PhD - Non-Addressable Detection range

Data Sheet

The Processor enhanced Detection (PhD) series of non-addressable detectors have been produced using the latest in manufacturing and design techniques, pushing out the boundaries of existing non-addressable detector technology. With an on board microprocessor, it's multitude of enhanced features including drift compensation, provides the best in non-addressable detection.

Features

• Automatic drift compenstation

• Programmable Sensitivity

• Advanced maintenance features via remote hand-held test unit

• Low profile design

• Low current draw

• Wide operating voltage 8 to 30VDC

• Bi-colour LED detector status indicator

• Addressable alarm location feature

• Approved to EN54 part 7 (2000)

• 3 Year warranty

'Drift compensation' algorithms are one of the key features of PhD series detectors. These algorithms ensure a consistent alarm sensitivity threshold for periods between service intervals. This provides the user with maintenance savings by extending the period before cleaning of the detector chamber is required

whilst minimising the risk of nuisance alarms.

The sensitivity of a smoke detector is critical to its overall performance, this is reflected in both its ability to detect real fire conditions and its resilience to non-fire stimuli. A detector's performance can be optimised for it's application by selecting from one of three preset alarm thresholds - Low, Medium and High, offering greater stability and optimum performance within the environment in which it has been installed.

Installation

Each detector can be given a unique address. When used in conjunction with the S300ZDU Zone Display Unit the location of the alarm will be identified.

All the features via the hand-held programming unit are achieved effectively and effortlessly without the need to remove the detector or having to gain direct physical access (other than by the use of servicing poles in conjunction with the S300SAT), saving valuable commissioning/maintenance time.

PhD Non-Addressable Optical Smoke Detector SD-851E

The SD-851E photoelectric smoke detector incorporates an optical chamber which is continually monitored by an on board processor which uses algorithms developed specifically for the unit. An alarm signal is only enabled in the detector once the processor is satisfied that a real fire has been detected thereby reducing the incidence of nuisance alarms.

A variety of detector bases are available providing compatibility with a wide range of Fire Alarm Control Panels making it ideal for expansions and retrofit applications.

The remote hand-held programming tool can also be used in conjunction with the PhD series of detectors to gain access to other enhanced features. The features available include: read/write last maintenance date, read chamber contamination level, read value of thermal element and perform an alarm test.

Specifications

PhD Non-Addressable Optical Smoke Detector SD-851E

Mechanical Specification

- Dimensions
  - Height: 43 mm
  - Diameter: 102 mm
- Weight: 75g
- Max Wire Gauge for Terminals: $0.75mm^2$ to $2.5mm^2$
- Colour: Pantone Warm Grey 1C
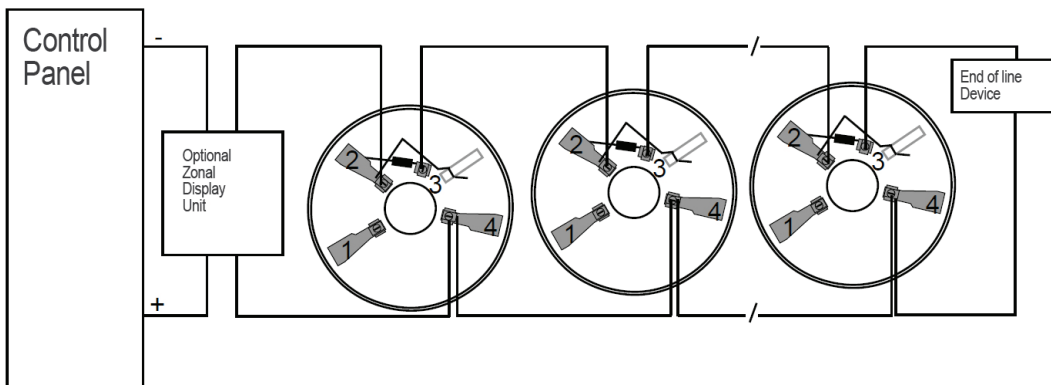- Material: Bayblend FR110

Electrical Specification

- Operating Voltage Range: 8 to 30 Vdc (Nominal 12/24Vdc)
- Current Consumption - Alarm: 50 mA at 24 Vdc (limited by panel)
- Current Consumption - Standby: 20µA at 24 Vdc

Environmental Specifications

- Temperature Range: -30°C to +70°C
- Humidity: 5 to 95% relative humidity (non-condensing)

Wiring Diagram

PhD Non-Addressable Optical and Thermal Multi-Criteria Detector SD-851TE

The SD-851TE photoelectric smoke/ thermal detector incorporates an optical chamber and a thermal element, which in turn are continually monitored by an on board processor by using algorithms developed specifically for the unit.An alarm signal is only enabled in the detector once the processor is satisfied that an actual fire has been detected. By using a combination of inputs, the incidence of nuisance alarms is reduced while at the same time, the response time to an actual fire is also improved.

