F220-B6PS/M

Installation Guide

EN

Addressable Detector Bases

BOSCH

1.0 Overview

These instructions cover the installation of the B6PS/M Addressable Detector Bases in an addressable system. The addressable system is controlled by a D9412G/D7412G or later 12 V control panel with a D8125 POPEX Module and 12 V or 24 V auxiliary power or a D9124 24 V Fire Alarm Control Panel (FACP).

> The F220-B6PS works with either 12 or 24 V where the F220-B6PM only works with 24 V (refer to *Section 6.0 Specifications* on page 7).

The B6PS/M, with its built-in POPIT, provides individual addresses on the FACP data expansion circuit. These bases accept the F220 Series Photoelectric Smoke Detector and Heat Detector Heads. When using the B6PS/M with the F220 Series Detectors, these bases provide a Chamber Check trouble indication to the control panel through the POPIT Bus. The trouble indication appears at the control stations as a Fire Trouble.

> When using these bases as replacements in a system controlled by control panels other than those identified such as the D8112, D7212B, or D7212B1, follow the control panel's address (point assignment) setting instructions and set the base address switch (0) to the ON position.

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2.0 Mounting

Install, test, and maintain the B6PS/M according to these instructions, NFPA 72 standards, local codes, and the Authority Having Jurisdiction (AHJ) in your area.

> ⚠ Failure to follow these instructions can result in the detector not indicating an alarm. Bosch is not responsible for improperly installed, tested, or maintained detectors.

1. Select a mounting location according to the *Smoke Detector Technical Service Note* (P/N: 31347).
2. Run all system wiring to the base locations first.
3. Mount the base using the two oblong mounting holes.
4. Tighten the base to the mounting surface.
5. Connect the wiring to the base.

Depending on the local regulations, you can surface mount the base using anchors, mollies, or wing nuts. You can also mount the base on 4 in. (10 cm) octagonal electrical boxes or single-gang switch boxes.

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

3.0 Wiring

Table 1: Bases and Wire Gauges

Number of Bases in Circuit	Wire Gauge			
	22 AWG (0.8 mm)	**20 AWG (1.0 mm)**	**18 AWG (1.1 mm)**	**16 AWG (1.3 mm)**
1 to 70	1822 ft (597 m)	2898 ft (950 m)	4608 ft (1510 m)	7327 ft (2402 m)
70 to 80	1594 ft (523 m)	2536 ft (831 m)	4032 ft (1322 m)	6411 ft (2102 m)
81 to 90	1417 ft (434 m)	2254 ft (739 m)	3584 ft (1175 m)	5699 ft (1868 m)
91 to 100	1275 ft (418 m)	2028 ft (665 m)	3225 ft (1057 m)	5129 ft (1681 m)
101 to 110	1159 ft (380 m)	1844 ft (605 m)	2932 ft (961 m)	4663 ft (1529 m)
111 to 120	1063 ft (349 m)	1690 ft (554 m)	2688 ft (881 m)	4274 ft (1401 m)

3.1 Terminal Connections

Do not twist the wires or loop them around the terminals. Cut, strip, and insert the in and out wires for terminal connection as individual ends.

Connect the power loop to the control panel's switched auxiliary power. When using a separate supply, connect the negative side to the control panel ground.

Figure 1:   Terminals
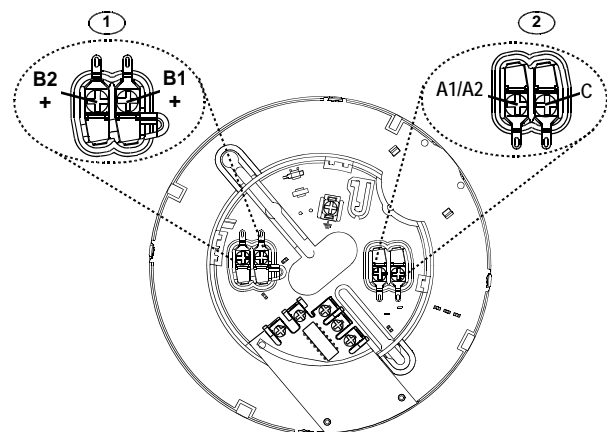
1 - B2 (+) and B1 (+) Terminals
2 - A1/A2 and C Terminals

3.2   Wire Size

The B6PS/M can accept any solid wire size from 12 AWG (2.0 mm) to 24 AWG (0.6 mm). The minimum wire size required by the bases is determined by the maximum number of bases used and the maximum distance from the FACP to the most remote base. For 12 AWG (2.0 mm) and 14 AWG (1.6 mm) wire, use the specifications for 16 AWG (1.3 mm) wire. Refer to *Figure 2* and *Figure 3* on page 4 for wiring multiple bases.

