601PH

HIGH PERFORMANCE OPTICAL SMOKE DETECTOR

Ordering code: 516.600.002

EN54 part 7: 2000 standard **- LPCB** approved.

FIRECLASS

CE

GENERAL FEATURES

The 601PH detector forms part of the series 600 range of plug in detectors for ceiling mounting.
601PH detectors react to the complete range of fire products, from slow smoldering fires , producing visible particles to open flaming fires producing large numbers of very hot smaller sized aerosols.
The combination of optical and heat technology allows detection of clear burning fire products which until now could only be detected by ion-chamber detectors.
For normal ambient conditions 601PH will behave as a normal optical smoke detector, only when a rapid rise in temperature is detected does the sensitivity of the detector increase and the presence of smoke will confirm a fire condition which will be transmitted as an alarm level. The 601PH design incorporates a unique “mousehole” optical chamber with an unrivaled signal to noise ratio providing high resilience to dust and dirt which means reduced servicing cost. In addition a unique chamber cover actually draws slow moving smoke into the chamber to provide a more responsive detector.

OPERATING PRINCIPLE

Smoke detection

The 601PH detects visible particles produced in fires by using the light scattering properties of the particles.
The optical system consist of an emitter and receiver, so arranged that their optical axes cross in the sampling volume.
The emitter produces a narrow beam of light which is prevented from reaching the sensor directly by the baffles. When smoke is present in the sampling volume, a proportion of the light is scattered, some of which reaches the receiver.
For a given type of smoke, the light reaching the sensor is proportional to the smoke density. The amplified output from the sensor is used to activate an alarm circuit at a predetermined threshold.

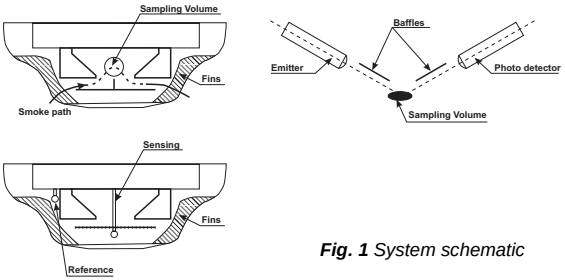

Fig. 1 *System schematic*

Thermal measuring system

The thermal mesuring system is designed to detect the presence of horizontally moving hot air draughts moving across the ceiling which occour in a fast burning fire.
The system consist of two fast responding negative temperature thermistors. A sensing thermistor is located above the labyrinth under the cover in the airstream and will detect any sudden changes in the air temperature or draughts of hot air moving across the ceiling.
The second thermistor is located out of the airflow , but still within the smoke labyrinth and has a longer time costant and is

SPECIFICATIONS			
	Min	typ	Max
Operating voltage	10.5V	24V	33V
Average quiescient current	62µ A	65µ A	70µ A
Stabilisation time	30 sec		
Alarm Current	see Fig. 3 / (mA)		
Holding Voltage			2V
Holding Current			0.4mA
Reset Time		2 sec	
Remote Led Drive	1kΩ		
Temperature Alarm Threshold	54°C	60°C	65°C
Normal Response Threshold	0,12 dB/m-2,7 %/m		
Response threshold in case of rapid temperature rise>10°C	0.05 dB/m -1.1% /m		
Size HxD	43x109 mm		
Weight	0,093Kg		
Operating temperature	-20°C .. +70°C (Do not install in locations where normal ambient temperature is below 0°C)		
Storage temperature	-25°C .. +80°C		
MAX environmental Relative humidity	95% non-condensing		

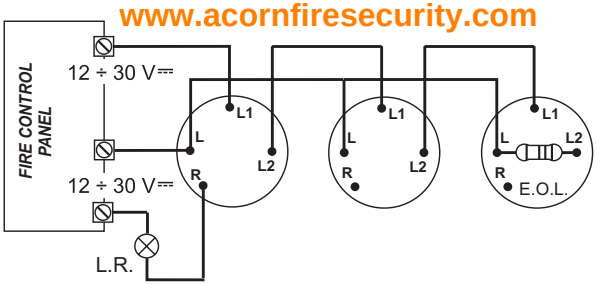

Fig. 2 *Connection diagram.*

used as a temperature reference to compare the sensing thermistor against.
At a given temperature differential between the two thermistors, the comparator will switch and increase the gain of the amplifier, thereby increasing the sensitivity of the smoke sensor.
Fins located on the top of the labyrinth are designed to increase air turbulence and the efficiency of the sensing thermistor.

WIRING

The detector circuits requires a positive and negative supply and these are wired to terminals L1 and L on the base (Polarity insensitive). Base terminal L2 is connected to base terminal L1 when the detector is fitted to provide continuity monitoring through the detector. Base terminals L2 and L provide outputs to the next detector or EOL device.
In case of alarm the detector comunicate the state to control device by sinking from the supply leads an extra current according to the figure 3, for restoring from an alarm condition the power has to be removed for 2-5 seconds.
A drive is provided for a remote indicator connected between supply + and terminal R, therefore at a detector where remote indicator is connected, the polarity of the supply must be known.

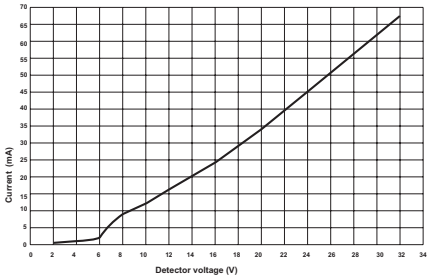

Fig. 3 *Alarm load.*

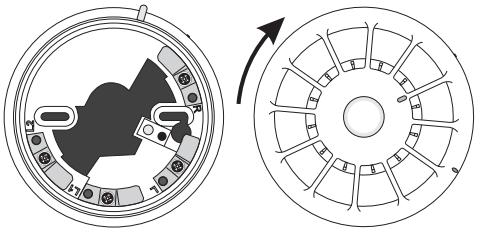

Fig. 4 *Fit the detector unit onto the base (as per figure) then twist clockwise.*

INSTALLATION

The 601PH is designed to become enanched by detecting a rapid rise (>10°C) in air moving horizontally across the ceiling. Siting sensor in positions where air is being blown through the detector should therefore be particulary avoided, eg. close to ceiling ducts or ceiling mounted industrial heaters or areas of forced ventilations.

MAINTENANCE

The length of time between service for each detector will depend upon the environment into which they are installed. It is recommended to Inspect, test and clean the detector at least annually.
The detector must be removed for service replacement typically each 5 years (up to 10 years subject to environment).

Recycling information

Customers are recommended to dispose of their used equipments (panels, detectors, sirens, and other devices) in an environmentally sound manner. Potential methods include reuse of parts or whole products and recycling of products, components, and/or materials.

Waste Electrical and Electronic Equipment (WEEE) Directive

In the European Union, this label indicates that this product should NOT be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

☞*The Manufacturer reserves the right to change the technical specifications of this product without prior notice.*