

D287/D288/D292/D293A/D293E



Fire Systems

EN | Installation Instructions  
Smoke Detector Bases

**BOSCH**

## 1.0 Overview

The D287/D288/D292/D293A/D293E Smoke Detector Bases are designed for use with the D286 Ionization Smoke Detector, D285/D285TH Photoelectric Smoke Detectors, and D603/D604/D605 Heat Detectors. Install these bases according to the National Fire Alarm Code, NFPA 72.

Before installing a smoke detector base, read and understand this and the following documents to ensure proper system operation:

- *D285/D285TH Installation Instructions* (P/N: 32029)
- *D286 Installation Instructions* (P/N: 32035)
- *D603/D604/D605 Installation Instructions* (P/N: 45570)
- NFPA Standard 72

This document covers only the information necessary to mount and wire the bases. Other information is available from:

- Two-wire compatibility information in the *Technical Service Note: Two-Wire Smoke Detector Compatibility* (P/N: 31866).
- Installation guidelines in the *Technical Service Note: Smoke Detector Installation Considerations* (P/N: 31347).
- Information about power requirements, testing, and maintenance in the *D285/D285TH Installation Instructions* (PN: 32029), *D286 Installation Instructions* (PN: 32035), and *D603/D604/D605 Installation Instructions* (PN: 45570).
  - D287 Base only, two-wire
  - D288 Base only, two-wire, wide diameter
  - D292 Base only, four-wire
  - D293A Base only, four-wire, Form “C” Auxiliary relay
  - D293E Base only for power supervision, four-wire, end-of-line (EOL) relay, Normally Open (N/O) auxiliary relay
  - D293S Base only, four-wire with sounder
  - D275 EOL supervision module for four-wire systems

“A” is the Underwriters Laboratories, Inc. (UL) compatibility identifier for the D286, D285/D285TH, D603/D604/D605 Smoke Detectors. To determine the identifier used with the D287, refer to the *Technical Service Note: Two-Wire Smoke Detector Compatibility* (P/N: 31866).

### Detector Power Requirements

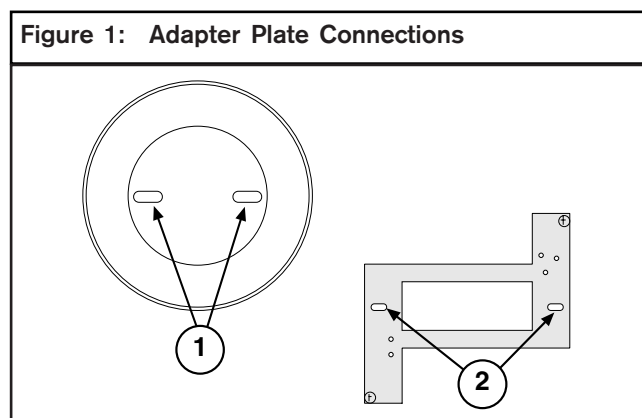
- Standby voltage: Two-wire. 8.5 VDC to 33.0 VDC  
Four-wire 10 VDC to 30 VDC

### Alarm Current

- Two-wire. Dependent on the control panel that must limit the alarm current to 100 mA maximum.
- Four-wire
  - D292: 52 mA at 12 VDC  
54 mA at 24 VDC  
(70 mA maximum at 30 VDC)
  - D293A: 58 mA at 12 VDC  
62 mA at 24 VDC  
(75 mA maximum at 30 VDC)
  - D293E: 82 mA at 12 VDC  
86 mA at 24 VDC  
(100 mA maximum at 30 VDC)
  - D293S: 52 mA at 12 VDC  
54 mA at 24 VDC  
Sounder 15 mA at 12 VDC, 25 mA at 24 VDC

## 2.0 Mounting

1. Select mounting locations based on the *Technical Service Note: Smoke Detector Installation Considerations* (P/N: 31347).
2. Pre-run all system wiring to the base locations.
3. Mount the base using the two oblong mounting holes.
4. Tighten the base to the mounting surface.
5. If mounting to 4 in. (10 cm) square boxes, use the adapter plate. First, mount the adapter plate to the box, then mount the base to the adapter plate and box using the oblong mounting holes. Refer to *Figure 1*.



- 1 - Adapter plate mounting holes (2)  
 2 - Base to adapter plate mounting holes (2)

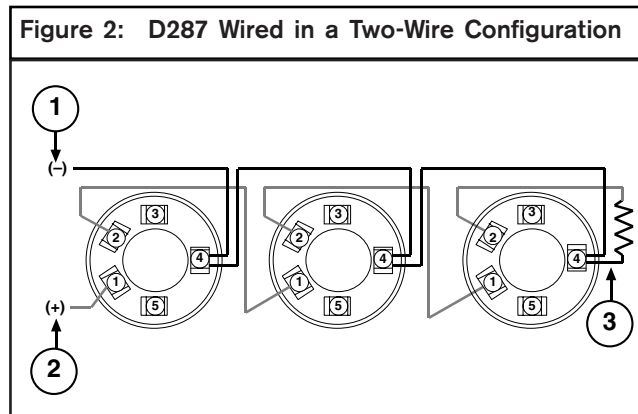
Depending on local regulations, the bases might be surface mounted using anchors, mollies, or wing nuts. The bases might also be directly mounted to 4 in. (10 cm) octagonal electrical boxes or single gang switch boxes.

