



**MODEL SSS-101
DESIGN, INSTALLATION, OPERATION,
AND MAINTENANCE MANUAL**

Serial Number _____

Date of Installation _____ Date of Commissioning _____

UNITED Fire Systems

Division of UNITED Fire Protection Corporation
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Kenilworth, NJ USA 07033
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www.unitedfiresystems.net

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SAFETY INFORMATION

This manual contains safety information that is important to know and understand. This information is provided for the safety of installers, operators, and users of the UNITED Fire Systems **STANDPIPE-PAC™** equipment. Carefully read, understand, and follow instructions identified by these symbols.



DANGER

The use of the word “DANGER” identifies an immediate hazard with a likelihood of death or serious personal injury if instructions, including recommended precautions, are not followed.



WARNING

The use of the word “WARNING” identifies the presence of hazards or unsafe practices that could result in death, personal injury, or serious property damage if instructions, including recommended precautions, are not followed.



CAUTION

The use of the word “CAUTION” identifies possible hazards or unsafe practices that could result in personal injury or property damage if instructions, including recommended precautions, are not followed.



IMPORTANT

The use of the word “IMPORTANT” identifies special instructions, not related to hazards, that should be followed.

FOREWORD

This manual is written for those who install, operate and maintain UNITED Fire Systems **STANDPIPE-PAC™** standpipe supervisory systems. The manual contains installation, operation, and maintenance information for the system. This manual must be read thoroughly and completely understood before installation and operation of UNITED Fire Systems **STANDPIPE-PAC™** equipment. All appropriate safety standards as determined by local or national laws and regulations should be followed at all times. When handling, installing, or operating this equipment, personnel must employ safe engineering practices and observe all related local regulations, health, and safety procedures, and legal requirements for safety. Ensure that the equipment is depressurized and electrically isolated before carrying out any of the scheduled maintenance instructions specified in this manual.



WARNING

DO NOT install, operate, or maintain unit if damage has occurred during shipping, handling, or use. Contact UNITED Fire Systems immediately. Failure to do so could result in death, personal injury, or serious property damage.



CAUTION

Read all of the safety information in this manual before installing, operating, or maintaining this equipment. Use of the equipment in a manner not specified within this manual may impair the protection provided by this equipment and could result in serious injury or damage. Only competent personnel should perform installation, operation, and maintenance procedures.



IMPORTANT

UNITED Fire Systems assumes no responsibility for the installation, operation, or maintenance of any systems other than those addressed in this manual. The data contained in this manual is for information purposes only. UNITED Fire Systems believes this data to be accurate at the time of publication, but the data is published and presented without any guarantee or warranty whatsoever. UNITED Fire Systems disclaims any liability for any use that may be made of the data and information contained in this manual by any and all parties.



IMPORTANT

The UNITED Fire Systems **STANDPIPE-PAC™** standpipe supervisory system is a vital part of the fire protection of any facility where these units are installed. Life safety and property protection depends on continuing proper operation of the assembly. The owner of the **STANDPIPE-PAC™** is responsible for the condition of the assembly and its continued proper operation. UNITED Fire Systems strongly recommends that all owners of **STANDPIPE-PAC™** systems engage the services of qualified, trained fire protection professionals to design the system containing the assembly, and to install and maintain the assembly.

UNITED Fire Systems **STANDPIPE-PAC™** standpipe supervisory systems are to be installed, operated, and maintained by qualified, trained personnel in accordance with:

- This Installation, Operation, and Maintenance Manual P/N 10-540101-001 Revision 2.00.
- National Fire Protection Association No. 14, "Standard for the Installation of Standpipe and Hose Systems."
- National Fire Protection Association No. 25, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems."
- National Fire Protection Association No. 70, "National Electrical Code®".

Any questions on the information in this manual should be addressed to:

UNITED Fire Systems, Division of United Fire Protection Corporation
1 Mark Road, Kenilworth, NJ USA 07033
908-688-0300 www.unitedfiresystems.net

LIMITED WARRANTY STANDPIPE-PAC™

What Does This Warranty Cover?

This warranty covers all manufacturing defects in material and workmanship in your new **STANDPIPE-PAC™**.

How Long Does The Coverage Last?

This warranty lasts for ninety (90) days from the date of shipment to the original purchaser.

What Will UNITED Fire Systems Do?

UNITED Fire Systems will repair, replace, or refund the purchase price of, at its option, any defective **STANDPIPE-PAC™** at no charge.

What Does This Warranty Not Cover?

STANDPIPE-PAC™s that have NOT been commissioned by UNITED Fire Systems or a trained distributor are not covered under this warranty. If you modify, change, or alter your **STANDPIPE-PAC™** without instructions from UNITED Fire Systems, the **STANDPIPE-PAC™** is not covered. If you break tamper seals applied by UNITED Fire Systems, the sealed parts are not covered. Any problem that is caused by abuse, misuse, or an act of God (such as a flood) is not covered. Also, consequential and incidental damages are not recoverable under this warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

How Do You Obtain Service?

In order to be eligible for service under this warranty, your **STANDPIPE-PAC™** must have been commissioned by UNITED Fire Systems or a trained distributor. If something goes wrong with your **STANDPIPE-PAC™**, contact:

UNITED Fire Systems
Division of UNITED Fire Protection Corporation
1 Mark Road
Kenilworth, NJ 07033 USA
Phone: 908-688-0300
Fax: 908-481-1131

= OR =

Your
Trained
Distributor

UNITED Fire Systems or your trained distributor will contact you within 24 hours to arrange for evaluation of your **STANDPIPE-PAC™**.

Is This Warranty Transferable?

If the **STANDPIPE-PAC™** is moved from one to another installation during the time period of warranty coverage, the **STANDPIPE-PAC™** must be re-commissioned by UNITED Fire Systems or your trained distributor to be eligible for continuing coverage. You must pay a quoted charge for this re-commissioning.

Is This The Entire Warranty?

This limited warranty is the entire warranty given by UNITED Fire Systems to the purchaser of a new **STANDPIPE-PAC™**. There are no other warranties expressed or implied, beyond those required by law.

How Do State and Federal Laws Apply?

This warranty gives you specific legal rights per Federal law. You may also have other rights which vary from state to state.

1. GENERAL INFORMATION

1.1. System Purpose. The UNITED Fire Systems **STANDPIPE-PAC™** Model SSS-101 Standpipe Supervisory System is a fully assembled standpipe supervisory system, including compressor, switches, alarm, and control unit providing one complete zone of standpipe supervision in compliance with Boston FD TCM3-51725. All components are mounted on a sturdy wooden backboard, suitable for hanging at a construction or demolition site.

1.2. Boston FD TCM3-51725

Boston FD TCM3-51725 was implemented in response to serious difficulties encountered when fire standpipes at construction and demolition sites were damaged, rendering the standpipes unsuitable for fire department use. The directive requires that all fire standpipes in vacant buildings, buildings undergoing demolition, and required permanent or temporary standpipes in buildings under construction be equipped with a system to pressurize the standpipe at all times, which then would sense the pressure loss if a portion of the standpipe was damaged or completely removed. Detailed requirements for the system are specified in the directive. **STANDPIPE-PAC™** has been designed to aid in compliance with the requirements in Boston FD TCM3-51725. **IMPORTANT:** Boston FD TCM3-51725 requires that an application to install an air pressurized alarm system be filed by a registered design professional, and a permit obtained by a licensed sprinkler contractor. A licensed electrician shall obtain all required electrical permits. Install **STANDPIPE-PAC™** after application is made and accepted, and all permits received. To review Boston FD TCM3-51725 in its entirety, go to: www.unitedfiresystems.net.

1.3. Functional Description. See Figures 1, 2, 3, and 4. **STANDPIPE-PAC™** consists of the following:

- (1) Air compressor with automatic control switch. The air compressor compresses atmospheric air for pressurizing the standpipe. The automatic control switch starts the compressor when the pressure is below 13 PSIG, and stops the compressor when the pressure exceeds 18 PSIG.
- (2) Desiccant air dryer. The desiccant air dryer dries the compressed air before entry into the standpipe, as required by Boston FD TCM3-51725.
- (3) Low-limit pressure sensing switch. This switch senses when the pressure in the standpipe drops below 7 PSIG, as would happen if a standpipe valve was inadvertently opened, or a portion of the piping was inadvertently removed. This switch sends its signal to the control unit (8).
- (4) High-limit pressure sensing switch. This switch senses when the pressure in the standpipe exceeds 23 PSIG, as may happen if the automatic control switch on the air compressor (1) fails. This switch sends its signal to the control unit (8).
- (5) Pressure gauge. The pressure gauge indicates the approximate pressure in the system in PSIG.
- (6) Check valve. The check valve prevents entry of water into the **STANDPIPE-PAC™** when the Fire Department pumps water into the standpipe. This device is required by Boston FD TCM3-51725.
- (7) Lockable shutoff valve. This valve permits maintenance on the **STANDPIPE-PAC™** without de-pressurizing the entire standpipe. This device is required by Boston FD TCM3-51725, and per this directive, shall be locked in the OPEN position.
- (8) Control unit with power supply, backup battery, silence switch, and automatic dialer. The control unit accepts the signals from the pressure sensing switches (4) and (5), and operates the signal horn (9). The silence switch allows the signal horn (9) to be silenced. The power supply is dedicated to the system as required by Boston FD TCM3-51725, and provides for backup battery power for the control unit. This device also provides an automatic dialer for connection of telephone lines for off-site notification.
- (9) A signal horn. Additional signal horns may be connected so that signaling may be heard throughout the site.
- (10) A junction box for connection of 120 VAC, 60 Hz, single phase power for both the air compressor (1) and the control unit (8). Connection of 120VAC 60 Hz single phase in this box provides power for both the air compressor (1) and the control unit (10).
- (11) An outlet for connection of piping to the dry standpipe. 1/2" NPT pipe (provided by installer) is run from the outlet to a connection point on the standpipe.
- (12) A disconnect switch to remove power from the air compressor (1). This switch facilitates testing and maintenance of the system.
- (13) A test / service device. See instructions in this manual for use of this device.
- (14) A serial number nameplate.

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- (15) A manual air release bleed valve for Fire Department use. This device is to be installed near the siamese connection feeding the standpipe. A cap and chain is provided to protect the outlet. An instruction nameplate is also provided. This nameplate is to be securely fastened near the valve.
- (16) A remote weatherproof audible / amber visual device with weatherproof backbox and identification nameplate. This device is required by Boston FD TCM3-51725. The installer must locate this device immediately outside the location of the **STANDPIPE-PAC™**, and wire the device in accordance with the instructions in this manual.
- (17) An auxiliary condensate drain device. This device permits manual draining of water in the piping near the **STANDPIPE-PAC™** unit, to help prevent water entry into the unit and pipe blockage without removing all air from the standpipe. (Figure 4)

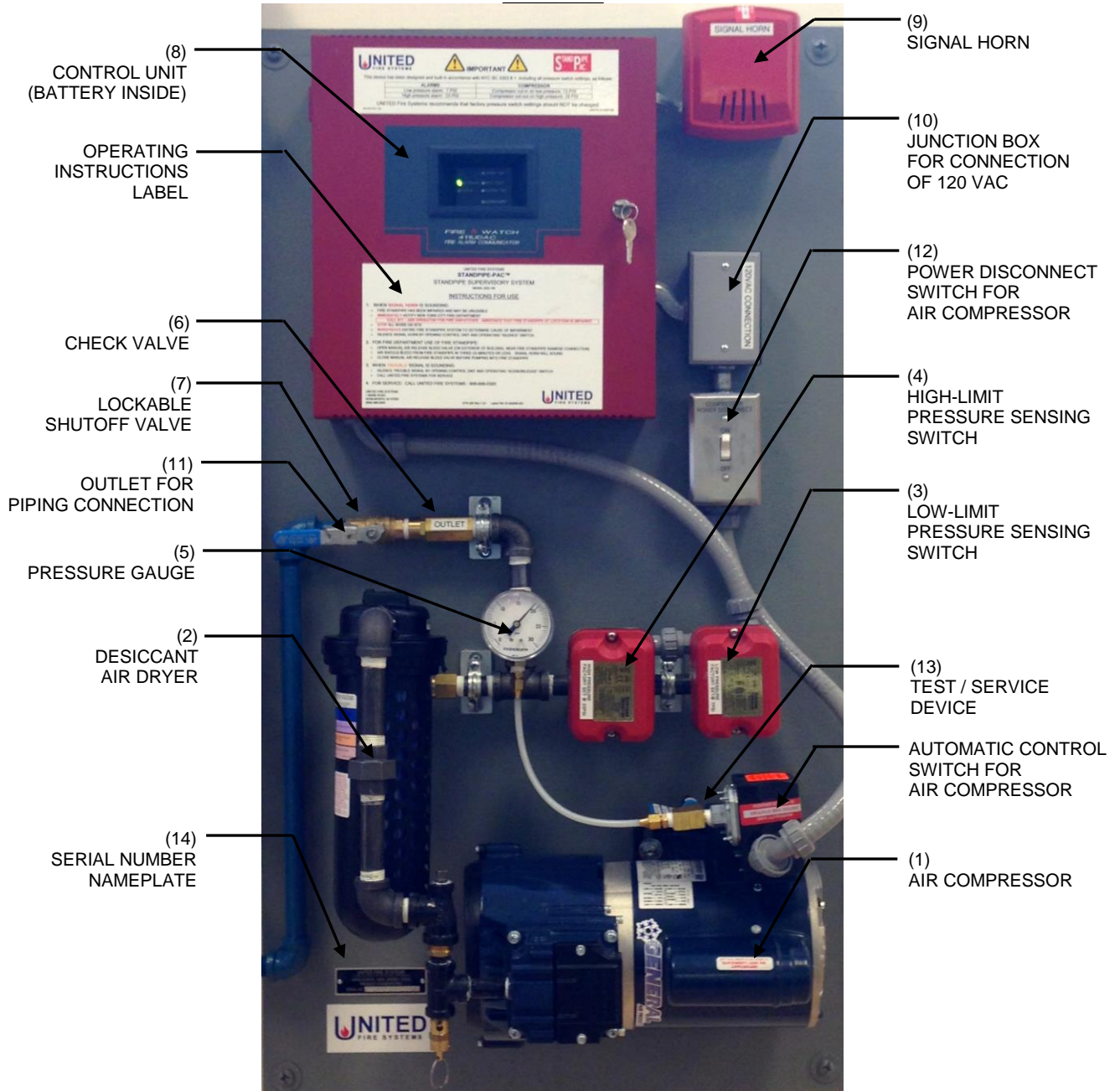


Figure 1 – STANDPIPE-PAC™ Unit

Figure 2 – Manual Air Release Bleed Valve

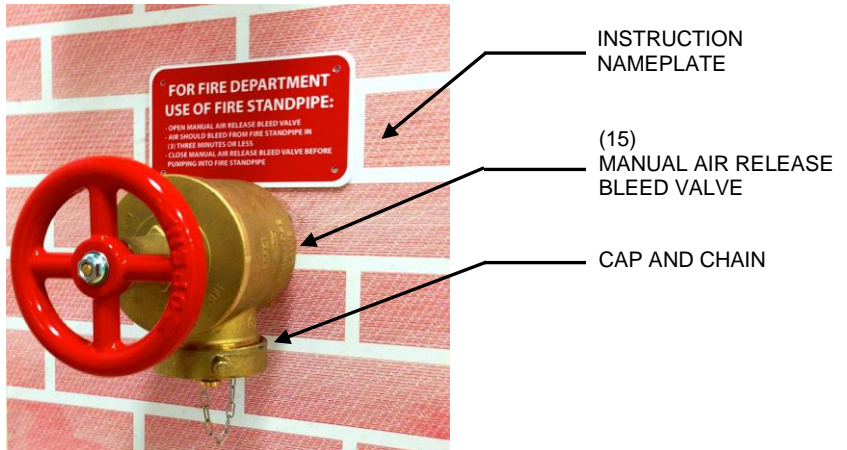
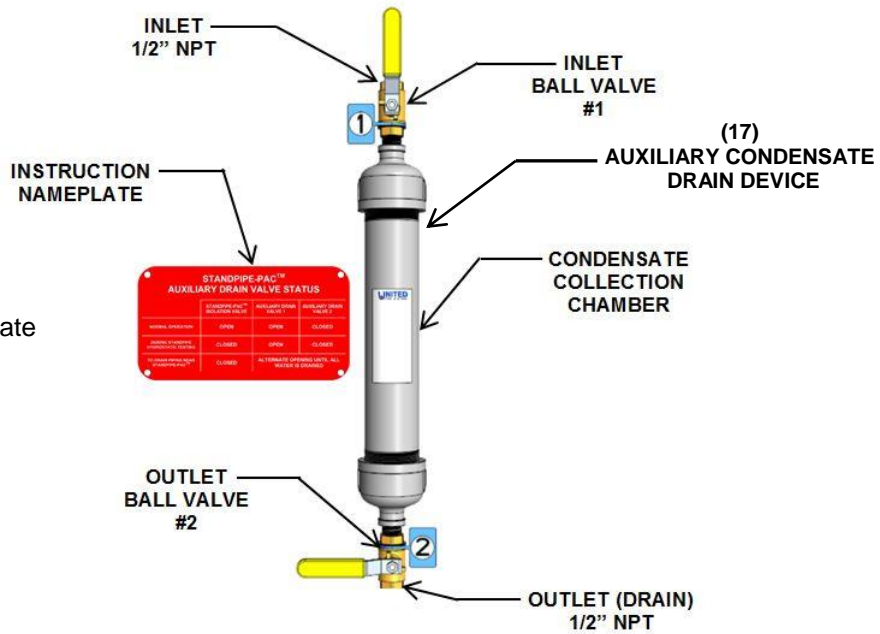


Figure 3 – Remote Weatherproof Audible / Amber Visual Device with Weatherproof Backbox



Figure 4 – Auxiliary Condensate Drain Device



2. DESIGN. The specific **STANDPIPE-PAC™** to use is chosen based on the internal volume of the standpipe to be protected, and the desired fill time. See Table 1. Four (4) different units are available, based on compressor size.