Use a at least 18 AWG (1.0 mm) wire for Underwriters Laboratories. Inc. (UL) Listed requirements.

Use the B6PM with the F220-B6 two-wire base for the F220-P/PTH/PTHC/135/135F/190F Detectors (refer to *Figure 4* on page 4).

Figure 2:   B6PS Base Wiring
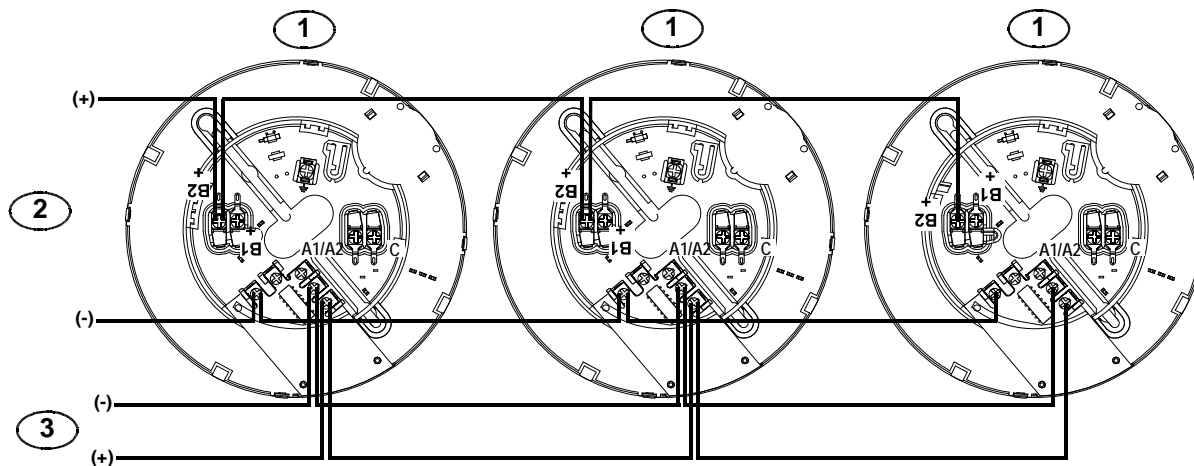
1 - B6PS
2 - Switched Auxiliary Power 12 VDC or 24 VDC
3 - POPIT Bus

3.2.1   Wiring the B6PM

For the B6PM:

1. Each base can supervise up to 19 additional two-wire detectors.
2. Wiring to the most distant slave detector cannot exceed 500 ft (52 m) with a wire that is 18 AWG (1.1 mm) or greater.

3. Connect the 3 kΩ end-of-line (EOL) resistor Bosch P/N: 15-03130-007 (F.01U.008.725) across the last base, Terminals A1/A2, and B1. When not using slave two-wire detectors with the B6PM, connect the 3 kΩ EOL resistor across the B6PM Terminals A1/A2 and B1.
4. Wire Terminal C to use the dirty detector feature with the slave two-wire bases. Do not enable the clean-me feature on the F220s.

3.2.2   Wiring the B6PS/M

For the B6PS/M, connect the power loop to the control panel's switched auxiliary power. When using a separate supply, connect the negative side to the control panel negative or POPIT Bus.

