

PERTRONIC INDUSTRIES LTD

DATASHEET

Fireray One Beam Detector



Overview

With no specialist tools or knowledge needed for installation and operation, the Fireray One is a standalone beam detector that prioritises ease of installation.

- Auto-Aligns – just steer the laser onto the Reflector, then at the flick of a switch, it aligns itself eight times faster than previous detectors
- One person installation
- May also be powered from the analogue loop through the Pertronic Loop Interface (FRLI) in combination with the M210EA-CZR module. (Ordered separately) A 470R ohm resistor is required for the alarm, and a 3k9 resistor for the EOL (ordered separately)



FRONE - Fireray One Beam Detector
(with 50m range reflector)

Features

- » A standalone beam detector with all the benefits of Fireray Reflective beam detection
- » Single point of wiring and commissioning
- » Building Movement Tracking automatically compensates for natural building movement to continuously maintain alignment
- » Integrated user interface - Alignment mode switch, alignment directional buttons and configuration switches for setting the alarm response threshold
- » Alignment status indication - 2 Green LEDs and 1 Yellow LED
- » System status indication:
 - Normal operation – Green LED flashing every 10 seconds
 - Alarm condition – Red LED flashing every 5 seconds
 - Fault condition – Yellow LED flashing every 10 seconds for obscuration or every 5 seconds for contamination
- » Cleaning - Flat front face with enclosed optics. Cleaning the optics does not affect alignment

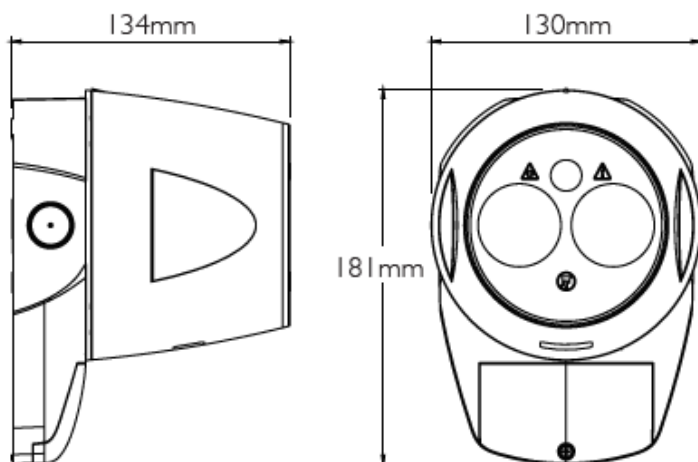
Specification

Detection Performance	
Detection Range	0 to 50m 0 to 120m with Reflective Long Range Kit
Alignment method	Laser assisted, Auto-Alignment™. Manual alignment – optional setting
Auto-Alignment™ protocol	Background check, Box search, Adjust and Centre
Building Movement Tracking™	Compensates for natural shifts in alignment from building movement*
Contamination Compensation	Compensates for gradual build-up of contamination on the optical surfaces
Light Cancellation Technology™	Compensates for high levels of sunlight and artificial lighting
Optical wavelength – smoke detection	850nm near infrared (invisible)
Integrated laser – laser alignment	650nm visible. Class 3R <5mW
Dynamic Beam Phasing	Allows beam detectors to be mounted facing each other with the reflectors in the middle. Eliminates false alarms caused by crosstalk between beams
Signal output	Individual Alarm and Fault relays (VFCO) 0.5A @ 30 VDC
Programmable user settings	
Alarm response threshold levels	25% (1.25dB) – Fastest response to smoke 35% (1.87dB) – Default value 55% (3.46dB) – High immunity to false alarms, slow response to smoke 85% (8.23dB) – Highest immunity to false alarms, slowest response to smoke Configured via the integrated user interface
Delay to Alarm	10 seconds, for momentary partial obstruction of the beam path
Delay to Fault	10 seconds, for momentary obstruction of the beam path
Design parameters	
Separation distance between Detector and Reflector	5 to 50m 50 to 120m with Reflective Long Range Kit

