Addressable Bases

D298M, D298S, D278S

BOSCH

en Installation Guide

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1 Notices

Install, test, and maintain the D298M according to these instructions, NFPA 72 standards, local codes, and the Authority Having Jurisdiction (AHJ) in your area.

Caution!

Failure to follow these instructions can cause the failure of the detector to indicate an alarm. Bosch is not responsible for improperly installed, tested, or maintained detectors.

2 System overview

These instructions cover installing the D298M (24 V), D298S (24 V), and D278S (12 V) Addressable Bases in an addressable system controlled by a G Series control panel (D9412G/ D7412G or later) 12 V Fire Alarm Control Panel (FACP) with a D8125 POPEX Module and 24 V auxiliary power[1] provided by a UL 1481 regulated power-limited power supply, or a D9124 24 V FACP.

The D298M base provides individual addresses on the FACP data expansion circuit and accepts:

- D263 and D263TH Photoelectric Smoke Detectors
- D287 and D288 Smoke Detector Bases, with the following detectors:
  - D285 and D285TH Photoelectric Smoke Detectors
  - D286 Ionization Smoke Detector
  - D603, D604, and D605 Heat Detectors

When used with the D285 Series Detectors, the D298M base indicates chamber check trouble to the control panel through the POPIT bus. The chamber check trouble indication appears on the control stations as a fire trouble.

The D298M base also provides connection points for supervised circuits with up to 19 two-wire conventional detectors reporting to the D298M's address. When the D298M base is combined with a PAM-4 Relay Module, one Form "C" output (normally open [NO]/common [C]/ normally closed [NC]) provides auxiliary functions such as recalling an elevator or closing fire doors.

The D298S and D278S bases have a built-in POPIT to provide individual addresses on the FACP data expansion circuit. These bases accept:

- D285 and D285TH Photoelectric Smoke Detectors
- D286 Ionization Smoke Detector
- D603, D604, and D605 Heat Detectors

[1] Depending on the current requirements of the application for the D278S base, power can be provided by the FACP or by a UL 1481 regulated power-limited auxiliary power supply

3 Mounting

Notice!
Ensure that the electrical box is large enough for the number and size of conductors specified by these instructions, the National Electrical Code (NEC), and any local regulations having jurisdiction.

Item references are to Figure 3.1 below.

1. Select a proper mounting location according to the instructions in the Smoke Detectors Technical Service Note (P/N: 31347).
2. Run all system wiring to the base location.
3. Mount the base (Item 1) using the two oblong mounting holes (Item 4). Tighten the base to the mounting surface.
4. If you mount the base to four-inch square boxes, use the adapter plate (Item 2):
1. Mount the adapter plate to the box by screwing two 6-32 x 1-in. self-threading screws (not supplied) through the adapter mounting holes (Item 3).
2. Mount the base to the adapter plate and box using the oblong mounting holes (Item 4).

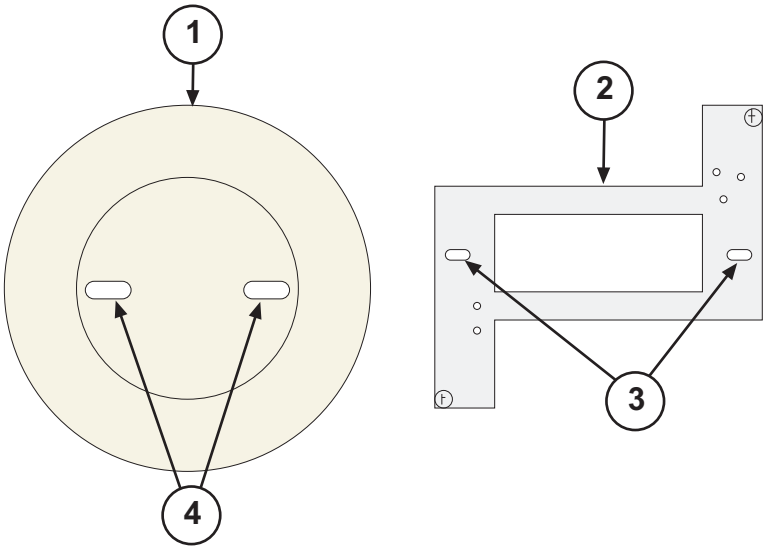


Figure 3.1: Adapter Plate Connections

1	Addressable Base	3	Plate to box mounting holes (2)
2	Adapter plate	4	Base mounting holes (2)

4 Wiring

Wiring the Bases

The bases can accept any solid wire from 12 AWG (2.0 mm) to 22 AWG (0.8 mm). The minimum wire size required is determined by the maximum number of bases used and the maximum distance from the FACP to the most remote base.

