



The Discovery Smart Industrial Smoke Detector Operating modes as shown in Table 1 comply with European Standard EN 54-7. The mode of operation for this detector is selected at the fire control panel.

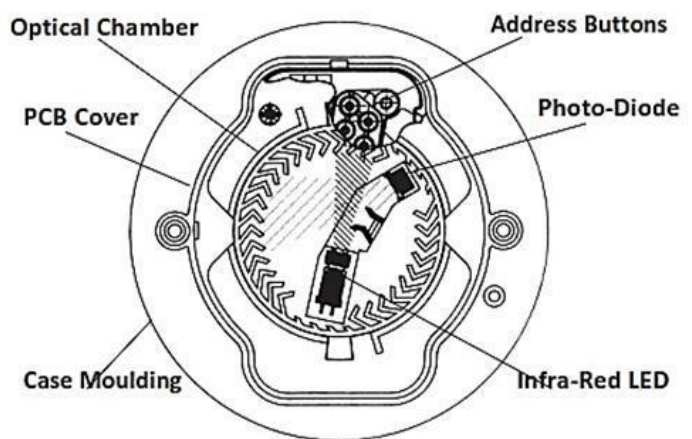


Figure 1 Discovery Optical Detector top section

Part N. ADD 5000-200

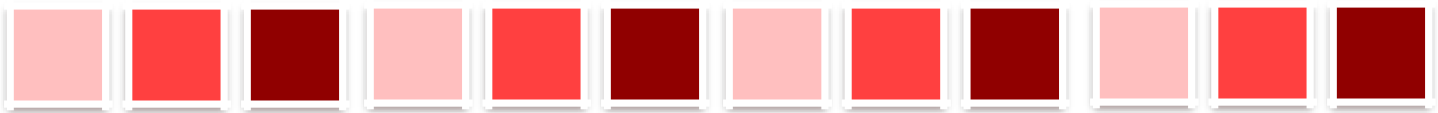
The Discovery Smart Industrial Smoke Detector has a white moulded polycarbonate case with wind-resistant smoke inlets. The indicator LEDs are colourless when the detector is in quiescent state and red in alarm. Within the case is a printed circuit board which, on one side, has the light-proof chamber with integral gauze surrounding the optical measuring system and, on the other, the signal processing and communications electronics.

An infra-red light emitting diode within its collimator is arranged at an obtuse angle to the photo-diode. The photo-diode has an integral daylight-blocking filter (Fig. 1).

The IR LED emits a burst of collimated light every second. In clear air the photo-diode receives no light directly from the IR LED, because of the angular arrangement and the chamber baffles. When smoke enters the chamber, it scatters light from the emitter IR LED onto the photo-diode in an amount related to the smoke characteristics and density. The photo-diode signal is processed to provide an analogue value for transmission when the detector is interrogated.

Mode	Alarm Threshold (%/m)	dB/m	Minimum Time to Alarm (seconds)
1	1.4	0.10	3
2	1.4	0.10	20
3	2.1	0.10	3
4	2.1	0.14	20
5	2.4	0.14	3
Compensation rate complies with EN 54-7			

Table 1: Discovery Smart Industrial Detector operating modes



Applications:

Fire detectors should always be installed in accordance with all local and national laws and codes of practice. Discovery Smart Industrial Smoke Detectors are recommended for Industrial facilities, Highly populated areas, Hotels and Malls where there is a risk of slow burning fires or where the development of smoke could become the major hazard.

Discovery Smart Industrial Series have been designed by Syncoln's industry-leading engineers using the latest simulation technology and in-house development and testing facilities. They reflect our ambition to deliver a real focus on innovation and are just the start of our journey, with more exciting products in the pipeline.