STANDPIPE-PAC™ Part Number	Compressor Size, HP
SSS-101-16	1/6
SSS-101-13	1/3
SSS-101-12	1/2
SSS-101-34	3/4

Table 1 – Available **STANDPIPE-PAC™** Units

2.1. Determining Internal Volume of Standpipe. See Table 2. The internal volume of the standpipe, in gallons, is determined by multiplying the length of each pipe, by size, by the internal volume per foot, in gallons.

Nominal Pipe Size	Pipe Length in Feet		Gallons per Foot	Gallons
1-1/2"		X	0.106	
2"		X	0.174	
2-1/2"		X	0.248	
3"		X	0.383	
4"		X	0.660	
6"		X	1.500	
8"		X	2.600	
Other		X		
			TOTAL =	

Table 2 – Determining Internal Volume of Standpipe

2.2. Determining Desired Fill Time. Per Boston FD TCM3-51725, any impairment lasting 4 hours or more requires shutdown of the construction / demolition site and notification to the Boston Fire Department. The usual criterion is to fill / refill the standpipe in less than 4 hours, with margin for work performed for construction / demolition. NOTE: The NFPA 13 sprinkler system rule of 30 minutes “fast-fill” DOES NOT apply to standpipes.

2.3. Determining Proper STANDPIPE-PAC™ To Use. See Figure 5.

- 2.3.1. Find the desired fill time at the bottom of the graph.
- 2.3.2. Find the standpipe internal volume at the left of the graph.
- 2.3.3. Determine the intersection of the lines from these two values.
- 2.3.4. Choose the next-highest compressor horsepower.
- 2.3.5. Determine the P/N of the appropriate **STANDPIPE-PAC™** from Table 1.

**Estimation of Standpipe Fill Time
Based on Compressor Size - HP**

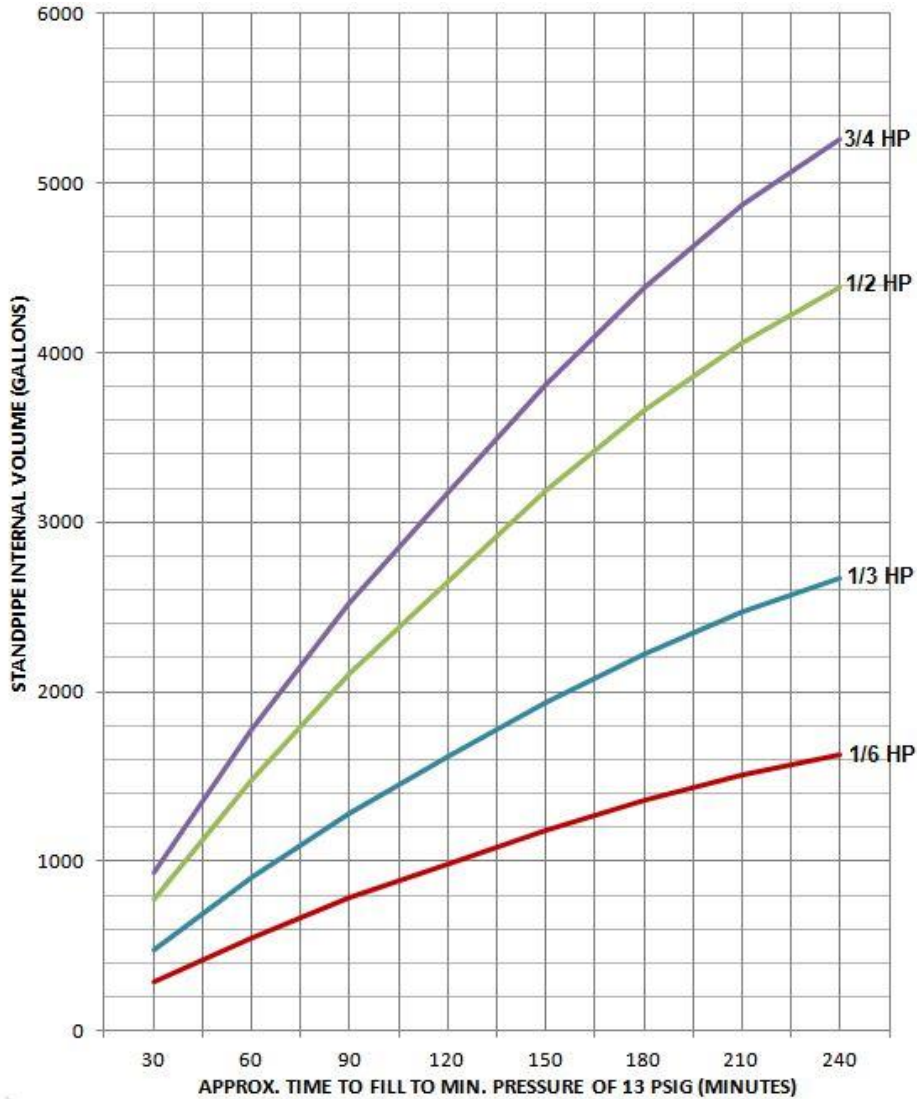


Figure 5 – Estimating Standpipe Fill Time

2.4. Example 1.

Nominal Pipe Size	Pipe Length in Feet		Gallons per Foot	Gallons
6"	750	X	1.500	1125
			TOTAL =	1125 gallons

Required work can be performed in 1/2 hour (30 minutes), so a fill time of 1-1/2 hours (90 minutes) is satisfactory

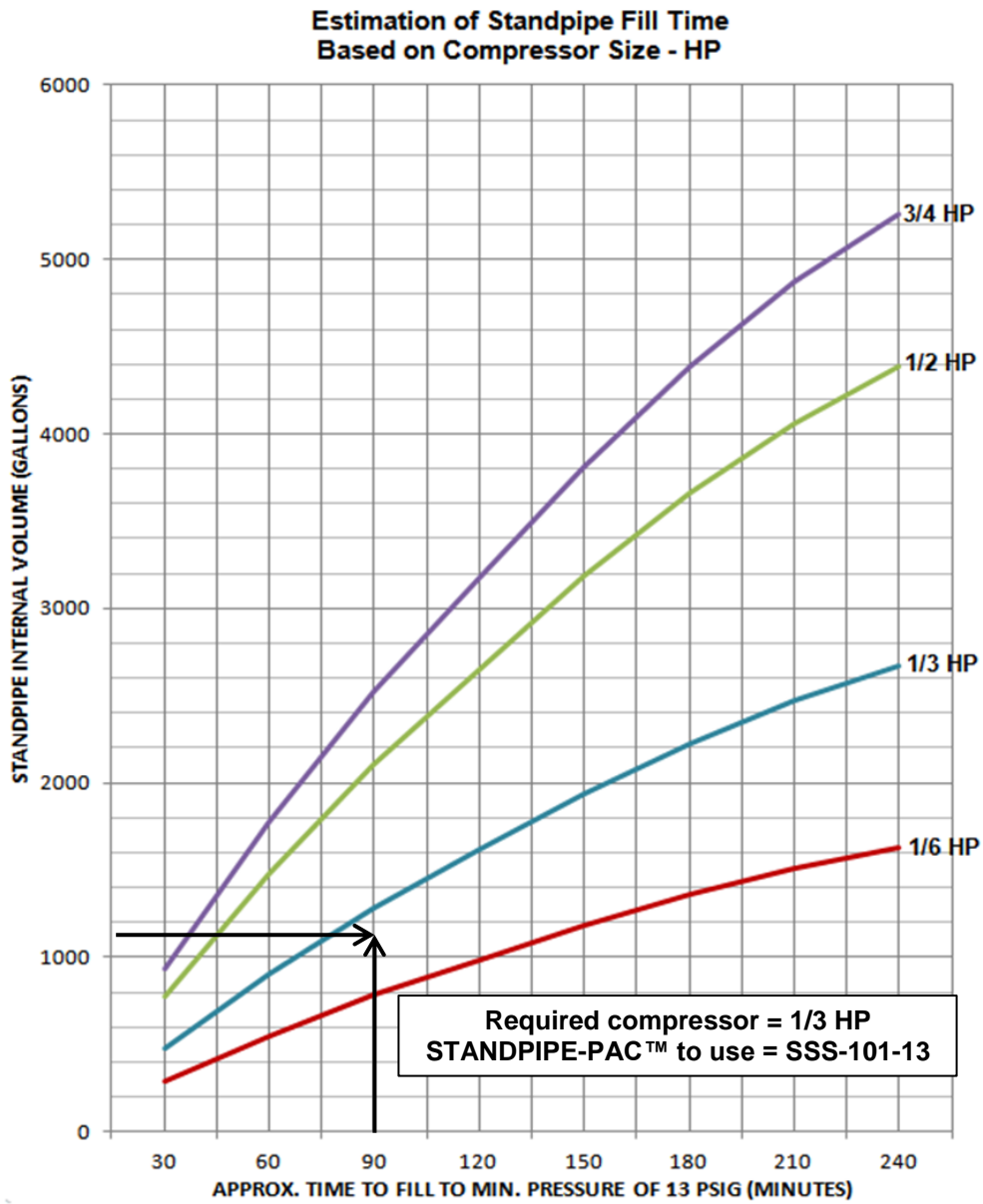


Figure 6 – Design Example 1

2.5. Example 2.

Nominal Pipe Size	Pipe Length in Feet		Gallons per Foot	Gallons
2"	80	X	0.174	14
6"	100	X	1.500	150
8"	550	X	2.600	1430
			TOTAL =	1594 gallons

Fill time of 1 hour (60 minutes) required.

**Estimation of Standpipe Fill Time
Based on Compressor Size - HP**

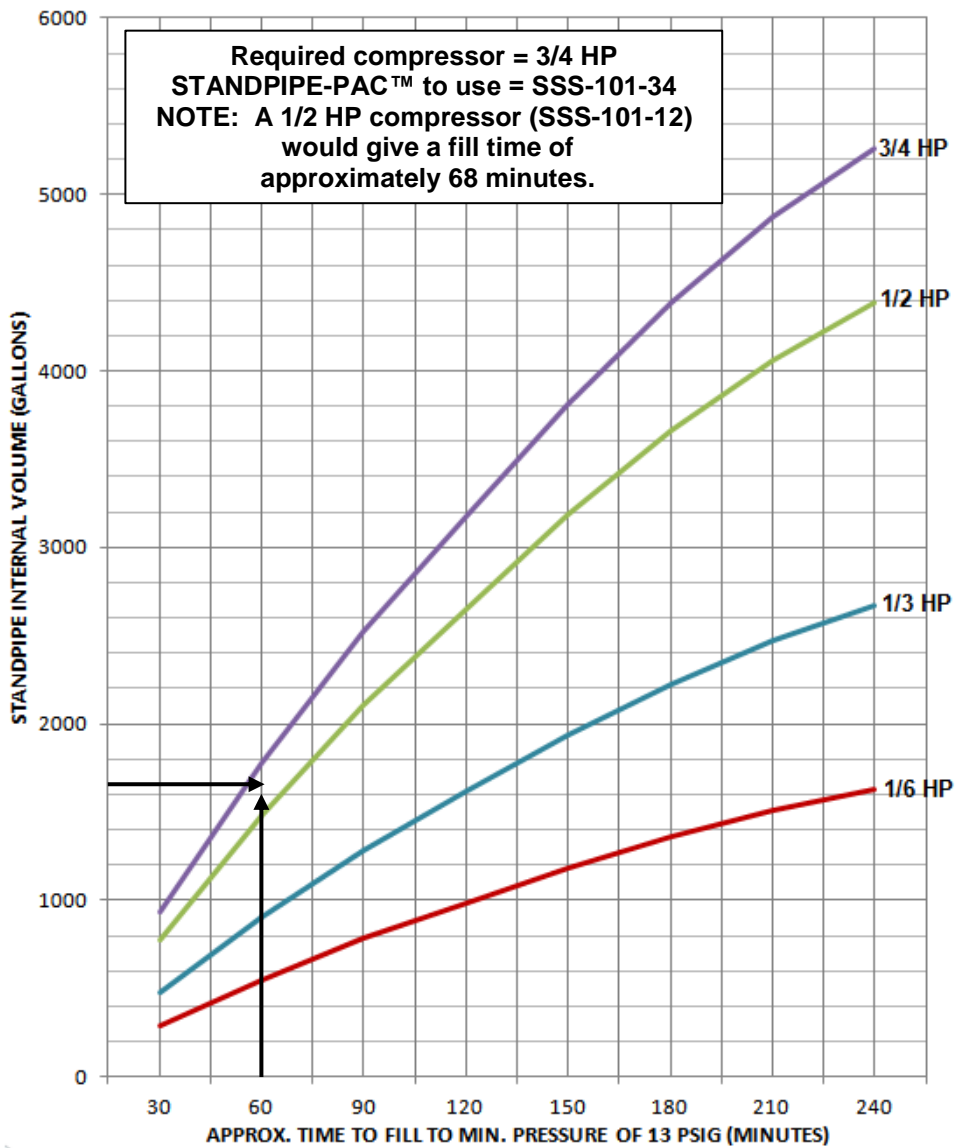


Figure 7 – Design Example 2

2.6. Options.

2.6.1. Additional Audible Signals. Additional audible signals can be added to the Notification Appliance Circuit (NAC) of the **STANDPIPE-PAC™** unit to permit hearing the alarm throughout the facility. Consult Appendix A of this manual for further information. See Paragraph 3.3.5.5 for installation instructions.



IMPORTANT

Signals from the **STANDPIPE-PAC™** unit are NOT fire alarm signals. UNITED Fire Systems recommends that all devices connected to the Notification Appliance Circuit (NAC) of the **STANDPIPE-PAC™** unit be clearly differentiated from any fire alarm signals present in the building.

2.6.2. Off-Site Signaling Via Dialer. The **STANDPIPE-PAC™** control unit is equipped with a built-in dialer for off-site signal notification. See Appendix D for proper hookup of telephone lines for this purpose.

3. INSTALLATION

3.1. Unpacking. Check shipment of the UNITED Fire Systems **STANDPIPE-PAC™** system for damage. If there is any damage or missing parts, the transportation company's agent should make a notation to the effect on the Bill of Lading. Claims should be settled directly with the transportation company. Verify that all parts were received in the shipment as ordered. Contact the factory immediately if there are any missing parts or discrepancies. The following items should be with the shipment:

- **STANDPIPE-PAC™** unit – P/N SSS-101-XX (XX = compressor size)
- Manual air release bleed valve – P/N 06-100004-000
- Cap and chain for manual air release bleed valve – P/N 06-100004-001
- Nameplate for manual air release bleed valve – P/N 10-440001-001
- Standby battery (12 VDC 7.5 A-H) for control unit – P/N 03-100005-001
- Weatherproof audible / amber visual device – P/N 03-100006-101 with amber lens attached.
- Identification nameplate for audible / amber visual device – P/N 03-100008-101
- Design, installation, operation, and maintenance manual – P/N 10-540000-001.
- Auxiliary condensate drain device kit – P/N 10-220000-100



CAUTION

Understand and follow all safety recommendations when moving heavy pieces of equipment. Equipment may be easily tipped over when moving. Failure to use caution can result in equipment damage and personal injury.

3.2. Location. Due consideration must be given to all of the following considerations when locating the **STANDPIPE-PAC™** unit.

3.2.1. Temperature.



IMPORTANT

The **STANDPIPE-PAC™** assembly is designed for use in areas where the temperature DOES NOT drop below +32°F (0° C). DO NOT install **STANDPIPE-PAC™** units in areas where the temperature can go below +32°F (0° C). Failure to comply can result in unit malfunction and damage which is NOT covered by the warranty.

Ensure that the **STANDPIPE-PAC™** unit is installed in a location that will not drop below +32°F (0° C) at any time. This may be accomplished by:

- Choosing a location that will be supplied with building heat during cold weather, or;
- Providing a space heater in the vicinity of the unit when cold weather is expected.

3.2.2. Engineering Drawings (if available). If a survey was conducted, and engineering drawings prepared, locate all equipment per these drawings.

3.2.3. Proximity. The **STANDPIPE-PAC™** unit should be installed in reasonably close proximity to the standpipe being protected. The most logical location is in the same room as the riser. If necessary, the device may be installed remotely. Documentation and signage should be clear to identify which equipment in remote locations is connected together.

3.2.4. Weight. Ensure that the mounting surface is capable of supporting the weight of the **STANDPIPE-PAC™** unit, with a clear safety margin. Consult a structural engineer when necessary to verify suitability of location.

3.2.5. Noise. The **STANDPIPE-PAC™** unit does emit noise when running. Consideration should be given to locating equipment where normal operating noise does not interfere with building operations.

3.2.6. Clearance. Sufficient clearance should be available after installation for maintenance operations to take place. Leave at least (3) feet of clearance for personnel to access equipment for maintenance.

3.3. Installation.

3.3.1. Mounting. See Figure 8. Mount the **STANDPIPE-PAC™** in the chosen mounting location.

- It is strongly recommended that the unit be mounted on a wall.
- The unit weighs approximately 86 lbs. Choose a wall with construction capable of supporting this weight, with a reasonable safety margin.
- Use good standard practice and appropriate fasteners.
- The back board may be drilled as needed for mounting. Do not drill holes too close to corners.
- Leave a minimum of 3 feet of clearance in front of unit for personnel to perform maintenance.

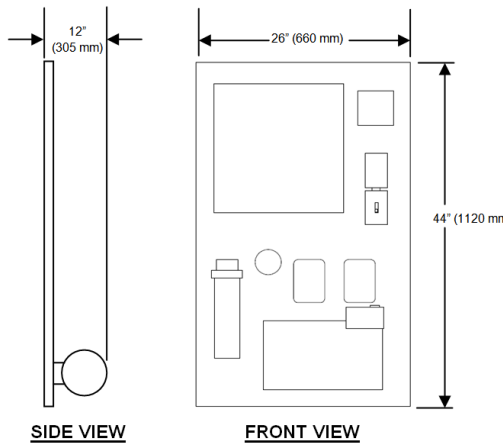


Figure 8 – Dimensions – **STANDPIPE-PAC™** Unit

3.3.2. Piping. See Figure 9. The piping in **BLUE** is to be installed by the **STANDPIPE-PAC™** system installer. Use Sch. 40 black pipe and Class 150 fittings. The tee to connect the **STANDPIPE-PAC™** shall be located after the check valve, and should be located before the drain valve. Connect 1/2" pipe to point labeled **OUTLET** on **STANDPIPE-PAC™** unit. Ensure that the standpipe is **NOT PRESSURIZED** prior to cutting in the tee at the installation location.