See Table 4.1 for the number of bases in a circuit and their corresponding wire gauges.

Number of bases in circuit	Wire Gauges			
	22 AWG (0.8 mm)	20 AWG (1.0 mm)	18 AWG (1.2 mm)	16 AWG (1.5 mm)
1 to 70	1822 ft (555.4 m)	2898 ft (883.3 m)	4608 ft (1404.5 m)	7327 ft (2233.3 m)
71 to 80	1594 ft (485.9 m)	2536 ft (773 m)	4032 ft (1229 m)	6411 ft (1954.1 m)
81 to 90	1417 ft (431.9 m)	2254 ft (687 m)	3584 ft (1092.4 m)	5699 ft (1737.1 m)
91 to 100	1275 ft (388.6 m)	2028 ft (618.1 m)	3225 ft (983 m)	5129 ft (1563 3 m)
101 to 110	1159 ft (353.3 m)	1844 ft (562.1 m)	2932 ft (893.7 m)	4663 ft (1421.3 m)
111 to 120	1063 ft (324 m)	1690 ft (515.1 m)	2688 ft (819.3 m)	4274 ft (1302.7 m)
Use 16 AWG (1.5 mm) gauge wire ratings for 12 AWG (2.3 mm) and 14 AWG (1.8 mm).				

Table 4.1: Bases and Wire Gauges

Wiring D298M Bases

Note the following wiring requirements:

- Each D298M can supervise up to 19 additional two-wire detectors.
- When wiring the conventional detectors to a D298M base, the wiring to the most distant detector cannot exceed 500 ft (152 m). The wiring must be 18 AWG (1.2 mm) or larger.
- If you are running a conventional two-wire detector circuit off of a D298M base, connect a 3 kΩ end-of-line (EOL) resistor[1] across the last conventional device in the circuit.
- If you are not running a conventional two-wire detector circuit off of a D298M base, connect a 3 kΩ EOL resistor[1] across the D298M base between terminal 2 and terminal H.
- Connect the power loop to the control panel's switched auxiliary power. If you are using a separate power supply, connect the negative side to the control panel's negative terminal or POPIT.

[1] The EOL resistor must be Bosch P/N: 15-03130-007, F.01U.008.725.

To wire the D298M bases, see the following figure.

