Reliable®

Models A & B Automatic Pressure Maintenance Devices

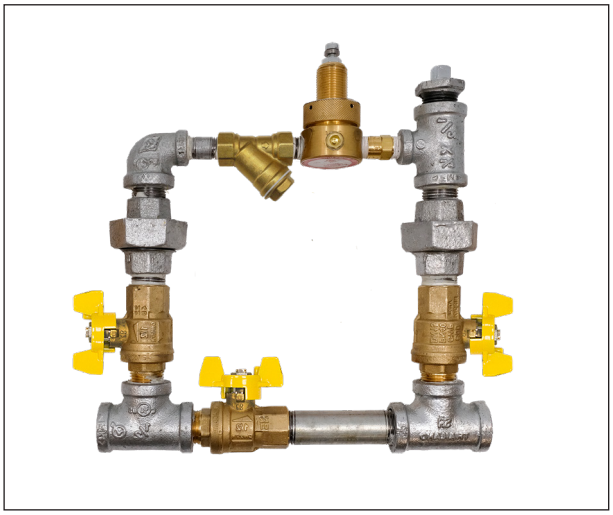
cULus Listed, FM Approved

Product Description

Model A Pressure Maintenance Device

The Model A Pressure Maintenance Device (PMD) is designed for use where a source of compressed air (plant air system, tank-mounted compressor with a pressure control, etc.) or nitrogen cylinder (equipped with a high pressure regulating device) is available. The regulator in the Model A PMD reduces higher pressure air or nitrogen to a level required by a dry pipe valve, dry pilot line, or a deluge valve based preaction system. The Model A PMD will maintain a constant pressure in the system regardless of any pressure fluctuations from the compressed air or nitrogen source.

Basic functionality of components (refer to Fig. 1): The strainer prevents foreign matter that may be present in the air supply from traveling to the regulator and the check valve, thereby ensuring proper operation. The check valve prevents the reverse flow of water resulting from a dry pipe or deluge valve operation from reaching the regulator. Isolation valves on the pressure control loop allow for the servicing of the strainer and regulator without having to shut down the sprinkler system. The lower ball valve permits the rapid restoration (quick-fill) of the required system air pressure during commissioning, or after service or operation. The lower ball valve must be closed and the isolation valves on the control loop must be open for proper automatic operation.



Model A Pressure Maintenance Device

Model B Pressure Maintenance Device

The Model B Pressure Maintenance Device (PMD) is designed for use in conjunction with a tankless air compressor without a pressure control switch to maintain the correct air pressure in a dry pipe valve, dry pilot line, or a deluge valve based preaction system.

Basic functionality of components (refer to Figure 2): A drop in the sprinkler system air pressure causes the contacts of the pressure switch to close, thereby activating the air compressor. When the pre-adjusted level of air pressure is restored, the pressure switch contacts re-open, thereby deactivating the air compressor. The pressure switch is also equipped with an unloader valve that automatically bleeds off the air compressor outlet pressure each time the contacts of the pressure switch open. This protects the air compressor motor from overloading during startup. Like the Model A, the Model B Pressure Maintenance Device is provided with isolation valves on the pressure control loop to allow for servicing of the strainer and pressure switch without having to shut down the sprinkler system. The lower ball valve permits the rapid restoration (quick-fill) of the required system air pressure during commissioning, or after service or operation. The lower ball valve must be closed and the isolation valves on the control loop must be open for proper automatic operation.

Model B Pressure Maintenance Device

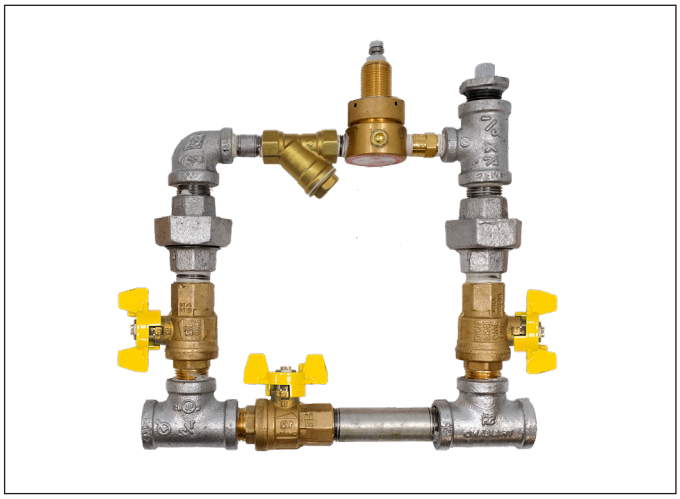
Outlet Pressure Range: 5 - 75 psi (0.3 – 5.2 bar)
Maximum Inlet Pressure: 175 psi (12 bar)
Inlet/Outlet Threads: 1/2" NPT (A)

The Model A Pressure Maintenance Device is factory set to maintain 10 psi (0.7 bar) [PN 6304001110] or 23 psi (1.6 bar) [PN 6304001123] system air or nitrogen pressure.In order to change the outlet pressure, loosen the locknut at the top of regulator and turn the adjustment screw clockwise to increase pressure. To decrease the pressure, turn the adjusting screw counter clockwise. The resulting pressure can be determined at the sprinkler system air gauge, or the optional gauge location provided on the device, once the flow or air or nitrogen through the device has ceased.