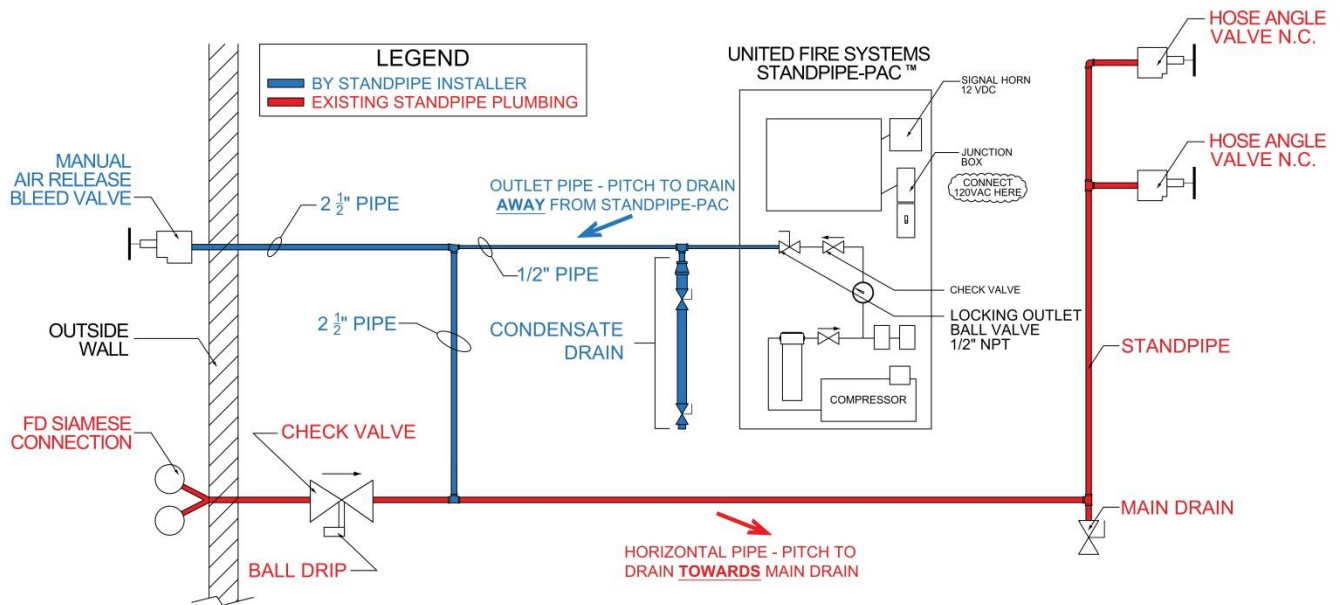


Figure 9 – **STANDPIPE-PAC™** Installation

All dry standpipes should always be maintained as dry as possible. This is to minimize internal corrosion year round, as well as to minimize ice accumulation and blockage during cold weather.

To facilitate drainage, the low point of the standpipe must have a main drain valve, and all pipe should be pitched towards that main drain valve. The main drain valve should be opened on a regular basis, permitting any water accumulation or pooled water from testing to drain.

Dry standpipes installed with supervisory systems shall be installed per Figure 9 above. The diagram indicates several important facts:

1. Where possible, the **STANDPIPE-PAC™** should NOT be the low point of the dry standpipe system.
2. The piping from the **STANDPIPE-PAC™** should be pitched away from the **STANDPIPE-PAC™** so that accumulated water drains away from the **STANDPIPE-PAC™** outlet.
3. Install the Auxiliary Condensate Drain Device where shown on Figure 10, per 3.3.4.



CAUTION

Failure to confirm that the standpipe is **NOT** pressurized could result in personal injury and / or property damage.

3.3.3. Manual Air Release Bleed Valve. See Figure 2. Locate the manual air release bleed valve on the exterior of the building in proximity to the fire department siamese connection feeding the standpipe protected by the **STANDPIPE-PAC™**. Attach the cap and chain to the valve. Secure the provided nameplate to the building or the valve so that the fire department can clearly identify the purpose of the valve and follow the instructions on the nameplate.

3.3.4. Auxiliary Condensate Drain Device



The Auxiliary Condensate Drain Device does NOT take the place of a standpipe system main drain. Ensure that a main drain valve is properly installed at the lowest point of the standpipe, in an accessible area, where all the water from the standpipe may be properly drained.

1. Determine the installation location of the Auxiliary Condensate Drain Device:
 - a. Locate the device in close proximity to the outlet of the **STANDPIPE-PAC™**.
 - b. The location of the **STANDPIPE-PAC™** and the Auxiliary Condensate Drain Device MUST be in an area protected from freezing temperatures (over +32°F (0° C)).
 - c. The device MUST be installed vertically – see Figure 9 and Figure 10.
 - d. No separate bracket is necessary – the inlet piping connection should be satisfactory to hold the device in place.
2. Remove and discard plastic plug from device inlet (Valve 1).
3. See Figure 10. Attach a ½ inch close pipe nipple and the bull of a ½ inch pipe tee to device inlet. (Valve 1)
4. Install a convenient length of ½ inch threaded pipe between the outlet of the **STANDPIPE-PAC™** and the run of the tee attached to the device inlet.
5. See Figure 10. Connect ½ inch pipe to the remaining run of the tee attached to the device and the inlet to the dry standpipe. Pitch the pipe to drain away from the device.
6. See Figure 4. Attach Instruction Nameplate to wall in close proximity to device.

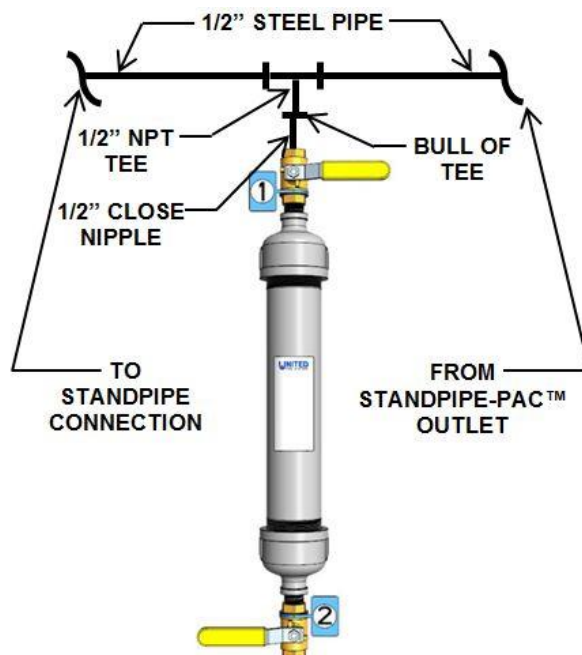



Figure 10 – Auxiliary Condensate Drain Device

3.3.5. Electrical Installation.



DANGER

RISK OF ELECTROCUTION

Voltages and currents associated with **STANDPIPE-PAC™** units are **LETHAL**. Follow all instructions provided. Work on **STANDPIPE-PAC™** unit power **MUST** be performed **ONLY** by qualified individuals. All required precautions to prevent contact with live electrical conductors and equipment **MUST** be taken. Failure to comply with these instructions is an immediate hazard with a likelihood of death or serious personal injury!

3.3.5.1. Codes. All **STANDPIPE-PAC™** wiring and wiring methods shall be in strict compliance with NEC and local codes.

3.3.5.2. Personnel. All wiring shall be performed by licensed electricians.

Part No.	Compressor Motor And Control Unit Voltage (V) / Phase Frequency (Hz)	Compressor Motor Horsepower (HP)	Compressor Motor Current (A)	Control Unit Current (A)	STANDPIPE-PAC™ Total Current (A)
SSS-101-16	115 / 1 / 60	1/6	6.6	0.7	7.3
SSS-101-13	115 / 1 / 60	1/3	6.6	0.7	7.3
SSS-101-12	115 / 1 / 60	1/2	8.0	0.7	8.7
SSS-101-34	115 / 1 / 60	3/4	10.6	0.7	11.3

Table 3 – Current Requirements – **STANDPIPE-PAC™** Units

3.3.5.3. Power Wiring. See Table 3. Choose minimum conductor sizes and overcurrent protective device based on total current shown in table. Connect power in junction box provided for the purpose – see Figure 1. When connecting power, ensure circuit breaker is OFF. Do not turn on circuit breaker until installation is complete and system is ready for commissioning.

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3.3.5.4. Battery Wiring. See Figure 11. **DO NOT** connect battery until commissioning.

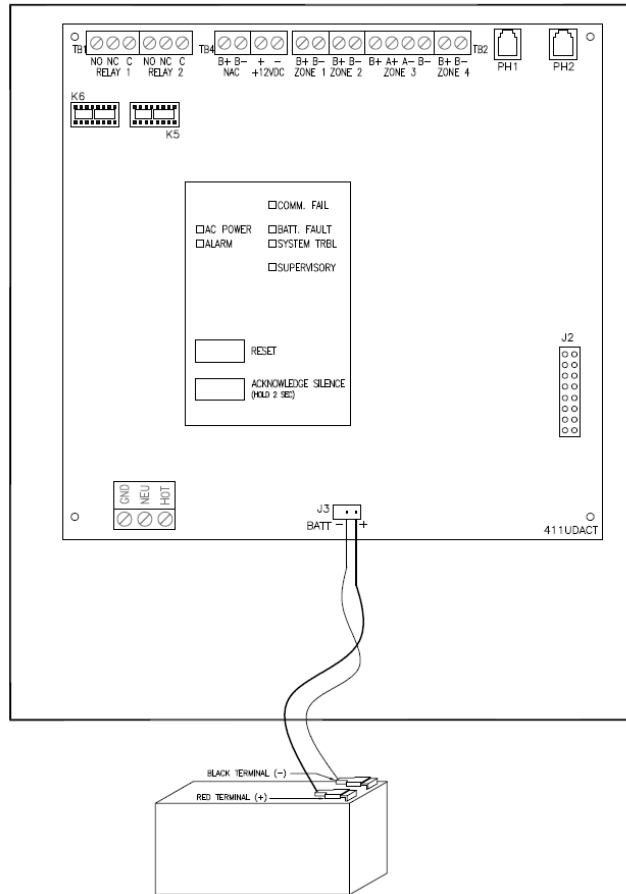


Figure 11 – Battery Wiring

3.3.5.5. Signal Wiring.



IMPORTANT

REFER TO THESE INSTRUCTIONS BEFORE WIRING SIGNAL DEVICES.

NOTICE

UNITED Fire Systems strongly recommends that optional signal wiring be installed by a qualified electrician who is familiar with low-voltage DC signal wiring, preferably experienced with fire alarm notification appliance circuits (NACs).

3.3.5.5.1 Signal Wiring. See Figure 12.

3.3.5.5.2 Factory-Installed Signal Horn. An audible signal horn is factory-installed and wired to the notification appliance circuit of the **STANDPIPE-PAC™** unit. See **GREEN** section of Figure 12.

3.3.5.5.3 Required Remote Weatherproof Audible / Amber Visual Device. Per Boston FD TCM3-51725, a remote weatherproof audible / amber visual device is to be installed immediately outside the location of the **STANDPIPE-PAC™** unit. Wire and connect this device as shown. If this is the last device in line, re-locate the end-of line resistor from the factory-installed signal horn to this device. See **RED** section of Figure 12. Mount identification nameplate near device.

3.3.5.5.4. Optional Signaling Devices. If additional audible devices are desired, connect these devices to the notification appliance circuit serving the signal horn on the **STANDPIPE-PAC™** unit. See Appendix D for additional information, including power capacity of notification appliance circuit. See **BLUE** section of Figure 12. Additional horns are available from UNITED Fire Systems – P/N 03-100006-201.



IMPORTANT

While Boston FD TCM3-51725 requires that the signal device immediately outside the location of the **STANDPIPE-PAC™** unit be audible and visual, additional signal devices should be audible **ONLY**. Visual indicators, such as strobes, can easily be mistaken for fire alarm signal devices. Signals from the **STANDPIPE-PAC™** unit are **NOT** fire alarm signals

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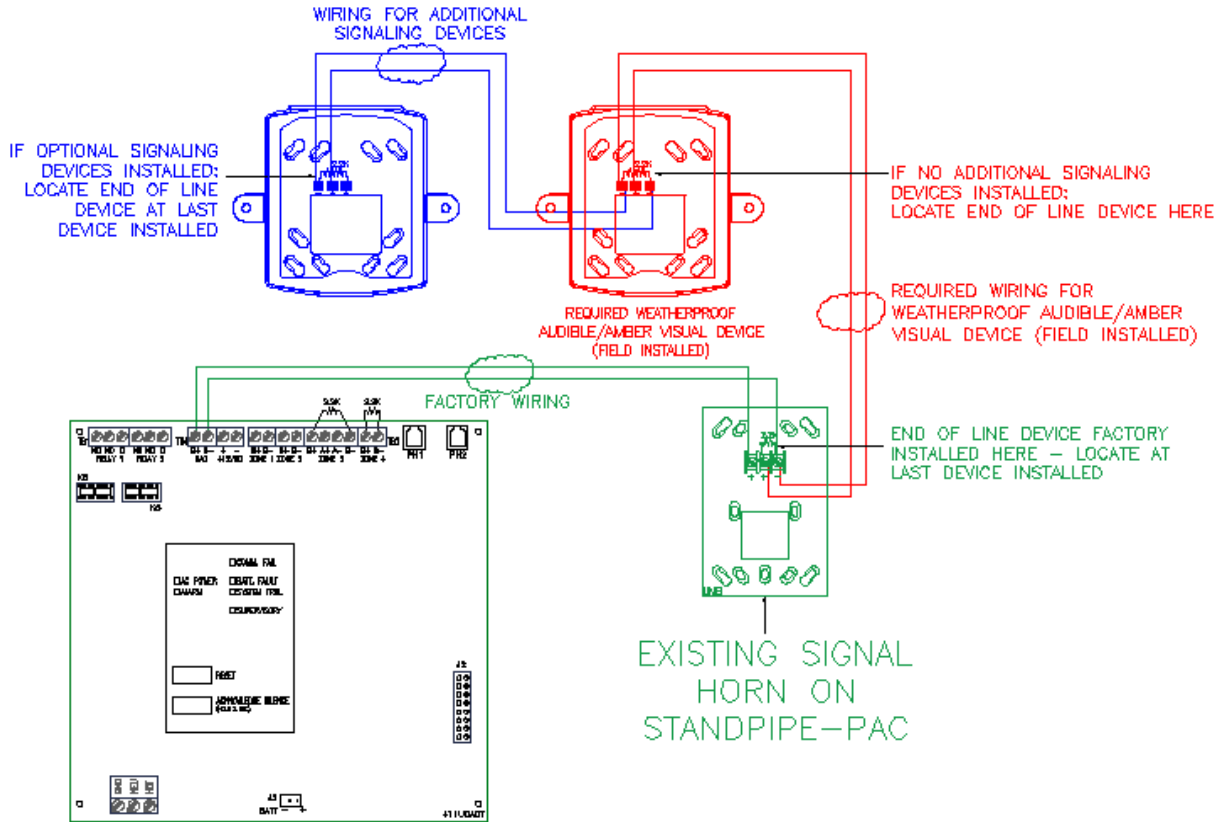


Figure 12 – Wiring Diagram – Notification Appliance Circuit

Nominal Operating Voltage	13.8 VDC
Required Device Voltage Rating	12 VDC (NOT 24 VDC or 110 VAC)
Maximum Number of Signal Horns	(1) factory-installed signal horn (1) required audible / visual device PLUS (9) optional signal horns
Maximum Current Draw FOR ALL external Signal Horns (INCLUDING required external audible / visual device) (NOT including factory-installed signal horn)	1.0 A
Maximum Length Of Notification Appliance Circuit (from factory-installed signal horn to last signal horn on the NAC)	375 feet
Minimum Recommended Wire Gauge	14 AWG Solid
Recommended Wire Insulation Colors For Polarity Identification	RED for positive (+)
	GRAY or BLACK for negative (-)
End-Of- Line Resistor (UFS P/N 03-100005-102)	2.2K ohms

Table 4 - **STANDPIPE-PAC™** Notification Appliance Circuit (NAC)
 Limitations and Other Parameters

STEP-BY-STEP GUIDE TO INSTALLING ADDITIONAL SIGNAL HORNS TO STANDPIPE-PAC™

1. Ensure that the **STANDPIPE-PAC™** control unit has **NOT** been powered up, with AC power and batteries disconnected.
2. See **Figure 13** and **Figure 13.1**. Remove Signal Horn cover from factory installed Signal Horn assembly on **STANDPIPE-PAC™**.



Figure 13

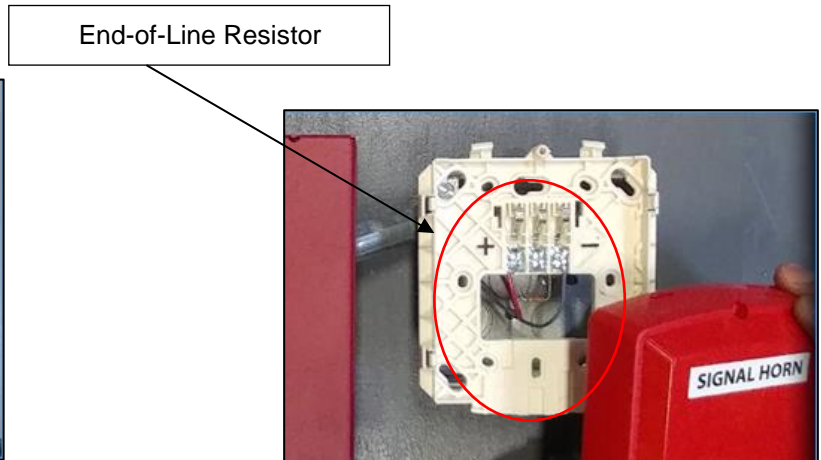


Figure 13.1

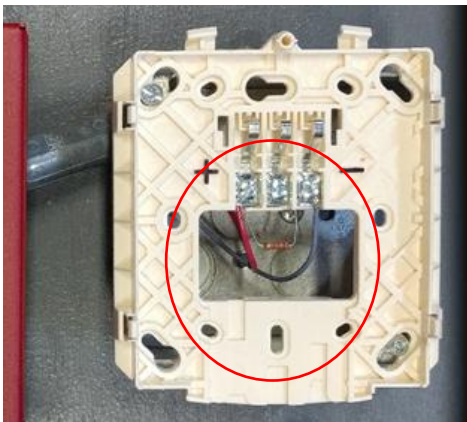


Figure 13.2

3. See **Figure 13.2**. Visually inspect Signal Horn base-plate connections. Locate positive and negative terminals on base-plate. **NOTE: RED** wire connects to positive terminal; **GRAY** wire connects to negative terminal.
4. See **Figure 13.2** Locate **end-of-line resistor**; factory installed between positive and negative terminals on Signal Horn base-plate.

