From world leaders in SENSOR TECHNOLOGY comes SENSORTEC.....

The new ST-P-AS photoelectric smoke sensor forms part of a brand new range of analogue addressable fire detectors from Nittan (UK) Ltd called ***SENSORTEC-ANALOGUE.***

The ***ST-P-AS*** *is a low cost, elegantly designed, low profile sensor which is aesthetically pleasing, thus enabling it to blend unobtrusively into modern working environments.*

The ***ST-P-AS*** *features the very latest technological advancements, increasing reliability and performance.*

The ***ST-P-AS*** *is compatible with our existing 'AS' protocol and is compatible with leading panel manufacturers.*

SENSORTEC-ANALOGUE.....

NITTAN (UK) LTD - BRINGING STYLE INTO FIRE DETECTION SYSTEMS

CONTENTS:-

Section 1 - INTRODUCTION

The ST-P-AS is an attractively-styled, low cost, low profile photoelectric smoke sensor for use with Nittan 'AS' protocol control panels. This sensor is virtually identical in function to our 2KH-AS/2KH-AS2LR sensor and can therefore be used as a direct replacement.

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

The sensitivity of the ST-P-AS is easily confirmed in the field, using the TT3 or TT4 electronic tester.*
** Available early 1998.*

ST-P-AS features:

**** Optical detector, detecting visible particles of combustion***

**** Low profile, stylish appearance***

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

**** Low monitoring current***

**** Integral LED fire alarm indicator***

**** Remote indicator output on standard models***

**** Easy to disassemble and reassemble for cleaning***

**** Uses STB-4 & earlier RB-3/RB-6 Bases***

**** Manufactured to meet the requirements of EN54 Part 7.***

Section 2 - ST-P-AS OPERATION

The ST-P-AS utilises the light scatter sensing principle, using an LED and photodiode in a light proof chamber. The LED pulses infrared light into the smoke chamber, the photodiode being positioned such that a minimum of light is normally received. As the smoke enters the sensor the amount of scattered light increases. This change is detected by the photodiode and is amplified before being processed and transmitted to the control panel

Section 3 - SENSOR MODELS

The ST-P-AS photoelectric smoke sensor is supplied, as standard, with three terminals.
The ST-P-AS has the facility to activate a remote LED indicator or auxiliary function, as standard.
The terminals on the ST-P-AS sensor head are configured as follows:-
Terminal 3 = -VE 3 mA aux output
Terminal 1 = Sig + (+VE) positive in/out
Terminal 6 = S- (-VE) negative in/out

Section 4 - BASE MODELS

STB-4 Base: *having 4 terminals, for standard use with ST-P-AS sensor including the auxiliary output function.*

Section 5 - INSTALLATION

In normal use, the ST-P-AS 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. Consider visibility and orientation of the sensor's integral alarm LED indicator when mounting the base. 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.

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 6 - MAINTENANCE AND CLEANING

Maintenance:
The ST-P-AS sensor is a high quality product engineered for reliability. In order to obtain optimum performance, periodic maintenance is required 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 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 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 it's 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.

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

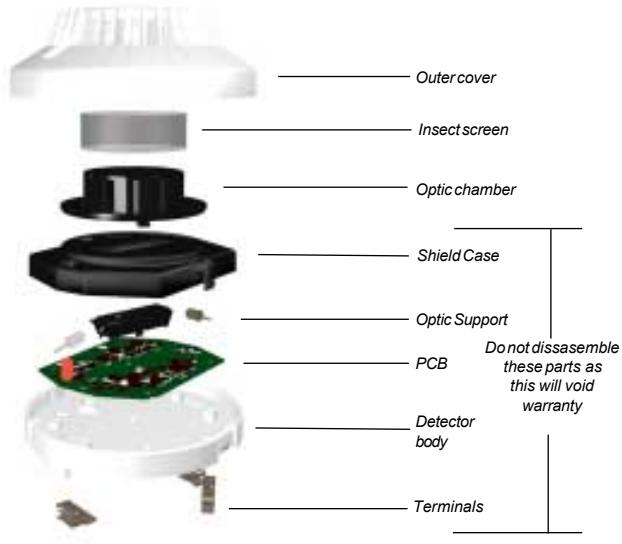
ii) *Introduce a discrete amount of smoke into the sensor head, using NID-T2 Smoke Test Head or equivalent. Check that the detector gives an alarm condition within 15 seconds. Check the LED indicator on the ST-P-AS sensor illuminates and any remote indicator LED fitted also illuminates.*

