

series 65

9-33V



Wide voltage conventional detectors



Series 65 incorporates well-proven sensing technologies, including an IC based on that used in XP95 analogue addressable detectors.

The Series 65 range has a wide operating voltage of 9–33V and consists of ionisation, integrating ionisation and optical smoke detectors, four grades of heat detector and a range of bases.

This product guide aims to provide engineers with comprehensive information on Series 65, in order to be able to design optimum solutions to fire protection problems.

Apollo Fire Detectors Ltd, part of the Halma plc group of companies, operates from one site at Havant, near Portsmouth, England. All departments – Research and Development, Sales and Marketing, Manufacturing and Finance – are located here. Apollo applies the most modern production techniques and has invested in sophisticated manufacturing equipment to ensure consistent high quality of product and fast response to customer requirements. Through planned expansion Apollo has reached a leading position in the market for professional fire detectors and exports over half of its production to countries around the world.

Apollo Fire Detectors is certified to ISO9001:2000 by the Loss Prevention Certification Board.



Information in this guide is given in good faith, but Apollo Fire Detectors Limited cannot be held responsible for any omissions or errors. The company reserves the right to change specifications of products at any time without prior notice.



Ionisation Smoke Detector

Operating principles	4
Integrating version	5
Options	5
Safety note	5
Environmental characteristics	5
Technical data	6



Optical Smoke Detector

Operating principles	7
Options	7
Technical data	8



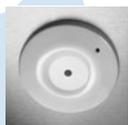
Heat Detector

Operating principles	9
Options	9
Response time	10
Technical data	11



Mounting Base

Specification	12
---------------	----



Mini Disc Remote Indicator

Specification	13
---------------	----

Interchangeability 14

Control Panel Compatibility 14

EMC 14

Approvals and Regulatory Compliance 14



Series 65 Standard Ionisation Smoke Detector	▲ Part nos
Ionisation detector	55000-217
Detector with flashing LED	55000-216
Detector with reed switch & flashing LED	55000-215
Series 65 Integrating Ionisation Smoke Detector	
Ionisation detector	55000-220
Detector with flashing LED	55000-219
Detector with reed switch & flashing LED	55000-218

page
4

OPERATING PRINCIPLES

The detector has a moulded self-extinguishing white polycarbonate case with wind resistant smoke inlets. Nickel plated stainless steel wiper contacts connect the detector to the base.

Inside the detector case a printed circuit board has the ionisation chamber mounted on one side and the signal processing electronics on the other.

The ionisation chamber consists of a reference chamber contained inside a smoke chamber (Fig. 1). The outer smoke chamber has inlet apertures fitted with insect resistant mesh. The radioactive source holder and smoke chamber form positive and negative electrodes respectively.

An Americium 241 radioactive source mounted within the reference chamber irradiates the air in both chambers, producing positive and negative ions. A voltage across the electrodes produces an electric field.

Ions are attracted to the electrode of the opposite sign to their own charge. Many recombine but a small electric current flows between the electrodes. At the junction between reference and smoke chambers the sensing electrode converts variations in chamber current into voltage changes.

When smoke particles enter the ionisation chamber ions become attached to them with the result that the current flowing through the chambers decreases. This effect is greater in the smoke chamber than in the reference chamber, and the imbalance causes the sensing electrode to become more positive.

The voltage at the sensing electrode is fed to a comparator where it is compared with a factory-set clean air reference voltage. If the monitored voltage exceeds the reference voltage, the comparator switches the alarm latch on, increasing the current drawn from the supply from about 40µA to a maximum of 75mA. This fall in the impedance of the detector is recognised by the

control panel as an alarm signal.

The alarm latch current also illuminates the detector integral LED. A remote indicator connected between the L1 IN terminal and the -R terminal will have a voltage equal to the supply voltage less 1 volt across it and so will illuminate. See page 13 for details of the remote indicator.

To ensure correct operation of the detector the control panel must be arranged to supply a maximum of 33 volts DC and a minimum of 9 volts DC in normal operation.