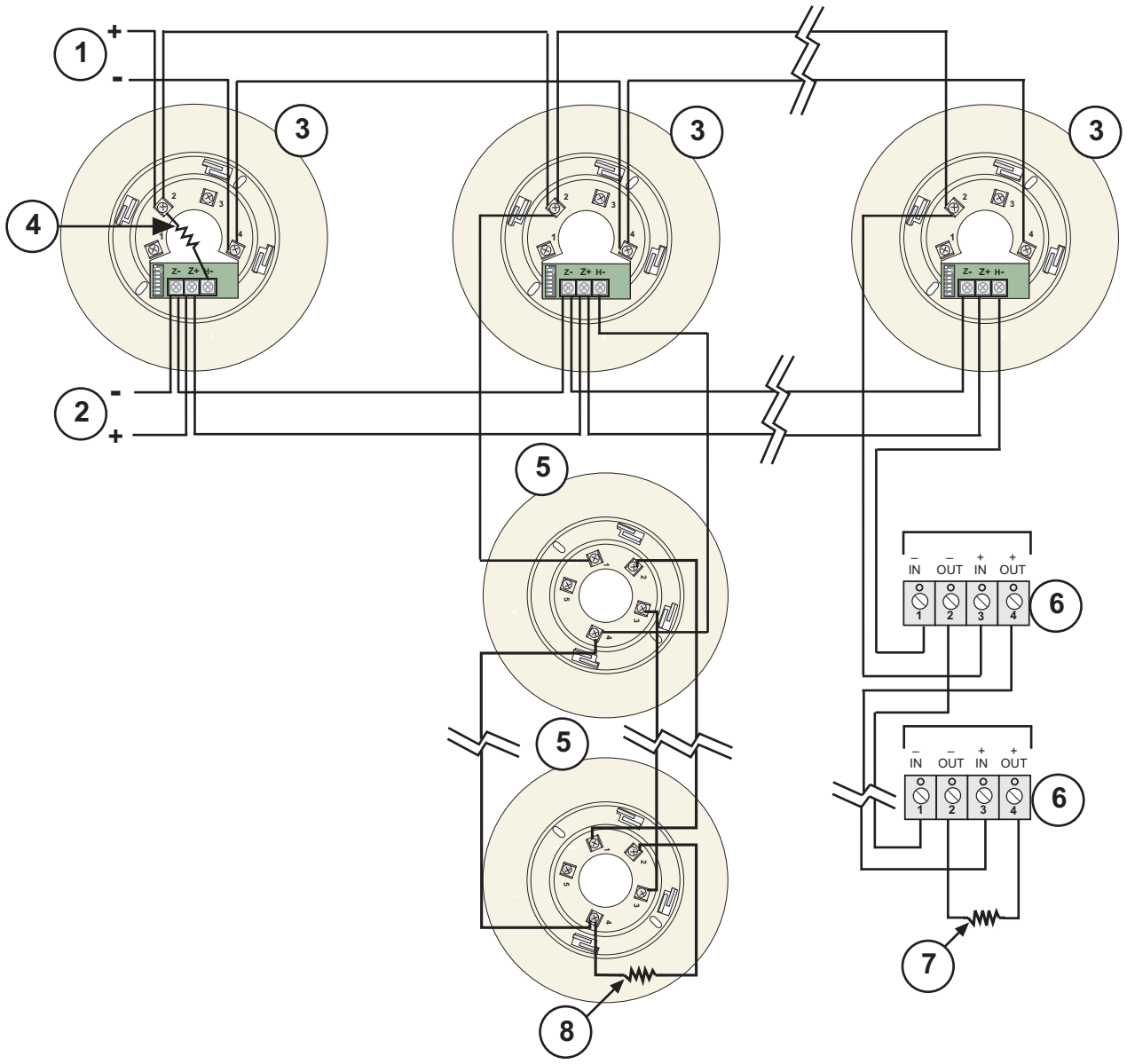


Figure 4.1: D298M Wiring

1	Power loop	5	Two-wire base
2	POPIT bus	6	D263 or D263TH detector
3	D298M bases	7	EOL resistor[1]
4	EOL resistor[1]	8	EOL resistor[1]

[1] The EOL resistor (3 kΩ, Bosch P/N: 15-03130-007, F.01U.008.725) is required on any D298M base that is not connected to two-wire detectors. Use a D298S base when not connecting two-wire detectors.

Wiring D298S and D278S Bases

To wire the D298S and D278S bases, see the following figure.

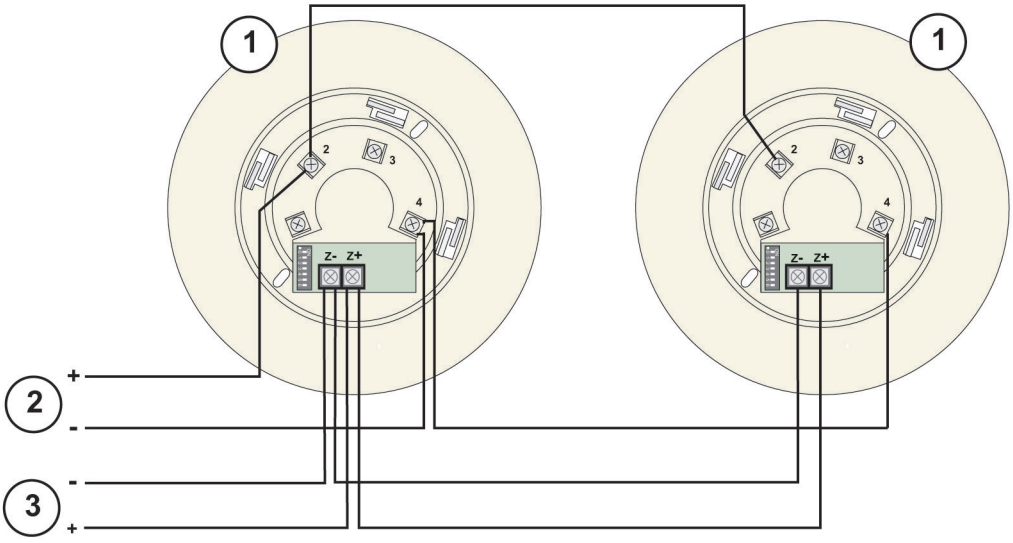


Figure 4.2: D298S and D278S Wiring

1	D298S or D278S Addressable Base	3	POPIT bus
2	Power loop		

Wiring PAM-4 Relay Modules

To wire the PAM-4 Relay Modules to D298M or D298S bases, see the following figure and table.

