





Detector Bases: PAD100-6DB & PAD100-4DB

Detectors:

PAD100-PD, PAD100-PHD, PAD200-PD, PAD200-PHD, PAD200-PCD, PAD200-PCHD, PAD100-HD and PAD100-CD

1. Description

This document provides instructions for mounting and wiring the Detector Base PAD100-6DB and PAD100-4DB. The following detectors are compatible with Detector Base PAD100-6DB and PAD100-4DB.

- PAD200-PD & PAD100-PD:
- PAD200-PHD & PAD100-PHD:
- PAD200-PCD:
- PAD200-PCHD:
- PAD100-HD:
- PAD100-CD:
- Photoelectric Smoke Detector
 - Photoelectric Smoke / Heat Detector Photoelectric Smoke / CO Detector Photoelectric Smoke / CO Detector/ Heat Detector **Heat Detector** Carbon Monoxide Detector

2. Field Wiring Diagrams

Typical field wiring diagrams for the Signaling Line Circuit (SLC) (FIGURE 1). The SLC supports NFPA wiring Class B, A and X.

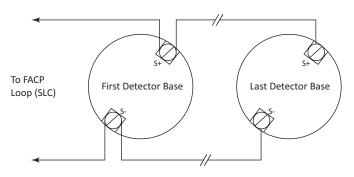


Figure 1: Wiring (Style B) Using PAD100-6DB or PAD100-4DB

Typical of NFPA Style B SLC (S+, S-) Wiring using either the PAD100-6DB or PAD100-4DB base (FIGURE 1). In Style A arrangement two separate conductors would return from the last detector base to a listed compatible Fire Alarm Control Panel (FACP). In Style X, it is required to use PAD100-IB (Addressable Isolator Bases) and typical field diagram is in the PAD100-IB Installation Manual.

3. Wiring Instruction

- To ensure proper installation of the detector head to the base, wires shall be dressed properly at the time of installation
- Using PAD100 Bases, observe the correct polarity of SLC wiring. NOTICE:
- THE WIRING TO BE USED SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 300.3(B) OF THE NATIONAL ELECTRICAL CODE, NFPA 70, AS WELL AS ARTICLE 210.
- THIS EQUIPMENT SHOULD BE INSTALLED IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 72.

CAUTION! Break wire runs to provide supervision for connections made to each wire pair.

Detector Base Mounting

PAD100-6DB / PAD100-4DB should be mounted directly on the electrical box. The PAD100-6DB mounting holes are configured for a single gang, double gang, octagon or 4" square box. The PAD100-4DB mounting holes are configured for a 3-1/2" octagon box. Use a box for each base and run the power circuit to all base locations.

Use 12 to 22 AWG conductors to connect to terminals of bases. It is recommended that the SLC conductors be color-coded to avoid wiring errors and assist in system troubleshooting. Improper SLC connections may prevent the system from operating normally. Disconnect power to the SLC until the detectors are installed.

- Wire the detector bases according to Field Wiring Diagrams.
- Use the dip switches (SECTION 11) to set address(es) (1 127) for each detector head.

NOTICE: THE DETECTORS AND THE PAD100 MODULES MUST HAVE INDIVIDUAL ADDRESS(ES).

3. To install the detector head onto the base, match the detector heads to the base using the alignment feature and twist clockwise until the detector heads snap into place (FIGURE 2).

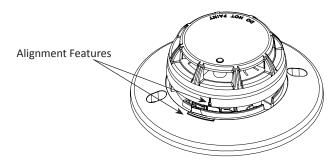


FIGURE 2: Assembly of Detector

- 4. After all detector heads, addressable bases and modules have been installed, apply power to the FACP.
- Test the detectors as described in the Testing Section of this manual.

NOTICE: DO NOT INSTALL DETECTOR HEADS UNTIL AREA HAS BEEN THOROUGHLY CLEANED TO REMOVE CONSTRUCTION DEBRIS, DUST, ETC., AS REQUIRED BY NFPA 72.