The supply may fall to 6 volts DC in alarm conditions if a supply current of at least 10mA is available at this voltage. To ensure effective illumination of the integral LED and any remote indicator, the supply to the detector should exceed 12 volts.

To restore the detector to quiescent condition, it is necessary to expel any smoke and interrupt the electrical supply to the detector for a minimum of one second.

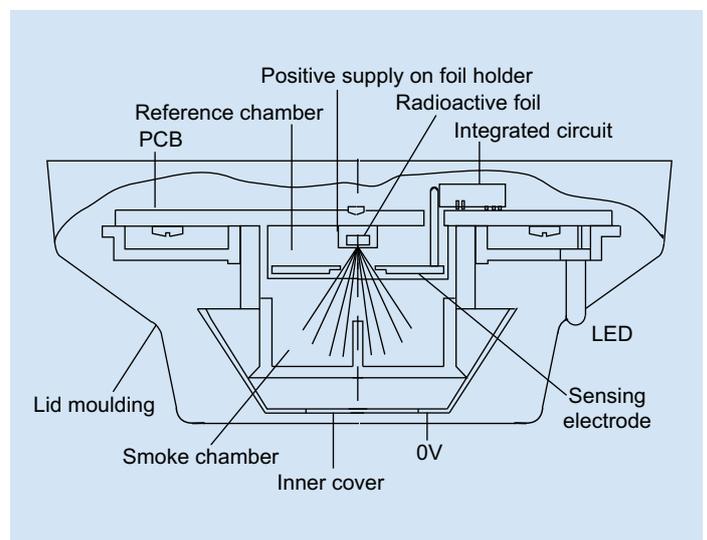


Fig.1 Side view, Series 65 Optical Smoke Detector

INTEGRATING VERSION

Circuitry in the Integrating Ionisation Smoke Detector protects against transient levels of smoke above the normal threshold level for 10 to 20 seconds. The sensitivity of the detector is not affected by this modification.

OPTIONS

(Apply to standard and integrating versions)

1. Flashing LED: The alarm indicating LED flashes when the detector is in a quiescent state.
2. Reed Switch and Flashing LED: A reed switch in the circuit of the detector can be magnetically activated from outside the case to initiate an alarm condition for test and commissioning purposes. A flashing LED, as outlined above, is also included.

SAFETY NOTE

In the United Kingdom, ionisation smoke detectors are subject to the requirements of the Radioactive Substances Act 1993 and to the Ionising Radiations Regulations 1999 made under the provisions of the Health and Safety at Work Act 1974.

The detectors, independently tested by the National Radiological Protection Board (NRPB), conform to all the requirements specified in

the 'Recommendations for ionisation smoke detectors in implementation of radiation standards' published by the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD) 1977.

There is no limit to the number of ionisation smoke detectors which may be installed in any fire protection system within the United Kingdom. See Certificate of Approval no TA1 issued by the Health & Safety Executive for further details.

Storage regulations depend on local standards and legislation, but, in the UK, the number of ionisation smoke detectors in any building or premises shall be less than 500. See Certificate of Approval no TA3 of 1999 issued by the Health & Safety Executive for further details.

At the end of their recommended working life of ten years, ionisation smoke detectors should be returned to Apollo for safe disposal or disposed of in an otherwise locally approved and environmentally safe manner. Please see "A guide to the care, maintenance and servicing of Apollo products", PP2055.

Guidance on storage and handling can be given by Apollo Fire Detectors and full details can be requested from:

Radioactive Substances
Regulation Function
Environment Agency
Rio House
Waterside Drive
Aztec West, Almondsbury
Briston BS32 4UD

Outside the UK, please contact the relevant national agency.

ENVIRONMENTAL CHARACTERISTICS

Series 65 ionisation smoke detectors operate over a temperature range of -20°C to $+60^{\circ}\text{C}$.

Ionisation detectors have some sensitivity to air movement (wind). The extent to which the sensor output will change depends on the wind speed and on the orientation of the detector relative to the wind direction. Relatively small changes in wind direction can cause significant changes in sensor output.