A variety of detector bases are available providing compatibility with a wide range of Fire Alarm Control Panels making it ideal for expansions and retrofit applications.

The remote hand-held programming tool can also be used in conjunction with the PhD series of detectors to gain access to other enhanced features. The features available include: read/write last maintenance date, read chamber contamination level, read value of thermal element and perform an alarm test.

Specifications

PhD Non-Addressable Optical Thermal Detector SD-851TE

Mechanical Specification

- Dimensions
  Height: 38mm (plus 9mm for B401 base)
  Diameter: 102 mm
- Weight: 105g (plus 60g for B401 base)
- Max Wire Gauge for Terminals: $0.75mm^2$ to $2.5mm^2$
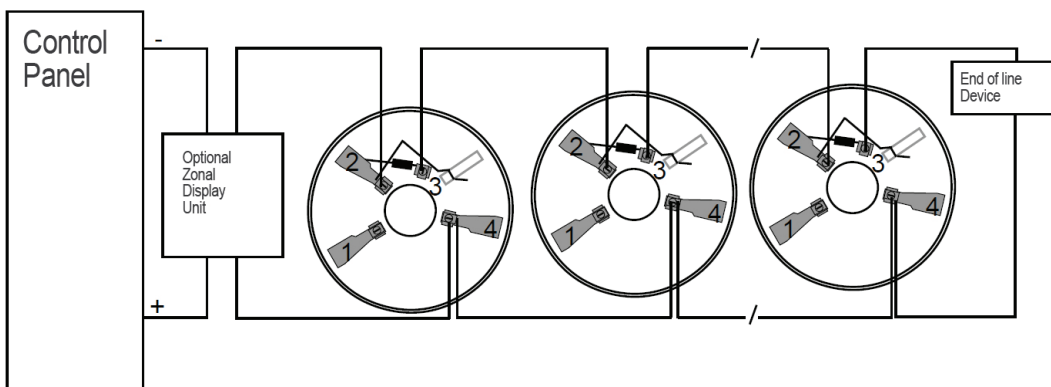- Colour: Pantone Warm Grey 1C
- Material: Bayblend FR110

Electrical Specification

- Operating Voltage Range: 8 to 30 Vdc (Nominal 12/24Vdc)
- Current Consumption - Alarm: 50 mA at 24 Vdc (limited by panel)
- Current Consumption - Standby: 20µA at 24 Vdc

Environmental Specifications

- Temperature Range: -30°C to +70°C
- Humidity: 5 to 95% relative humidity (non-condensing)

Wiring Diagram

PhD Non-Addressable type BS (78°C) fixed heat detector FD-851HTE A

The FD-851HTE thermal detector incorporates the latest in thermal element technology, the detector provides efficient and accurate detection of fires, especially in environments such as boiler houses or kitchens where smoke detectors are inappropriate due to the high level of airborne contamination.

A variety of detector bases are available providing compatibility with a wide range of Fire Alarm Control Panels making it ideal for expansions and retrofit applications.

The remote hand-held programming tool can also be used in conjunction with the PhD series of detectors to gain access to other enhanced features. The features available include: read/write last maintenance date, read chamber contamination level, read value of thermal element and perform an alarm test.