4. Spacing Limitations

NOTICE: REFER TO NFPA 72 FOR SPECIFIC INFORMATION REGARDING DETECTOR SPACING, MOUNTING LOCATION AND SPECIAL APPLICATIONS.

PAD100-PD, PAD200-PD, PAD200-PCD, PAD200-PCHD, PAD100-PHD and PAD200-PHD: Photoelectric Smoke Detector

PAD100-PD, PAD200-PD, PAD200-PCD, PAD200-PCHD, PAD100-PHD and PAD200-PHD are ANSI/UL listed on maximum 30ft spacing limitation with alarm set point from 135°-174° F on smooth ceiling. Refer to NFPA 72 for specific information regarding detector spacing, placement and special applications.

PAD100-HD: Heat Detector

The ANSI/UL listed spacing limitations of PAD100-HD smooth ceiling are

Alarm Set-Point	Rate of Rise Spacing	Fixed Temperature Spacing	
135° to 174° F (57° to 79° C)	Maximum 60 ft.	Maximum 60 ft.	
175° to 185° F (80° to 85° C)	Maximum 15 ft.	Maximum 15 ft.	
135° to 160° F (57° to 71° C)	Maximum 70 ft.	Maximum 70 ft.	

dependent on alarm set point.

5. Testing

Testing shall be performed periodically to determine if each detector operates properly. Detectors will offer maximum performance when tested in compliance with NFPA 72.

NOTICE: REFER TO FIRE ALARM CONTROL PANEL (FACP) MANUAL FOR OPERATION OF DIRTY VALUE READ / PRINT, ALARM SIMULATION AND WALK TEST.

Operational Testing

When PAD100-PD, PAD200-PD, PAD100-PHD, PAD200-PHD, PAD200-PCD, PAD200-PCHD, PAD100-HD and PAD100-CD are under normal conditions in standby mode, the alarm indicator LEDs on the face of the detector will pulse approximately once every 4 seconds.

NOTICE: WHEN A PANEL IS CONFIGURED TO NOT FLASH LEDS, THE LEDS ON THE DETECTORS WILL NOT FLASH AT ANY TIME.

Sensitivity Testing

(Dirty Value Read / Print)

The sensitivity drift value (Dirty Value) of the smoke detector can be checked at the FACP. The Dirty Value can be read and printed out at the FACP. NOTICE: DETECTOR COMPENSATES SENSITIVITY UNTIL LIMIT OF COMPENSATION. WHEN COMPENSATION RATE REACHES LIMIT, A TROUBLE SIGNAL WILL BE INDICATED ON THE FACP.

Functional Testing

NOTICE: BE SURE TO DIS-ENGAGE ALL ALARM SIGNAL SERVICES, RELEASING DEVICES AND EXTINGUISHING SYSTEMS, PRIOR TO PERFORMING THE FOLLOWING TEST, EXCEPT AUTOMATIC TESTING BY THE FACP. BE SURE TO RE-ENGAGE THESE SYSTEMS WHEN ALL TESTING IS COMPLETE.

Walk Test

The FACP must be placed into Walk Test Mode and follow the steps below. Use the appropriate steps outlined below for the detector that is to be tested

CAUTION! FAILURE TO ALARM DURING A TEST INDICATES A DEFECTIVE DETECTOR. REPLACE DETECTOR IMMEDIATELY.

- PAD100-PD, PAD200-PD, PAD200-PCD, PAD200-PCHD, PAD100-PHD and PAD200-PHD Smoke Detectors: Use a ANSI/UL listed aerosol such as Home Safeguard Model 25S or SDi Smoke Centurion as acceptable to the Authority Having Jurisdiction (AHJ).
- b. PAD100-PHD, PAD200-PCHD, PAD200-PHD and PAD100-HD Heat Detectors:

NOTICE: TAKE CARE DURING THE HEATING OF THE DETECTOR TO AVOID OVERHEATING THE PLASTIC HOUSING.