Note: The locknut of the regulator must be tightened after adjusting in order to prevent an accidental change in the pressure setting.

Installation

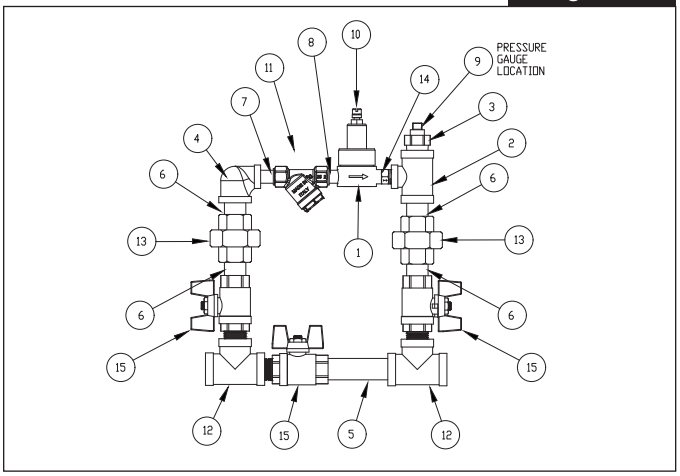
Install the pressure maintenance device in the line between the compressed air or nitrogen supply and the dry pipe system, preaction system, or dry pilot line detection system. The supply for the Model A Pressure Maintenance Device can be a tank-mounted compressor (dedicated or plant air), a nitrogen generator with a tank, or bottled nitrogen with a high pressure regulator. Install the Model A as close as possible to the dry pipe valve, deluge valve, or preaction system. Please refer to the appropriate technical bulletin for additional information.



Model A Pressure Maintenance Device

Note: It is imperative that the entire air or nitrogen supply system be tested and made leak-free. Leaks in the supply system will result in excessive compressor operation, depletion of bottled nitrogen, and possible unintended release of the fire protection system.

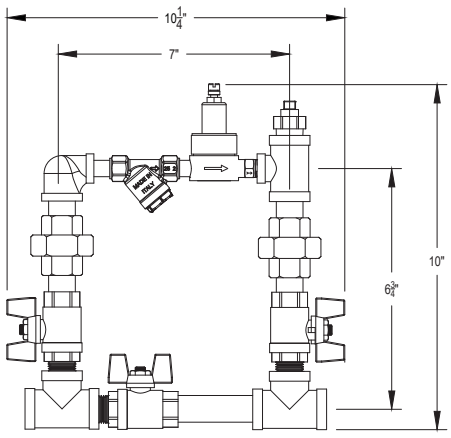
Model A Pressure Maintenance Device **Figure 1**



Model A Pressure Maintenance Device
P/N 6304001123 (23 psi), (All steel pipe fittings are galvanized)

Item No.	Part No.	Description	Qty.
1	94392048	LABEL, SET PRESSURE (10 PSI)	1
	94392196	LABEL, SET PRESSURE (23 PSI)	1
2	96606607	TEE, 1/2 X 1/2 X 1/4, GALVANIZED	1
3	98048000	BUSHING REDUCER, 1/2 X 1/4, GALVANIZED	1
4	98174406	ELBOW, REDUCING, 1/2 X 1/4, 90°, GALV.	1
5	98543207	NIPPLE, 1/2 X 4, GALVANIZED STEEL	1
6	98543212	NIPPLE, 1/2 X CLOSE, GALVANIZED STEEL	4
7	98543226	NIPPLE, 1/4 X 1-1/2, GALVANIZED STEEL	1
8	98543227	NIPPLE, 1/4 X CLOSE, GALVANIZED STEEL	1
9	98614403	PIPE, PLUG, IRON, SQUARE HEAD, 1/4	1
10	98681630	REGULATOR, AIR LINE R44-283-RNKA	1
11	98727607	STRAINER, 1/4"	1
12	98761651	TEE, 1/2 X 1/ 2X 1/2,GALVANIZED	2
13	98815200	UNION, 1/2, IRON, G.J., GALV.	2
14	98840147	CHECK VALVE, 1/4, NPT, POPPET TYPE INLINE	1
15	9884011A	VALVE, BALL, 1/2 NPTF X 1/2 NPTM	3

Model A Dimensions **Figure 2**



NOTES:
1. Dimensions are approximate based upon make-up tolerances of fittings.
2. Additional fittings may be required when replacing the Reliable Model A-2 Pressure Maintenance Device.