Ensure the volume of any electrical box you use accommodates the number and size of conductors as specified by the National Electrical Code (NEC) or any local regulations having jurisdiction.

6. Review *Section 3.0 Two-Wire Detector Wiring* and *Section 4.0 Four-Wire Detector Wiring* on page 4 for wiring information.
7. Connect the wiring to the bases.

## 3.0 Two-Wire Detector Wiring

Refer to *Figure 2* and *Table 1* for the D287 and D288 terminal functions.



- 1 - Two-wire loop  
 2 - Compatible  
 3 - EOL resistor

**Table 1: Terminal Functions**

Terminal	Function
1	Alarm loop positive (+) IN
2	Alarm loop positive (+) OUT
3	Remote LED output
4	Alarm loop negative (-)
5	No connection

## 4.0 Four-Wire Detector Wiring

### 4.1 Terminal Connections

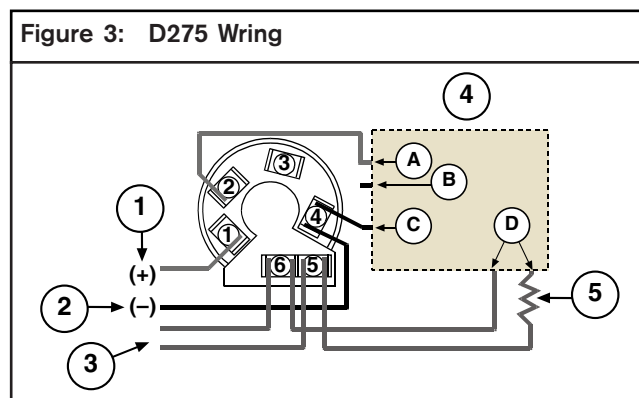
Do not twist wires or loop the wires around terminals. Cut, strip, and insert the In/Out wires as individual ends for terminal connection.

### 4.2 EOL Resistors

Use the EOL resistors supplied or ones specified by the control panel manufacturer. This includes EOL resistors used with the D275 Module.

### 4.3 D275 Power Supervision Relay

Refer to *Figure 3* for the D275 wiring.



- 1 - Smoke
- 2 - Power
- 3 - Alarm loop
- 4 - EOL power supervision module  
A = Red [+12 V], B = Yellow wire [+24 V],  
C = Black wire [-], D = Blue wires
- 5 - EOL resistor

When using the D275 with 12 VDC systems, connect the red wire to Terminal 2 on the last base in the run. The yellow wire remains unconnected.

When using the D275 with 24 VDC systems, connect the yellow wire to Terminal 2 on the last base in the run. The red wire remains unconnected.

Use one D275 per loop with the D292 and D293A.

### 4.4 Terminal Functions

Refer to *Table 2* and *Figures 4* through *6* for the D292 and D293A terminal functions.

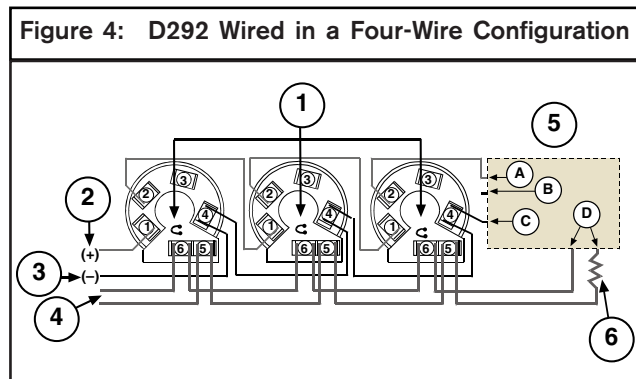
Terminal	Function
1	DC power (+) IN (No connection for D293E)
2	DC power (+) OUT (DC power [+] IN for D293E)
3	Remote LED output
4	DC power negative (-)
5	Alarm loop (N/O)
6	Alarm loop (C)



When operating the D292, D293A, or D293E in a 24 VDC system, cut the yellow voltage jumpers on each base.

### 4.5 D292

Refer to *Figure 4* for the D292 wiring.