- Use of a low powered heat gun is acceptable.
 CAUTION: Do not heat over 210°F (98.9°C).
- Maintain a minimum of 1 foot between the detector and the heat gun nozzle.
- Heat the detector for a minimum of 10 seconds.
- FACP will indicate with alarm when a sufficient amount of heat has been applied. LED indicator will continuously flash while detector is in alarm.
- c. PAD100-CD, PAD200-PCD, PAD200-PCHD: Carbon Monoxide Detectors: Use the Home Safeguard Model HO-CO2 Aerosol with Home Safeguard Model Versa-Test Head VT1 or the SDI Solo C6 Aerosol with SDI Solo 330 Dispenser as acceptable to the Authority Having Jurisdiction (AHJ).

NOTICE: NEVER USE EXHAUST FROM VEHICLE TO TEST CO PORTION OF DETECTOR. EXHAUST MAY CAUSE PERMANENT DAMAGE TO DETECTOR AND VOIDS THE WARRANTY.

6. Maintenance

The detector should be cleaned as needed. Detectors installed in environments more prone to dust may need cleaning based on build-up of dust. The Dirty Value Report provides an indication when the detectors should be cleaned.

NOTICE

- THE DETECTOR IS NOT WASHABLE, DO NOT SUBMERGE THE DETECTOR IN WATER. WATER CAN AFFECT THE SENSOR, CAUSING PERMANENT DAMAGE.
- DO NOT SPRAY CLEANING CHEMICALS OR INSECT SPRAYS DIRECTLY ON OR NEAR THE DETECTOR. DO NOT PAINT OVER THE DETECTOR. DOING SO MAY CAUSE PERMANENT DAMAGE.
- a. PAD100-PHD, PAD200-PHD, PAD200-PCD, PAD200-PCHD, PAD100-HD and PAD100-CD: When cleaning is needed, clean cover using a soft cloth.
 - DO NOT vacuum or use compressed air, water, cleaners or solvents to clean the detector.
 - DO NOT disassemble the detector to clean.
 - If the detector is not operating properly after cleaning, replace detector.
- PAD100-PD and PAD200-PD: When cleaning is needed, follow the below steps to remove dust on the detector
 - 1. Turn off electrical power to the PAD100-PD and PAD200-PD.
 - 2. Remove the detector from the base. Do not remove the base from
 - 3. Remove cover from detector by removing the two screws (T10) on back of detector (FIGURE 3).

NOTICE: DO NOT USE A POWER DRIVER WHEN REMOVING /INSTALLING SCREWS.

Remove the two screws (T10) on back of detector to remove detector cover.

NOTICE: DO NOT USE A POWER DRIVER WHEN REMOVING / INSTALLING SCREWS.

PAD200-PD shown

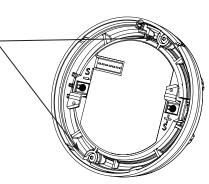


FIGURE 3: Removing Detector Cover (PD models only)

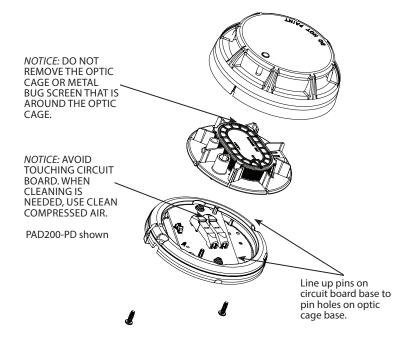


FIGURE 4: Remove Optic Cage Base from Detector for Cleaning (PD models only)

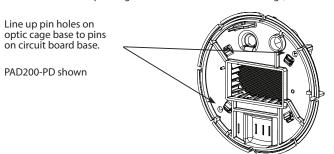


FIGURE 5: Pin Holes on Back of Optic Cage Base (PD models only)

- 4. Remove optic cage base from the circuit board base (FIGURE 4).
 - Do not remove optic cage or metal bug screen from optic cage base.
 - Avoid touching circuit board when cleaning.
- 5. Using clean compressed air, blow out any dust and debris from the center of the optic cage base.
 - DO NOT vacuum or use water, cleaners or solvents to clean the detector.
 - DO NOT disassemble any other parts of the detector to clean, other than optic cage.
 - If the detector is not operating properly after cleaning, replace detector.
- After cleaning with compressed air, line up the two pins on the back of the optic cage base to the pin holes on the circuit board to place the optic cage base on the circuit board (FIGURE 4 and FIGURE 5)
- Place cover back on detector, using the LED indictor light on base and cover to guide the correct placement. When the cover and base are lined up correctly, the units will fit together.
- 8. Replace the two screws (T10) on the back of the product. NOTICE: DO NOT USE A POWER DRIVER WHEN REMOVING / INSTALLING SCREWS. TIGHTEN SCREWS BETWEEN 4 AND 6 IN-LBS.