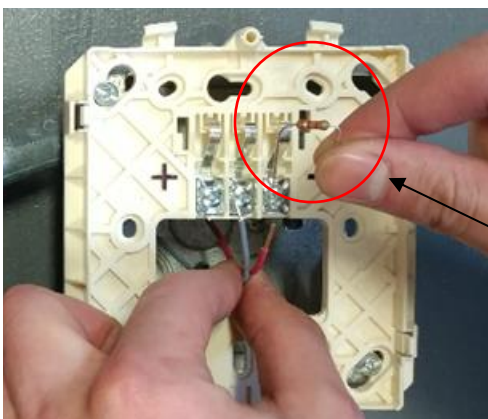


Figure 13.3

5. See **Figure 13.3** Disconnect **RED** and **GRAY** wires and remove end-of line resistor from base plate. **IMPORTANT: DO NOT DISCARD END OF LINE RESISTOR**

End-of-Line Resistor

STEP-BY-STEP GUIDE, CONTINUED

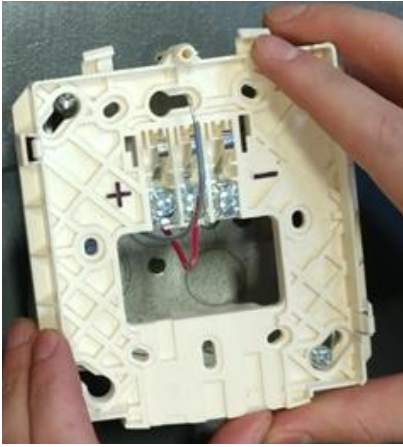


Figure 13.4

6. See **Figure 13.4** Remove Signal Horn base-plate from back box.

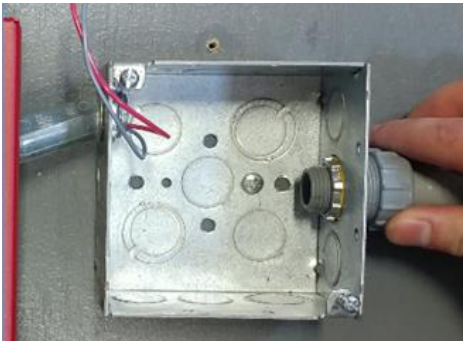


Figure 13.5

7. See **Figure 13.5** Attach raceway to signal horn box at appropriate knockout. Install raceway from factory installed Signal Horn back box to additional Signal Horn. **NOTE:** See Table 4 for distance limitations.

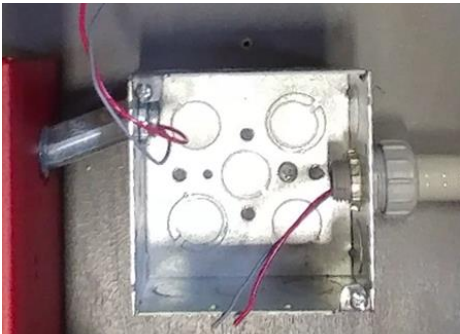


Figure 13.6

8. See **Figure 13.6** Run **14 AWG Solid** wires from additional Signal Horn, through raceway and into factory installed Signal Horn back box. **NOTE:** UNITED Fire Systems recommends using **RED**, and **GRAY** or **BLACK** wires for consistency and polarity identification.

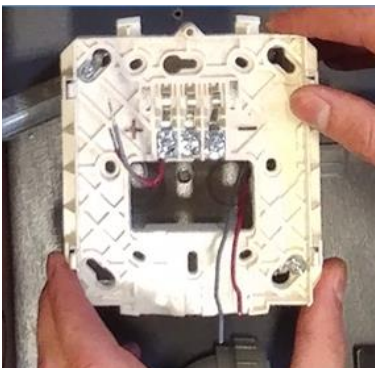


Figure 13.7

9. See **Figure 13.7** Re-install Signal Horn base plate to back box on **STANDPIPE-PAC™**.

STEP-BY-STEP GUIDE, CONTINUED

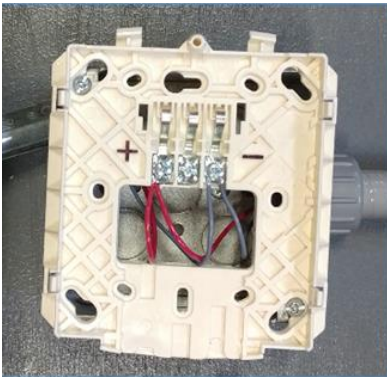


Figure 13.8

10. See **Figures 13.7, 13.8** and **Figure 12 Wiring Diagram**. Strip ends of wire installed in Step 8. Attach wires removed in Step 5 and wires installed in Step 8 to Signal Horn base plate terminals.

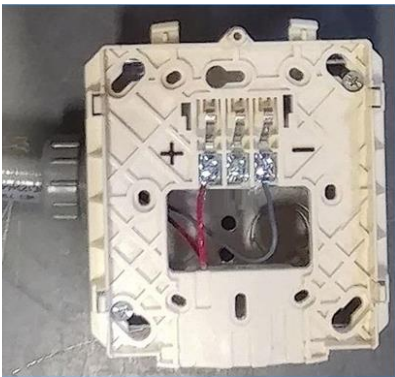


Figure 13.9

11. See **Figure 13.9**. Connect wires at additional Signal Horns. **IMPORTANT! Do not branch Signal Horn circuit. Run circuit from the first Signal Horn to the second Signal Horn, then the second Signal Horn to the third, and so on.**

12. Repeat steps 5 through 10 for each additional Signal Horn. **NOTE:** See Table 4 for distance limitations and maximum number of additional devices.

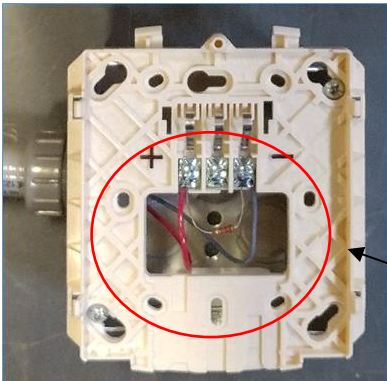


Figure 13.10

- 13 See **Figure 13.10**. Install end of line resistor, retained from Step 5, at last Signal Horn, between positive and negative terminals.

End-of-Line Resistor on last device on Signal Horn circuit

STEP-BY-STEP GUIDE, CONTINUED

14. See **Figure 13.11** and **Figure 13.12**. Replace Signal Horn cover(s). **IMPORTANT:** Cover(s) **MUST** be fastened correctly for proper wire contact. Trouble signal will occur if Signal Horn cover(s) is not fastened correctly.



Figure 13.11



Figure 13.12

Table 5 - Do's and Don'ts

<ul style="list-style-type: none"> ✓ Do make sure the Signal Horn covers are clicked firmly into place onto the Signal Horn base plates once wiring is complete. ✓ Do use a minimum of 14 AWG size wire. ✓ Do wire additional devices per Figure 12. The end-of-line resistor must be moved to the last device in the circuit per Figure B. ✓ Do use RED and GRAY wire for (+) and (-) conductors so it is easy to maintain polarity. ✓ Do install the end-of-line resistor on the terminals indicated. ✓ Do ensure additional device(s) are 12VDC. 	<ul style="list-style-type: none"> ✗ Don't wire 115 VAC on this circuit. ✗ Don't mix up the polarity. Know the polarity at both ends of the wiring. Wire per polarity diagram. ✗ Don't exceed the current capacity of the circuit when adding additional horns to the STANDPIPE-PAC™. Each additional horn adjusted to FULL VOLUME draws 0.047 amps. As noted on page 1, the current for <u>all</u> external devices, including the factory-installed signal horn, is 1.0 amp. ✗ Don't branch the signaling circuit. Wire horns in parallel, from one horn to the next. See Figure 12: Wiring Diagram.
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IMPORTANT

Signals from the **STANDPIPE-PAC™** are NOT fire alarm signals. UNITED Fire Systems recommends that all devices connected to the Notification Appliance Circuit (NAC) of the **STANDPIPE-PAC™** unit be clearly differentiated from any fire alarm signals present in the building.

3.3.6. Optional Dialer Wiring. See Appendix D



IMPORTANT

The **STANDPIPE-PAC™** unit, including control unit, has been pre-wired and programmed at the factory for proper operation. DO NOT alter any factory wiring or control unit programming. Failure to follow this instruction can result in improper **STANDPIPE-PAC™** operation and will void the factory warranty.

3.4 Commissioning.

3.4.1 Required Supervisory Pressure

STANDPIPE-PAC™ has been designed and engineered to meet all requirements of Boston Fire Department TCM3-51725. Paragraph 4.1, states:

Pressure. Pressure shall be maintained in the standpipe and cross connections at all times and shall not exceed 25 psig (172 kPag) by utilizing nitrogen or an air compressor with an air dryer. *The supervisory pressure shall be as determined by a registered design professional (italics added).*

To comply with this requirement, UNITED Fire Systems adjusts the pressure switches on **STANDPIPE-PAC™** to:

- Turn the compressor ON when the pressure falls below 13 PSIG, and OFF when the pressure reaches 18 PSIG.
- Provide a LOW pressure signal at 7 PSIG, and a HIGH pressure signal at 23 PSIG.

Maintaining the pressure between 13 and 18 PSIG should be adequate for supervising the standpipe, and providing prompt signaling if a valve is opened or a portion of the standpipe is removed. Setting the HIGH pressure signal at 23 PSIG (2 PSIG less than the code allows) provides a safety margin accounting for the accuracy of the signal switch and the pressure gauge.

Maintaining the safety margins between pressure switch settings provides adequate standpipe supervision without added risk of nuisance signals. Of course, if a *registered design professional* requires different settings, the switches may be adjusted to comply.



Figure 14



IMPORTANT

The low- and high-limit pressure sensing switches, and the automatic control switch for the air compressor, have been factory-adjusted for proper operation per this manual. **DO NOT** attempt to adjust these switches without authorization from UNITED Fire Systems. These switches have factory-applied tamper seals. **DO NOT** break these seals. Failure to follow these instructions can lead to improper **STANDPIPE-PAC™** operation and will void the factory warranty.

3.4.2. Startup.



IMPORTANT

Pressure values indicated by the **STANDPIPE-PAC™** pressure gauge are APPROXIMATE. Variation from nominal values can be expected.

STEPS TO FOLLOW FOR STANDPIPE-PAC™ SYSTEM STARTUP

Step No.	Description	Check When Complete
1	Verify that all standpipe valves are CLOSED.	
2	Verify that manual air release bleed valve (see Figure 2) is CLOSED.	
3	Verify that the standpipe main drain valve has been opened to drain residual water from the standpipe, and then the main drain valve has been CLOSED.	
4	Verify that the Auxiliary Condensate Drain Device has been used to drain any residual water from the piping in the vicinity of the STANDPIPE-PAC™ , and then Valve 1 is OPEN and Valve 2 is CLOSED.	
5	Verify that 115 VAC power is available and connected. DO NOT turn on at present.	
6	Verify that lockable shutoff valve (see Figure 1 item 7) is OPEN.	
7	Verify that compressor disconnect switch (see Figure 1 item 12) is OFF.	
8	Open control unit (see Figure 1 item 8). Connect battery. See Figure 8.	
9	Turn 115 VAC circuit breaker ON.	
10	Press RESET button on control unit. AC POWER indicator should be ON.	
11	ALARM indicator should be ON. Signal horn should be sounding.	
12	Press SILENCE switch to acknowledge alarm. Press SILENCE switch again for 2 seconds to silence signal horn.	
13	Move compressor disconnect switch to ON. Compressor should start. Compressor is filling standpipe with air pressure.	
14	Verify that pressure gauge needle (see Figure 1 item 5) is moving upward.	
15	When pressure gauge needle reaches approximately 18 PSIG, compressor should automatically shut off.	
16	Control unit should be clear, with only AC POWER indicator ON.	
17	Proceed to 3.4.3 – TESTING.	

3.4.3. Testing

STEPS TO FOLLOW FOR STANDPIPE-PAC™ SYSTEM TESTING		
Step No.	Description	Check When Complete
### VERIFICATIONS BEFORE TESTING ###		
1	If control unit dialer is connected to telephone lines, ensure that party receiving signals is aware that testing activities are occurring.	
2	Verify that pressure gauge (see Figure 1 item 5) indicates approximately 18 PSIG.	
3	Verify that control unit AC POWER indicator is ON and no other indicators are lit.	
### LOW-LIMIT PRESSURE-SENSING SWITCH and AUTOMATIC AIR COMPRESSOR CONTROL SWITCH TEST ###		
4	Verify that compressor disconnect switch (see Figure 1 item 12) is OFF.	
5	Move lockable shutoff valve (see Figure 1 item 7) to CLOSED position.	
6	Press and hold button on Test / Service Device (see Figure 1 item 13). Verify that pressure gauge needle is moving DOWN.	
7	When pressure gauge needle reaches approximately 7 PSIG, control unit ALARM indicator should be ON. Signal horn (see Figure 1 item 9) should sound.	
8	Release button on Test / Service Device.	
9	Press SILENCE switch to acknowledge alarm. Press SILENCE switch again for 2 seconds to silence signal horn.	
10	Move compressor disconnect switch to ON. Compressor should start. Pressure gauge needle should move UP.	
11	When pressure gauge needle moves above approximately 7 PSIG, control unit should clear and ALARM indicator should be OFF.	
12	When pressure gauge needle reaches approximately 18 PSIG, compressor should automatically shut off.	
### HIGH-LIMIT PRESSURE-SENSING SWITCH TEST ###		
13	Verify that compressor disconnect switch is ON.	
14	Verify that lockable shutoff valve is in CLOSED position.	
15	Verify that control unit AC POWER indicator is ON and no other indicators are lit.	
16	Press and hold button on Test / Service Device. Verify that pressure gauge needle is moving UP.	
17	When pressure gauge needle reaches approximately 23 PSIG, control unit ALARM indicator should be ON. Signal horn should sound.	
18	Release button on Test / Service Device.	
19	Press SILENCE switch to acknowledge alarm. Press SILENCE switch again for 2 seconds to silence signal horn.	
20	Move compressor disconnect switch to OFF.	
21	Press and release button on Test / Service Device until pressure gauge reads between 13 and 18 PSIG. Control unit ALARM indicator should be OFF. Signal horn should be OFF.	
22	Move compressor disconnect switch to ON.	
23	Move lockable shutoff valve to OPEN position.	
24	Pressure gauge may drop. Compressor may start. Pressure gauge should stabilize between 13 and 18 PSIG, and compressor should then be OFF.	
### STANDPIPE DEPRESSURIZATION TEST ###		
25	Remove cap from manual air release bleed valve. Open manual air release bleed valve all the way OPEN.	
26	Pressure gauge reading should drop to 0 (zero) PSIG in approximately 3 minutes.	
27	Close manual air release bleed valve.	
28	Pressure gauge reading should be approximately 13 PSIG (or more) in the design amount of time (see Section 2 – DESIGN).	
29	Proceed to 3.4.4 – PLACING IN SERVICE.	

3.4.4. Placing In Service.

STEPS TO FOLLOW FOR PLACING STANDPIPE-PAC™ SYSTEM IN SERVICE		
Step No.	Description	Check When Complete
1	Verify that compressor disconnect switch (see Figure 1 item 12) is ON.	
2	Verify that battery is properly connected to control unit (see Figure 10).	
3	Verify that control unit AC POWER indicator is ON and no other indicators are lit.	
4	Verify that pressure gauge (see Figure 1 item 5) indicates approximately 18 PSIG.	
5	Place lock on lockable shutoff valve.	
6	Close and lock control unit door. It is recommended that one key be left in control unit lock.	
7	Deliver second control unit key, lockable shutoff valve key(s), and this manual to responsible individual at job site.	
8	If control unit dialer is connected to telephone lines, ensure that party receiving signals is aware that system is now in service.	
9	System is now in service.	

3.4.5. Troubleshooting.

Problem	Possible Cause	Solution	Manual Reference
No power to control panel or compressor.	Circuit breaker not on.	Turn circuit breaker on.	
	115 VAC not properly connected in junction box.	Properly connect power in junction box.	3.3.5.3
STANDPIPE-PAC™ does not build sufficient pressure in standpipe (less than 7 PSIG).	One or more outlet valves open.	Close all standpipe outlet valves.	
	Manual air release bleed valve open.	Close manual air release bleed valve.	
	Standpipe fitting connections are too leaky.	Inspect all fitting connections for tightness. Correct as necessary.	
	STANDPIPE-PAC™ is improperly sized.	Verify internal volume of standpipe. Ensure that proper STANDPIPE-PAC™ has been chosen.	Section 2
	Automatic air compressor control switch failure.	DO NOT ATTEMPT ADJUSTMENT OR REPAIR OF SWITCH. Contact UNITED Fire Systems or trained distributor for service.	
STANDPIPE-PAC™ builds too much pressure in standpipe (above 25 PSIG).	Automatic air compressor control switch failure.	DO NOT ATTEMPT ADJUSTMENT OR REPAIR OF SWITCH. Contact UNITED Fire Systems or trained distributor for service.	
STANDPIPE-PAC™ alarms too low (below 7 PSIG).	Low-limit pressure sensing switch requires adjustment.	DO NOT ATTEMPT ADJUSTMENT OR REPAIR OF SWITCH. Contact UNITED Fire Systems or trained distributor for service.	
STANDPIPE-PAC™ alarms too high (above 25 PSIG).	High-limit pressure sensing switch requires adjustment.	DO NOT ATTEMPT ADJUSTMENT OR REPAIR OF SWITCH. Contact UNITED Fire Systems or trained distributor for service.	