Pressure Switch Adjustment Range: 14 – 60 psi (1.0 – 4.1 bar)
Maximum Inlet Pressure: 175 psi (12 bar)
Inlet/Outlet Threads: 1/2" NPT (B)

WARNING: Disconnect power to the Model B Pressure Maintenance Device prior to opening the pressure switch cover.

The pressure switch is factory set (+/- 2 psi) to start the compressor at 29 psi (2.0 bar) and stop the compressor at 35 psi (2.4 bar). In order to change the setting, remove the pressure switch cover and follow the directions contained within the switch. Verify the start and stop pressures at the sprinkler system air gauge, or at the optional gauge location provided on the device.

Note: Adjustment of the differential between the start and stop pressures of the compressor is not recommended.

Electrical Rating:

Single Phase: 120 Volts AC; 2 hp
240 Volts AC; 3 hp
600 Volts AC; 5 hp

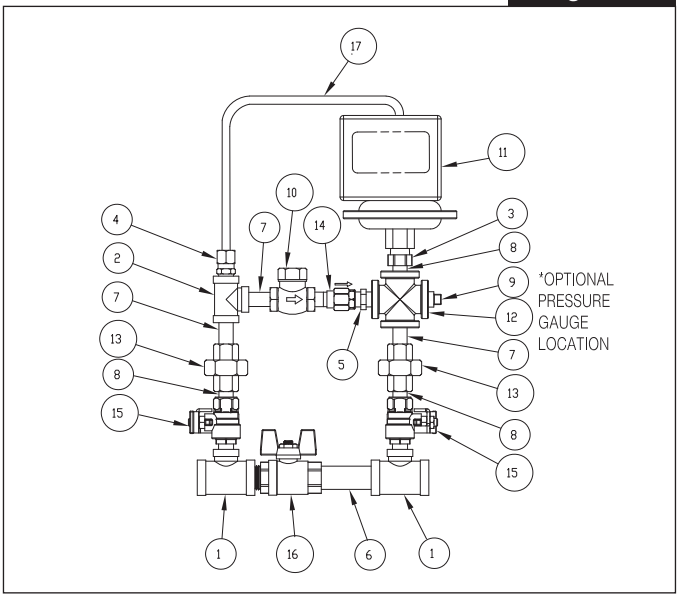
Three Phase: 240 Volts AC; 5 hp
600 Volts AC; 5 hp
115-230 Volts DC; 3 hp

Installation

Install the pressure maintenance device in the line between the air compressor and the dry pipe system, preaction system, or dry pilot line detection system. The supply for the Model B Pressure Maintenance Device is a tank-less compressor without a pressure switch. Install the Model B as close as possible to the dry pipe valve, deluge valve, or preaction system. Please refer to the appropriate technical bulletin for additional information.

Note: It is imperative that the entire air or nitrogen supply system be tested and made leak-free. Leaks in the supply system will result in excessive compressor operation, depletion of bottled nitrogen, and possible unintended release of the fire protection system.

Model B Pressure Maintenance Device **Figure 3**



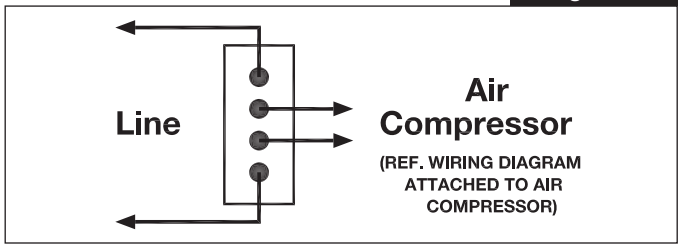
Model B Pressure Maintenance Device

Model B Pressure Maintenance Device Wiring:

Remove the pressure switch cover and connect the wiring in accordance with the National Electric Code or other appropriate standards. The connections should be as shown in Figure 4 for single phase wiring of thermally protected compressor motors.

For 3-phase wiring, a listed and/or approved, properly sized magnetic motor starter with appropriate NEMA enclosure must be provided. The wiring of the pressure switch, motor starter, and air compressor must be in accordance with the National Electrical Code, or other appropriate standards.

