

# D297 12 V Projected Beam Smoke Detector

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- ▶ Operates over distances between 30 ft (9 m) and 350 ft (107 m)
- ▶ Six levels of switch-selectable sensitivity
- ▶ Built-in alignment sights and tamper protection
- ▶ Automatic range adjustment, signal synchronization, and contamination adjustment
- ▶ Remote indicator plate annunciates detector status and provides test points for voltage monitoring

The D297 12 V Projected Beam Smoke Detector is used in clear open structures such as arenas, atriums, auditoriums, ballrooms, churches, factories, museums, and warehouses. Each detector consists of a transmitter, a receiver, and a remote indicator plate. Because the transmitter and receiver typically mount on the ceiling or high on walls or columns, they provide an effective and unobtrusive means of supervising public areas for fire protection. The D306 Remote Indicator Plate, included with the D297, provides a convenient means of verifying detector status. Install it anywhere within 500 ft (152 m) of the beam receiver (when using 18 AWG [0.75 mm<sup>2</sup>] wire). The indicator plate has three LEDs to indicate normal, trouble, and alarm conditions, and test points to monitor the detector circuit.

## Functions

### Aim Mode

When the cover is removed from the receiver, the receiver goes into aim mode. When the cover is removed from the transmitter, the transmitter stops transmitting. Pressing the Aim Mode button on the transmitter allows transmission while the cover is off.

For fine tuning which requires a measurable voltage at the receiver, the covers must be off and transmission is necessary.

### Alarm Operation

The transmitter emits a pulsed infrared beam. The receiver measures the intensity of the beam over a period of time and compares this data with an alarm threshold. Select one of six levels of sensitivity for the alarm threshold through a switch on the receiver. If the receiver senses signal strength below the preset alarm threshold in excess of the alarm period it signals an alarm.

### Signal Loss Compensation

The receiver automatically compensates for the gradual loss of signal due to dust and dirt build-up on the cover. The receiver measures the intensity of the pulsed infrared beam emitted by the transmitter over a period of time and compares this data with a preset trouble threshold. When 50% of the signal is lost, the receiver sends a trouble signal to the control panel. When the dust and dirt build-up is cleaned or the blockage is removed, the detector automatically resets.

**Tamper Detection**

If the covers to the transmitter or receiver are removed, the detector sends a trouble signal to the control panel.

**Trouble Detection**

The receiver measures the intensity of the pulsed infrared beam emitted by the transmitter over a period of time and compares this data with a preset trouble threshold. When 90% or more of the signal is lost for more than 20 seconds, as might happen if an object blocked the beam, the receiver sends a trouble signal to the control panel.

**Certifications and approvals**

Region	Certification	
USA	UL	UROX: Smoke - Automatic Fire Detectors (UL268 and A), UROX7: Smoke - Automatic Fire Detectors Certified for Canada (ULC529)
	FM	D297
	CSFM	see our website
Hong Kong	HKFSD	J-005/C/024

**Installation/configuration notes****Mounting Considerations**

The transmitter and receiver mount on standard 3.5-inch or 4-inch square or octagonal back boxes or European Beza boxes. The indicator plate mounts on a standard single-gang back box.

The distance between the transmitter and receiver can range from 30 ft (9 m) to 350 ft (107 m). When using 18 AWG (ISO 0.75 mm<sup>2</sup>) wire within conduit, the indicator plate must be within 500 ft (152 m) of the receiver.

Mount the detectors directly to the ceiling or to side walls. Do not mount the units so that the beam runs closer than 4 in. (10.2 cm) to the intersection of the wall and the ceiling. Otherwise, place and space the detectors according to NFPA 72.

**i Notice**

The beam path should be clear of moving objects. Avoid areas subject to normal smoke concentrations such as kitchens and garages. Do not install units where normal ambient temperatures are below -22°F (-30°C) or above +130°F (+54°C).