7. Locking Feature

The PAD100-PD, PAD200-PD, PAD100-PHD, PAD200-PHD, PAD200-PCD, PAD200-PCHD, PAD100-HD and PAD100-CD include a tamperproof feature that locks the detector and does not allow removal without the use of a tool.

Once the detector has been installed the detector locks into the base.
 To remove the detector from the base, insert a small screwdriver into the slot on the detector (FIGURE 6) and push the plastic tab while simultaneously turning the detector head counter-clockwise.

Insert small screwdriver into slot to remove detector from base

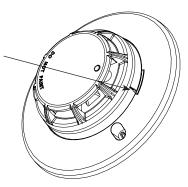


FIGURE 6: Locking Feature

The locking feature can be disabled. To disable the locking feature, break off the locking tab before installation (FIGURE 7).

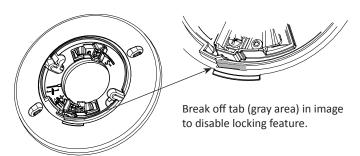


FIGURE 7: Disable Locking Feature

8. Detector Base Options

Model	Description	
PAD100-6DB	6 inch detector base.	
PAD100-4DB	4 inch detector base.	
PAD100-IB	6 inch detector base with short circuit isolator. See manual number: 550-0671-000	
PAD100-RB	6 inch detector base with relay module. See manual number: 550-0671-000	
PAD100-SB	6 inch detector base with sounder module. See manual number: 550-0671-000	
PAD100-LFSB	6 inch detector base with low frequency sounder module. See manual number: 550-0706-000	
PAD100-SPKB	6 inch detector base with speaker module. See manual number: 550-0706-000	

NOTE:

- Installation instructions for PAD100-DUCTR, reference docment number 5406321-A.
- Installation instructions for PAD100-DUCT, reference document number 5406322-A.
- Installation instructions for PAD200-DUCTR, reference docment number 5406429-A.
- Installation instructions for PAD200-DUCT, reference document number 5406428-A.

9. A WARNING

- Detector will not operate without electrical power. Fire can cause power interruption, discuss with a fire protection specialist for additional safeguards.
- Do not open PAD100-PHD, PAD200-PHD, PAD100-HD PAD200-PCD, PAD200-PCHD, or PAD100-CD detector for cleaning. If the detector is opened, product warranty becomes void.
- If the detector does not work properly, do not try and fix it yourself.
 This will void your warranty. For techincal assistance, contact
 Potter Electric Signal Company at 866-956-1211 for instructions to
 return a detector that does not operate properly.
- Detector will not sense fires that start in areas where smoke or heat cannot reach the detector. Smoke or heat from fires in walls, roofs or on the opposite side of closed doors may not reach the detector.
- Keep supplied dust cover in place during installation and construction.
 Remove dust cover prior to operation.
- Dust cover is not a substitute for removal of detector during new construction or remodeling.
- The detector cannot detect smoke when the dust cover is in place.
- Never use an open flame of any kind to test your device. You may ignite and damage the detector.
- Do not cover, tape or otherwise block the openings of your detector.
 The openings are designed to allow air to pass through the detector, thus sampling the air around the detector.
- Detectors are not to be used with detector guards unless the combination has been evaluated by a nationally recognized testing laboratory and found suitable for that purpose.
- To ensure proper operation, store detector within the recommended ranges. Allow the detector to stabilize to room temperature before applying power.
- If the detector ever fails to test properly, replace it immediately.
 Products under warranty may be returned to the manufacturer for replacement, see LIMITED WARRANTY.
- For technical assistance, contact Potter Electrical Signal Company at 1-866-956-1211