For wind speeds up to 1m/s (200ft/min) sensitivity will change by less than 20%. Continuous operation in wind speeds greater than 2m/s (400ft/min) is not recommended. However, wind speeds up to 10m/s (2000ft/min) can be tolerated for short periods and will not under any conditions increase the probability of false alarms.

Series 65 ionisation smoke detectors are supplied in individual packing with a red lid serving as a dust cover which can be left in place after fitting to prevent ingress of foreign material until commissioning of the system takes place. At this point the covers must be removed.

TECHNICAL DATA

Specifications are typical and given at 23°C and 50% relative humidity unless specified otherwise.

Detector Type:

Point type smoke detector for fire detection and alarm systems for buildings

Detection Principle:

Ionisation chamber

Chamber Configuration:

Twin compensating chambers using one single-sided ionising radiation source

Radioactive Isotope:

Americium 241

Activity:

33.3 k Bq, 0.9 µCi

Supply Wiring:

Two wire monitored supply, polarity insensitive

Terminal Functions:

L1 IN and L2: supply in connections (polarity insensitive)

L1 OUT and L2: supply out connections (polarity insensitive).

-R:

remote indicator negative connection

Supply Voltage:

9 to 33V DC

Ripple Voltage:

2V peak to peak maximum at 0.1Hz to 100kHz

Quiescent Current:

20–45µA at 24V

Switch-on Surge Current:

110µA

Alarm Voltage:

6 to 33V

Normal Alarm Current:

61mA at 28V

52mA at 24V

18mA at 10V

Alarm Indicator:

Red, Light Emitting Diode (LED)

Design Alarm Load:

420Ω in series with a 2V drop

Holding Voltage:

6V (min)

Holding Current:

10mA (min)

Minimum Voltage Required to Illuminate Indicator:

12V

Alarm Reset Voltage:

1V

Alarm Reset Time:

1 second

Remote Output Characteristics:

Remote is a current sink to the negative line limited to 17mA

Calibration:

Factory set to ΔV of 0.8V

Sensitivity:

Nominal threshold Y value of 0.7 to EN 54–7: 2000

Temperature Range:

Maximum continuous operating temperature 60°C

Minimum continuous operating temperature 0°C

Minimum operating temperature –20°C

(no condensation or icing)

Storage –30°C to +80°C

Temperature Compensation:

Automatic compensation by dual chambers to comply with EN 54–7: 2000 across the operating temperature range

Humidity:

0% to 95% relative humidity (no condensation)

Atmospheric Pressure:

Automatic compensation by dual chambers to maintain sensitivity up to a height of 2000m

Wind Speed:

10m/s maximum

IP Rating:

23D in accordance with BS EN 60529

EMC, approvals and regulatory compliance:

Refer to Page 14 of this document

Dimensions: (dia. x height)

Detector: 100x42mm

Detector in Base: 100x50mm

Weights:

Detector: 102g

Detector in Base: 153g

Materials:

Detector housing: White polycarbonate rated V-0 in accordance with UL 94.

Terminals: Nickel plated stainless steel



CE 3852

technical data



Optical Smoke Detector	▲ Part nos
Standard detector	55000-317
Detector with flashing LED	55000-316
Detector with reed switch & flashing LED	55000-315

OPERATING PRINCIPLES

The Series 65 Optical Smoke Detector has a moulded self-extinguishing white polycarbonate case with wind resistant smoke inlets. Nickel plated stainless steel wiper contacts connect the detector to the base. Inside the case a printed circuit board has the optical system mounted on one side and the signal processing electronics on the other. The sensing chamber is a black moulding configured as a labyrinth which prevents penetration of

ambient light. The labyrinth has a fine gauze insect-resistant cover. The chamber houses an infrared light emitting diode (LED) and a photo-diode which has an integral visible-light filter as extra protection against ambient light.

Every 3 seconds the LED emits a burst of collimated light, modulated at 4kHz. In clear air, light from the LED does not fall directly on the diode because the LED is positioned at an obtuse angle to the diode (as shown in Fig 2).