Troubleshooting (continued).

STANDPIPE-PAC™ does not alarm when manual air release bleed valve is opened.	Manual air release bleed valve cap is on.	Remove manual air release bleed valve cap.	
	Lockable shutoff valve is closed.	Open lockable shutoff valve.	
	Ice buildup in air dryer and unit piping.	Ensure that STANDPIPE-PAC™ is installed in area where temperature cannot go below 32 degrees F.	
Color of beads in air dryer has changed	Air dryer beads have absorbed water to their capacity.	Compare color of beads to decal on side of dryer. If beads are orange, contact UNITED Fire Systems or trained distributor for service.	
Excessive moisture in standpipe.			
Control unit has no power when circuit breaker is turned OFF.	Battery not properly connected.	Properly connect battery.	Figure 11
	Battery is discharged.	Permit control unit to charge batteries for 24 hours.	
	Battery is not capable of holding charge.	Battery requires replacement – Contact UNITED Fire Systems or trained distributor for service.	



DATE	
-------------	--

LOCATION INFORMATION	
User	
Address 1	
Address 2	
City, State, Zip	
System	

STANDPIPE-PAC™ UNIT SERIAL NUMBER	
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PRELIMINARY	YES	NO
Have all required on-site parties been notified that audible signals will be sounding?		
If the control unit dialer is connected to telephone lines, has the party receiving signals been notified that testing will take place?		
Are all valves on the standpipe CLOSED?		
Are all manual air release bleed valves CLOSED?		
Has an Auxiliary Condensate Drain Device been properly installed?		
Has 115 VAC power been connected, and is OFF?		

STARTUP	YES	NO
Is the compressor disconnect switch OFF, and is the unit outlet lockable shutoff valve OPEN?		
Has the battery been connected to the control unit?		
Has 115 VAC power been turned ON?		
Has the control unit RESET button been operated, and is the control unit AC POWER indicator ON?		
Is the control unit ALARM indicator ON, and are the signal horn and horn/strobe operating?		
Has the SILENCE switch been pressed once to acknowledge the alarm, and then pressed again for 2 seconds, turning the signals OFF?		
Has the compressor disconnect switch been moved to ON, and is the needle on the pressure gauge moving upward?		
When the pressure gauge needle reaches approximately 18 PSIG, does the compressor automatically shut off?		
Is the control unit clear, with only the AC POWER indicator ON?		



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LOW PRESSURE SWITCH TEST	YES	NO
Is the compressor disconnect switch OFF, and has the unit outlet lockable shutoff valve been moved to CLOSED?		
Has the button on the test / service device been operated, and is the pressure gauge needle moving DOWN?		
When the pressure gauge needle reaches approximately 7 PSIG, does the control unit ALARM indicator come ON, and do the signals operate?		
Has the button on the test / service device been released?		
Has the SILENCE switch been pressed once to acknowledge the alarm, and then pressed again for 2 seconds, turning the signals OFF?		

COMPRESSOR CONTROL SWITCH TEST	YES	NO
Has the compressor disconnect switch been moved to ON?		
Has the compressor started, and is the pressure gauge needle moving UP?		
When the pressure gauge needle reaches approximately 18 PSIG, does the compressor automatically shut off?		

HIGH PRESSURE SWITCH TEST	YES	NO
Is the compressor disconnect switch ON, and is the unit lockable shutoff valve CLOSED?		
Is the control unit clear, with only the AC POWER indicator ON?		
Has the button on the test / service device been operated, and is the pressure gauge needle moving UP?		
When the pressure gauge needle reaches approximately 23 PSIG, does the control unit ALARM indicator come ON, and do the signals operate?		
Has the button on the test / service device been released?		
Has the SILENCE switch been pressed once to acknowledge the alarm, and then pressed again for 2 seconds, turning the signals OFF?		
Has the compressor disconnect switch been moved to OFF?		
Has the button on the test / service device been operated, and held until pressure gauge needle is between 13 and 18 PSIG?		
Has the compressor disconnect switch been moved to ON, and the unit lockable shutoff valve been moved to OPEN?		
NOTE: Compressor may start. When pressure gauge needle stabilizes between 13 and 18 PSIG, compressor should be OFF.		

STANDPIPE DEPRESSURIZATION TEST	YES	NO
Has a cap been removed from a manual air release bleed valve, and the valve moved to all the way OPEN?		
Does the pressure gauge reading drop to near zero in 3 minutes or less?		
Has the manual air release bleed valve been CLOSED, and the cap replaced?		
Has the time for the standpipe to refill to minimum 13 PSIG been recorded?	MINUTES	



**COMMISSIONING WORKSHEET AND CHECKLIST
STANDPIPE-PAC™ SUPERVISORY SYSTEM
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PLACING IN SERVICE		YES	NO
Is the compressor disconnect switch ON, and is the unit lockable shutoff valve OPEN?			
Have the valves on the Auxiliary Condensate Drain Device been left properly positioned per the nameplate instructions?			
Is the battery properly connected to the control unit?			
Is the control unit AC POWER indicator ON, and are all other indicators OFF?			
Is the pressure gauge needle indicating between 13 and 18 PSIG?			
Has the customer's lock been placed on the unit lockable shutoff valve?			
Is the control unit door locked?			
Have the control unit keys, lockable shutoff valve key(s), and UFS Manual P/N 10-540101-001 been given to the responsible individual at the job site?			
If the control unit dialer is connected to telephone lines, has the party receiving signals been notified that testing is complete and system is in service?			
Have all required on-site parties been notified that testing is complete, system is now in service, and all subsequent signals are NOT test signals?			

FINAL ACCEPTANCE SIGNATURES			
	PRINT NAME	SIGNATURE	DATE
CUSTOMER			
INSTALLING CONTRACTOR			

NOTES

4. OPERATION

4.1 Indicators.

4.1.1. Pressure Gauge. The pressure gauge indicates the approximate pressure produced by the air compressor within the **STANDPIPE-PAC™** piping and the standpipe.



IMPORTANT

Pressure values indicated by the **STANDPIPE-PAC™** pressure gauge are APPROXIMATE. Variation from nominal values can be expected.

4.1.2. Signal Horn. The signal horn is the required audible indicator to annunciate an alarm condition. The signal horn will sound when the pressure in the standpipe drops below approximately 7 PSIG, indicating an impairment of the standpipe requiring correction.

4.1.3. Indicators Within Control Unit.

4.1.3.1. Visual Indicator – “AC POWER”. This is a green LED, visible with unit door closed or open, indicating that AC power has been applied to the unit.

4.1.3.2. Visual Indicator – “ACTIVE”. This is a red LED, visible with unit door closed or open, indicating that either the low-limit or high-limit pressure sensing switch has activated.

4.1.3.3. Visual Indicator – “COMM. FAIL”. This is a yellow LED, visible with unit door closed or open, indicating failure of communications over the telephone lines (if connected).

4.1.3.4. Visual Indicator – “BATT. FAULT”. This is a yellow LED, visible with unit door closed or open, indicating trouble with the backup battery.

4.1.3.5. Visual Indicator – “SYSTEM TRBL”. This is a yellow LED, visible with unit door closed or open, indicating a fault on a supervised circuit.

4.1.3.6. Visual Indicator – “SUPERVISORY”. This is a yellow LED that is not used with **STANDPIPE-PAC™**.

4.1.3.7. Visual Indicator – “GND FAULT”. This is a yellow LED, visible only with unit door open, indicating a ground fault on an external circuit.

4.1.3.8. Audible Indicator – Piezo Sounder. This is an audible indicator that sounds whenever an ACTIVE or SYSTEM TRBL signal exists.

4.2. Controls.

4.2.1. Lockable Shutoff Valve. This valve is used during testing and maintenance to isolate the **STANDPIPE-PAC™** from the standpipe. The normal position of this valve is OPEN. A lock should be placed on this valve to ensure it stays in the OPEN position, and is not closed inadvertently.

4.2.2. Compressor Disconnect Switch. This switch is used to remove power from the compressor during testing and maintenance. The normal position of this switch is ON.

4.2.3. Test / Service Device. This device is used ONLY during testing and maintenance. DO NOT operate this device unless testing and maintenance procedures are being followed.

4.2.4. Controls Within Control Unit.

4.2.4.1. Pushbutton – “RESET”. This pushbutton resets all control unit circuits.

4.2.4.2. Pushbutton – “ACKNOWLEDGE SILENCE (HOLD 2 SEC.)”.

4.2.4.2.1. Press this pushbutton ONCE to acknowledge signals. Piezo sounder is silenced, and all flashing visual indicators change to steady on.

4.2.4.2.2. Press a second time and HOLD for two (2) seconds to silence the Signal Horn.

4.3. Indications.

4.3.1. Normal Operation. Under normal operation, the following will be indicated:

NORMAL OPERATION		
INDICATOR or CONTROL	ITEM	STATUS
Visual Indicator	Pressure Gauge	Indicating between 13 and 18 PSIG
Visual Indicator	AC POWER	ON
Visual Indicator	ACTIVE	Off
Visual Indicator	COMM. FAIL	Off
Visual Indicator	BATT. FAULT	Off
Visual Indicator	SYSTEM TRBL	Off
Visual Indicator	SUPERVISORY	Off
Visual Indicator	GND FAULT	Off
Audible Indicator	Piezo Sounder	Off
Audible Indicator	Signal Horn	Off
Control	Lockable Shutoff Valve	Open
Control	Compressor Disconnect Switch	ON
Control	Test / Service Device	Not Operated

4.3.2. Signal Operation – Low Pressure In Standpipe.



WARNING

Low pressure in the standpipe is an indication that the standpipe is **IMPAIRED**. Follow instructions under “Procedures – What To Do When Standpipe Is Impaired.” Failure to do so may result in death, personal injury, or serious property damage when firefighters cannot fight a fire.

When pressure drops within the standpipe, the following will be indicated:

LOW PRESSURE IN STANDPIPE		
INDICATOR or CONTROL	ITEM	STATUS
Visual Indicator	Pressure Gauge	Indicating less than 7 PSIG
Visual Indicator	AC POWER	ON
Visual Indicator	ACTIVE	ON
Visual Indicator	COMM. FAIL	Off
Visual Indicator	BATT. FAULT	Off
Visual Indicator	SYSTEM TRBL	Off
Visual Indicator	SUPERVISORY	Off
Visual Indicator	GND FAULT	Off
Audible Indicator	Piezo Sounder	ON
Audible Indicator	Signal Horn	ON
Control	Lockable Shutoff Valve	Open
Control	Compressor Disconnect Switch	ON
Control	Test / Service Device	Not Operated

4.3.3. Signal Operation – High Pressure In Standpipe.



CAUTION

High pressure in the standpipe can lead to a delay in firefighter use of the standpipe. Follow instructions under “Procedures – What To Do If High Pressure Exists In Standpipe.” Failure to do so increases the risk of injury and property damage when firefighters are delayed when fighting a fire.

If pressure increases in standpipe above 25 PSIG, the following will be indicated:

HIGH PRESSURE IN STANDPIPE		
INDICATOR or CONTROL	ITEM	STATUS
Visual Indicator	Pressure Gauge	Indicating 25 PSIG or more
Visual Indicator	AC POWER	ON
Visual Indicator	ACTIVE	ON
Visual Indicator	COMM. FAIL	Off
Visual Indicator	BATT. FAULT	Off
Visual Indicator	SYSTEM TRBL	Off
Visual Indicator	SUPERVISORY	Off
Visual Indicator	GND FAULT	Off
Audible Indicator	Piezo Sounder	ON
Audible Indicator	Signal Horn	ON
Control	Lockable Shutoff Valve	Open
Control	Compressor Disconnect Switch	ON
Control	Test / Service Device	Not Operated

4.4. Procedures

4.4.1. Normal Operation. Under normal operation, no intervention is needed.

NORMAL OPERATION		
INDICATOR or CONTROL	ITEM	STATUS
Visual Indicator	Pressure Gauge	Indicating between 13 and 18 PSIG
Visual Indicator	AC POWER	ON
Visual Indicator	ACTIVE	Off
Visual Indicator	COMM. FAIL	Off
Visual Indicator	BATT. FAULT	Off
Visual Indicator	SYSTEM TRBL	Off
Visual Indicator	SUPERVISORY	Off
Visual Indicator	GND FAULT	Off
Audible Indicator	Piezo Sounder	Off
Audible Indicator	Signal Horn	Off
Control	Lockable Shutoff Valve	Open
Control	Compressor Disconnect Switch	ON
Control	Test / Service Device	Not Operated

4.4.2. To Silence Piezo Sounder. Press “ACKNOWLEDGE SILENCE (HOLD 2 SEC.)” pushbutton once.

4.4.3. To Silence Signal Horns. Press “ACKNOWLEDGE SILENCE (HOLD 2 SEC.)” pushbutton once, followed by pressing and holding the pushbutton for 2 seconds.

4.4.4. For Fire Department Use of Fire Standpipe.



WARNING

The fire standpipe **MUST** only be placed into use by the fire department. **DO NOT** use the standpipe for any other purpose. Failure to follow this warning may result in impairment of the standpipe in the event of fire, and may result in death, personal injury, or serious property damage when firefighters cannot fight a fire.

- Open Manual Air Release Bleed Valve located in proximity to fire department siamese.
- Allow air to bleed from fire standpipe for 3 minutes.
- Close Manual Air Release Bleed Valve before pumping water into fire standpipe.

4.4.5. To Refill Standpipe With Air Pressure After Fire Department Use



CAUTION

After standpipe has been filled with water for any reason, ensure that standpipe is completely empty of water before refilling standpipe with air pressure. Use all available drain points to remove all water from the standpipe. If, at any time, it is suspected that water has entered the **STANDPIPE-PAC™** unit, contact UNITED Fire Systems or your trained distributor before refilling standpipe with air pressure.



CAUTION

If fire department used standpipe during cold weather:

- Drain standpipe before freezing occurs
- If freezing does occur, ensure all ice within standpipe is melted, and all liquid water is drained

- Operate Compressor Disconnect Switch to OFF.
- Close **STANDPIPE-PAC™** outlet valve.
- Use standpipe main drain valve to completely drain standpipe with water.
- Use Auxiliary Condensate Drain Device to completely drain piping in the vicinity of the **STANDPIPE-PAC™** of water.
- It may take time for all water to migrate to drains from upper floors. DO NOT proceed until all water is drained.
- Ensure all standpipe valves and drains are CLOSED.
- Operate Compressor Disconnect Switch to ON.
- **STANDPIPE-PAC™** unit will fill standpipe with air.

TO REFILL STANDPIPE WITH AIR PRESSURE		
INDICATOR or CONTROL	ITEM	STATUS
Visual Indicator	Pressure Gauge	Indicating less than 7 PSIG
Visual Indicator	AC POWER	ON
Visual Indicator	ACTIVE	ON
Visual Indicator	COMM. FAIL	Off
Visual Indicator	BATT. FAULT	Off
Visual Indicator	SYSTEM TRBL	Off
Visual Indicator	SUPERVISORY	Off
Visual Indicator	GND FAULT	Off
Audible Indicator	Piezo Sounder	ON
Audible Indicator	Signal Horn	ON
Control	Lockable Shutoff Valve	Open
Control	Compressor Disconnect Switch	ON
Control	Test / Service Device	Not Operated

4.4.6. To Test Standpipe with Water Pressure



CAUTION

After standpipe has been filled with water for any reason, ensure that standpipe is completely empty of water before refilling standpipe with air pressure. Use all available drain points to remove all water from the standpipe. If, at any time, it is suspected that water has entered the **STANDPIPE-PAC™** unit, contact UNITED Fire Systems or your trained distributor before refilling standpipe with air pressure.

NFPA 14 – 2016, *Standard for the Installation of Standpipe and Hose Systems* addresses hydrostatic testing in Section 11.4. Paragraph 11.4.5 states that an air test can be done if cold weather prevents testing with water. Paragraph 11.4.7.2 states that if modifications to a standpipe (such as ‘jumping’ to higher floors) cannot be isolated, then a pressure test is not required. Paragraph 11.4.8 further states that care shall be taken to ensure that no portion of the piping is subject to freezing during cold weather. Based on these paragraphs, UNITED Fire Systems ***strongly recommends:***

- If the monthly test can be avoided, do so.
- If the monthly test cannot be avoided, perform testing during cold weather with air only’
- If testing with water is deemed to be necessary, regardless of the weather, the Site Safety Manager should ensure that the Method of Procedure (MOP) for such testing include, as its very first step, that the **STANDPIPE-PAC™** outlet valve be CLOSED and locked in this position for the duration of the test.
- The MOP should include using all drainage measures after testing, and making sure the standpipe is completely drained, before the **STANDPIPE-PAC™** outlet valve is re-opened.



IMPORTANT

Although the **STANDPIPE-PAC™** is equipped with an inlet check valve, it is important to take precautions to prevent inadvertent water entry into the **STANDPIPE-PAC™** piping and components. To prevent such water entry, ***always remember*** to do the following:

- ALWAYS unlock and close **STANDPIPE-PAC™** outlet valve BEFORE testing standpipe by flooding with water.
- ALWAYS completely drain standpipe at main drain after testing standpipe by flooding with water, and operate Auxiliary Condensate Drain Device until no water drains from device.
- ALWAYS open and re-lock **STANDPIPE-PAC™** outlet valve after completely draining water.
- NEVER flood standpipe with water when **STANDPIPE-PAC™** outlet valve is closed UNLESS standpipe is being used by fire department.
- NEVER expose **STANDPIPE-PAC™** or Auxiliary Condensate Drain Device to freezing temperatures. Ice can block **STANDPIPE-PAC™** outlet and / or standpipe, possibly inhibiting standpipe use by Fire Department in case of emergency.

- Ensure there are no low points or traps without drains.
- CLOSE Lockable Shutoff Valve BEFORE testing standpipe with water pressure.
- Perform pressure test.
- Use main drain, and all drainage valves at low points, to drain all water from standpipe.

UNITED FIRE SYSTEMS
STANDPIPE-PAC™ MODEL SSS-101
DESIGN, INSTALLATION, OPERATION, AND MAINTENANCE MANUAL
REVISION 2.00
P/N 10-540101-001

- Use Auxiliary Condensate Drain Device to drain all water from piping in the vicinity of the **STANDPIPE-PAC™**.
- It may take time for water to migrate from upper floors. Allow sufficient time with drains open for all water to drain.
- OPEN Lockable Shutoff Valve ONLY after all water has been drained from standpipe.
- Follow instructions in 4.4.5 to refill standpipe with air.