10a. Specifications / Ratings for Use with Detectors: PAD100-PD, PAD200-PD, PAD200-PCD, PAD200-PCHD, PAD100-PHD and PAD200-PHD

No.	Item		PAD100-PD	PAD100-PHD	PAD200-PCD	PAD200-PCHD	PAD200-PD	PAD200-PHD
1	Working Voltage Range		24 VDC					
2	Standby Current (*)		300 μΑ					
3	Alarm Indicator		1 LED					
4	Alarm Indictor Curren	t	1.4 mA					
5	5 Smoke Sensitivity Range (**)		1.0-3.7 %/ft. (3.2-11.6%/m)	1.0-3.7 %/ft. (3.2-11.6%/m) / 135° to 174°F (57° to 79° C)	1.1-3.5 %/ft. (3.6-11%/m)	1.1-3.5 %/ft. (3.6-11%/m) / 135° to 174°F (57° to 79° C)	1.1-3.5 %/ft. (3.6-11%/m)	1.1-3.5 %/ft. (3.6-11%/m) / 135° to 174°F (57° to 79° C)
6	Installation Temperature Range		32° to 120° F (0° to 49° C)	32° to 115° F (0° to 46° C)	32° to 120° F (0° to 49° C)	32° to 115° F (0° to 46° C)	32° to 120° F (0° to 49° C)	32° to 115° F (0° to 46° C)
7	Operating Relative Hu	midity Range	0% to 93% (non-condensing)					
8	3 Start-up Time			1 second				
9	Maximum Number of	Addresses per SLC Loop	127					
10	Maximum Number of Lighted Indicators in Alarm per SLC Loop		30					
11	Weight (without base)		110.5 g (3.9 oz)	116 g (4.1 oz)	113 g (4.0 oz)	118.5 g (4.2 oz)	110.5 g (3.9 oz)	116 g (4.1 oz)
12	Dimensions (without base)	Height	1.35 in (34 mm)	1.94 in (49 mm)	1.35 in (34 mm)	1.94 in (49 mm)	1.35 in (34 mm)	1.94 in (49 mm)
12		Diameter		3.93 in. (100 mm)				
13	13 Approvals / Listings		ANSI/UL 268 6th edition	ANSI/UL 268 6th edition, ANSI/UL 521 7th edition	ANSI/UL 268 7th edition, ANSI/UL 2075 4th edition	ANSI/UL 268 7th edition, ANSI/UL 521 7th edition, ANSI/UL 2075 4th edition	ANSI/UL 268 7th edition	ANSI/UL 268 7th edition, ANSI/UL 521 7th edition
14	14 Permitted Mounting Location(s)		Ceiling, Wall					

10b. Specifications / Ratings for Use with Detectors: PAD100-CD . PAD100-HD

No.	Item		PAD100-HD			PAD100-CD	
1	Working Voltage Rang	e	24 VDC				
2	Standby Current (*)			300 μΑ			
3	Alarm Indicator		1 LED				
4	Alarm Indictor Current						
5	Alarm Set-Point Range (**)		135° to 174° F (57° to 79° C)	175° to 185° F (80° to 85° C)	135° to 160° F (57° to 71° C)	Fixed 70, 150, 400 PPM	
6	Installation Temperature Range		32° to 100° F (0° to 38° C)	32° to 150° F (0° to 66° C)	32° to 100° F (0° to 38° C)	32° to 100° F (0° to 38° C)	
7	Operating Relative Humidity Range		0% to 93% (non-condensing)				
8	Start-up Time		1 second				
9	Maximum Number of Addresses per SLC Loop		127				
10	Maximum Number of Lighted Indicators in Alarm per SLC Loop		30				
11	Weight (without base)		82 g (2.89 oz)			92 g (3.25 oz)	
12	Dimensions	Height	1.94 in (49 mm)			1.43 in (36 mm)	
12	(without base)	Diameter	3.93 in. (100 mm)				
13	3 Approvals / Listings		ANSI/UL 521			ANSI/UL 2075	
14	4 Permitted Mounting Location(s)		Ceiling, Wall				