When smoke enters the chamber, a fraction of the collimated light is scattered

onto the photo-diode. If the resulting signal from the photo-diode is above a preset threshold, the LED emits two more bursts of light, this time at two-second intervals. If light is scattered onto the photo-diode by both these pulses – due to the presence of smoke – the detector signals an alarm state by switching the alarm latch on, increasing the current drawn from the supply from about 40µA to a maximum of 75mA. This fall in the impedance of the detector is recognised by the control panel as an alarm signal.

The alarm current also illuminates the detector integral LED. A remote indicator connected between the L1 IN terminal and the –R terminal will have a voltage equal to the supply voltage less 1 volt across it and so will illuminate.

To ensure correct operation of the detector the control panel must be arranged to supply a maximum of 33 volts DC and a minimum of 9 volts DC in normal operation. The supply may

fall to 6 volts DC in alarm conditions if a supply current of at least 10mA is available at this voltage. To ensure effective illumination of the integral LED and any remote indicator, the supply to the detector should exceed 12 volts.

To restore the detector to quiescent condition, it is necessary to expel any smoke and interrupt the electrical supply to the detector for a minimum of one second.

OPTIONS

1. Flashing LED: The integral LED flashes when the detector is in a quiescent state.
2. Reed Switch and Flashing LED: A reed switch in the circuit of the detector can be magnetically activated from outside the case to initiate an alarm condition for test and commissioning purposes. A flashing LED, as outlined above, is also included.

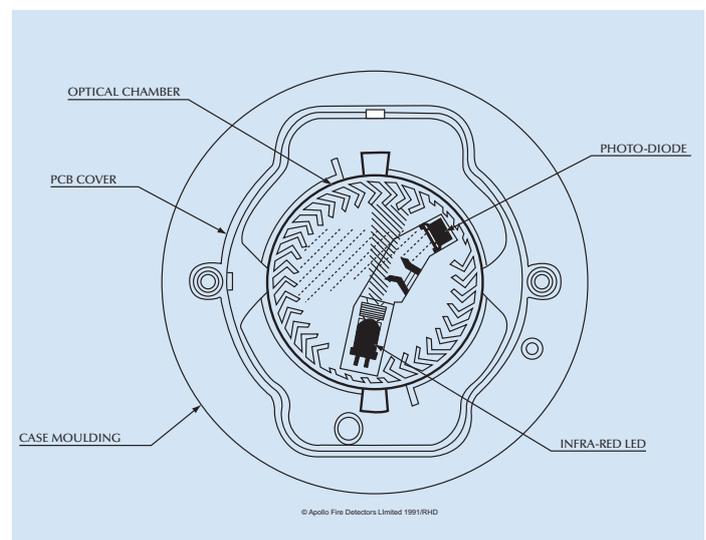


Fig.2 Top section, Series 65 Optical Smoke Detector

TECHNICAL DATA

Specifications are typical and given at 23°C and 50% relative humidity unless specified otherwise.

Detector Type:

Point type smoke detector for fire detection and alarm systems for buildings

Detection Principle:

Photo-electric detection of light scattered in a forward direction by smoke particles

Chamber Configuration:

Horizontal optical bench housing an infra-red emitter and sensor arranged radially to detect forward scattered light

Sensor:

Silicon PIN photo-diode

Emitter:

GaAs Infra-red light emitting diode

Sampling Frequency:

Once every 3 seconds

Confirmation Frequency:

Once every 3 seconds

Number of Consecutive Sensed Alarm Signals Needed To Trigger Detector Alarm:

3

Supply Wiring:

Two wire monitored supply, polarity insensitive

Terminal Functions:

L1 IN and L2: supply in connections (polarity insensitive).

L1 OUT and L2: supply out connections (polarity insensitive).