Figure 3:   B6PM Base Wiring
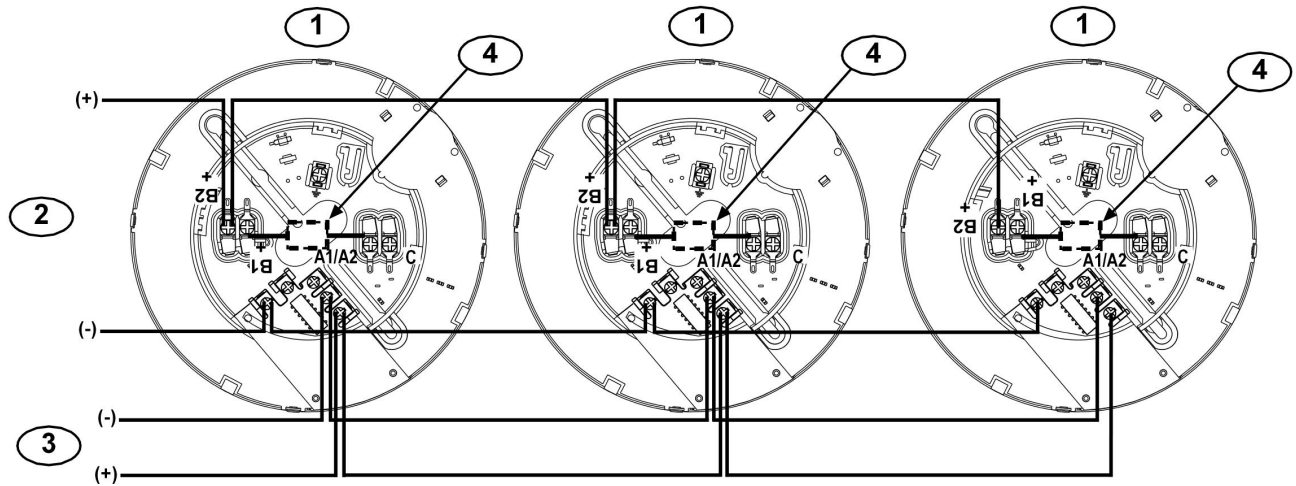
1 -	B6PM	3 -	POPIT Bus
2 -	Switched Auxiliary Power 24 VDC	4 -	EOL or connect F220-B6 Conventional Bases

Figure 4:   B6PM Wiring with Multiple Bases
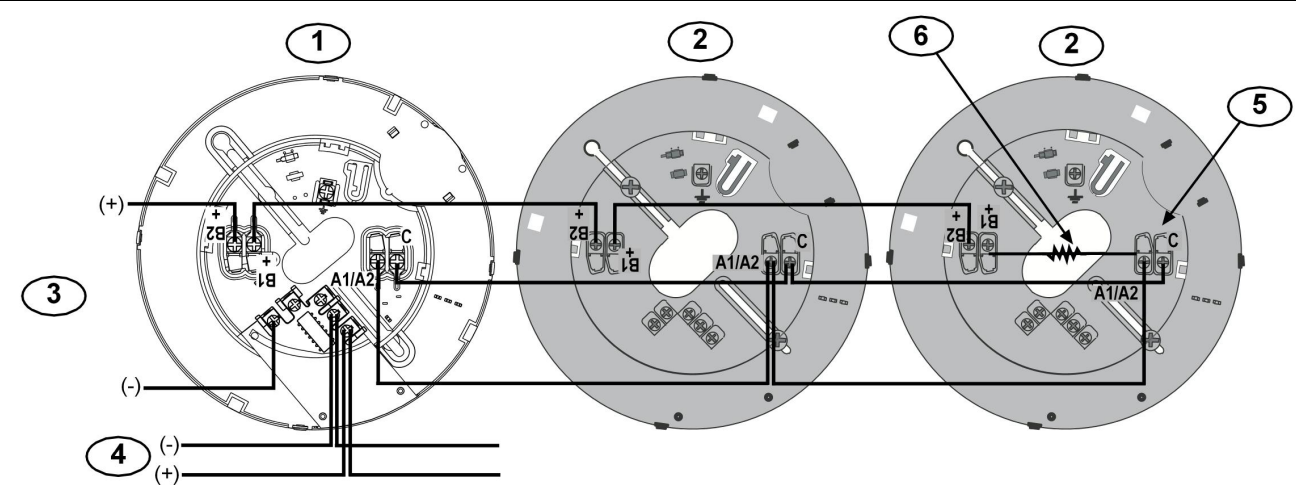
1 -	B6PM	5 -	Connect C Terminals together to indicate Dirty Detector
2 -	F220-B6 Base	6 -	EOL on Last Base (B1 to A1/A2)
3 -	Switched Auxiliary Power 24 VDC		
4 -	POPIT Bus		

4.0 Base POPIT Addresses

Each detector base has a specific address point that is determined by setting the seven DIP switches on the detector's base. The base address number does not depend on the base location in the circuit. When using a D9412G/D7412G or later control panel or a D9124 FACP refer to *Table 2* to set each base address. If adding the base to an FACP version B1 or earlier, set switch 0 to ON and leave all other switches off.