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 detector, to allow any residual smoke from the test, to disperse.*

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

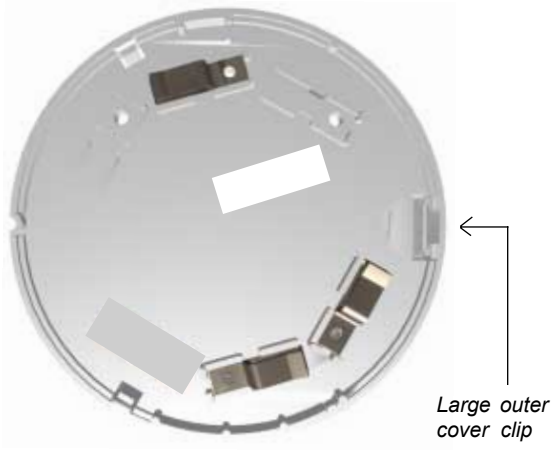
Functional Tests:-
The ST-P-AS may be tested on the TT3 or TT4 transmission tester, please refer to the instruction manual for the testers as follows:-*
TT3 = NISM/TT3/01 April 1993
TT4 = Available early 1998

Cleaning
Figure 1:- 'Exploded' View of ST-P-AS sensor Assembly



i) *Carefully remove the outer cover of the detector by gently releasing the larger outer cover clip, (see figure 2 below), with a small screwdriver, this clip is visible from the rear of the ST-P-AS sensor. It is not necessary to use any excessive force.*

Figure 2:- Rear view of ST-P-AS Sensor.



ii) *Remove the chemically-etched insect screen.*

iii) *Remove the optic chamber by gently twisting in an anticlockwise movement*

DO NOT DISMANTLE ANY FURTHER

iv) *Examine the optic chamber and the optic's bridge and check for any dust or dirt which may give cause for false alarm.*
If the sensor is very dirty, damaged or corroded please return the complete detector to Nittan for service.

v) *If the parts of the sensor are still serviceable, proceed to clean the outer shield case and plastic outer cover using both a clean dry brush for dry dust and dirt. A lint-free cloth moistened with alcohol may be used to remove sticky deposits from the insect screen, optic chamber and the optic's bridge.*

vi) *Reassemble the sensor in the reverse order. Refit the plastic outer cover, aligning the LED indicator aperture with the LED indicator. Check alignment of the outer cover prior to fully pushing home in order to avoid distortion of the insect screen.*
Make sure that the three securing clips of the outer cover are properly aligned and seated. 'Snap fit' the plastic outer cover to the ST-P-AS body, taking care not to compress the insect screen.

Ultrasonic Cleaning

This method may be used to good effect for the removal of contamination from the outer cover, plastic optic chamber, and chemically etched insect screen, only, after they have been dismantled from the detector. However, care must be taken in selection of the solvent so as not to cause damage to the plastic and insect

screen. The solvent supplier should be consulted as to it's suitability.
Under no circumstances should the fully assembled detector be cleaned without disassembly as this may cause damage to the special treatment applied to specific components within the detector.

Section 7 - SPECIFICATION

Model Reference:	-	***ST-P-AS***
Computer Reference:	-	*81100*
Sensor Type:		*Photoelectric smoke sensor*
Operating Current:	-	*200μamps fire alarm (LED on) 3.2mA*
Sensitivity:	-	*BS5445/EN54 Part 7*
Mass:	-	*114g (excluding base)*
Charging Time:	-	*20 seconds*
Ambient Temperature Range:	-	*-10 Deg.C. to +50 Deg.C..*

Section 8 - ENVIRONMENTAL PARAMETERS

Temperature Considerations:
Over the range from -10 deg. C. to +50 deg. C..

