

FRAY-ONE-UL Linear beam detector, standalone



- ▶ Integrated control unit
- ▶ Auto-Alignment with motorized detector head
- ▶ Light Cancellation Technology
- ▶ Building Movement Tracking
- ▶ Detection range up to 393 ft

The FRAY-ONE-UL is an easy to mount and cost-effective retro-reflective linear beam detector. It covers distances between 16 ft - 393 ft. A reflective prism allows for the accurate detection of smoke particles within the given distance range.

For ranges between 16 ft and 164 ft, one prism is sufficient. For ranges between 164 ft - 393 ft, four prisms are required. The additional prisms are included in the FRAY5000-LR-KIT.

Key application areas are large halls such as historical buildings, churches, museums, shopping centers, factory halls, warehouses, etc.

The FRAY-ONE-UL is suitable for use in areas where point-type detectors are not effective.

Functions

Detection performance

- Detection range: 0 to 164 ft or 0 to 393 ft with Reflective Long Range Kit
- Alignment method: Laser assisted, Auto-Alignment™. Manual alignment - optional setting
- Auto-Alignment™ protocol: Background check, Box search, Adjust and Center
- 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 IIIa <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 (dry contact) 0.5A @ 30 VDC

Programmable user settings

- Alarm response threshold levels:
 - 25% - <25 ft
 - 25%, 35% - 25 ft - 55 ft
 - 35%, 55% - 55 ft - 110 ft
 - 55%, 85% - 175 ft - 393 ft
- 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

User features

- Integrated user interface: Alignment mode switch, alignment directional buttons and configuration switches for 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 10 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.

Design parameters

- Beam path clearance: 3.2 ft in diameter from center line between detector and reflector
- Detector location: Within the ceiling jet flow (top 10% of the floor to ceiling height) unless otherwise stipulated

Field wiring

- Cable gauge and type:
 - 3 conductor, dedicated, 22-14 AWG
 - System compatible with fireproof and non-fire-proof cable meeting local installation standards
- Cable entry:
 - 3 knock-out locations capable of accepting M20, 12.7 mm or 19 mm glands
 - 4 drill-out locations capable of accepting glands up to 21 mm diameter

Certifications and approvals

Region	Regulatory compliance/quality marks	
United Arab Emirates	UL	Fireray One_UAE_Certificate of Compliance
USA	UL	Fireray One UL Cert of Compliance (1)
	CSFM	California State Fire Marshal

Parts included

Quantity	Component
1	FRAY-ONE-UL base
1	FRAY-ONE-UL detector head
1	Reflector
1	Short range mask

Technical specifications

Electrical

Auxiliary current (mA)	4.5 mA – 5.5 mA
Auxiliary current - Alignment modes (mA)	31 mA - 35 mA
Operating voltage (VDC)	14 VDC – 36 VDC

Environmental

Operating relative humidity, non-condensing (%)	0% – 93%
Operating temperature (°F)	-4 °F – 131 °F

Storage temperature (°F)	-40 °F – 185 °F
Weather rating (IEC 60529)	IP55

Mechanical

i Notice

The detector is installed and mounted to a single or double gang electrical box.

Weight (lb)	1.54 lb
Weight reflector (lb)	0.22
Color in RAL	RAL 9016 Traffic white
Dimension (H x W x D) (in)	7.12 in. x 5.11 in. x 5.27 in.
Dimension reflector (HxWxD) (ft)	Up to 164 ft separation distance - 1 prism: 3.9 in x 3.9 in x 0.35 in Up to 393 ft separation distance - 4 prisms: Four reflectors 7.87 in x 7.87 in x 0.35 in
Lateral spacing between detectors	60 ft maximum as per NFPA 72
LED color	Red; Yellow; Green
Material	Plastic (UL94 V0)

Optical

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	$\pm 5^\circ$

Ordering information

FRAY-ONE-UL Linear beam detector, standalone

Reflective linear beam detector with one prism, range 16.40 ft - 393 ft.
Order number **FRAY-ONE-UL | F.01U.400.534**

Accessories

FRAY5000-BR Universal bracket

Universal bracket
Order number **FRAY5000-BR | F.01U.098.240**

FRAY5000-1PRISM Prism plate, 1 prism

prism plate for 1 prism, for use with universal bracket
FRAY5000-BR

Order number **FRAY5000-1PRISM | F.01U.098.242**

FRAY5000-4PRISM Prism plate, 4 prisms

prism plate for 4 prisms, for use with universal bracket
FRAY5000-BR

Order number **FRAY5000-4PRISM | F.01U.098.241**

FRAY5000-LR-KIT Extension kit, long-range

3 additional prisms

Order number **FRAY5000-LR-KIT | F.01U.083.264**

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