Figure 5 shows a magnified view of the address switches.

Figure 5:   Address Switches
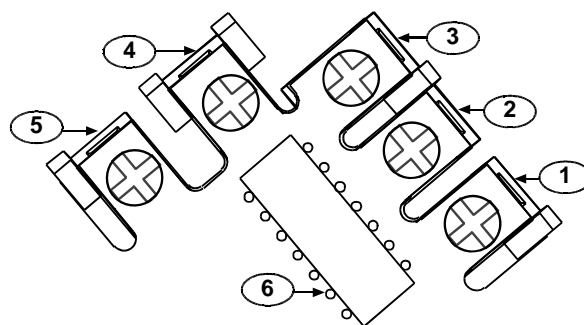
1 - Terminal 1 (POPIT Bus +)
2 - Terminal 2 (POPIT Bus -)
3 - Terminal 3 (not used)
4 - Terminal 4 (not used)
5 - Terminal 5 (- auxiliary DC supply)
6 - DIP Switch

Table 2: Addresses

Point	| Switch							Point	| Switch							Point	| Switch						
	0	1	2	3	4	5	6		0	1	2	3	4	5	6		0	1	2	3	4	5	6
009	•	•	•	•	•	•	•	029	•	•		•		•	•	049	•		•		•	•	•
010	•	•	•	•	•	•		030	•	•		•		•		050	•		•		•	•	
011	•	•	•	•	•		•	031	•	•		•			•	051	•		•		•		•
012	•	•	•	•	•			032	•	•		•				052	•		•		•		
013	•	•	•	•		•	•	033	•	•			•	•	•	053	•		•			•	•
014	•	•	•	•		•		034	•	•			•	•		054	•		•			•	
015	•	•	•	•			•	035	•	•			•		•	055	•		•				•
016	•	•	•	•				036	•	•			•			056	•		•				
017	•	•	•		•	•	•	037	•	•				•	•	057	•			•	•	•	•
018	•	•	•		•	•		038	•	•				•		058	•			•	•	•	
019	•	•	•		•		•	039	•	•					•	059	•			•	•		•
020	•	•	•		•			040	•	•						060	•			•	•		
021	•	•	•			•	•	041	•		•	•	•	•	•	061	•			•		•	•
022	•	•	•			•		042	•		•	•	•	•		062	•			•		•	
023	•	•	•				•	043	•		•	•	•		•	063	•			•			•
024	•	•	•					044	•		•	•	•			064	•			•			
025	•	•		•	•	•	•	045	•		•	•		•	•	065	•				•	•	•
026	•	•		•	•	•		046	•		•	•		•		066	•				•	•	
027	•	•		•	•		•	047	•		•	•			•	067	•				•		•
028	•	•		•	•			048	•		•	•				068	•				•		

Table 2: Addresses (Continued)

Point	Switch 0	1	2	3	4	5	6
069	•					•	•
070	•					•	
071	•						•
072	•						
073		•	•	•	•	•	•
074		•	•	•	•	•	
075		•	•	•	•		•
076		•	•	•	•		
077		•	•	•		•	•
078		•	•	•		•	
079		•	•	•			•
080		•	•	•			
081		•	•		•	•	•
082		•	•		•	•	
083		•	•		•		•
084		•	•		•		
085		•	•			•	•
086		•	•			•	
087		•	•				•
088		•	•				

Point	Switch 0	1	2	3	4	5	6
089		•		•	•	•	•
090		•		•	•	•	
091		•		•	•		•
092		•		•	•		
093		•		•		•	•
094		•		•		•	
095		•		•			•
096		•		•			
097		•			•	•	•
098		•			•	•	
099		•			•		•
100		•			•		
101		•				•	•
102		•				•	
103		•					•
104		•					
105			•	•	•	•	•
106			•	•	•	•	
107			•	•	•		•
108			•	•	•		

Point	Switch 0	1	2	3	4	5	6
109			•	•		•	•
110			•	•		•	
111			•	•			•
112			•	•			
113			•		•	•	•
114			•		•	•	
115			•		•		•
116			•		•		
117			•			•	•
118			•			•	
119			•				•
120			•				
121				•	•	•	•
122				•	•	•	
123				•	•		•
124				•	•		
125				•		•	•
126				•		•	
127				•			•
128	Reserved						