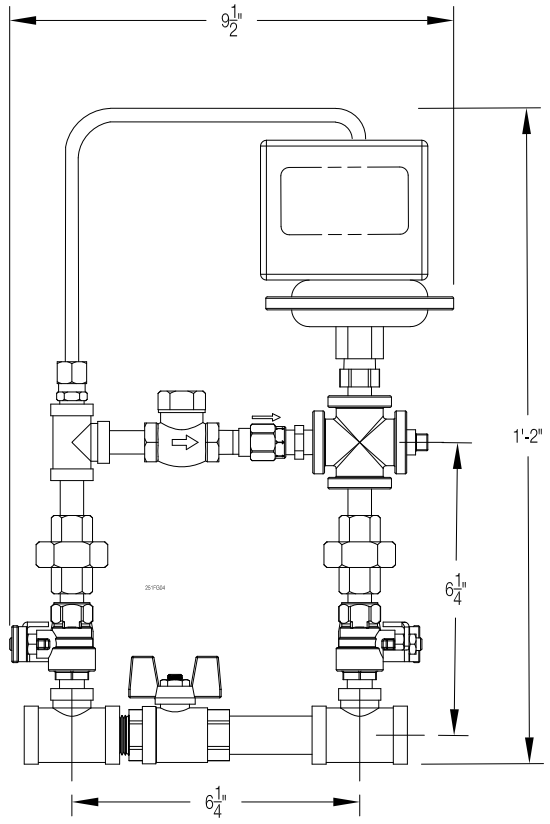
Model B PMD Electrical Connections **Figure 4**



Model B Pressure Maintenance Device
P/N 6304012100 (All steel pipe fittings are galvanized)

Item No.	Part No.	Description	Qty.
1	96606607	TEE, 1/2" X 1/2" X 1/4"	2
2	96606608	TEE, 1/4" X 1/4" X 1/4"	1
3	98048034	BUSHING, 3/8" X 1/4"	1
4	98085630	CONNECTOR, 1/4" TUBING X 1/4" NPT	1
5	98523100	RESTRICTION ORIFICE	1
6	98543230	NIPPLE, 1/2" X 3"	1
7	98543226	NIPPLE, 1/4" X 1-1/2"	3
8	98543227	NIPPLE, 1/4" X CLO	3
9	98614403	SQ. HEAD PLUG, 1/4"	1
10	98727607	STRAINER, 1/4"	1
11	98728801	PRESSURE SWITCH; 14 PSI TO 60 PSI	1
12	98750004	CROSS, 1/4"	1
13	98815201	G.J. UNION, 1/4"	2
14	98840188	CHECK VALVE, 1/4" NPTM x NPTF	1
15	98840237	BALL VALVE, 1/4" NPTM X NPTF	2
16	9884011E	BALL VALVE, 1/2" NPTM X NPTF	1
17	98768000	COPPER TUBING, 1/4"	18"

Model B Dimensions **Figure 5**



NOTES:
1. Dimensions are approximate based upon make-up tolerances of fittings.
2. Additional fittings may be required when replacing the Reliable Model B-1 Air Maintenance Device.

Maintenance

Refer to Figures 1 & 3.

1. Review the latest NFPA 13 and NFPA 25 Standards, any appropriate dry pipe or deluge valve installation bulletins, and the section in this bulletin titled “Installation” to ensure that the pressure maintenance device is installed properly.
2. Make sure that both valves on the pressure control loop are open, and the quick-fill bypass valve is closed.
3. Check the gas pressure in the dry pipe, deluge or preaction system at the pressure gauge located on those devices. See the section titled “Adjustment” if any are required.
4. If maintenance is to be performed on the strainer, regulator, or pressure switch of the pressure maintenance device, make sure that both valves on the pressure control loop are closed and that pressure has been relieved from the section being serviced. The valves on the pressure control loop must be opened again in order to restore proper automatic operation.
5. The strainer should be cleaned periodically to prevent contamination from blocking air flow. This can be done by removing the strainer’s cap and wiping or blowing off any collected debris.
6. Make sure the check valve is installed according to the schematic with the arrow on its hexagonal side pointing in the required direction of air flow.
7. If the regulator in the Model A Pressure Maintenance Device is constantly leaking at the adjusting screw, the regulator may contain dirt keeping the poppet open and should be cleaned or replaced.
8. Check the inside housing of pressure switch of the Model B Pressure Maintenance Device for dirt or foreign matter and verify that the wiring is fastened securely and is wiring insulation is in good condition.

Listings and Approvals

- Listed by Underwriters Laboratories, Inc. and Underwriters Laboratories of Canada. (cULus)
- FM Approved

Guarantee

For Reliable Automatic Sprinkler Co., Inc. guarantee, terms, and conditions, visit www.reliablesprinkler.com.

Ordering Information

Specify:

Model A Pressure Maintenance Device- 10 psi (0.7 bar)
Model A Pressure Maintenance Device- 23 psi (1.6 bar)
Model B Pressure Maintenance Device

P/N 999997040