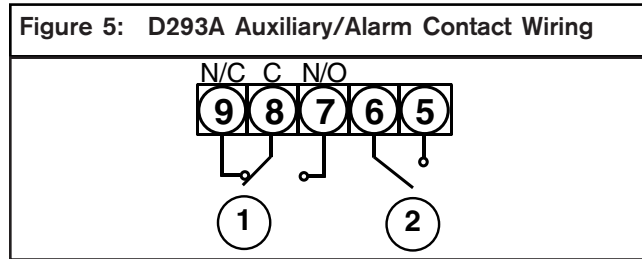


- 1 - Cut loop for 24 VDC
- 2 - Smoke
- 3 - Power
- 4 - Alarm loop
- 5 - EOL power supervision module  
A = Red [+12 V], B = Yellow wire [+24 V],  
C = Black wire [-], D = Blue wires
- 6 - EOL resistor

The D292 is the standard smoke detector base used in four-wire configurations. The Alarm Loop relay (Terminals 5 and 6) is a N/O relay rated at 10 W, 0.5 A at 100 VDC. The relay closes on alarm.

### 4.6 D293A

Refer to *Figure 5* for the D293A wiring.



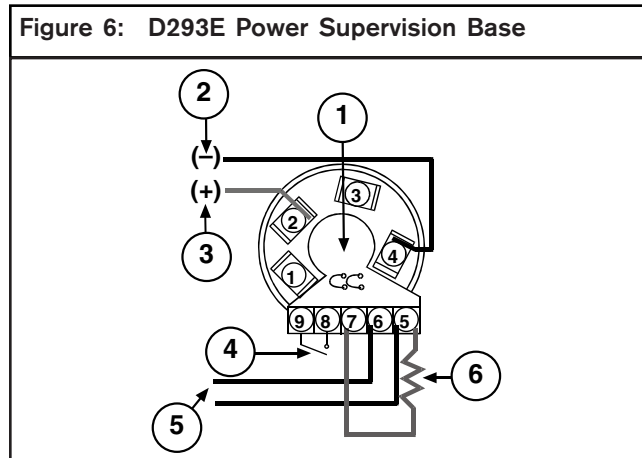
- 1 - Form "C" auxiliary
- 2 - N/O alarm

The D293A provides a N/O Alarm Loop relay and an auxiliary set of Form "C" (NC/C/NO) contacts. The contacts are rated at 62.5 VA, 0.5 A at 125 VAC and at 30 W, 1.0 A at 30 VDC for resistive loads.

Do not use the D293A with inductive or capacitive loads.

### 4.7 D293E Power Supervision Base

Refer to *Figure 6* for the D293E wiring.



- 1 - Cut loop for 24 VDC
- 2 - Smoke
- 3 - Power
- 4 - Alarm loop
- 5 - N/O auxiliary
- 6 - EOL resistor

The D293E provides a N/O Alarm Loop relay and an auxiliary set of N/O contacts. The contacts are rated at 62.5 VA, 0.5 A at 125 VAC, and at 30 W, 1.0 A at 30 VDC for resistive loads.

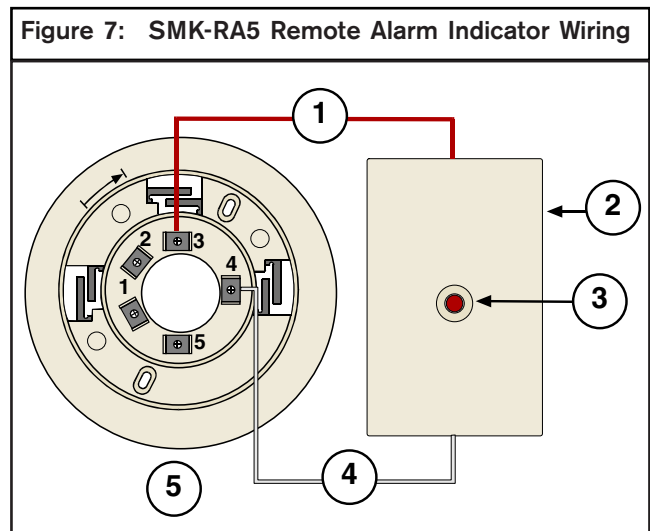
Do not use the D293E with inductive or capacitive loads.

The D293E also provides EOL power supervision using a built-in relay. This eliminates the need for separate power supervision devices such as the D275. Only use one D293E base per zone run; it must be the last base on the run.

The EOL relay is rated at 10 W, 0.5 A at 100 VDC for resistive loads.

### 4.8 Remote Alarm Indicator

Using the SMK-RA5 Alarm Indicator, connect the positive (Item 1 in *Figure 7*) lead to Terminal 3 and the negative lead (Item 4 in *Figure 7*) to Terminal 4.



- 1 - Red wire
- 2 - SMK-RA5 Annunciator
- 3 - Alarm
- 4 - White wire
- 5 - Two-wire detector base

## Notes

## Notes

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