

EVC-PY-IS

Conventional Intrinsically Safe Photoelectric Smoke Detector

instruction manual



• Ref No: NISM/EVC-PY-IS/07 • 29.08.23 • Issue: 7

• Evolution • EVC-PY-IS • Conventional Intrinsically-Safe Photoelectric Smoke Detector instruction manual



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

NITTAN



evolution.....

The **EVC-PY-IS** Intrinsically-Safe Photoelectric Smoke Detector forms part of a range of fire detectors from Nittan Europe Ltd. called evolution.

The **EVC-PY-IS** is an elegantly designed, low profile detector which is aesthetically pleasing, thus enabling it to blend unobtrusively into modern working environments.

The **EVC-PY-IS** is compatible with other existing conventional fire detection systems, but is intended for use in Hazardous Areas, with the relevant Isolator barrier.

evolution



CONTENTS:-

Section 1

Introduction	Page 3
--------------	--------

Section 2

Operation	Page 3
-----------	--------

Section 3

Detector Models	Page 3
-----------------	--------

Section 4

Base Models	Page 4
-------------	--------

Section 5

Installation	Page 4
--------------	--------

Section 6

Maintenance & Cleaning	Page 5
------------------------	--------

Section 7

Specifications	Page 7
----------------	--------

Section 8

Environmental Parameters:	Page 7
- Temperature	Page 7
- Humidity	Page 7

Section 9

Compatible Barriers	Page 8
---------------------	--------

Section 10

EMC	Page 8
-----	--------

Section 11

Connections	Page 9
-------------	--------

Section 12

Dimensions	Page 9
------------	--------

Section 13

Disposal	Page 10
----------	---------

Section 14

ROHS Compliance Statement	Page 10
---------------------------	---------

Section 1 - INTRODUCTION

The **EVC-PY-IS** is an attractively-styled, low profile photoelectric smoke detector for use in conventional fire detection systems.

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

EVC-PY-IS features:

- * Optical detector, detecting visible particles of combustion
- * Low profile, stylish appearance
- * Supplied with protective dust cover (remove during commissioning)
- * Non-polarised terminals
- * Unauthorised head removal signal facility
- * Low monitoring current
- * OMNIVIEW™ 360° LED fire alarm indicator
- * Remote indicator output* Compatible with STB-4-IS and UB-4-IS bases

Section 2 - EVC-PY-IS

The smoke chamber of the **EVC-PY-IS** is constructed so that light cannot enter from outside, but smoke can pass through the chamber slots. The EVC-PY-IS utilizes the light scatter sensing principle. An alarm condition is verified before an alarm is given.

The detector design provides strong immunity to air velocities, contamination and RF interference.

The geometry of the smoke chamber and optics support assembly is designed to give the best possible signal to noise ratio, resulting in excellent response characteristics.

Section 3 - DETECTOR MODELS

The **EVC-PY-IS** photoelectric smoke detector is supplied, as standard, with four terminals.

The **EVC-PY-IS** has the facility to activate a remote LED indicator or auxiliary function, as standard.

The terminals on the **EVC-PY-IS** detector head are configured as follows:-

Terminal 2 = zone positive in/out

Terminal 1 = zone negative in

Terminal 6 = zone negative out

Terminal 5 = 2mA @ 24V d.c. switched output



Section 4 - BASE MODELS

It is important to use the correct base for the **EVC-PY-IS** intrinsically-safe smoke detector.

The UB-4-IS base is designed exclusively for use with **EVC-PY-IS** detector; this base has 4 terminals including an auxiliary output function.

The STB-4-IS base is mechanically and electrically compatible with the **EVC-PY-IS** detector and may be used as an alternative.

Section 5 - INSTALLATION

In normal use, the **EVC-PY-IS** detector 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 detector 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° indicator permits visibility from any angle.

Fit the plastic dust cover supplied over the detector 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 detector is undertaken. At commissioning, the dust cover should be removed and discarded.

Note: The plastic dust cover must be removed from the detector in order for the detector to function correctly.



Section 6 - MAINTENANCE AND CLEANING

Maintenance:

The EVC-PY-IS detector is a high quality product engineered for reliability. In order to obtain optimum performance, periodic maintenance is required. If proper preventative maintenance is not carried out, there is a likelihood of malfunction, as a dirty detector is more likely to cause a false alarm.

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 detector's outer cover is clean. If there are deposits due to the presence of oil vapour, dust etc, then the detector 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 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 detector's correct operation in response to a smoke condition.

- 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 detector head, e.g. using a 'No Climb-Solo' smoke test head. Check that the detector gives an alarm condition within 15 seconds. Check the LED indicator on the EVC-PY-IS detector illuminates and any remote indicator LED fitted also illuminates.
- iii) After the detector has given the alarm condition, reset the detector from the control panel. It may be necessary to allow a short time to elapse before resetting the detector, to allow any residual smoke from the test to disperse.
- iv) Before proceeding to the next detector, ensure that the detector just tested does not re-operate due to the presence of residual smoke.

Functional Tests:

The detector may be returned to Nittan Europe Ltd for functional testing.

Cleaning:

Note: The detector head should NOT be disassembled.

- i) Carefully remove the detector 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 detector to Nittan Europe Ltd. for service.