Discovery Smart Industrial Smoke Detector New Features includes:

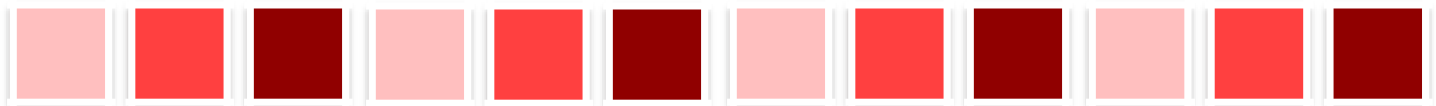
Improved Environmental Control: Discovery Smart Industrial series provides highly accurate reading e.g. ambient temperature and CO levels. And can forward these to a Fire panel or any building management system – Providing temperature information to within a degree centigrade. This enables the accurate adjustment of air Conditioning and give Air Circulation systems to adjust heating and building ventilation.

Faster Status Reporting: Discovery Smart Industrial series flags any events triggered on the system to create fast status alerts. Any devices tampered with are instantly identified and temper flag created. If system is triggered more detailed information is available to help identify why a particular detector was activated Discovery Smart Industrial series.

Intelligent Industrial Addressing: Discovery Smart Industrial devices incorporate a smart industrial isolator which allows the device to be addressed with automatic addressing and soft addressing options via XPERT card in the device. This smart isolator effectively becomes an electronic switch that can isolate sections on the loop making fault finding and diagnostics simpler. Additionally, devices can be grouped and triggered independently. For example, to isolate a single floor of a building for maintenance.

Cone Technology: the smoke chamber of the detector is a unique cone shape which serves to reduce any stray reflection. This ultra-dark internal light chamber also contains a high-intensity Infra-Red LED that is highly sensitive to smoke particles and can detect the Accurate Amount of particles in the chamber. When smoke enters the chamber, infra-red light is scattered and registered by the photodiode and amplifier that are included in an application-specific integrated circuit. This circuit ensures long term reliability even in extreme conditions of industrial zones.

Increased Dust and Humidity resistance: Our new Industrial design with IP54 standards means that less dust and humidity penetrate the outer casing. We have also designed Industrial smart detectors to be less sensitive to any dust that accumulate over long periods of time which highly reduce the chance of False Alarms.



TECHNICAL DATA

Discovery Smart Industrial Optical Smoke Detector

Part No. 5000-200

Specifications are typical at 24V, 25°C and 50% relative humidity unless otherwise stated

Detection principle:	Photo-electric detection of light scattered in a forward direction by smoke particles	
Chamber configuration:	Chamber with surface-mount infrared emitter and prism. Solid state integrated photo-diode and amplifier.	
Sensor:	Silicon PIN photo-diode	
Emitter:	GaAlAs infra-red light emitting diode	
Sampling frequency:	1 per second	
Supply wiring:	Two-wire supply, polarity insensitive	
Terminal functions:	L1 & L2 supply in and out connections	
	+R	remote indicator positive connection (internal 2.2k Ω resistance to positive)
	-R	remote indicator negative connection (internal 2.2k Ω resistance to positive)
Operating voltage:	17–28V DC	
Communication protocol:	Discovery, XP95 & Core Protocol compatible	
	5-9V peak to peak	
Quiescent current:	440 μ A	
Power-up surge current:	1mA	
Maximum power-up time:	10s	
Alarm current, LED illuminated:	3.4mA	
Remote output characteristics:	Connects to positive line through 4.5k Ω (5mA maximum)	
Clean-air analogue value:	23 +4/-0	
Alarm level analogue value:	55	
Alarm indicator:	2 colorless Light Emitting Diodes (LEDs); illuminating red in alarm. Optional remote LED	
Temperature range:	-40°C to 70°C	
Humidity:	0% to 95% RH (no condensation or icing)	
Effect of atmospheric pressure:	None	
Effect of wind:	None	
Vibration, impact & shock:	EN 54-7	
Designed to IP Rating:	IP54 in accordance with BS EN 60529	
Standards & approvals:	EN 54-7 - LPCB	
Dimensions:	100mm diameter x 42mm height (50mm height with Industrial Smart Mounting Base)	
Weight:	Detector	105g
	Detector with Industrial Smart Mounting Base	160g
Materials:	Housing	White polycarbonate UL94-V0
	Terminals	Nickel plated stainless steel



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