

## MAINTENANCE

The minimum maintenance recommended for a detector consists of an annual cleaning of dust from the head of the detector, by making use of an air compressor, and cleaning all the air inlets to the chamber. For more thorough cleaning, send the detector to the manufacturer.

Do not dismantle the detector or the optical chamber. Opening the detector signifies loss of the guarantee.

## DETECTOR CODING

All algorithmic detectors must be coded with a number as corresponds to their personalization. The recording of the detector numbering can be carried out from:

1. AE/SA-PRG manual address programming. See the programmer's manual for their coding.
2. Algorithmic Panel. See operations manual of the algorithmic panel for their coding.

Program a number between **1** and **125** as corresponds for their personalization.

The identification number of the unit, as well as the operation pilot, is stored in EEPROM memory.

Before connecting the module to the algorithmic loop, **verify the coding is correct.**

## INHIBITION OF FLASHING OF THE OPERATION PILOT

The operation pilot mode can be altered by the AE/SA-PRG programmer or through the coding mode of the Algorithmic Panel. By default, the operating mode is activated.

From the Algorithmic Panel, the flashing of the operation pilot can be disconnected generally.

## TECHNICAL CHARACTERISTICS

Power supply voltage:	18 ~- 27 V (AE/SA-CTL Algorithmic loop card).
Consumption when idle:	1.9 mA
Consumption in alarm state:	4 mA
Wiring	2-wire. Recommended cross-section 1.5 mm <sup>2</sup>
Temperature range:	-10° - +50° C (ambient temperature)
Humidity range:	Relative humidity 10% - 90% without condensation.
Casing material:	ABS
Luminous indicator:	Operation pilot: green flash (can be inhibited). Alarm: red permanent
Size:	diam. 106 mm. Height: 52 mm with low base.
Remote alarm output:	80 mA max.
Compatible bases:	AE/SA-ZB2 low base AE/SA-ZBA base with isolator.

## CERTIFICATIONS



Ae-man-838-0.0 v1.2

TECHNICAL MANUAL



## ALGORITHMIC OPTICAL SMOKE DETECTOR MOD.: AE/SA-OPI

Optical smoke detector that operates according to the light scattering principle (Tyndall effect). It is suitable for detecting fires in their first smoke phase, before flames are formed or dangerous increases in temperature take place.

Formed by a dark chamber that incorporates a transmitter and a receiver that detect the presence of particles in the interior and fitted with a microcontroller in which the operating parameters are set.

Fabricated and certified according to the standard EN 54-7:2018.

Due to the detection method of this type of detector it is recommended for installation in clean surroundings.

## OPERATION

The detector works by measuring the relative decrease of visibility in the surrounding atmosphere.

1. When connected, it adapts to the surrounding conditions, inside maximum and minimum limits.
2. Readings are taken every second and compared with the reference measurements when idle. When the difference exceeds the programmed level, the detector goes to the pre-alarm or alarm state.
3. The variations are analysed with regard to the idle values in order to provide compensation, if necessary, and adapt to the new environmental conditions.
4. It monitors the pollution level in its environment or the fouling parameters in its interior, if they surpass the programmed values and are maintained for a certain time, it passes to the maintenance state.

It monitors two alarm levels:

1. It goes to the pre-alarm state when the environmental darkening surpasses the programmed level, but without reaching the alarm level.
2. It goes to the alarm state when the detected level reaches the level set during the time fixed for alarm confirmation.

Maintenance level:

1. It warns when the degree of pollution in its environment or the fouling parameters in its interior, surpass the programmed values and are maintained for a certain time.
2. It monitors the detector adjustment level inside maximum and minimum limits. These values can be affected by height, pressure, humidity, etc. It checks they are inside the correct operating range and reports any anomaly.

It includes:

- Operation pilot: It indicates it is operating correctly, giving green-colored flashes through the alarm LED. If the flashing is a nuisance in specific cases, it can be inhibited on an individual basis from the detector itself, or in general from the Algorithmic Fire Control Panel.
- Maintenance and alarm levels: These levels are programmed from the panel, individually, by sectors or collectively for each type. They always take a default value to assure their correct operation.
- Remote alarm output: They have a remote alarm output for connection of action indicators, etc, which is activated when the detector reaches the programmed alarm level.
- Individual identification: Each detector is identified individually with a number inside the installation loop. This number is stored in EEPROM memory whereby it remains even though the detector is without power for a long period.