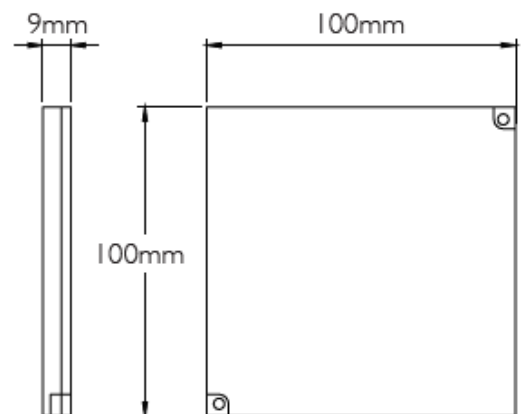
Beam path clearance	1m in diameter from centre line between Detector and Reflector
Detector dimensions	Width 130mm x Height 181mm x Depth 134mm
Reflector dimensions	Up to 50m separation distance – Single reflector 100mm x 100mm x 9mm
	Up to 120m separation distance – Four reflectors arranged in a square pattern 200mm x 200mm x 9mm
Product weight	Detector – 0.7kg; Reflector – 0.1kg
Housing colour	White RAL9016, UV stable
Electrical specifications	
Operating voltage	14 to 36 VDC
Operating current (constant) all operational modes	All operational modes – 5mA; Fast alignment mode – 33mA
Field wiring	
Cable gauge and type	2 core, dedicated, 0.5 to 1.6mm (24 to 14 AWG) System compatible with fireproof and non-fireproof cable meeting local installation standards
Cable entry	Knock-out locations capable of accepting M20, ½" or ¾" glands 4 drill-out locations capable of accepting glands up to 21mm diameter
Test and maintenance	
Environmental specifications	
Operating temperature	-20 to +55°C
Storage temperature	-40 to +85°C
Relative humidity	(non-condensing or icing): 0 to 93%
IP rating	IP55
Housing flammability rating	UL94 V0 polycarbonate
Optical specifications	
Fault level / Rapid obscuration ($\Delta \leq 2$ seconds)	$\geq 85\%$
Maximum angular alignment of Reflective Detector	$\pm 4.5^\circ$ ($\pm 70^\circ$ with adjustment bracket accessory)
Maximum angular misalignment of Reflective Detector	$\pm 0.5^\circ$
Maximum angular misalignment of Reflector	$\pm 5^\circ$

Dimensions

Fireray One



Reflector



Ordering Information

Analogue Addressable Kit		
Product Code	Description	FPANZ Listing
FRONE	Fireray One - (includes 1 Reflector for up to 50m detection range)	PI/375
FRLRK	Fireray Long Range Reflector Kit (3 additional reflectors) For 50m to 120m range	
FRLI	Fireray Loop Interface board to connect to M210EA-CZR	
M210EA-CZR	Analogue Addressable Interface Module	PI/672
M200E-SMB	Box to house FRLI and M210EA-CZR. To be mounted beside Fireray One	N/A
RESFR163K9	3k9 Resistor for EOL. To be terminated at the Fireray One	N/A
REMRS25470R	470R Resistor for Alarm. To be terminated at the Fireray One	N/A
FRTST	Test Filter. Graduated to test from 0% to 100% obscuration	N/A

Conventional Zone Kit		
Product Code	Description	FPANZ Listing
FRONE	Fireray One - (includes 1 Reflector for up to 50m detection range)	PI/375
FRLRK	Fireray Long Range Reflector Kit (3 additional reflectors) For 50m to 120m range	
FRCZI	Fireray Conventional Zone Interface board to connect to Fireray One	Pending
FRTST	Test Filter. Graduated to test from 0% to 100% obscuration	N/A

Additional Accessories	
Product Code	Description
FRDAB	Detector Adjustment Bracket
FRPRC	Protective Cage
FRSBB	Surface Black Box
FRACH	Anti-Condensation Heater

The information in this document must not be treated as partial or complete instructions for the design, construction, installation, commissioning, or maintenance of fire detection, fire alarm, or building evacuation systems. Fire and evacuation systems must be designed and installed by properly qualified persons, in accordance with all regulatory requirements.

Unless explicitly stated otherwise, this document provides typical specifications and nominal dimensions. Actual product performance and dimensions may vary. All information in this document is subject to change. Please consult Pertronic Industries or visit our web site for up to date information.

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