Humidity:
Relative Humidity of up to 90%, measured at 50 deg. C., non condensing.

Section 9 - 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.

Please proceed to page 6.....

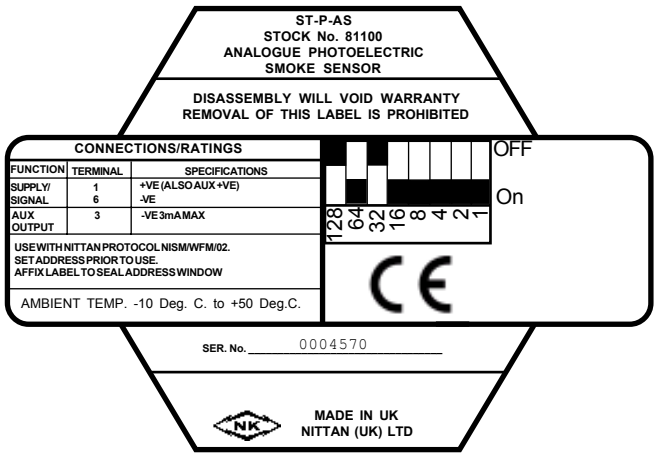
Section 10 - ADDRESS SETTING:-

NITTAN DIL SWITCH SETTINGS FOR SENSORTEC MODEL TYPES: ST-I-AS, 5000/ION, 5000/OP AND ST-H-AS, 5000/TEMP.

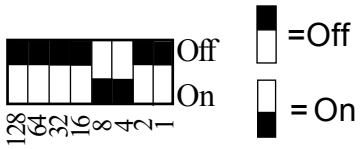
WARNING: Connect only to **NITTAN (UK) LTD** *suitable and compatible analogue-addressable control panels. If in doubt, check with control panel manufacturer.*

DIL SWITCH SETTINGS - ALL SENSOR MODELS

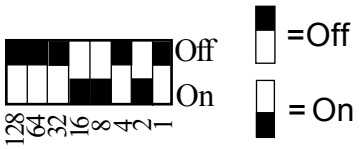
Hold the sensor so that the product label can be correctly read. Set each digit on the appropriate eight switches according to the address required.



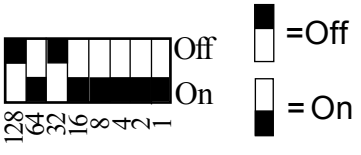
Rear of ST-P-AS Sensor and Address Switch Setting (DIL Switch)



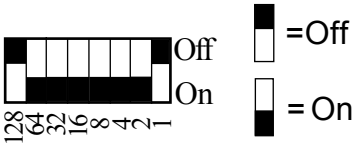
Above switch setting set to address 12 decimal.



Above switch setting set to address 26 decimal.