–R: remote indicator negative connection

Supply Voltage:

9 to 33V DC

Ripple Voltage:

2V peak to peak maximum at 0.1Hz to 100kHz

Quiescent Current:

30–50µA at 24V

Switch-on Surge Current:

115µA at 24V

Alarm Voltage:

6 to 28V

Normal Alarm Current:

61mA at 28V
52mA at 24V
18mA at 10V

Alarm Indicator:

Clear light emitting diode (LED) emitting red light

Design Alarm Load:

420Ω in series with 2V drop

Holding Voltage:

6V (min)

Holding Current:

10mA (min)

Minimum Voltage Required to Illuminate Indicator:

12V

Alarm Reset Voltage:

1V

Alarm Reset Time:

1 second

Remote Output Characteristics:

Remote is a current sink to the negative line limited to 17mA

Sensitivity:

Nominal alarm threshold of 0.15dB/m obscuration, measured in accordance with EN 54–7: 2000

Temperature Range:

–20° to +60°C (no condensation or icing).

Humidity:

0% to 95% relative humidity (no condensation)

Wind Speed:

Insensitive to wind

Atmospheric Pressure:

Insensitive to atmospheric pressure

Wind Speed:

10m/s maximum

IP Rating:

23D in accordance with BS EN 60529

EMC, approvals and regulatory compliance:

Refer to Page 14 of this document

Dimensions: (dia. x height)

Detector: 100x42mm
Detector in Base: 100x50mm

Weights:

Detector: 99g
Detector in Base: 150g

Materials:

Detector housing: White polycarbonate rated V-0 in accordance with UL 94.
Terminals: Nickel plated stainless steel



CE 3852

technical data



increases rapidly the resistance of the exposed thermistor becomes less than that of the insulated thermistor. The ratio of the resistance of the thermistors is monitored electronically and an alarm is initiated if the ratio exceeds a factory preset level. This feature determines the 'rate of rise' response of the detector.

If air temperature increases slowly, no significant resistance difference develops between the thermistors, but at high temperatures a fixed value resistance connected in series with the insulated thermistor becomes significant.

When the sum of the resistance of the insulated thermistor and the fixed resistor compared to the resistance of the exposed thermistor reaches a preset value, an alarm is initiated. The value of the fixed resistor is selected to set the detector into alarm state at a specified fixed temperature.

The detector signals an alarm state by switching an alarm latch on, increasing the current drawn from the supply from about 50µA to a maximum of about 75mA. This fall in the impedance of the detector is recognised by the control panel as an alarm signal.

The alarm current also illuminates the detector integral LED. A remote indicator connected between the L1 IN terminal and the -R terminal will have a voltage equal to the supply voltage less 1 volt across it and so will illuminate.

To ensure correct operation of the detector the control

panel must be arranged to supply a maximum of 33 volts DC and a minimum of 9 volts DC in normal operation. The supply may fall to 6 volts DC in alarm conditions if a supply current of at least 10mA is available at this voltage. To ensure effective illumination of the integral LED and any remote indicator, the supply to the detector should exceed 12 volts.

To restore the detector to quiescent condition, it is necessary to restore a normal temperature level and interrupt the electrical supply to the detector for a minimum of one second.

OPTIONS

1. Flashing LED: The integral LED flashes when the detector is in a quiescent state.
2. Reed Switch and Flashing LED: A reed switch in the circuit of the detector can be magnetically activated from outside the case to initiate an alarm condition for test and commissioning purposes. A flashing LED, as outlined above, is also included.

page
9

Series 65 Heat Class A1R	▲ Part nos
Standard detector	55000-122
Detector with flashing LED	55000-121
Detector with reed switch & flashing LED	55000-120
Series 65 Heat Class BR	
Standard detector	55000-127
Detector with flashing LED	55000-126
Detector with reed switch & flashing LED	55000-125
Series 65 Heat Class CR	
Standard detector	55000-132
Detector with flashing LED	55000-131
Detector with reed switch & flashing LED	55000-130
Series 65 Heat Class CS	
Standard detector	55000-137
Detector with flashing LED	55000-136
Detector with reed switch & flashing LED	55000-135

OPERATING PRINCIPLES

The detector has a moulded self-extinguishing white polycarbonate case. Nickel plated stainless steel wiper contacts connect the detector to the base. Inside the case a printed circuit board holds the signal processing electronics.