5. MAINTENANCE. Maintenance is vitally important for the continued protection provided by the **STANDPIPE-PAC™** unit. Perform all maintenance according to the instructions in this manual.



RISK OF ELECTROCUTION

Voltages and currents associated with **STANDPIPE-PAC™** units are **LETHAL**. Follow all instructions provided. Work on **STANDPIPE-PAC™** unit power **MUST** be performed **ONLY** by qualified individuals. All required precautions to prevent contact with live electrical conductors and equipment **MUST** be taken. Failure to comply with these instructions is an immediate hazard with a likelihood of death or serious personal injury!



CAUTION

Before performing maintenance on the **STANDPIPE-PAC™** unit, confirm that the unit is **NOT** pressurized. Failure to confirm that the unit is **NOT** pressurized could result in personal injury and / or property damage.



IMPORTANT

The low- and high-limit pressure sensing switches, and the automatic control switch for the air compressor, have been factory-adjusted for proper operation per this manual. **DO NOT** attempt to adjust these switches without authorization from UNITED Fire Systems. These switches have factory-applied tamper seals. **DO NOT** break these seals. Failure to follow these instructions can lead to improper **STANDPIPE-PAC™** operation and will void the factory warranty.



IMPORTANT

Pressure values indicated by the **STANDPIPE-PAC™** pressure gauge are **APPROXIMATE**. Variation from nominal values can be expected.



IMPORTANT

The **STANDPIPE-PAC™** unit, including control unit, has been pre-wired and programmed at the factory for proper operation. **DO NOT** alter any factory wiring or control unit programming. Failure to follow this instruction can result in improper **STANDPIPE-PAC™** operation and will void the factory warranty.

5.1. Weekly. Weekly maintenance consists of visual checks of the status of the **STANDPIPE-PAC™** unit and the standpipe itself.

Item	Normal Status	Abnormal Status	What To Do If Status Is Abnormal
Check control panel visual indicators	AC Power Green LED – ON All other LED indicators - OFF	Any indicators other than AC Power ON	Contact your service provider for service.
Check Compressor Disconnect Switch	ON	OFF	Return Compressor Disconnect Switch to ON position.
Check Pressure Gauge	Indicating between 13 to 18 PSIG	Indicating below 13 PSIG or above 18 PSIG	Contact your service provider for service.
Check Desiccant in Air Dryer	Blue color	Orange color	If desiccant is orange throughout, contact your service provider for service
Check Lockable Shutoff valve	Locked in OPEN position	Unlocked or CLOSED	Open valve and apply lock.
Check Manual Air Release Bleed Valve	Valve – CLOSED Cap – Attached to outlet of valve; chain intact and connected to valve	Valve – OPEN Cap – Disconnected or Missing	If valve is OPEN, CLOSE valve tightly. If cap is disconnected, re-connect. If cap is missing, contact service provider for replacement.
Check standpipe valves	All valves - CLOSED	Any valve OPEN	Ensure all valves are CLOSED.

5.2. Monthly. Monthly maintenance consists of standpipe water drainage and quick checks of alarm response.

Item	Procedure	Normal Status	What To Do If Status Is Abnormal
Drain water from standpipe	See * below	No water in standpipe	Draining returns standpipe to normal status
Check High Alarm	1. Compressor disconnect switch ON. 1. Lockable shutoff valve CLOSED. 2. Operate test / service device.	Signal horn should sound when pressure gauge indicates 23 ± 1 PSIG	Contact service provider
Check Low Alarm	1. Compressor disconnect switch OFF. 2. Lockable shutoff valve CLOSED. 3. Operate test / service device.	Signal horn should sound when pressure gauge indicates 7 ± 1 PSIG.	Contact service provider
Return To Normal Status	1. Compressor disconnect switch ON. 2. Lockable shutoff valve OPEN. 3. Compressor should run until standpipe is properly filled.	1. Compressor off. 2. No abnormal indications on control panel. 3. Pressure gauge indicates between 13 and 18 PSIG.	Contact service provider

* To drain water from piping in vicinity of **STANDPIPE-PAC™** while standpipe is pressurized with air by **STANDPIPE-PAC™**:

1. Unlock and close **STANDPIPE-PAC™** outlet valve.
2. Remove and retain steel plug from device outlet (Valve 2)
3. Open Valve 1 of Auxiliary Condensate Drain Device, allowing water to drain into device.
4. Close Valve 1 BEFORE opening Valve 2.
5. Open Valve 2 of Auxiliary Condensate Drain Device, allowing water to drain from device.
6. Close Valve 2 and re-open Valve 1. Repeat until no additional water drains from device outlet.
7. Replace steel plug in device outlet (Valve 2)

5.3. Quarterly.



IMPORTANT

Quarterly maintenance as indicated below is vitally important for continued proper functioning of your **STANDPIPE-PAC™**. Please do NOT neglect these procedures!

5.3.1 Replacement of Desiccant In Dryer. It is important that the air dryer continue to remove moisture from the compressed air. For this reason, it is recommended that the dryer desiccant be replaced quarterly.

NOTE – Refer to Figure 15.

1. Have Qty. (1) UFS P/N 21-100000-100 Replacement Desiccant available.
2. Notify local personnel that signals will be heard / seen during maintenance.
3. If dialer is connected to telephone line, notify receiving office that signals will be transmitted during maintenance.
4. Close lockable shutoff valve on outlet of **STANDPIPE-PAC™**.
5. Move compressor disconnect switch to OFF.
6. De-pressurize **STANDPIPE-PAC™** piping by operating Test / Service Device. Hold until pressure gauge indicates ZERO.
7. Silence audible signal by opening door of control unit and operating Acknowledge-Silence button. Hold for 2 seconds until audible signal silences.



CAUTION

DO NOT turn connecting ring on desiccant air dryer unless pressure gauge indicates ZERO. Failure to do so can result in personal injury and property damage.

8. Locate desiccant air dryer on **STANDPIPE-PAC™**. Locate tab marked PUSH on connecting ring holding aluminum bowl in place (tab orientation may not be immediately visible).
9. Depress tab marked PUSH and turn connecting ring to release aluminum bowl and glass liner.
10. Detach aluminum bowl from assembly.
11. Remove and discard the desiccant beads in the bowl.
12. Fill glass liner with new desiccant beads to approximately the same level. Use Qty. (1) UFS P/N 21-100000-100.
13. Carefully align and insert desiccant bowl back into assembly until it is flush against air dryer cap.
14. Depress tab marked PUSH, and turn connecting ring until connection is re-established.
15. Release tab and ensure that aluminum bowl is secure.
16. Move compressor disconnect switch to ON. Compressor should start and pressure gauge should begin to indicate.
17. When pressure gauge reads approximately 18 PSIG, compressor should stop.
18. Check for leaks at air dryer connecting ring.
19. Open lockable shutoff valve on outlet of **STANDPIPE-PAC™**.
20. Notify local personnel (and receiving office, if phone line is connected) that maintenance is complete.

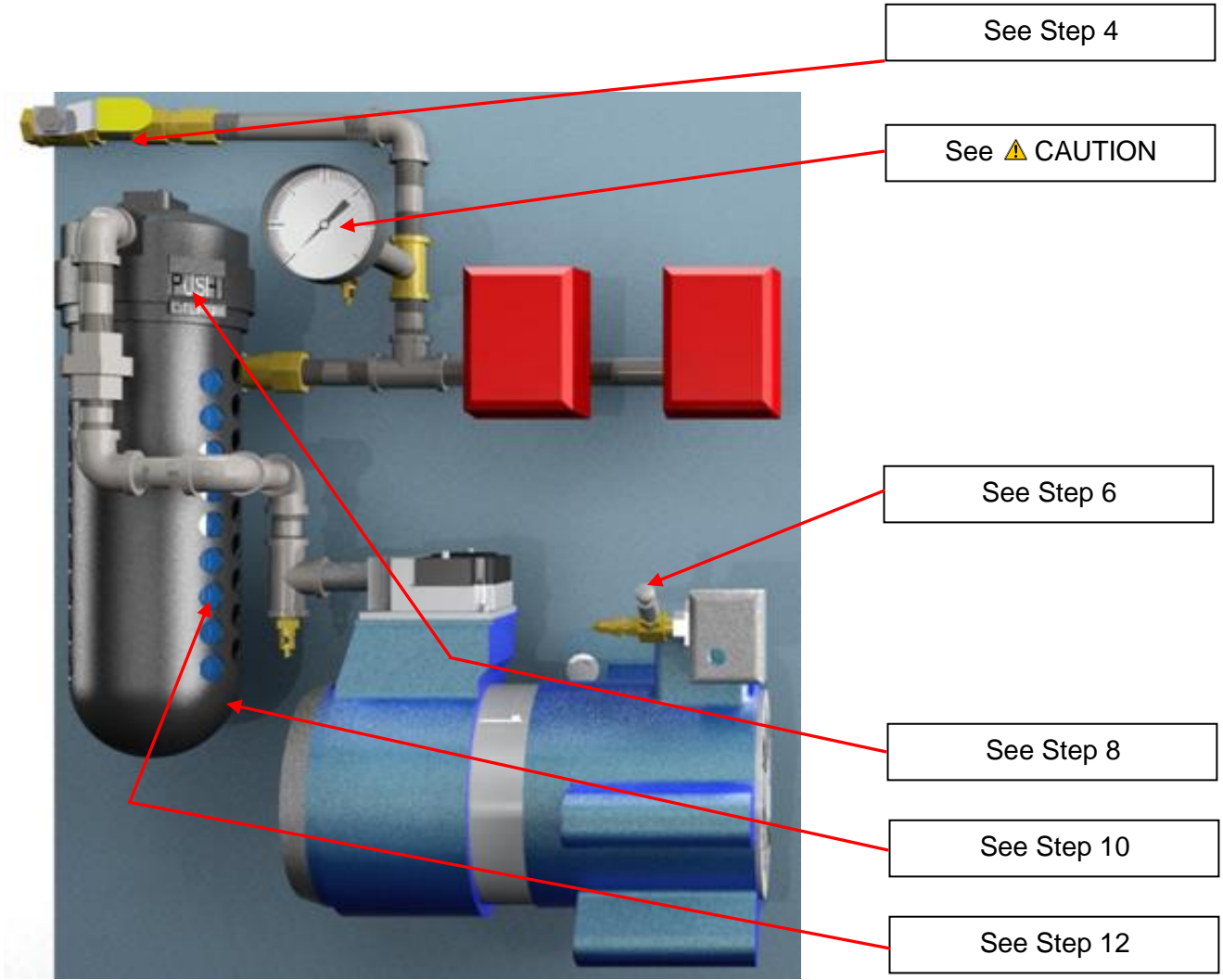


Figure 15 – Desiccant Air Dryer

5.3.2. Replacement of Compressor Filter. The compressor filter keeps dust and other contaminants out of the compressor pump. Quarterly replacement can lengthen the lifespan of the compressor.

1. Have replacement filter kit UFS P/N 00-100005-553 available.
2. Move compressor disconnect switch to OFF.
3. Use 5/32" hex key to remove (2) hex screws holding black filter housing in place.
4. Remove filter housing.
5. Remove and discard existing foam filter element.
6. Replace with new foam filter element from replacement filter kit.
7. Replace black filter housing.
8. Secure filter housing with (2) hex screws using 5/32" hex key to tighten. Do not over-tighten.
9. Move compressor disconnect switch to ON.

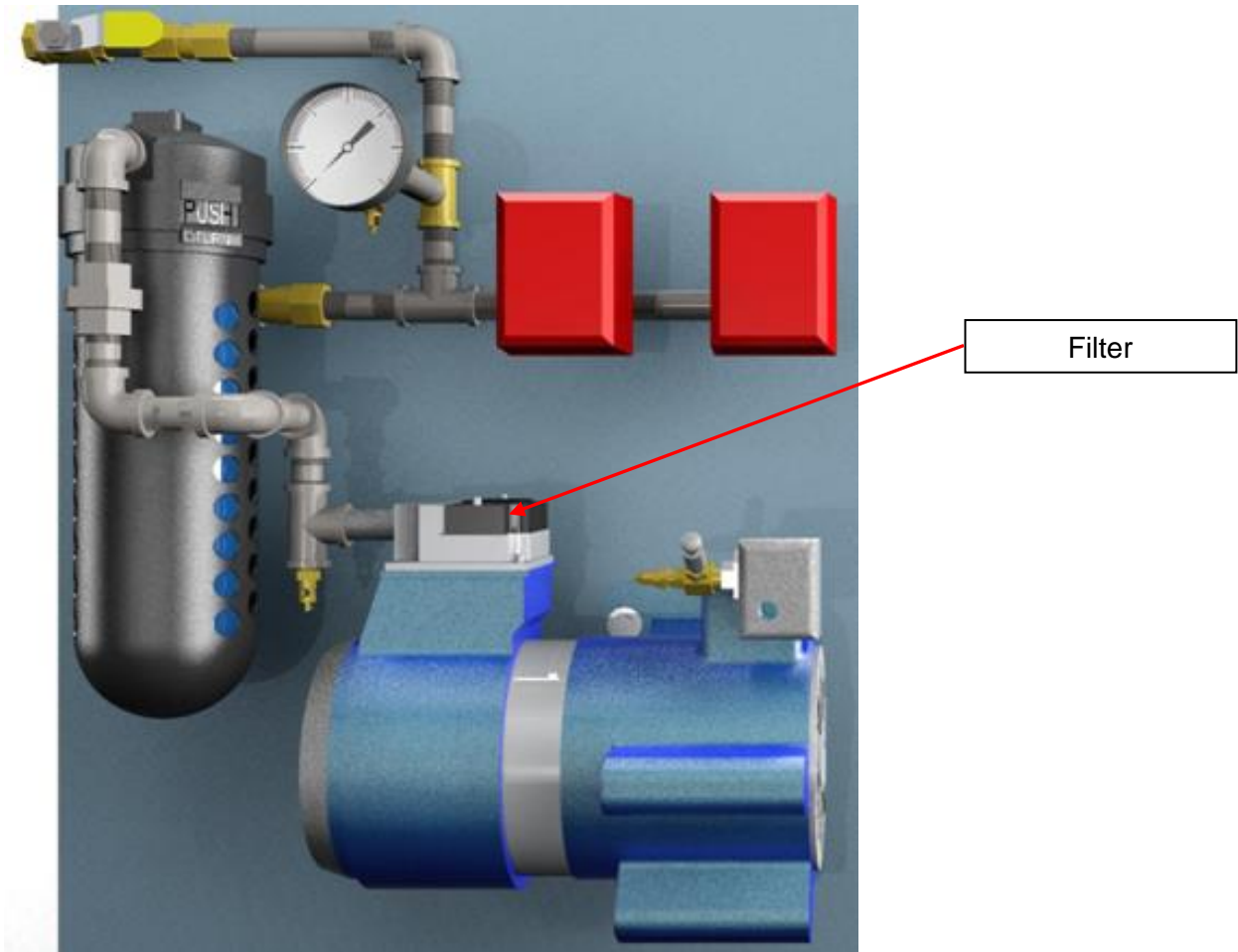


Figure 16 – Compressor Filter

5.3.3 When quarterly maintenance is complete, sign and date the Quarterly Maintenance Tag. Enter date when next quarterly maintenance is due.



**INSPECTION / MAINTENANCE CHECKLIST
STANDPIPE-PAC™ SUPERVISORY SYSTEM
UFS-236 REVISION 2.00 – PAGE 1 OF 2**



DATE	
-------------	--

Is this (check one):	Monthly Inspection	=or=	Quarterly Maintenance
----------------------	--------------------	------	-----------------------

LOCATION INFORMATION	
User	
Address 1	
Address 2	
City, State, Zip	
System	

STANDPIPE-PAC UNIT SERIAL NUMBER	
---	--

STEP	INTERVAL	PROCEDURE	OK	NOT OK
1	Monthly	Is the unit installed in an area protected from outdoor elements?		
2	Monthly	Is the unit installed in a heated area, and is the temperature over +32°F?		
3	Monthly	Has the area where the unit is installed been checked for relative cleanliness?		
		Choose the phrase BEST describing the area where the unit is installed. Relatively clean <input type="checkbox"/> Somewhat dusty / dirty <input type="checkbox"/> Very dusty / dirty <input type="checkbox"/> Extremely dusty / dirty <input type="checkbox"/>		
4	Monthly	Has the color of the desiccant in the air dryer been checked?		
		Indicate below which color is the makes up the MAJORITY of the desiccant:		
		DARK BLUE <input type="checkbox"/> LIGHT BLUE <input type="checkbox"/> PINK <input type="checkbox"/>		
5	Quarterly	Has the air dryer desiccant been replaced with new desiccant?		
6	Quarterly	Has the compressor inlet filter been replaced with a new filter?		
7	Monthly	Has the Auxiliary Condensate Drain Device been properly used to remove water from the piping in the vicinity of the STANDPIPE-PAC™ ?		
8	Quarterly	Has the HIGH PRESSURE signal been checked?		
		1. Lockable shutoff valve CLOSED. 2. Compressor disconnect switch ON.		
		3. Operate test / service device. Signal horn should sound at 23±1 PSIG		
9	Quarterly	Has the LOW PRESSURE signal been checked?		
		1. Lockable shutoff valve CLOSED. 2. Compressor disconnect switch OFF.		
		3. Operate test service device. Signal horn should sound at 7 ± 1 PSIG.		
10	Monthly	Has the unit been left with the GREEN visual indicator for AC POWER ON and all other visual indicators OFF ?		
11	Monthly	Has the compressor disconnect switch been left ON ?		
12	Monthly	Is the pressure gage indicating between 13 and 18 PSIG?		
13	Monthly	Has the lockable outlet shutoff valve been left OPEN and locked?		
14	Monthly	Is the manual release bleed valve at each fire department connection CLOSED with cap and chain connected and tight?		
15	Monthly	Are all standpipe valves CLOSED ?		