Section 7 - SPECIFICATIONS

Model Reference:	- EVC-PY-IS
Part Number:	- F02-83300
Detector Type:	- Photoelectric smoke detector
Sensitivity	- 4.5% Obscuration per metre
Special Classification	- Intrinsically Safe Ex
ATEX Specification	- II 1 G Ex ia IIC T4
Supply Voltage:	- Limited to 28V dc by intrinsically-safe barrier (range 10V to 32V)
Voltage Ripple:	- 20% maximum
Alarm Characteristics:	- 6V d.c. in series with 100R between +(terminal 2) and (terminals 1,6) at 25°C
Monitoring Current:	- 50µA max. at 24V dc
Alarm Current:	- <50mA (limited by intrinsically-safe barrier)
Charging Time:	- 1 Minute
Ambient Temperature Range:	- 10°C to +50°C (Limited by ATEX requirements)
Standard:	- EN54-7:2018
Declaration of Performance :	- 20883
EMC Conformance:	- BS EN50130-4: 2011
ATEX Certification	- ITS09ATEX26418X
UKEx Certification	- ITS21UKEX0066X
IECEX Certification	- IECEX ITS 12.0074X Ga Ex ia IIC T4, Ta = 50°C
CPR Certification	- 0786-CPR-20883
UKCA Certification	- 0359-UKCA-CPR-00127
Mass:	- 110g (excluding base)
IP Rating:	- 42

Section 8 - 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.

evolution



Section 9 - COMPATIBLE BARRIERS

The following barriers are suitable for use with the **EVC-PY-IS** Intrinsically-Safe Photoelectric Smoke Detector.

- MTL5061 2 channel fire and smoke detector interface (BAS01ATEX7160)
- MTL4061 2 channel fire and smoke detector interface (BAS01ATEX7176)
- Pepperl+Fuchs KFD0-CS-Ex1.54 1-channel isolated barrier (BAS00ATEX7087X)
- Pepperl+Fuchs KFD0-CS-Ex2.54 2-channel isolated barrier (BAS00ATEX7087X)
- Pepperl+Fuchs KFD0-CS-Ex1.51P 1-channel isolated barrier (BAS98ATEX7343)
- Pepperl+Fuchs KFD0-CS-Ex2.52P 2-channel isolated barrier (BAS98ATEX7343)
- Pepperl+Fuchs Z728.F 1-channel Zener barrier (BAS 00 ATEX 7096)

Section 10 - 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.

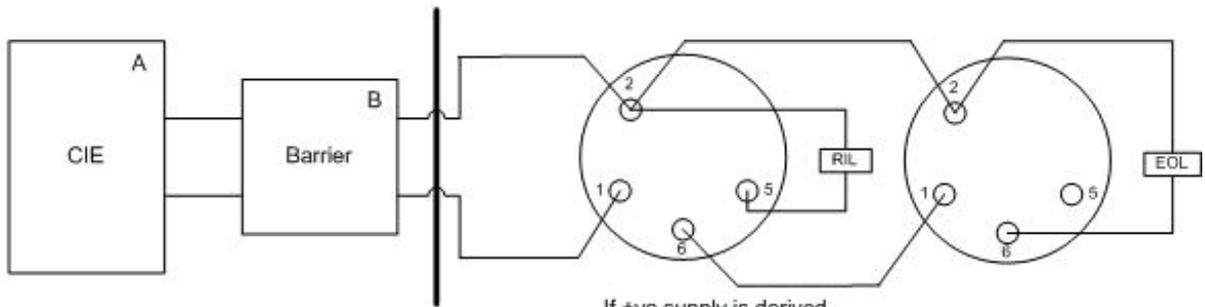
Not for use in VdS Approved Fire Extinguishing Systems.



Section 11 - CONNECTIONS

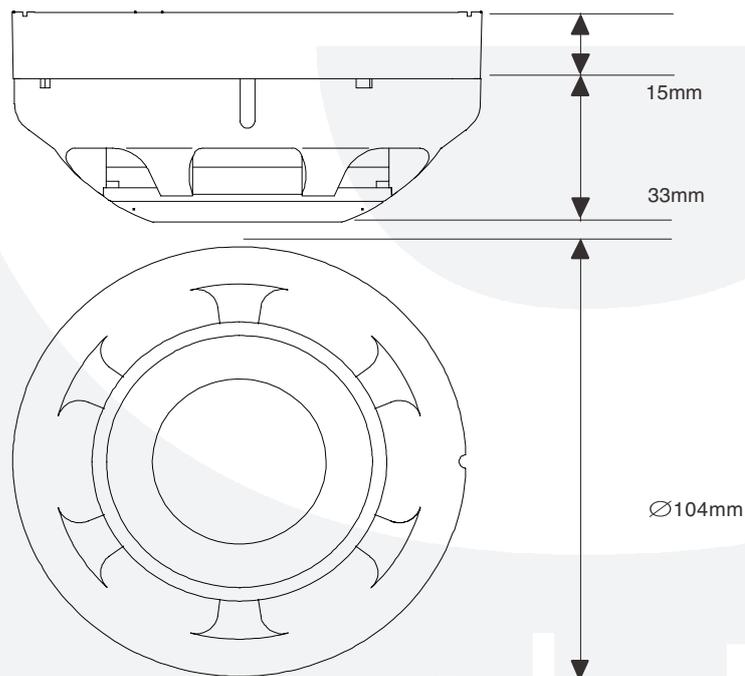
SAFE AREA

HAZARDOUS AREA



If +ve supply is derived from zone, then RIL must be LED type. Max current through 5 = 2mA @ 24v

Section 12 - DIMENSIONS



EVC-PY-IS + BASE



RoHS

Section 13 - DISPOSAL

This symbol on the **EVC-PY-IS** 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 14 - 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

evolution