• = ON   **Note:** For Points 129 through 248, add 120 to Point Numbers 009 through 128. For example, adding 120 to Point 009 is Point 129 Address (switch setting).
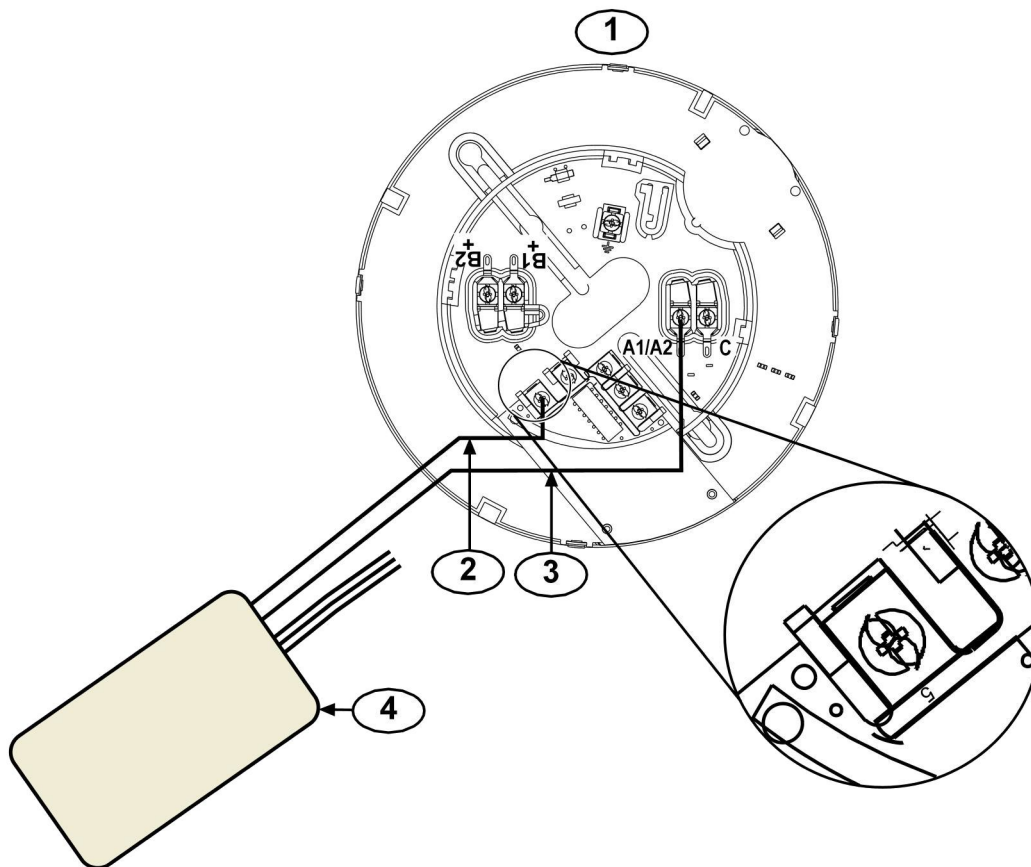
5.0   PAM-4 Relay Module Wiring

Table 3: PAM-4 Relay Module Wiring

Wire Lead Color	Description	Contact Set
Red	Positive	N/A
Black	Negative	N/A
White	Alarm Sense	N/A
Blue	Normally Open	A
Green	Common	A
Yellow	Normally Open	B
Purple	Common	B
Orange	Normally Closed	B

Only use the PAM-4 Relay Module with 24 V systems. The operating voltage of the F220-B6PS, when used with the PAM-4 Relay Module, is 18.9 VDC to 28 VDC.

Figure 6:   PAM-4 Relay Module Wiring to B6PS/M

1 -	B6PS/M	3 -	Red wire
2 -	Black wire (to Terminal 5)	4 -	PAM-4

6.0   Specifications

Table 4: Specifications

	B6PS with Head	B6PS with PAM-4 Relay Module and Head
Auxiliary Power Voltage Range	9.6 VDC to 28 VDC	18.9 VDC to 28 VDC
Idle Current	2.5 mA	18.5 mA
Alarm Current	35 mA	51 mA
	B6PM with Head*	B6PM with PAM-4 Relay Module and Head*
Auxiliary Power Voltage Range	18.9 VDC to 28 VDC	18.9 VDC to 28 VDC
Idle Current	13 mA	29 mA
Alarm Current	39 mA	55 mA
* Current ratings are based on a B6PM with 19 slave detectors.		

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