NITTAN

evolution

EV-PYH-SCI

EV-PYH

Analogue Addressable Photoelectric Multi-Sensor

instruction manual

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• Evolution • EV-PYH-SCI • Photoelectric Multi-Sensor with Integrated Isolator instruction manual

Fire Industry Association

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

NITTAN

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evolution.....

The ***EV-PYH-SCI*** analogue addressable Photoelectric smoke/heat multi-sensor forms part of a range of analogue addressable fire sensors from Nittan (EUROPE) Ltd called evolution.

The ***EV-PYH-SCI*** together with the ***EV-PY-SCI, EV-H2-SCI*** 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 microprocessor design, increasing reliability and performance.

CONTENTS:-

Section 1 - INTRODUCTION

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

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

***EV-PYH-SCI* features:**

* Optical detector, detecting visible particles of combustion
* Heat sensor incooperating Rate of Rise
* Built in negative Line SCI
* EEPROM addressable (hand held programmer)
* Low profile, stylish appearance
* Supplied with protective dust cover, (remove during commissioning)
* Low monitoring current
* OMNIVIEW™ 360º LED fire alarm indicator
* Remote indicator output
* Compatible with UB-6-SL-EV and UB-6-EV bases

Section 2 - SENSOR MODELS

The ***EV-PYH*** Photoelectric Smoke/Heat Multi-sensor without SCI is capable of operating in several different modes, selectable from the CIE, it will default to a backward mode where the new features are not supported. It has two Terminals 1 & 6 for connection onto the Addressable loop, +ve In/Out & -ve In/Out, respectively. 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 and is limited to 3mA. Terminal 2 provides an additional switched current sink auxiliary output, which can be used to activate a Relay Base.

The ***EV-PYH-SCI*** Photoelectric Smoke/Heat Multi-sensor with SCI is capable of operating in several different modes, selectable from the CIE. The detector uses an additional Terminal 5 for –ve loop output. The built in Negative Line Short Circuit Isolator (SCI) is Bi-directional, where it will break either the Loop input or output of the device, depending on the short circuit fault location, allowing the device to continue to communicate with the loop from the opposite side. The Isolator is of the autonomous type, where in the event of a Short Circuit on the loop, the Isolator will automatically Isolate and it will Reset itself when the fault is cleared. The Isolator has the ability to report its fault status to the CIE.

Section 3 - BASE MODELS

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

i) **UB-6-EV base:** For use with EV-PYH series photoelectric multi-sensor.

ii) **UB-6-SL-EV base:** For use with EV-PYH-SCI photoelectric multi-sensor.

Section 4 - INSTALLATION

In normal use, the ***EV-PYH-SCI*** 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™ 360º 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-PYH-SCI*** 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 after.**
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 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-PYH-SCI sensor illuminates and any remote indicator LED fitted also illuminates.

iii) Also test the heat sensor using 'Detector Testers – Solo' heat sensor tester, alternatively, 'Detector Testers – Testifire' equipment may be used. Check that the sensor gives an alarm condition within 15 seconds. Check the LED indicator on the EV-PYH-SCI sensor illuminates and any remote indicator fitted also illuminates.

Note: Hot air blowers sold for stripping paint etc. generate sufficient heat to damage the detector and should not be used.

iv) 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.

v) 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 (EUROPE) Ltd. for service.

Section 6 - SPECIFICATIONS

Model Reference:	-	EV-PYH EV-PYH-SCI
Computer Reference:	-	F20-82420 F20-82425
Sensor Type:	-	Photoelectric smoke/heat muilti-sensor
Sensitivity:	-	3 levels can be selectable for smoke and A1 rate of rise for heat
Operating Current:	-	300 microamps fire alarm (LED on) 5.2mA RIL 3mA
Standard:	-	EN54 Part 5:2017 + A1:2018 EN54 Part 7:2018 EN54 Part 17:2005 / AC:2007 EN54 Part 29: 2015
Mass:	-	130g (excluding base)
Charging Time:	-	1 minute
Ambient Temperature Range:	-	-10 ºC to +55 ºC
IP Rating:	-	42C
Material:	-	PC

Isolator Data:

Minimum sw open voltage (Vso min)	9 VDC
Maximum sw open voltage (Vso max)	12 VDC
Minimum sw close voltage (Vsc min)	10 VDC
Maximum sw close voltage (Vsc max)	13 VDC
Maximum line current (Ic max)	1000 mA
Maximum switching current (Is max)	3000 mA
Maximum leakage current (Il max)	13 mA
Maximum switch resistance (Zc max)	50 mΩ

CPR Certificate	-	0905-CPR-220811
UKCA Certificate	-	0359-UKCA-CPR 00160
Declaration of Performance	-	220811

Section 7 - ENVIRONMENTAL PARAMETERS

Temperature Considerations:
Over the range from -10 ºC to +55 ºC

Humidity:
Relative Humidity of up to 95%, measured at 50 ºC, 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-EXT)

1 Stand by mode

EV-AD2-EXT 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-EXT from STAND-BY MODE press any key.

2 Instruction

1. EV-AD2-EXT requires two 9v PP3 batteries.

    a) Before inserting the batteries, confirm the EV-AD2-EXT 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-EXT 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-EXT 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-EXT then starts transmitting to the detector.