A pair of matched negative temperature coefficient thermistors are mounted on the PCB in such a way that one thermistor is exposed to give good thermal contact with the surrounding air while the other thermistor is thermally insulated.

Under stable conditions both thermistors are in thermal equilibrium and have the same value of resistance. If air temperature

RESPONSE TIME

European Standard EN54-5:2000 classifies heat detectors according to the alarm temperature and ambient operating temperature.

Each heat detector classification has a static response (changing to alarm at a preset temperature) and may also have a rate of rise response (changing to alarm at or above a preset increase of temperature). The heat detector classes available in Series 65 are A1R, BR, CR, CS.

The suffix R indicates that the detector has been tested and approved as a 'rate-of-rise' detector. The suffix 'S' indicates that the detector has been tested and approved as a 'static' detector.

page
10

Supply Voltage (V)	A1R Standard		A1R Flashing LED		A1R Flashing LED/ Reed Switch	
	Quiescent	Alarm	Quiescent	Alarm	Quiescent	Alarm
24	45µA	52mA	55µA	52mA	55µA	52mA
9	40µA	17mA	50µA	17mA	50µA	17mA

Table 1 Typical current against voltage characteristics for quiescent and alarm states

Class	Max application temperature °C	Max static response temperature °C	Part number		
			Standard	Flashing LED	Flashing LED/ Reed Switch
A1R	50	65	55000-122	55000-121	55000-120
BR	65	85	55000-127	55000-126	55000-125
CR	80	100	55000-132	55000-131	55000-130
CS	80	100	55000-137	55000-136	55000-135

Table 2 Series 65 Heat Detector Temperatures and part numbers

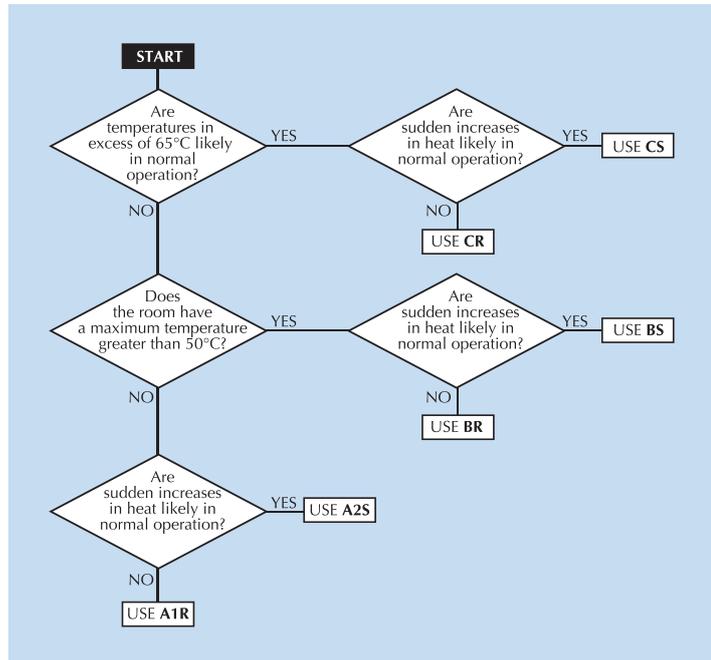


Fig. 3 Choosing a heat detector

TECHNICAL DATA

Specifications are typical and given at 23°C and 50% relative humidity unless otherwise specified.