LIST ALL CORRECTIONS / REPAIRS MADE

LIST ALL CORRECTIONS / REPAIRS NEEDED

NOTES

	PRINT NAME	SIGNATURE	DATE
INSPECTOR			
CUSTOMER			



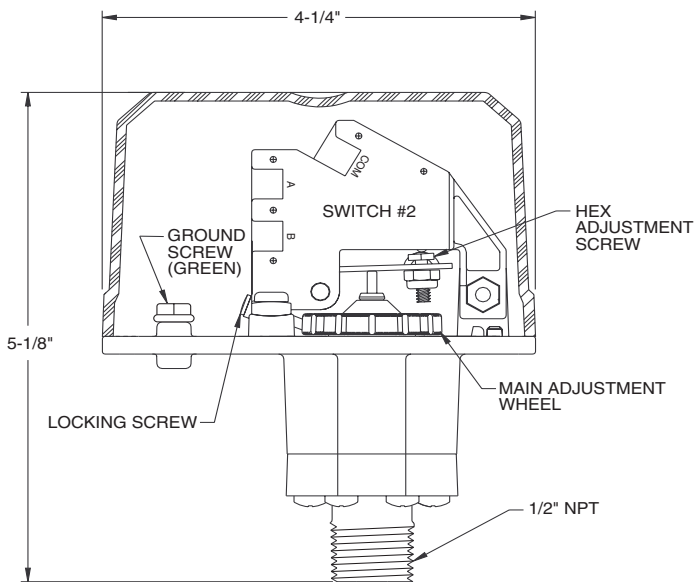
3825 Ohio Avenue, St. Charles, Illinois 60174
 1-800-SENSOR2, FAX: 630-377-6495
 www.systemsensor.com

EPS10 Series Alarm Pressure Switches

SPECIFICATIONS

Contact Ratings:	10 A, 1/2 HP @ 125/250 VAC ~
	8 A, 125/250 VAC (LPCB only)
	2.5A @ 6/12/24 VDC - - -
Overall Dimensions:	See Figure 1
Operating Temperature Range:	-40° to +160°F
Maximum Service Pressure:	300 PSI
Maximum Adjustment Range:	4 - 20 PSI
Enclosure Rating:	UL 4x — Indoor or Outdoor Use NEMA 4 — Indoor or Outdoor Use IP54
Approximate Differential:	3 PSI throughout range

FIGURE 1. PRESSURE SWITCH BASIC DIMENSIONS:



W0170-00

IMPORTANT

Please Read Carefully and Save

This instruction manual contains important information about the installation and operation of alarm pressure switches. Purchasers who install switches for use by others must leave this manual or a copy of it with the user.

Read all instructions carefully before installation, following only those instructions that apply to the model you are installing.

Before installing any alarm device, be thoroughly familiar with:

NFPA 72: *Installation, Maintenance, and Use of Protective Signaling Systems*

NFPA 13: *Installation of Sprinkler Systems*

NFPA 13A: *Inspection, Testing, and Maintenance of Sprinkler Systems*

Other applicable NFPA standards, local codes, and the requirements of the authority having jurisdiction.

Failure to follow these directions may result in failure of the device to report an alarm condition. System Sensor is not responsible for devices that have been improperly installed, tested, or maintained.



Do not use in potentially explosive atmospheres. Do not leave unused wires exposed.

OPERATION

As pressure changes, a diaphragm actuates 1 or 2 snap action switches. The pressure switch actuation is determined by adjustment settings.

INSTALLATION

- Remove Cover
Cover is held on by two tamper resistant screws. (Removal key is enclosed with pressure switch.)
- Mounting the Switch
The device is designed to be mounted in the upright or horizontal position; side mounting is also acceptable. Locate it where vibration, shock, and mechanical loading are minimal. Refer to piping diagram (Figure 2 on page 2).
 - Mount the device directly to the line via the 1/2" NPT pressure connection. The use of teflon pipe sealant tape is recommended. Be sure the fitting is tight enough to prevent leaks.
 - Apply tightening torque to the black plastic hex portion of device.



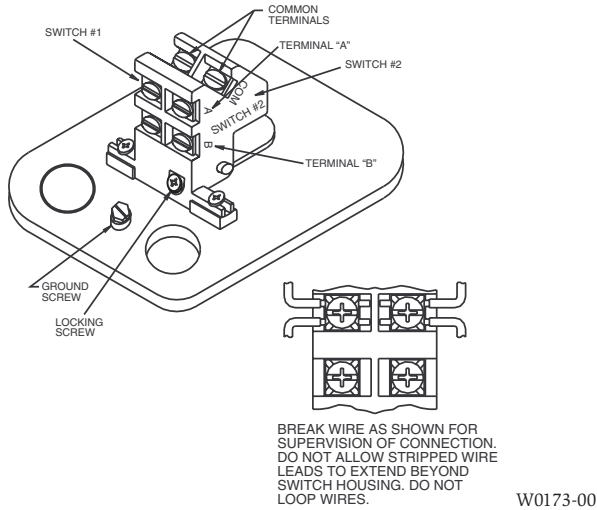
High voltage. Electrocutation hazard. Do not handle live AC wiring or work on a device to which AC power is applied. Doing so may result in severe injury or death. When utilizing switches at voltages greater than 74 VDC - - - or 49 VAC ~, means to provide all-pole disconnection must be incorporated in the field wiring, such as a circuit breaker.

- Wire the device in accordance with the National Electrical Code. Two 7/8" diameter conduit connection holes have been provided in the mounting plate to accept standard 1/2" conduit fittings (one is removable knock-out type). If a NEMA 4/UL 4x (waterproof unit) is required, waterproof flexible metallic conduit and appropriate conduit fittings must be used. Recommended connectors are Thomas and Betts PN 5332 (180° coupling), PN 5352 (90° coupling), and PN 5262 seal ring.
- Connect wiring to terminals (see Figure 3 and Table 1).

TABLE 1. ELECTRICAL CONNECTIONS (REFERENCED AT FACTORY SETTINGS):

MODEL EPS10-1	
SWITCH AT 0 P.S.I.	
B	— X
COM	—
A	— X
SWITCH AT 4-8 P.S.I. (HIGH TRIP PT.)	
B	— X
COM	—
A	— X
SWITCH 1	

FIGURE 3. SWITCH TERMINALS:



ADJUSTMENTS TO FACTORY SETTINGS

EPS10-1 devices are pre-adjusted at the factory to alarm at 4–8 PSI on rising pressure (see Table 2). Pressure switch settings may be adjusted in the field to obtain a different pressure alarm response from 4 PSI to 20 PSI. The switch has an override feature on the adjustment mechanism to prevent exceeding the 20 PSI max. setting of the switch. This override feature carries with it a tolerance band that may limit the upper adjustment to 16–20 PSI. Care must be used when setting the switch to ensure that the lower limit of 4 PSI is not exceeded. This will allow the switch to reset within the 3 PSI differential stated.

1. Install pressure switch as stated in “INSTALLATION” portion of instruction manual. Attach pressure test source to system.
2. Back off locking screw (see Figure 1) to allow main adjustment wheel to rotate freely.
3. Test trip point by slowly introducing pressure from the pressure test source. When trip point is found, reduce pressure to zero. Rotate main adjustment wheel (counterclockwise to increase pressure) and retest until switch trip point is at the desired pressure setting (4–20 PSI range).

Each number represents an approximate trip point change of 0.2 PSI. One full rotation changes the trip point setting by approximately 2.5 PSI. A reset differential of approximately 3 PSI is typical throughout the entire adjustment range of switch.

4. Retest the set point several times to ensure accuracy of setting.
5. Re-seat locking screw.

TABLE 2.

MODEL	FACTORY SETTINGS (PSI)			
	Fall (Low Switch)	Approx. Reset	Rise (High Switch)	Approx. Reset
EPS10-1	—	—	4 – 8	3 PSI diff.

NOTE: The sensor assembly is not field replaceable. Do not attempt to disassemble these parts. If you have any questions, consult System Sensor. System Sensor recommends careful consideration of the following factors when specifying and installing Alarm Pressure Switches. Always refer to the Installation and Maintenance Instruction for specific recommendations on individual devices before installing the unit.

- Electrical ratings stated in literature and on nameplates should not be exceeded.
- Overload on switch can cause failure on the first cycle. Always wire devices according to national and local electrical codes.
- Install units away from shock and vibration. Proper electrical fittings should be used to prevent moisture from entering the enclosure via the conduit.
- Test all devices for proper operation after initial installation. Perform preventive maintenance and periodic testing as required by the applicable NFPA standards but not less than bimonthly.
- Install a back-up control for all critical applications where control failure could endanger life or property. A backup control to serve as a high or low limit control is especially recommended for applications where a runaway condition could result.
- Do not mount unit where ambient temperatures will exceed published limits.
- Avoid impact or mechanical loading.

Please refer to insert for the Limitations of Fire Alarm Systems

THREE-YEAR LIMITED WARRANTY

System Sensor warrants its enclosed pressure switch to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. System Sensor makes no other express warranty for this pressure switch. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company’s obligation of this Warranty shall be limited to the repair or replacement of any part of the pressure switch which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. After phoning System Sensor’s toll free number 800-SENSOR2 (736-7672) for a Return Authorization number, send defective units postage prepaid to: System Sensor, Return

Department, RA # _____, 3825 Ohio Avenue, St. Charles, IL 60174. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to repair or replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company’s negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



SPECIFICATIONS

Contact Ratings:	10 A, 1/2 HP @ 125/250 VAC ~	
	8A @ 125/250 VAC ~ (LPCB ONLY)	
	2.5A @ 6/12/24 VDC - - -	
Overall Dimensions:	See Figure 1	
Operating Temperature Range:	-40°F to +160°F	
Maximum Service Pressure:	EPS40-1,	300 PSI
Adjustment Range:	EPS40-1,	10-100 PSI
Enclosure Rating:	UL 4x — Indoor or Outdoor Use NEMA 4 — Indoor or Outdoor Use IP54	
Approximate Differential:	EPS40-1,	3 PSI at 10 PSI 6 PSI at 100 PSI

IMPORTANT

Please Read Carefully and Save

This instruction manual contains important information about the installation and operation of supervisory pressure switches. Purchasers who install switches for use by others must leave this manual or a copy of it with the user. Read all instructions carefully before installation, following only those instructions that apply to the model you are installing.

Before installing any alarm device, be thoroughly familiar with:

- NFPA 72: National Fire Alarm Code
- NFPA 13: Installation of Sprinkler Systems
- NFPA 25: Inspection, Testing, and Maintenance of Water-based Fire Protection Systems
- NFPA 13D: Standard for 1 and 2 Family Dwellings and Manufactured Homes
- NFPA 13R: Standard for Multi-family Dwellings

Other applicable NFPA standards, local codes, and the requirements of the authority having jurisdiction.

Failure to follow these directions may result in failure of the device to report an alarm condition. System Sensor is not responsible for devices that have been improperly installed, tested, or maintained.

CAUTION

Do not use in potentially explosive atmospheres. Do not leave unused wires exposed.

OPERATION

As pressure changes, a diaphragm actuates 1 or 2 snap action switches. The pressure switch actuation is determined by adjustment settings.

INSTALLATION

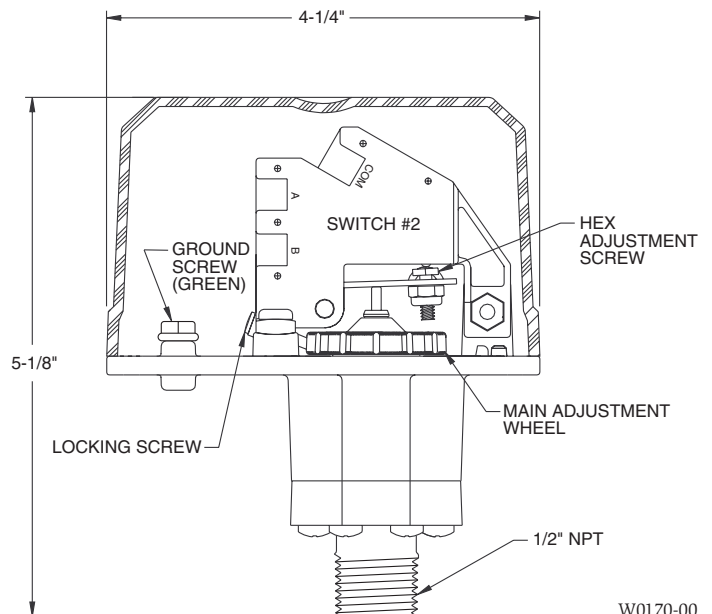
1. Remove Cover
 Cover is held on by two screws.
2. Mounting the Switch
 The device is designed to be mounted in the upright position; side mounting is also acceptable. Locate it where vibration, shock, and mechanical loading are minimal. Refer to piping diagram above (Fig. 2 and 3).
 - a. Mount the device directly to the line via the 1/2" NPT pressure connection. The use of teflon pipe sealant tape is recommended. Be sure the fitting is tight enough to prevent leaks.
 - b. Apply tightening torque to the black plastic hex portion of the device.

WARNING

High voltage. Electrocution hazard. Do not handle live AC wiring or work on a device to which AC power is applied. Doing so may result in severe injury or death. When utilizing switches at voltages greater than 74 VDC - - - or 49 VAC ~, means to provide all-pole disconnection must be incorporated in the field wiring, such as a circuit breaker.

3. Wire the device in accordance with the National Electrical Code. Two 7/8" diameter conduit connection holes have been provided in the mounting plate to accept standard 1/2" conduit fittings (one is removable knock-out type). If a NEMA 4/UL 4x (waterproof unit) is required, waterproof flexible metallic conduit and appropriate conduit fittings must be used. Recommended connectors are Thomas and Betts PN 5332 (180° coupling), PN 5352 (90° coupling), and PN 5262 seal ring.
 4. Connect wiring to terminals (see Figure 4 and Table 1).
- Adjustments to Factory Settings

FIGURE 1. PRESSURE SWITCH BASIC DIMENSIONS:



W0170-00

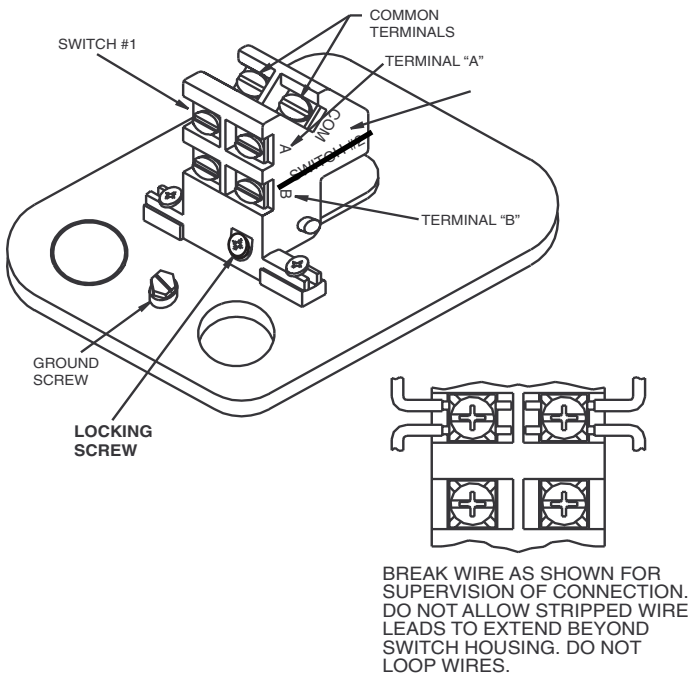
TABLE 2.

MODEL	FACTORY SETTINGS (PSI)		
	Fall SW2 (Low Switch)	Nominal	Rise SW1 (Hi Switch)
EPS40-1	30± 1.5	40	—

SINGLE-SWITCH MODEL — EPS40-1 AND EPS120-1

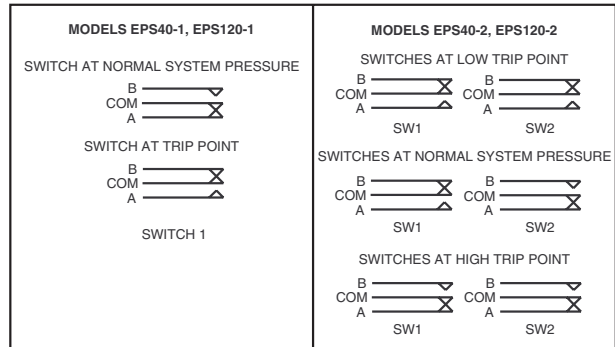
1. Install pressure switch as stated in “INSTALLATION” portion of instruction manual. Attach pressure test source to system.
2. Back off locking screw (see Fig. 4) to allow main adjustment wheel to rotate freely.
3. Test the switch for the set point by introducing 40 PSI pressure from the pressure test source for the EPS40-1. Decrease pressure slowly until the switch trips. Rotate main adjustment wheel, Figure 5, (counterclockwise to increase pressure) and retest by first introducing a higher pressure than desired and slowly reducing pressure until the switch trips. Repeat process until switch trip point is at desired pressure setting. Each number represents an approximate trip point change of 1.8 PSI for the EPS40-1. For each 1/2 rotation of the adjustment wheel, the trip point setting changes by approximately 11 PSI for the EPS40-1.
4. Retest the set point several times to ensure accuracy of setting.
5. Re-seat locking screw.

FIGURE 4. SWITCH LOCATION:



W0185-01

TABLE 1. ELECTRICAL CONNECTIONS (REFERENCED AT FACTORY SETTINGS):

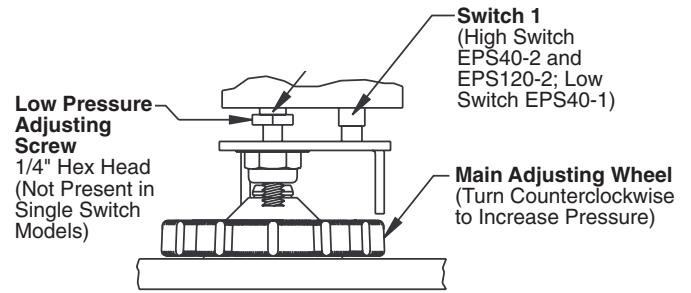


W0186-00

NOTE: The sensor assembly is not field replaceable. Do not attempt to disassemble these parts. If you have any questions, consult System Sensor. System Sensor recommends careful consideration of the following factors when specifying and installing Alarm and Supervisory Pressure Switches. Always refer to the Installation and Maintenance Instruction for specific recommendations on individual devices before installing the unit.