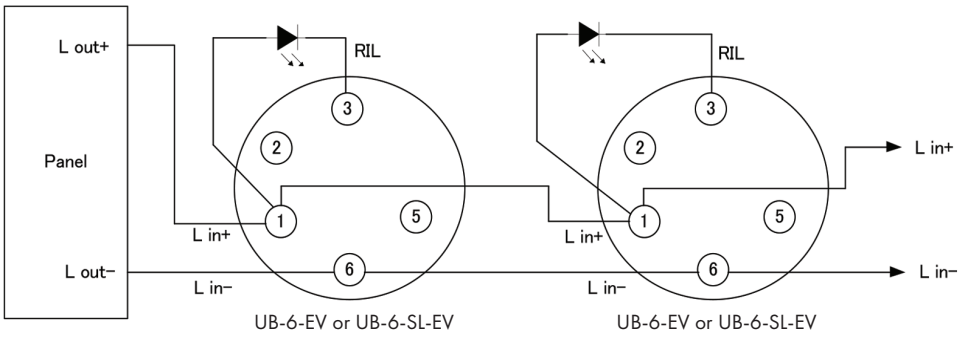
    b) Do not remove the detector.

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.

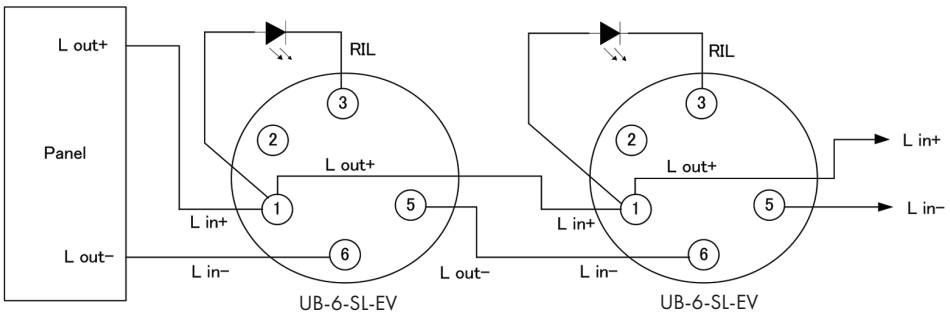
9. To continue changing the address for another detector, change the detector and then repeat from step 3. To finish changing addresses, turn the POWER SW off.

Section 10 - CONNECTIONS

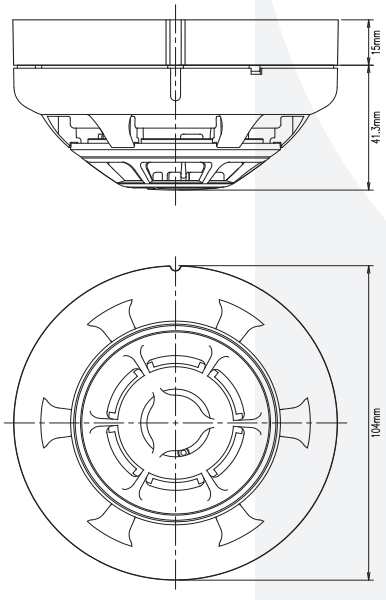
EV-PYH



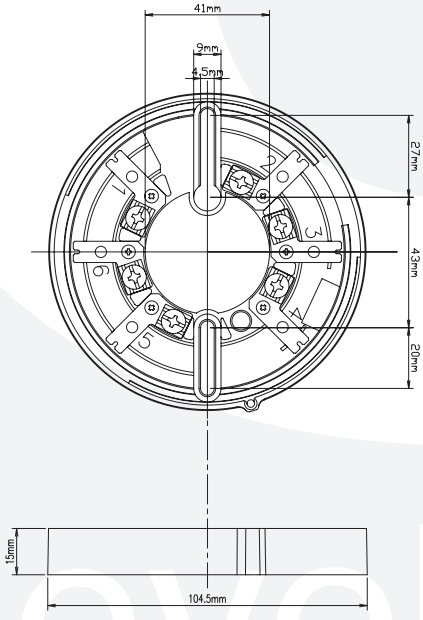
EV-PYH-SCI



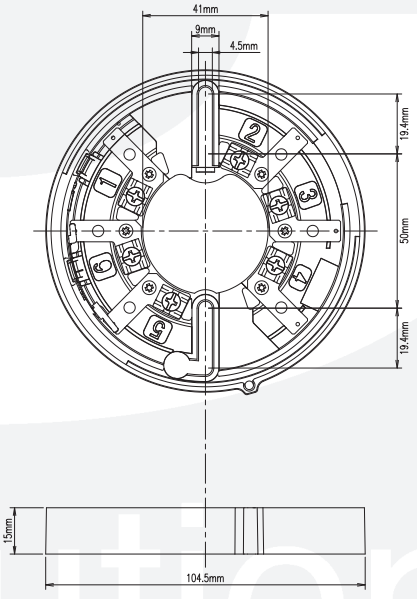
Section 11 - DIMENSIONS



EV-PYH-SCI + BASE



UB-6-EV



UB-6-SL-EV

Section 12 - DISPOSAL

This symbol on the ***EV-PYH-SCI*** 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 (EU) 2015/ 863 which restricts the use of the following ten hazardous materials in the manufacture of electronic and electrical equipment.

- **Cadmium (Cd):** < 100 ppm
- **Lead (Pb):** < 1000 ppm
- **Mercury (Hg):** < 1000 ppm
- **Hexavalent Chromium (Cr VI):** < 1000 ppm
- **Polybrominated Biphenyls (PBB):** < 1000 ppm
- **Polybrominated Diphenyl Ethers (PBDE):** < 1000 ppm
- **Bis(2-Ethylhexyl) phthalate (DEHP):** < 1000 ppm
- **Benzyl butyl phthalate (BBP):** < 1000 ppm
- **Dibutyl phthalate (DBP):** < 1000 ppm
- **Diisobutyl phthalate (DIBP):** < 1000 ppm