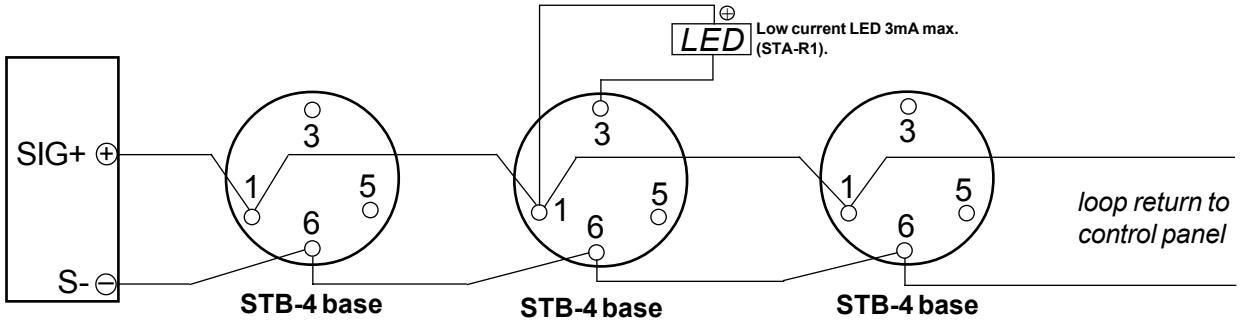


Above switch setting set to address 95 decimal

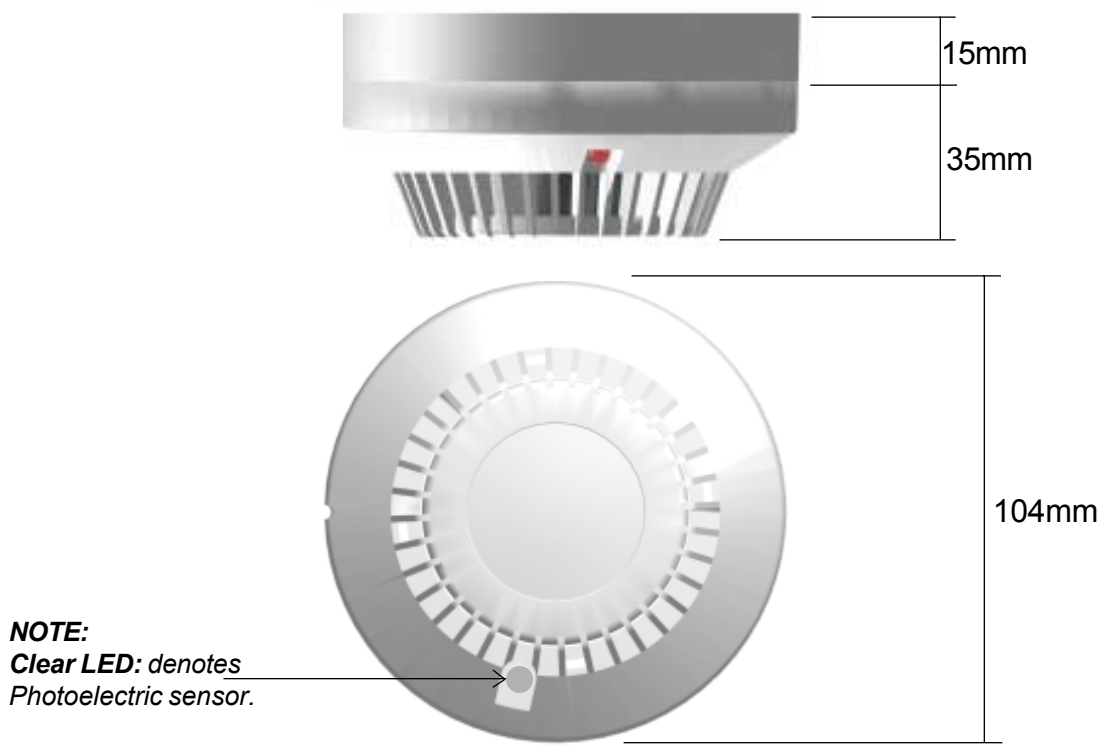


Above switch setting set to address 126 decimal.

Section 11 - CONNECTIONS (Also suitable for ST-I-AS and ST-H-AS sensors)



Section 12 - DIMENSIONS



NOTE:
Clear LED: *denotes Photoelectric sensor.*

NITTAN (UK) LTD

Document No. NISM/STPI/02
Date MARCH 2001

From world leaders in ***SENSOR TECHNOLOGY***
comes ***SENSORTEC.....***

ST-P-AS
ANALOGUE ADDRESSABLE PHOTOELECTRIC SMOKE SENSOR INSTRUCTION MANUAL

LPCB REF: 041c/09

Quality System Certificate No. 041
Assessed to BS EN ISO 9002

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