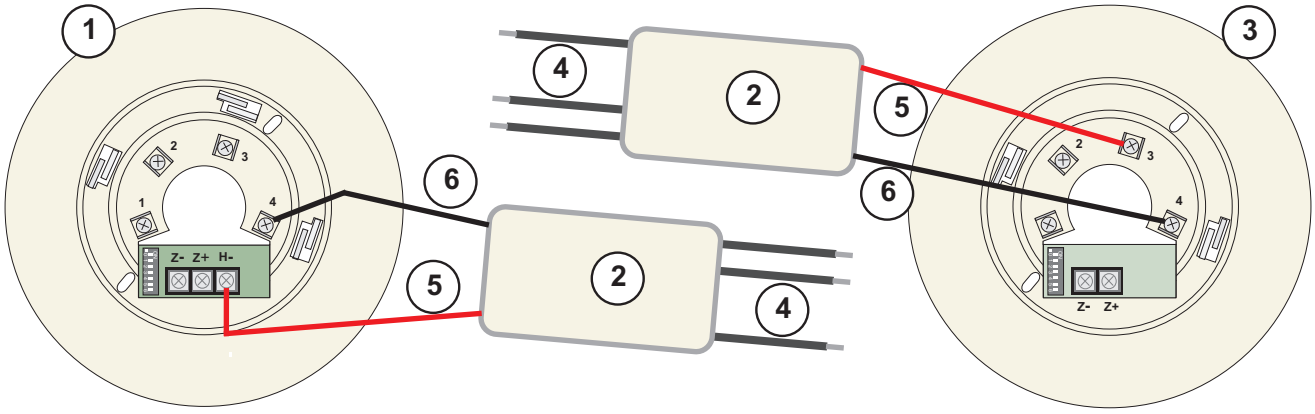


Figure 4.3: D298M-D298S_PAM-4

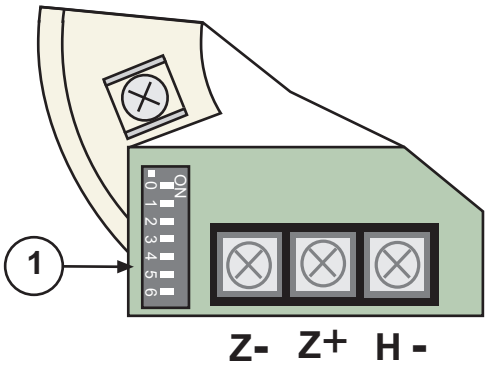
1	D298M Addressable Base	4	Relay Contact connectors
2	PAM-4 Relay Module	5	Red power connector (positive +)
3	D298S Addressable Base	6	Black power connector (negative -)

Contact connections			Power connections	
Wire lead color	**Description**		**Wire lead color**	**Description**
Blue	Common		Red	Positive +
Orange	Normally open		Black	Negative -
Yellow	Normally closed			
Note: Contact connection descriptions are in the inactive, not energized, state.				

Table 4.2: Contact and Power Connections

5 Addressing

Each base has a specific address that does not depend on the base's location in the circuit. The address is determined by setting the seven DIP switches located on the detector's base.
See Item 1 in figure.



1 Address Switches

To set the address for the D9112, D9124, or G Series FACP, use the following table.
If adding the base to a previous version FACP, set Switch 0 to ON and leave all other switches OFF. Points 009 through 128 are on Point Bus A (Zonex Bus 1) and points 129 through 248 are on Point Bus B (Zonex Bus 2).

Point Bus		Switch (bullet [•] = ON)							Point Bus		Switch (bullet [•] = ON)						
A	B	0	1	2	3	4	5	6	A	B	0	1	2	3	4	5	6
009	129	0	1	2	3	4	5	6	069	189	0					5	6
010	130	0	1	2	3	4	5		070	190	0					5	
011	131	0	1	2	3	4		6	071	191	0						6
012	132	0	1	2	3	4			072	192	0						
013	133	0	1	2	3		5	6	073	193		1	2	3	4	5	6
014	134	0	1	2	3		5		074	194		1	2	3	4	5	
015	135	0	1	2	3			6	075	195		1	2	3	4		6
016	136	0	1	2	3				076	196		1	2	3	4		
017	137	0	1	2		4	5	6	077	197		1	2	3		5	6
018	138	0	1	2		4	5		078	198		1	2	3		5	
019	139	0	1	2		4		6	079	199		1	2	3			6
020	140	0	1	2		4			080	200		1	2	3			
021	141	0	1	2			5	6	081	201		1	2		4	5	6
022	142	0	1	2			5		082	202		1	2		4	5	
023	143	0	1	2				6	083	203		1	2		4		6
024	144	0	1	2					084	204		1	2		4		
025	145	0	1		3	4	5	6	085	205		1	2			5	6
026	146	0	1		3	4	5		086	206		1	2			5	
027	147	0	1		3	4		6	087	207		1	2				6

