HEAT & SMOKE DETECTORS – CONVENTIONAL
ORBIS INTRINSICALLY SAFE (IS) DETECTORS

DESCRIPTION

Hazardous areas are common in petroleum and chemical engineering plants and factories processing and storing gases, solvents, paints and other volatile substances.

Electrical equipment for use in these areas needs to be designed so that it cannot ignite an explosive mixture, not only in normal operation but also in fault conditions. There are several methods available to achieve this, but one of the most common is intrinsic safety.

Orbis IS is suitable for use in marine and offshore applications as well as in-land-based systems. The range offers modern styling, and a TimeSaver IS base. It is electrically compatible with Apollo Series 60 intrinsically safe conventional detectors.

ORBIS IS OPTICAL SMOKE DETECTOR

Orbis IS optical detectors are recommended for use as general-purpose smoke detectors for early warning of a fire in most areas. Orbis IS optical detectors perform effectively in black as well as white smoke. The detector is calibrated so that it is highly reliable in detecting fires but is much less likely to generate false alarms than ionisation smoke detectors.

MULTI-SENSOR SMOKE DETECTORS

Multi-sensor smoke detectors are recognised as suitable detectors for general use but are additionally more sensitive to fast-burning, flaming fires, including liquid fires, than optical detectors. They can be readily used instead of optical smoke detectors but should be used as the detector of choice for areas where the fire risk is likely to include heat at an early stage in the development of the fire. The Orbis IS multi-sensor is a smoke detector – although it relies on both smoke and heat sensors, it is not possible to switch from smoke detection to heat detection.

ORBIS IS HEAT DETECTOR

Heat detectors are used in applications where smoke detectors are unsuitable.

The Orbis IS range incorporates seven heat detector classes to suit a wide variety of operating conditions in which smoke detectors are unsuitable.

Static heat detectors respond only when a fixed temperature has been reached. Rate-of-rise detectors have a fixed upper limit, but they also measure the rate of increase in temperature. A fire might thus be detected at an earlier stage than with a static detector so that a rate-of-rise detector is to be preferred to a static heat detector unless sharp increases of heat are part of the normal environment in the area protected by the heat detector.

KEY FEATURES

- TimeSaver Base® for fast installation and cable termination
- Wide operating temperature range
- StartUp™ for fast commissioning
- DustDefy™ housing which limits ingress of dirt into detector
- Optical sensor for high reliability, reduced false alarm and insect related problem incidence
- Multi-sensor smoke detector for detecting fast-burning fires
- Algorithms for transient rejection
- Chamber designed to inhibit dirt penetration and thus reduce false alarms
- Automatic drift compensation with DirtAlert® warning
- FasTest® reduces the time taken to test detectors
- Optional flashing LED to indicate normal operation
- SensAlert® safety feature

APPROVALS

- European Standard EN 54 Fire Detection and Fire Alarm Systems:
  - EN 54–7: 2000 Optical smoke detector
  - EN 54–7: 2000 & CEA 4021: 2003 Multi-sensor smoke detector
  - EN 54–5: 2000 Heat detector
- Electromagnetic Compatibility
  - EN 61000-6-3
  - EN 50130-4
- ATEX-related standards:
  - BS EN 60079–0:2004
  - IEC 60079–0:2004
  - EN 50020:2002 and EN/BSEN/IEC 60079–26:2004
- Various Marine type approval standards, amongst which:
  - American Bureau of Shipping (ABS) – Rules for Building and Classing Steel Vessels 2006
  - Bureau Veritas (BV) – Rules for the Classification of Steel Ships 2005
  - Lloyds Register (LR) – LR Type Approval System
  - Marine & Coastguard Agency

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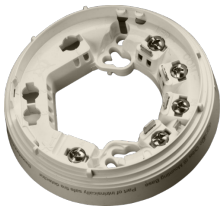
ORBIS IS TIMESAVER BASE®

The E-Z fit fixing holes are shaped to allow a simple three-step mounting procedure.
The base offers three fixing centres at 51, 60 and 72 mm.
A guide on the base interior indicates the length of cable to be stripped.
Five terminals are provided for the cables, four being grouped together for ease of termination.



TECHNICAL SPECIFICATIONS

	IS Optical Detector AP-ORBEX-O	IS Multi Detector AP-ORBEX-MS	IS Heat Detector AP-ORBEX-H
Sampling Frequency	Once every 4 seconds	Once every 4 seconds	Once every 2 seconds
Supply Voltage	14–28 V DC	14–28 V DC	14–28 V DC
Supply Wiring	2 wires polarity sensitive	2 wires, polarity sensitive	2 wires, polarity sensitive
Polarity Reversal	Not allowed	Not allowed	Not allowed
Power-up Time	<20 seconds	<20 seconds	<20 seconds
Min 'detector active' Voltage	12 V	12 V	12 V
Switch-on Surge Current @ 24 V	105 µA	105 µA	105 µA
Avg Quiescent Current @ 24 V	85 µA	85 µA	85 µA
Alarm Load	325 Ω in series with a 1 V drop	325 Ω in series with a 1 V drop	325 Ω in series with a 1 V drop
Min Holding Voltage	5 V	5 V	5 V
Min voltage to Light Alarm LED	6 V	6 V	6 V
Alarm Reset Voltage	<1 V	<1 V	<1 V
Alarm Reset Time	1 second	1 second	1 second
Remote Output LED (–) Characteristic	4.7 kΩ connected to negative supply	4.7 kΩ connected to negative supply	4.7 kΩ connected to negative supply
Material	White polycarbonate	White polycarbonate	White polycarbonate
Alarm Indicator	Integral indicator with 360° visibility	Integral indicator with 360° visibility	Integral indicator with 360° visibility
Dimensions (mm) [in base]	100 Ø x 42 [50]	100 Ø x 50 [60]	100 Ø x 42 [50]
Weight [in base]	75 g [135 g]	80 g [140 g]	70 g [130 g]
Operating & Storage Temp	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
	Operating temperature is restricted by the intrinsic safety gas classification.		
Class T5	-40°C to +40°C	-40°C to +40°C	-40°C to +40°C
Class T4	-40°C to +60°C	-40°C to +60°C	-40°C to +60°C
	The detectors must be protected from conditions of condensation or icing.		
Humidity(no condensation)	0% to 98% relative humidity	0% to 98% relative humidity	0% to 98% relative humidity
Wind Speed	Unaffected by wind	Unaffected by wind	Unaffected by wind
Atmospheric Pressure	Insensitive to pressure	Insensitive to pressure	Insensitive to pressure
IP rating to EN 60529 1992*	23D	23D	23D
	*The IP rating is not a requirement of EN 54–7: 2000 since smoke detectors have to be open in order to function. An IP rating is therefore not as significant as with other electrical products.		
Electromagnetic Compatibility	All 3 detectors meet BS EN 61000-6-3 for emissions and BS EN 50 130-4 for susceptibility requirements.		

ORDERING INFORMATION

Product Code	Product Description
AP-ORBEX-H	Orbis IS ROR Heat Detector with Flashing LED; Class A1/R (65°C)
AP-ORBEX-HCR	Orbis IS ROR Heat Detector with Flashing LED; Class C/R (100°C)
AP-ORBEX-MS	Orbis IS Multi-sensor Detector with Flashing LED
AP-ORBEX-O	Orbis IS Optical Smoke Detector with Flashing LED
AP-ORBEX-B	Orbis IS TimeSaver® Base

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