Specifications

PhD Non-Addressable High Temperature Heat Detector
FD-851HTE A

Mechanical Specification

- Dimensions
  - Height: 48mm (plus 9mm for B401 base)
  - Diameter: 102mm
- Weight: 105g (plus 60g for B401 base)
- Max Wire Gauge for Terminals: 0.75mm^2 to 2.5mm^2
- Colour: Pantone Warm Grey 1C
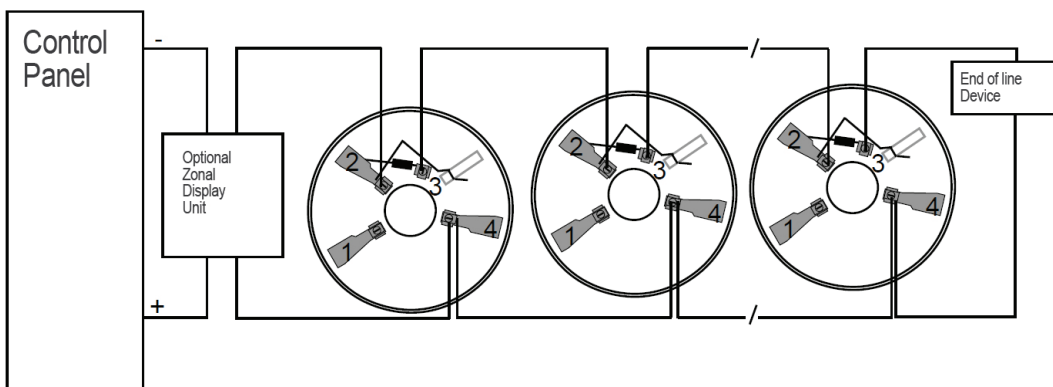- Material: Bayblend FR110

Electrical Specification

- Operating Voltage Range: 8 to 30 Vdc (Nominal 12/24Vdc)
- Typical Stadby Current: 60μA @ 24Vdc (LED no blink)
- Maximum Alarm Current: 80mA @ 24Vdc (Limited by panel)

Environmental Specifications

- Temperature Range: -30°C to +70°C
- Humidity: 5 to 95% relative humidity (non-condensing)

Wiring Diagram

PhD Non-Addressable type A1R (58°C) rate of rise heat detector FD-851RE A

The FD-851RE thermal detector incorporates the latest in thermal element technology, the detector provides efficient and accurate detection of fires, especially in environments such as boiler houses or kitchens where smoke detectors are inappropriate due to the high level of airborne contamination.

A variety of detector bases are available providing compatibility with a wide range of Fire Alarm Control Panels making it ideal for expansions and retrofit applications.

The remote hand-held programming tool can also be used in conjunction with the PhD series of detectors to gain access to other enhanced features. The features available include: read/write last maintenance date, read chamber contamination level, read value of thermal element and perform an alarm test.

Specifications

PhD Non-Addressable Rate-of-Rise Heat Detector FD-851RE A

Mechanical Specification

- Dimensions
    - Height: 43 mm
    - Diameter: 102 mm
- Weight: 75g
- Max Wire Gauge for Terminals: $0.75mm^2$ to $2.5mm^2$
- Colour: Pantone Warm Grey 1C
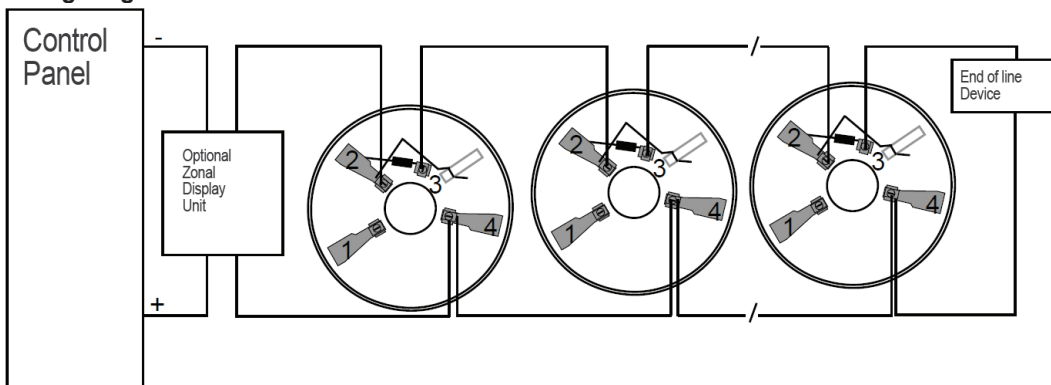- Material: Bayblend FR110