Point Bus		Switch (bullet [•] = ON)						
A	B	0	1	2	3	4	5	6
028	148	0	1		3	4		
029	149	0	1		3		5	6
030	150	0	1		3		5	
031	151	0	1					6
032	152	0	1		3			
033	153	0	1			4	5	6
034	154	0	1			4	5	
035	155	0	1			4		6
036	156	0	1			4		
037	157	0	1				5	6
038	158	0	1				5	
039	159	0	1					6
040	160	0	1					
041	161	0		2	3	4	5	6
042	162	0		2	3	4	5	
043	163	0		2	3	4		6
044	164	0		2	3	4		
045	165	0		2	3		5	6
046	166	0		2	3		5	
047	167	0		2	3			6
048	168	0		2	3			
049	169	0		2		4	5	6
050	170	0		2		4	5	
051	171	0		2		4		6
052	172	0		2		4		
053	173	0		2			5	6
054	174	0		2			5	
055	175	0		2				6
056	176	0		2				
057	177	0			3	4	5	6
058	178	0			3	4	5	
059	179	0			3	4		6

Point Bus		Switch (bullet [•] = ON)						
A	B	0	1	2	3	4	5	6
088	208		1	2				
089	209		1		3	4	5	6
090	210		1		3	4	5	
091	211		1		3	4		6
092	212		1		3	4		
093	213		1		3		5	6
094	214		1		3		5	
095	215		1		3			6
096	216		1		3			
097	217		1			4	5	6
098	218		1			4	5	
099	219		1			4		6
100	220		1			4		
101	221		1				5	6
102	222		1				5	
103	223		1					6
104	224		1					
105	225			2	3	4	5	6
106	226			2	3	4	5	
107	227			2	3	4		6
108	228			2	3	4		
109	229			2	3		5	6
110	230			2	3		5	
111	231			2	3			6
112	232			2	3			
113	233			2		4	5	6
114	234			2		4	5	
115	235			2		4		6
116	236			2		4		
117	237			2			5	6
118	238			2			5	
119	239			2				6

Point Bus		Switch (bullet [•] = ON)							Point Bus		Switch (bullet [•] = ON)						
A	**B**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**A**	**B**	**0**	**1**	**2**	**3**	**4**	**5**	**6**
060	180	0			3	4			120	240			2				
061	181	0			3		5	6	121	241				3	4	5	6
062	182	0			3		5		122	242				3	4	5	
063	183	0			3			6	123	243				3	4		6
064	184	0			3				124	244				3	4		
065	185	0				4	5	6	125	245				3		5	6
066	186	0				4	5		126	246				3		5	
067	187	0				4		6	127	247				3			6
068	188	0				4			128	248	Reserved						

Table 5.1: Base POPIT Addresses

6 Technical data

Electrical[1]

Current (alarm) maximum	
– D278S	40 mA
– D298S:	18 mA
– D298S with PAM-4:	30 mA
– D298M[2]:	36 mA
– D298M[2] with PAM-4:	49 mA
Current (standby)	
– D278S	2.5 mA
– D298S:	2 mA
– D298S with PAM-4:	8.5 mA
– D298M[2]:	13 mA
– D298M[2] with PAM-4:	29 mA
Voltage (operating)	
– D278S:	18.9 VDC to 28.0 VDC
– D298M/D298S:	18.9 VDC to 28.0 VDC
[1] For the D298 models, power is supplied by an auxiliary power supply. For the D278S, power is either supplied by the FACP or a UL 1481 regulated power-limited auxiliary power supply depending on the current requirements of the application. [2] The current ratings are based on D298M with 19 detectors.	

Environmental

Temperature (operating):	+32°F to +100°F (0°C to +38°C)

Mechanical

Color:	Bone white
Dimensions (diameter x depth):	6.375 in. X 0.9 in. (16.2 cm x 2.3 cm)

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