. **NISM/EV-DP/01**  
Date **NOV 2003**

# evolution-advanced

## **EV-DP ANALOGUE ADDRESSABLE DUAL WAVELENGTH PHOTOELECTRIC SMOKE SENSOR INSTRUCTION MANUAL**



LPCB REF: 041f/02



Quality System Certificate No. 041  
Assessed to BS EN ISO 9001:2002



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*EV-DP ANALOGUE ADDRESSABLE  
DUAL WAVELENGTH PHOTOELECTRIC SMOKE  
SENSOR  
INSTRUCTION MANUAL*

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

*The **EV-DP** together with the **EV-PH**, **EV-H**, **EV-P** and **EV-UV** 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-DP is an attractively-styled, low profile photoelectric smoke sensor for use with Nittan 'evolution' protocol control panels.

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

**EV-DP features:**

**\* Optical detector, using dual wavelength LEDs and supporting a uniform response in any EN-54 Test Fire**

**\* Resistance to false alarms caused by steam**

**\* Soft addressing**

**\* Low profile, stylish appearance**

**\* Supplied with protective dust cover, (remove during commissioning)**

**\* Low monitoring current**

**\* Patented OMNIVIEW™ 360° LED fire alarm indicator**

**\* Remote indicator output**

**\* 'Base Control' auxiliary output**

**\* Non-polarised terminals**

**\* Compatible with STB-4-EV and STB-4SE-EV bases**

**Section 2 - SENSOR MODELS**

The EV-DP dual wavelength photoelectric smoke sensor has two terminals for connection onto the two wire loop. The remaining terminals provide a switched current sink function which operates when the detector goes into alarm condition, suitable for the operation of an auxiliary function such as a remote indicator. Terminal 3 (RIL) is limited to 3mA. Terminal 2 (Base Control) is not current limited.

**Section 3 - BASE MODELS**

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

**i) STB-4-EV base:** For standard use with EV-DP series photoelectric sensor when auxiliary output not used.

**ii) STB-4SE-EV base:** Similar to STB-4-EV base, except deeper.



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### **Section 4 - INSTALLATION**

In normal use, the EV-DP 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 6 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-DP 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.

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

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

Every 6 months: Operational Test.

Every 12 months: Functional Test and Clean.

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 or fine airborne particles has been installed in the vicinity of the sensor 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 sensors, 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 'No Climb - Solo' smoke test head. Check that the sensor gives an alarm condition within 15 seconds. Check the LED indicator on the EV-DP 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.



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**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.*

**Section 6 - SPECIFICATIONS**

<b>Model Reference:</b>	-	EV-DP
<b>Computer Reference:</b>	-	F14N82105
<b>Sensor Type:</b>		Dual wavelength photoelectric smoke sensor
<b>Sensitivity:</b>	-	Uniform response in all EN-54 Fire Tests
<b>Operating Current:</b>	-	200µamps fire alarm (LED on) 5.2mA
<b>Standard:</b>	-	EN54 Part 7:2000
<b>Mass:</b>	-	118g (excluding base)
<b>Charging Time:</b>	-	20 seconds
<b>Ambient Temperature Range:</b>	-	-10 °C to +55 °C.
<b>IP Rating:</b>	-	41

**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.



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### **Section 9 - ADDRESS SETTING**

- *Insert sensor to be programmed into the base.*
- *Press any key on the keypad to bring the programmer out of 'Sleep' mode, then enter the password (default is 1111), then press 'OK'.*
- *The menu now shows 'Enter' (selected) and 'New.Pwd.' Use the Right Arrow button (6) to change the selected operation then press 'OK'.*
- *If 'New.Pwd' is selected then entry of a new password, followed by confirmation of the new password will be prompted.*
- *If the current password is not to be changed, press 'OK' with 'Enter' selected. The address programmer will then scan for the attached sensor.*
- *If a sensor is fitted the programmer will report the sensor's current address and its group, then prompt for the next address to be programmed. The current address can be changed by simply entering a new 3 digit address, then pressing 'OK'.*
- *Once the sensor address has been programmed, the programmer will automatically increment the address to be programmed by one (1), and prompt for the next sensor to be fitted.*
- *If no detector is fitted, the programmer will report 'No Unit Found, Comm Error 1'. Fit a new sensor and press 'OK'.*
- *At any time there has been no key pressed for 30 seconds, or no programming operation is being carried out, the backlight will switch OFF and the programmer will revert to its 'Sleep' mode in order to preserve battery life.*
- *The programmer has an automatic 'Low Battery' warning, which will appear on the LCD when the unit powers up. When this appears there is still sufficient charge left in the batteries to program a significant number of Evolution devices, however the programmer should be recharged as soon as possible.*
- *When the power supply is attached, the programmer will start a Fast charge cycle which will last for 2 hours, then automatically switch to trickle charge. Overnight charging (12 hours) is sufficient to fully re-charge the batteries. Fast charge and trickle charge status is indicated by two LEDs.*



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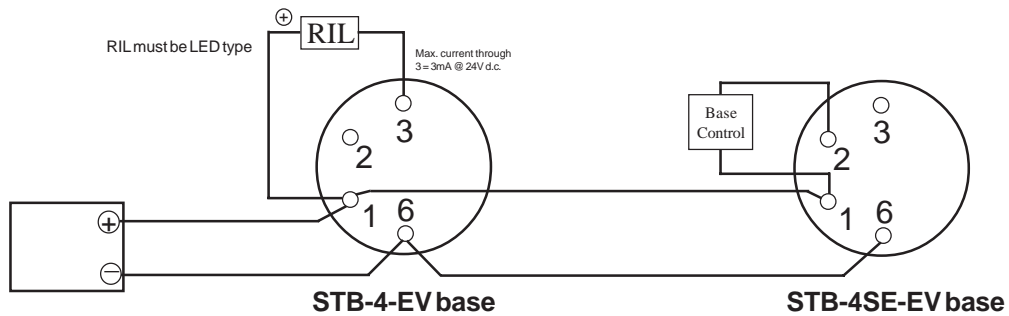
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**Section 10 - CONNECTIONS**



Auxiliary terminal RIL current limited to 3mA. Base control is not current limited as the auxiliary equipment provides the limiting. If the +ve supply for the auxiliary equipment is taken from the EV loop, care must be taken to not cause corruption of the EV protocol by excessive current draw.

**Section 11 - DIMENSIONS**