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TECHNICAL MANUAL

## WIRING SCHEMATIC

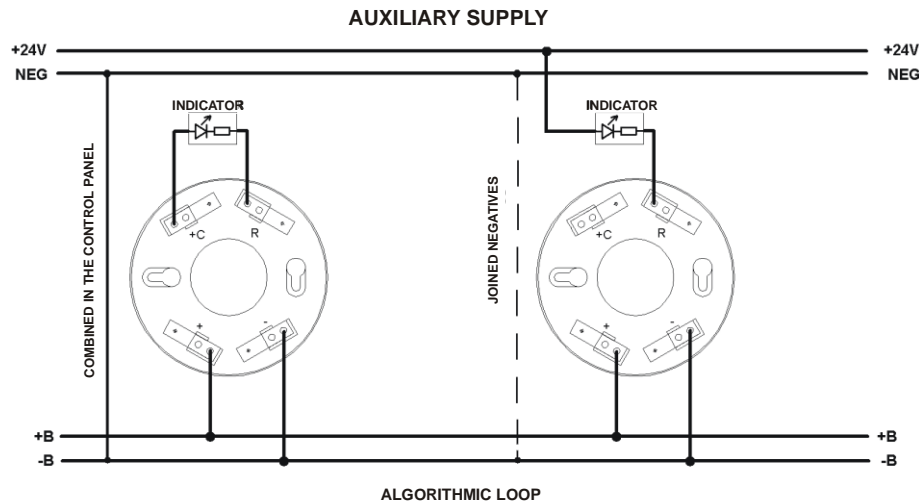
### Assembly

The base of the detector can be mounted directly on false ceiling surfaces, or on electric connection boxes shaped octagonally (75mm, 90mm or 100mm), round (75mm) or square (100mm), with no need for a mechanical adapter.

### Wiring

Disconnect the supply voltage of the detection loop before installing the detector base.

- To connect the positive input of the detection loop to the + terminal (positive input of the detection loop).
- Connect the negative input of the detection loop to the - terminal (negative input of the detection loop).
- If a remote action indicator is to be installed, connect the positive of the indicator to the +C terminal or positive of auxiliary supply and the negative to the R terminal.

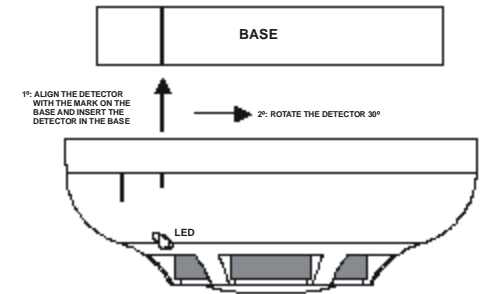


The action indicator can be fed from the detector itself, taking into account the total consumption of the loop, or by means of an auxiliary supply.

If an auxiliary supply is used, the negative of the auxiliary supply should be joined to the negative of the algorithmic loop.

### Installing the detector

- Position the detector on the base of the detector, aligning the marks as indicated in the figure.
- Rotate the detector gently clockwise until it is well coupled.
- After installing all the detectors, reconnect loop supply voltage.



### PRECAUTIONS

- To prevent contamination of the detector, and the resulting loss of guarantee, keep the protective cover in place until the area where the detector has been installed is clean and dust-free.
- The protective cover does not assure complete protection against all types of dust or penetration by foreign substances, for which reason removal is recommended of the detector from the base if construction activities (painting, sanding,...) are to be carried out, which can produce dust in suspension.
- The detector should not be painted. The painting can block the air inlets to the optical chamber and alter its operation and sensitivity.
- The protective cover should be removed before starting up the system.

### VERIFICATION OF OPERATION

The detectors must be tested after installation and undergo periodic maintenance.

Before carrying out the operating tests, notify to the competent authority that maintenance tasks are being carried out in the fire detection system, and make sure that all the evacuation, operation and tripping functions for automatic extinguishing are disabled.

- When removing the detector from the base, the area should be put in the fault state. If this does not take place, check the wiring of the detector base, and that it is correctly programmed in the Algorithmic Panel.
- Check that the detector is working, by observing that it emits green colored flashes every 10 s, provided this function has not been inhibited individually from the detector itself, or generally from the Algorithmic Fire Detection Panel. If the flashing is not inhibited and the detector does not emit them, this means it has failed or the wiring is faulty.
- Activate the detector by applying detector test aerosol. When sufficient smoke has entered the chamber, the detector will go to the alarm state and activate the red LED in fixed mode.
- If we have connected a remote action indicator, it will also light. If it does not do so, check the wiring.

The detectors that have not passed the operating tests should be replaced and repaired.

When the tests have been completed, reconnect the evacuation, operation and extinguishing functions, and notify the competent authority that the fire detection system is again in service.