Detector Type:

Point type heat detector for fire detection and alarm systems for buildings

Supply Wiring:

Two wire monitored supply, polarity insensitive

Terminal Functions:

L1 IN and L2:
supply in connections (polarity insensitive).
L1 OUT and L2:
supply out connections (polarity insensitive)
-R:
remote indicator negative connection

Supply Voltage:

9 to 33V

Ripple Voltage:

2V peak to peak maximum at 0.1 Hz to 100 kHz

Quiescent Current:

See table 1

Switch-on Surge Current:

As per Quiescent Current

Alarm Voltage:

6 to 28V

Alarm Current:

See table 1

Alarm Indicator:

Red light emitting diode

Design Alarm Load:

420Ω in series with a 2V drop

Holding Voltage:

6V

Holding Current:

10mA

Minimum Voltage Required to Light Alarm Indicator:

12V

Remote Output Characteristics:

Remote is a current sink to the negative line limited to 17mA

Storage Temperature Range:

-30°C to 120°C.
Operating Temperature:
-20°C to +90°C (no icing)

Humidity:

0% to 95% relative humidity

Atmospheric Pressure:

Unaffected

IP Rating:

23D in accordance with BS EN 60529

EMC, approvals and regulatory compliance:

Refer to Page 14 of this document

Dimensions: (dia. x height)

Detector: 100x42mm

Detector in Base: 100x50mm

Weights:

Detector: 80g

Detector in Base: 131g

Materials:

Detector housing: White polycarbonate rated V-0 in accordance with UL 94.
Terminals: Nickel plated stainless steel



CE 3852

technical data



Series 65 Mounting Base ▲

page
12

SPECIFICATION

Full details of all bases and accessories are given in PP1089. All detectors in the Series 65 range fit into Series 60 standard mounting bases.

The bases are of 100mm diameter and have five terminals marked according to their function: Line 1 in, line 1 out, line 2 in and out, remote indicator negative, earth.

Detectors are polarity insensitive, so that identification of positive and negative lines is only required if a remote LED is fitted.

An earth connection is not required for either safety or correct operation of detectors.

The earth terminal is provided for tidy termination of earthed conductors or cable screens and to maintain earth continuity where necessary.

Bases have a wide interior diameter for ease of access to cables and terminals and there are two slots for fixing screws at a spacing of 51 to 69mm.

Detectors fit into bases one way only and require clockwise rotation without push force to be plugged in. They can be locked into the base by a grub screw using a 1.5mm hexagonal driver, part no 29600-095.

OPTIONS

For conventional systems which are required to operate normally when one or more detector heads have been removed, a base with a Schottky diode in LINE 1 is available (part no. 45681-201). The diode conducts when the associated detector is removed, allowing power to reach devices downstream. Active monitoring can be used in systems with diode bases.



Mini Disc Remote Indicator ▲

SPECIFICATION

The MiniDisc remote indicator is only 20mm high and 80mm in diameter. It comprises two parts—the base which is installed onto a wall or soffit and the lid which is fitted to the base with a bayonet lock.

An anti-tamper screw in the lid locks the unit together. A 1.5mm hexagonal driver, part number 29600-095, is available from Apollo.

Two pairs of keyholes are provided—one for 50mm and the other for 60mm fixing centres.

The MiniDisc Remote Indicator is polarity sensitive. Connect positive line to Terminal A or B and negative line to Terminal C.

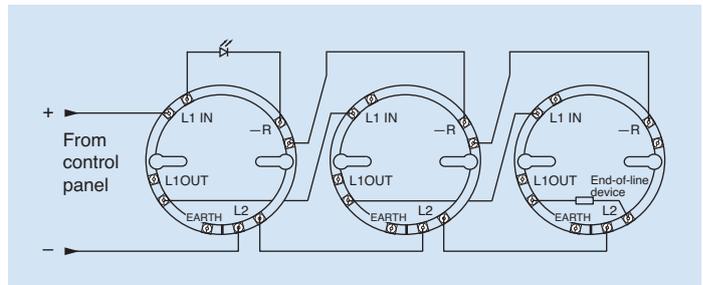


Fig.3 Schematic wiring diagram of Series 65 monitored detector circuit with a common remote indicator.