**Lateral Spacing between Systems**

For adequate coverage, the lateral spacing between adjacent detector systems must not exceed 60 ft (18 m).

**Wiring**

System wire terminals accept 18 AWG to 12 AWG (ISO 0.75 mm<sup>2</sup> to 4 mm<sup>2</sup>) solid wires.

**Parts included**

Quant.	Component
1	D297 Transmitter
1	D297 Receiver
1	D306 Remote Indicator Plate with 3 ft (1 m) cable
1	D1005 Test Cable
1	Hardware Pack
1	Literature Pack

**Technical specifications****Electrical****D297**

Current (alarm):	Receiver: 75 mA. Transmitter: 20 mA
Current (standby):	Receiver: 50 mA, Transmitter: 20 mA
Voltage (operating):	10.2 VDC to 15 VDC

**D306 and D307**

Current (alarm):	15 mA at 24 VDC
Current (standby):	5 mA at 24 VDC
Voltage (operating):	10 VDC to 32 VDC

**Environmental**

Relative Humidity:	0% to 95%, non-condensing
Temperature (ambient):	-22°F to +130°F (-30°C to +54°C) For UL Listed installations, +32°F to +100°F (0°C to +38°C)

**Mechanical****Enclosure Design**

Dimensions (H x W x D):	7 in. x 5.5 in. x 5.5 in. (17.8 cm x 14 cm x 14 cm)
Transmission Range:	30 ft (9 m) to 350 ft (107 m)

**Ordering information****D297 12 V Projected Beam Smoke Detector**

The D297 (12 V) provides an effective and unobtrusive means of supervising public areas for fire protection. It consists of a transmitter and a receiver that typically mount on the ceiling or high on walls or columns and a remote annunciation plate that mounts at eye level. Order number **D297**

**Accessories****D306 Remote Indicator Plate**

Used with the D296/D297 Long-Range Beam Smoke Detectors and the D340 Series Duct Smoke Detector Housings. Order number **D306**

**D307 Remote Test and Indicator Plate**

Used with the D296 and D297 Long-Range Beam Smoke Detectors and the D340 Series Duct Smoke Detector Housings  
Order number **D307**

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**D308 Field Test Kit**

Allows testing the calibration of the D296 and D297 Beam Smoke Detectors  
Order number **D308**

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**D309 Alignment Strobe**

A flashing strobe light intended for use with the D296 and D297 Beam Smoke Detectors  
Order number **D309**

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**Represented by:**

**Americas:**

Bosch Security Systems, Inc.  
130 Perinton Parkway  
Fairport, New York, 14450, USA  
Phone: +1 800 289 0096  
Fax: +1 585 223 9180  
security.sales@us.bosch.com  
www.boschsecurity.us

**Europe, Middle East, Africa:**

Bosch Security Systems B.V.  
P.O. Box 80002  
5617 BA Eindhoven, The Netherlands  
Phone: + 31 40 2577 284  
Fax: +31 40 2577 330  
emea.securitysystems@bosch.com  
www.boschsecurity.com

**Asia-Pacific:**

Robert Bosch (SEA) Pte Ltd, Security Systems  
11 Bishan Street 21  
Singapore 573943  
Phone: +65 6571 2808  
Fax: +65 6571 2699  
apr.securitysystems@bosch.com  
www.boschsecurity.asia

**China:**

Bosch (Shanghai) Security Systems Ltd.  
201 Building, No. 333 Fuquan Road  
North IBP  
Changning District, Shanghai  
200335 China  
Phone +86 21 22181111  
Fax: +86 21 22182398  
www.boschsecurity.com.cn

**America Latina:**

Robert Bosch Ltda Security Systems Division  
Via Anhanguera, Km 98  
CEP 13065-900  
Campinas, Sao Paulo, Brazil  
Phone: +55 19 2103 2860  
Fax: +55 19 2103 2862  
latam.boschsecurity@bosch.com  
www.boschsecurity.com