Electrical Specification

- Operating Voltage Range: 8 to 30 Vdc (Nominal 12/24Vdc)
- Current Consumption - Alarm: 50 mA at 24 Vdc (limited by panel)
- Current Consumption - Standby: 20µA at 24 Vdc

Environmental Specifications

- Temperature Range: -30°C to +70°C
- Humidity: 5 to 95% relative humidity (non-condensing)

Wiring Diagram

PhD Zonal Display Unit S300ZDU

The S300ZDU is a wall mounted module that connects directly between the Fire Control Panel and PhD Series detectors on each detector circuit. Due to the advanced nature of the PhD range, when a detector goes into an alarm condition it transmits a numeric address to the S300ZDU. The S300ZDU displays the detectors' numeric address on its 4 digit LCD display. In the event that more than one detector on the same zone goes into alarm, the S300ZDU will scroll through all of the appropriate addresses.

This unique feature differentiates PhD from all other non-addressable fire alarm systems, providing quick and accurate information about the location of the fire.

The S300ZDU also has the ability to display short circuit wiring fault conditions, helping to increase the integrity of the Fire Alarm System.

Specifications

PhD Zonal Display Unit S300ZDU

Mechanical Specification

- Dimensions
    Height: 132 mm
    Width: 137 mm
    Depth: 40 mm
- Weight: 170 g
- Max Wire Gauge for Terminals: $0.4mm^2$ to $2.0mm^2$
- Colour: Pantone Warm Grey 1C
- Material: Bayblend FR110

Electrical Specification

- Operating Voltage: 15 to 29Vdc
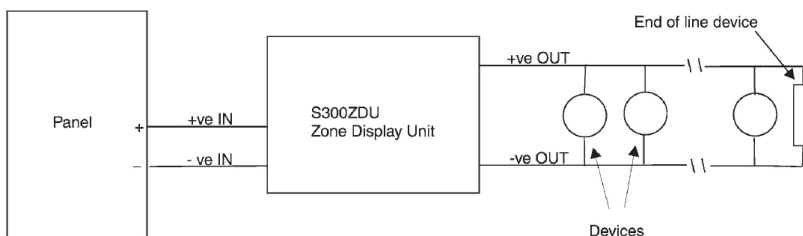- Maximum average current: 100µA - excluding detector current

Environmental Specifications

- Temperature Range: -10°C to +50°C
- Humidity: 5 to 95% relative humidity (non-condensing)

Display Details

- A 01   The detector number 01 is in alarm.
- A 01   The detector number 01 is the first detector to indicate an alarm
- A --   The Zonal Display latched an alarm but was unable to recognise the device address.
- F SC   Short Circuit detected.
- F CA   Panel or wiring critical failure.

Wiring Diagram

Product Range at a Glance

	Description	Part Number
	PhD low profile 800 Series non-addressable optical smoke detector with a programmable feature set, removable cover, insect screen, laser test and device status transmission to hand held programmer.	SD-851E
	PhD low profile 800 Series non-addressable optical and thermal multi-criteria smoke detector with a programmable feature set, removable cover, insect screen, laser test and device status transmission to hand held programmer.	SD-851TE
	PhD low profile 800 Series non-addressable type BS (78°C) fixed heat detector with a programmable feature set, removable cover, laser test and device status transmission to hand held programmer.	FD-851HTE A
	PhD low profile 800 Series non-addressable type A1R (58°C) rate of rise heat detector with a programmable feature set, removable cover, laser test and device status transmission to hand held programmer.	FD-851RE A
	Detector mounting base. For non-addressable PhD and I.S. detectors.	B401
	Detector mounting base fitted with schottky diode (BS5839 Pt.1 installations).	B401 SD
	Detector mounting base fitted with 470R resistor.	B401R
	Relay mounting base for use with the PhD series detectors. 24Vdc latching	B324RL
	PhD remote hand held programming tool. Enables the user to read / write sensitivity settings, read / write service date, select / read blink / no blink option, read manufacture date, perform alarm test, read optical chamber drift compensation value, read real time chamber value and / or thermal sensing element value, read device type and set / read device address.	S300RPTU
	PhD remote laser tester	S300RTU
	PhD satellite programming station for use with the S300RPTU when the device is installed beyond the range of the S300RPTU	S300SAT
	PhD zone address unit. Placed at the zone entrance, will display addresses of PhD detectors in alarm. Zone powered.	S300ZDU

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