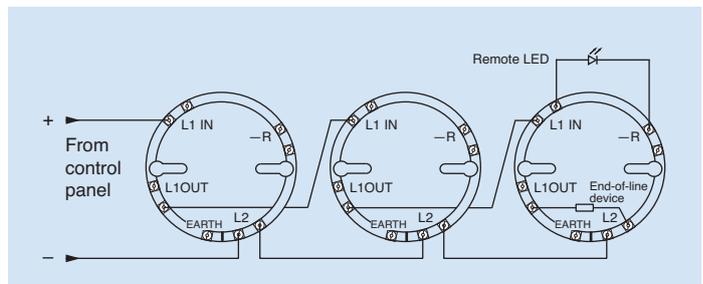


Fig.4 Schematic wiring diagram of Series 65 monitored detector circuit

INTERCHANGEABILITY EMC

Any detector in the Series 65 range may be replaced with any other type in the range. If, for example, a smoke detector proved unsuitable for a particular application, it could simply be replaced with a heat detector.

The bases are designed specifically for Series 65 detectors and will not accept devices from other Apollo product ranges, including earlier Apollo models but with the exception of Series 60.

CONTROL PANEL COMPATIBILITY

Series 65 has been designed to be connected to any conventional control panel that will operate existing ranges of Apollo conventional detectors.

When engineering systems with Series 65, it should be borne in mind that the alarm impedance of a detector be considered as 420 Ohms in series with a 2 volt drop with LED open circuit.

Typical current against voltage characteristics for quiescent and alarm states for heat detectors are shown in Table 1.

All Series 65 detectors and relay bases comply with the requirements of the following EMC standards:

Generic Emission Standard EN 61000-6-3 Emission standards for residential, commercial and light industrial environments

Generic Emission Standard EN 61000-6-4 Emission standards for industrial environments

EN 50130-4: Alarm Systems Electromagnetic compatibility – product family standard: immunity requirements for components of fire, intruder and social alarm systems

EN 61000-4-2 Electrostatic discharge

EN 61000-4-3 Radiated immunity

EN 61000-4-4 Fast transient bursts

EN 61000-4-5 Surge immunity

EN 61000-4-6 Conducted immunity

All standard detectors and the relay bases have been assessed to the additional VdS EMC requirements shown below and have demonstrated full compliance:

30V/m with 80% Am sine and 100% pulse modulation depth over the frequency ranges 415 to 467MHz and 890 to 960 MHz.

Series 65 optical detector, part no 55000-317, and heat detector, part no 55000-122, have been declared to be compliant with the standard EN 50155: Railway applications : Electronic equipment used on rolling stock.

APPROVALS AND REGULATORY COMPLIANCE

The Series 65 range of detectors and relay bases is approved by a large number of certification bodies.

These include approvals to EN54 : 2000 with LPCB, VdS, DIBT, BOSEC, and FG. For further information on approvals held by Apollo contact us on sales@apollo-fire.co.uk or phone 023 9249 2412.

Information on approvals is also held on our website www.apollo-fire.co.uk

Series 65 complies with the requirements of a number of European New Approach Directives such as the EMC Directive 89/336/EEC and the Construction Products Directive 89/106/EEC. Visit the Apollo website to view EC certificates of conformity issued by LPCB as a Notified Body. Copies of Declarations of Conformity issued by Apollo for all applicable New Approach Directives are available from Apollo on request.

All Series 65 products will comply with the marking requirements of the WEEE Directive, 2002/96/EC. For further information on disposing of applicable electrical and electronic waste contact Apollo directly.



© Apollo Fire Detectors Ltd 1999 - 2005



INVESTOR IN PEOPLE



Assessed to ISO 9001: 2000
Certificate number 010



36 Brookside Road, Havant, Hampshire PO9 1JR, UK. Tel: +44 (0)23 9249 2412. Fax: +44 (0)23 9249 2754.
Email: sales@apollo-fire.co.uk Website: www.apollo-fire.co.uk

Apollo GmbH, Am Anger 31, 33332 Gütersloh, Germany. Tel: +49 5241 33060. Fax: +49 5241 330629
Air Products and Controls Inc., 1749 E Highwood, Pontiac, MI 48340, USA. Tel: +1 248 332 3900. Fax: +1 248 332 8807