10c. Specifications / Ratings for Use with Detector Bases: PAD100-6DB, PAD100-4DB

No.	Item		PAD100-6DB	PAD100-4DB		
1	Installation Temperature Range		32° to 150° F (0° to 66° C)			
2	Operating Relative Humidity Range		0% - 93% (non-condensing)			
3	Weight (without detector head)		87 g (3.07 oz)	52g (1.83 oz)		
_	Dimensions (without detector head)	Height	0.75 in (19 mm)	0.72 in (18 mm)		
4		Diameter	6.3 in (166 mm)	3.93 in (100 mm)		
5	Approvals / Listings		ANSI/UL 268, ANSI/UL 521, ANSI/UL 2075			

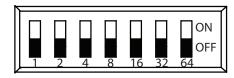
The standby current is the current that the device consumes when the device is in a non-activated condition and where no communication current is transmitted to the FACP. Reference spacing requirements in Section 4.

11. PAD Protocol Dip Switch Settings

The following information is for setting the dipswitches on the PAD100-PD, PAD200-PD, PAD100-PHD, PAD200-PHD, PAD200-PCD, PAD200-PCHD, PAD100-HD and PAD100-CD detectors and modules.

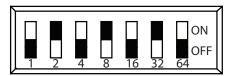
Setting the Address: All PAD protocol detectors and modules require an address prior to connection to the panel's SLC loop. Each PAD device's address (i.e., detector and/or module) is set by changing the dip switches located on the device. PAD device addresses are comprised of a seven (7) position dip switch used to program each device with an address ranging from 1-127 (FIGURE 10).

The below examples (FIGURE 8 and FIGURE 9) illustrate a PAD device's dip switch settings. The first example (FIGURE 8) illustrates a device not addressed where all dip switch settings are in the default OFF position. The second example (FIGURE 9) illustrates an addressed PAD device via the dip switch settings.



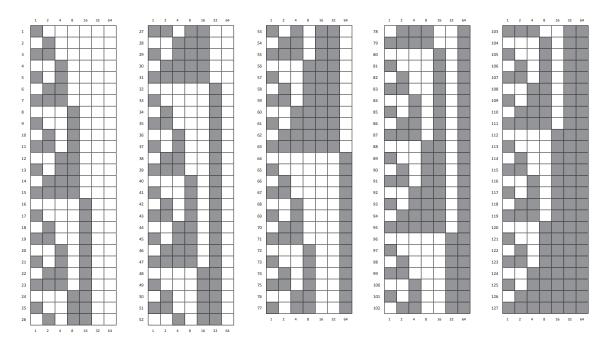
All dip switches are shown in the OFF position

FIGURE 8: Enlarged View of PAD Device with Dip Switch Setting Unaddressed



Shows this PAD device's address is #42. Dip Switch 1, 4, 16 and 64 are OFF. Dip Switch 2, 8 and 32 are ON.

FIGURE 9: Enlarged View of PAD Device with Dip Switch Setting Addressed



NOTE: Each gray box indicates that the dip switch is ON and each white box indicates the dip switch is OFF.

FIGURE 10: PAD Device Dip Switch Addresses Table (Addresses 1-127)

LIMITED WARRANTY

EIMITED WARRANTY

For a period of 60 months from the date of manufacture (or as long as required by applicable law), Potter Electric Signal Company, LLC by defects in workmanship and materials under normal use and service.

This warranty does not apply and is void if damage or failure is caused by: accident, abuse, misuse, abnormal use, faulty installation, liquid contact, fire, earthquake or other external cause; operating the appliance outside Potter Electric Signal Company, LLCS published guidelines; or service, alteration, maintenance or penairs performed by anyone other than Potter Electric Signal Company, LLCS published guidelines; or service, alteration, maintenance or penairs performed by anyone other than Potter Electric Signal Company, LLCS published guidelines; or service, alteration, maintenance or bether than the appliance.

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