- Electrical ratings stated in literature and on nameplates should not be exceeded.
- Overload on switch can cause failure on the first cycle. Always wire devices according to national and local electrical codes.
- Install units away from shock and vibration. Proper electrical fittings should be used to prevent moisture from entering the enclosure via the conduit.
- Test all devices for proper operation after initial installation. Perform preventive maintenance and periodic testing as required by the applicable NFPA standards but not less than bimonthly.
- Install a back-up control for all critical applications where control failure could endanger life or property. A backup control to serve as a high or low limit control is especially recommended for applications where a runaway condition could result.
- Do not mount unit where ambient temperatures will exceed published limits.
- Avoid impact or mechanical loading.

FIGURE 5. ADJUSTMENTS (DUAL-SWITCH MODEL SHOWN):



NOTE: Each 1/2 turn of Low Pressure adjusting screw adjusts pressure approximately 5 psi. Turn counter clockwise to increase pressure. Turn clockwise to decrease pressure. Each 1/2 turn of High Pressure adjusting wheel adjusts pressure 11 psi on the EPS40-

W0144-02

Please refer to insert for the Limitations of Fire Alarm Systems

THREE-YEAR LIMITED WARRANTY

System Sensor warrants its enclosed pressure switch to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. System Sensor makes no other express warranty for this pressure switch. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company's obligation of this Warranty shall be limited to the repair or replacement of any part of the pressure switch which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. After phoning System Sensor's toll free number 800-SENSOR2 (736-7672) for a Return Authorization number, send defective units postage prepaid to: System Sensor, Return

Department, RA # _____, 3825 Ohio Avenue, St. Charles, IL 60174. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to repair or replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company's negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

(THIS SURFACE DELIBERATELY LEFT BLANK)

⚠ WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect air supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Safety Guide

For more complete information on recommended application guidelines, see the Safety Guide section of Pneumatic Division catalogs or you can download the Pneumatic Division Safety Guide at: www.wilkersoncorp.com

Description

Wilkerson Manual Dryers are intended to remove water vapor from the compressed air system. Atmospheric dew points as low as -100°F (-73°C) are achievable when operated within rated unit specifications.

General Safety Information

- **Release all air pressure from intended airline before installation.**
- Install unit in air line before opening desiccant container. After unit installation, add desiccant following steps in desiccant replacement instructions on page 2.
- Always make sure bowl, bowl guard, and clamp ring are in place and the clamp ring is securely locked before pressurization.
- DO NOT exceed the pressure and temperature ratings as shown in the specifications.
- Follow all local, state and federal EPA, OSHA, and similar codes regarding disposal of old desiccant.



X03 Plastic Bowl

Specifications	
Maximum Pressure	150 psig (10.3 bar)
Maximum Temperature	125°F (52°C)
Atmospheric Dewpoint*	000 Model: -45°F (-43°C)
000 Model: Silica Gel	
Maximum Continuous Airflow*	10 scfm (4,7 dm³/s)
Total Airflow*	4400 scf (2076 dm³)
Total Min. of Operation @ Max Continuous Airflow	440 min.
Unit Weight With Desiccant	7.4 lbs. (3.4 kg)
# of Desiccant Bags/Charge	2 Bags ***
Pipe Connections	1/4", 1/2" NPT (BSPP)

Installation

1. Refer to **WARNING** (on page 6).
2. Install as close as possible to the point where the air is being used.
3. Install unit with the airflow going in the direction of the arrow.
4. Install unit on air line before opening desiccant container. After installation, add desiccant. Shake and tap bowl while filling to settle desiccant. Fill Model X25 and X03/X04 to 1/8" below inner shoulder of bowl. Fill Model X06 bowl to within 1/2" of top.
5. Replace bowl and bowl guard, or metal bowl, and clamp ring onto the unit. Be sure clamp ring is securely locked in place before pressurizing unit.
6. Most manual desiccant dryer users will achieve optimal results when installing the dryer as close to the equipment or process being protected as possible in the compressed air system. Most users, especially those with high quality air requirements, should protect their system and the manual dryer with one or more of the following types of components:
Please see page 4 for exact model recommendations.

- **Liquid Separator:** Should be used prior to the manual desiccant dryer in any system where large slugs of liquid water are anticipated. The manual desiccant dryer silica gel or mole sieve can be destroyed by large amounts of liquid moisture. Most systems which have an aftercooler and separator, and/or a refrigerated air dryer, will not require a liquid separator. An alternative is to use a particulate filter/separator, described below.
- **Particulate Filter/Separator:** Should be used prior to the manual desiccant dryer in any system where significant amounts of dirt, pipe scale, etc, and/or liquid water, is present, in order to prevent clogging the manual dryer or harming the desiccant. A particulate filter/separator should be used prior to a coalescing filter to extend the life of the coalescing element.

*** Each bag weighs .88 lbs. (.40kg)

Models X06, X03, X04, and X25

d. See replacement parts list for specifics on kit numbers for replacement desiccant.

3. Desiccant regeneration:

a. — For silica gel (“000”) units: Pour out used Pink desiccant onto flat pan. Place Pink desiccant in 350°F (176°C) oven for approximately three hours or until the desiccant color has changed back to Blue.

b. Remove desiccant from oven and allow to cool down to ambient temperature.

c. Pour desiccant back into unit bowl, periodically shaking and tapping to settle the desiccant.

4. Replace bowl and bowl guard, or metal bowl, and clamp ring onto the unit. Be sure clamp ring is securely locked in place before repressurizing the unit.

Operation

1. The silica gel desiccant, when visible through the clear polycarbonate plastic bowl, contains a color indicator. It changes from Blue (meaning dry) to Pink (meaning wet) to indicate the need to replace or regenerate the desiccant.

Maintenance

1. The only servicing required for silica gel units is when the desiccant color or moisture indicator has changed from Blue (meaning dry) to Pink (meaning wet). Should this color change occur:

- Turn off and depressurize the line containing the dryer unit.
- Loosen the clamp ring and remove the bowl from the top housing. (Figure 1) Proceed to step 2 or 3, as required.

2. Desiccant replacement:

- Pour out used desiccant.
- Open new container and refill bowl. (Figure 2)
- Shake or tap bowl to settle desiccant. Add or remove sufficient quantity to fill Model X03 unit bowl to 1/8" below inner step,

CAUTION

Polycarbonate bowls, being transparent and tough, are ideal for use with Filters and Lubricators. They are suitable for use in normal industrial environments, but should not be located in areas where they could be subjected to direct sunlight, an impact blow, nor temperatures outside of the rated range. As with most plastics, some chemicals can cause damage. Polycarbonate bowls should not be exposed to chlorinated hydrocarbons, ketones, esters and certain alcohols. They should not be used in air systems where compressors are lubricated with fire-resistant fluids such as phosphate ester and di-ester types.

Metal bowls are recommended where ambient and/or media conditions are not compatible with polycarbonate bowls. Metal bowls resist the action of most such solvents, but should not be used where strong acids or bases are present or in salt laden atmospheres. Consult the factory for specific recommendations where these conditions exist.

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

Bowl guards are recommended for added protection of polycarbonate bowls where chemical attack may occur.

WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from The Company, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or systems in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by The Company and its subsidiaries at any time without notice.

EXTRA COPIES OF THESE INSTRUCTIONS ARE AVAILABLE FOR INCLUSION IN EQUIPMENT / MAINTENANCE MANUALS THAT UTILIZE THESE PRODUCTS. CONTACT YOUR LOCAL REPRESENTATIVE.

Figure 1

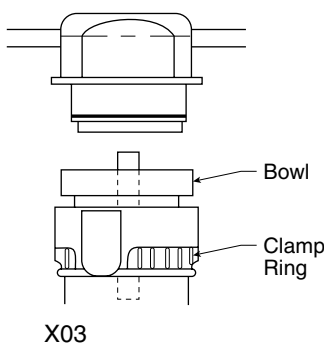


Figure 2

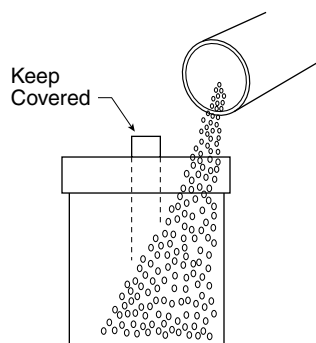
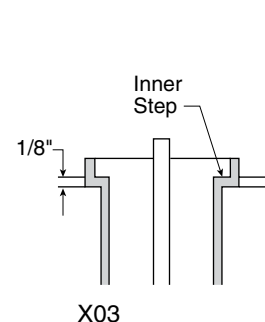


Figure 3

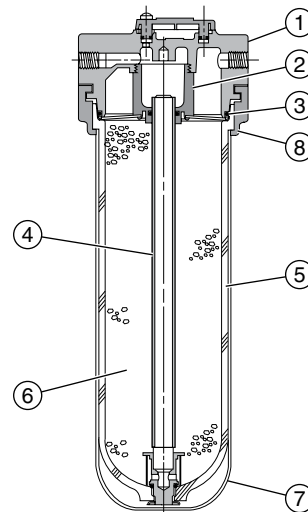
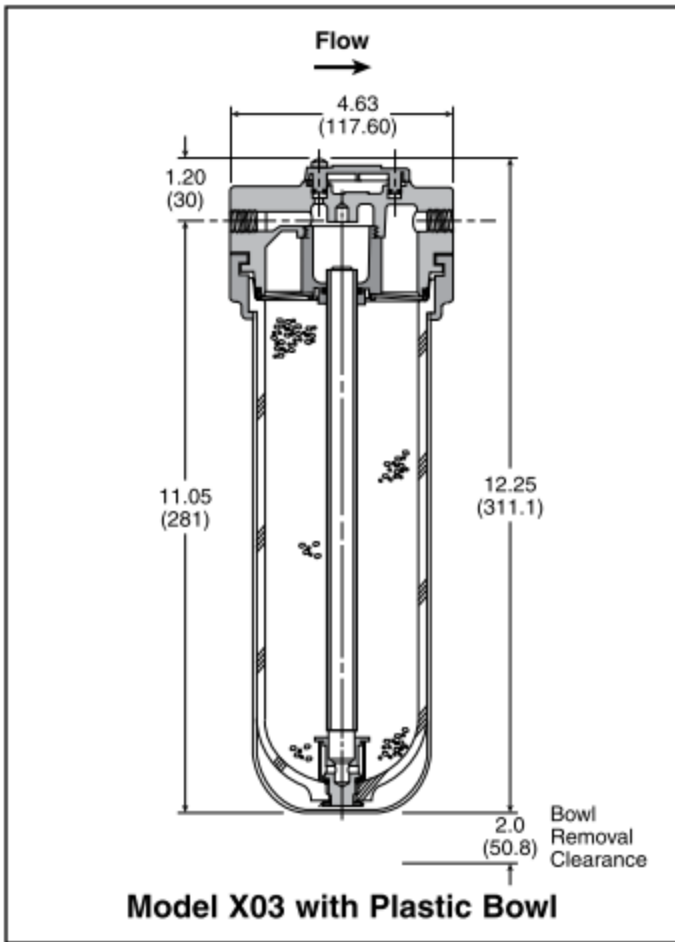


Replacement Parts List — TRANSPARENT BOWL Units with Bowl Guards

Description	Part No.	X03 Qty.
1 Cover	NNR	—
2 Screen Assembly	NNR	1
3 Bowl O-Ring	GRP-95-256	1
4 Tube Assembly w/screen	DRP-96-435	1
5 Transparent Bowl	GRP-95-871	1
6 Silica Gel (000) 4A Molecular Sieve (U00) 13x Molecular Sieve (X00) Environment Friendly (E00)	DRP-85-059 DRP-85-060 DRP-85-061 DRP-85-447	8 Bags / 7 lbs. 8 Bags / 7 lbs. 8 Bags / 7 lbs. 8 Bags / 7 lbs.
7 Bowl Guard	DRP-95-810	1
8 Clamp Ring	GRP-96-404	1

FLOW → (all units)

MODEL X03/X04 WITH TRANSPARENT BOWL



WILKERSON WARRANTY

Wilkerson products are warranted to be free from defects in material and workmanship, under proper use, installation, application and maintenance in accordance with Wilkerson's written recommendations and specification for a period of one year from the date of shipment from the factory (refrigerated dryers are warranted for 2 years). Wilkerson's obligation under this warranty is limited to, and the sole remedy for any such defect shall be, the repair or replacement (at Wilkerson's option) of unaltered products returned to Wilkerson and proven to have such defect, provided such defect is promptly reported to Wilkerson within said one-year period.

This is the only authorized Wilkerson Warranty and is in lieu of all other express or implied warranties or representations, including any implied warranties of merchantability or fitness, or of any other obligations on the part of Wilkerson.

Warranty claims must be submitted and shall be processed in accordance with Wilkerson's established warranty claim procedure. In no event will Wilkerson be liable for business interruptions, loss of profits, personal injury, costs of delay or for any other special, indirect, incidental or consequential losses, cost or damages.

WARNING: USE LIMITATIONS

Wilkerson's warranties are void, and Wilkerson assumes no responsibility for any resulting cost, loss, injury or any other damages whatsoever, with respect to any plastic bowl unit for which a bowl guard is standard equipment if the unit is placed in service without the bowl guard and, except as otherwise specified in writing by Wilkerson, with respect to any Wilkerson products which are used in other than compressed air service. Specific warnings with respect to these and other use limitations appear elsewhere in this catalog.

Wilkerson maintains a policy of ongoing product development and improvement. We therefore reserve the right to change dimensions specification and design without notice.

DO NOT PLACE PLASTIC BOWL UNIT IN SERVICE WITHOUT BOWL GUARD INSTALLED

Plastic bowl units are sold only with bowl guards with the exception to miniature units (C04, F00, L00, and M00). To minimize the danger of flying fragments in the event of plastic bowl failure, the bowl guards should not be removed. If the unit is in service without the bowl guard installed, manufacturer's warranties are void, and the manufacturer assumes no responsibility for any resulting loss.

If the unit has been in service and does not have a bowl guard, order one and install before placing back in service.

CAUTION

Certain compressor oils, chemicals, household cleaners, solvents, paints and fumes will attack plastic bowls and can cause bowl failure. Do not use near these materials. When bowl becomes dirty replace bowl or wipe only with a clean, dry cloth. Reinstall bowl guard or buy and install a bowl guard. Immediately replace any crazed, cracked, damaged or deteriorated plastic bowl with a bowl or a new plastic bowl and bowl guard.

CAUTION

Except as otherwise specified by the manufacturer, this product is specifically designed for compressed air service, and use with any other fluid (liquid or gas) is a misapplication. For example, use with or injection of certain hazardous liquids or gases in the system (such as alcohol or liquid petroleum gas) could be harmful to the unit or result in a combustible condition or hazardous external leakage. Before using with fluids other than air, or for non-industrial applications, or for life support systems, consult Wilkerson Corporation for written approval.

SOME OF THE MATERIALS THAT WILL ATTACK POLYCARBONATE PLASTIC BOWLS.

Acetaldehyde	Chlorobenzene	Methylene chloride
Acetic acid (conc.)	Chloroform	Methylene salicylate
Acetone	Cresol	Milk of lime (CaOH)
Acrylonitrile	Cyclohexanol	Nitric acid (conc.)
Ammonia	Cyclohexanone	Nitrobenzene
Ammonium fluoride	Cyclohexene	Nitrocellulose lacquer
Ammonium hydroxide	Dimethyl formamide	Phenol
Ammonium sulfide	Diozane	Phosphorous hydroxy chloride
Anaerobic adhesives and sealants	Ethane tetrachloride	Phosphorous trichloride
Antifreeze	Ethyl acetate	Propionic acid
Benzene	Ethyl ether	Pyridine
Benzoc acid	Ethylamine	Sodium hydroxide
Benzyl alcohol	Ethylene chlorohydrin	Sodium sulfide
Brake fluids	Ethylene dichloride	Styrene
Bromobenzene	Ethylene glycol	Sulfuric acid (conc.)
Butyric acid	Formic acid (conc.)	Sulphural chloride
Carbolic acid	Freon (refrig. & Propell.)	Tetrahydronaphthalene
Carbon disulfide	Gasoline (high aromatic)	Tiophene
Carbon tetrachloride	Hydrazine	Toluene
Caustic potash solution	Hydrochloric acid (conc.)	Turpentine
Caustic soda solution	Lacquer thinner	Xylene
	Methyl alcohol	Perchlorethylene & Others

TRADE NAMES OF SOME COMPRESSOR OILS, RUBBER COMPOUNDS AND OTHER MATERIALS THAT WILL ATTACK POLYCARBONATE PLASTIC BOWLS.

Atlas "Perma-Guard"	National Compound #N11
Buna N	"Nylock" VC-3
Cellulube #150 and #220	Parco #1306 Neoprene
Crylex #5 cement	*Permabond 910
*Eastman 910	Petron PD287
Garlock #98403 (polyurethane)	Prestone
Haskel #568-023	Pydraul AC
Hilgard Co.'s hil phene	Sears Regular Motor Oil
Houghton & Co. oil #1120, #1130 & #1055	Sinclair oil "Lily White"
Houtosafe 1000	Stauffer Chemical FYRQUEL #150
Kano Kroil	Stillman #SR 269-75 (polyurethane)
Keystone penetrating oil #2	Stillman #SR 513-70 (neoprene)
*Loctite 271	Tannergas
*Loctite 290	Telar
*Loctite 601	Tenneco anderol #495 & #500 oils
*Loctite Teflon-Sealant	Titon
Marvel Mystery Oil	*Vibra-tite
Minn. Rubber 366Y	Zerex

*When in raw liquid form.

We cannot possibly list all harmful substances, so check with Mobay or the General Electric office for further information on polycarbonate plastic.

The trade names "EconOmist" and "Flow-Guide" are registered at the United States Patent Office. "Auto-Fill", "Dial-Air", "Flex-Drain", "Mainliner" and "Whirl-Flo" are trade names of the Wilkerson Corporation.

WILKERSON PRODUCTS ARE PROTECTED BY THE FOLLOWING U.S. PATENT AND PATENTS IN OTHER COUNTRIES, ADDITIONAL PATENTS ARE PENDING.

3,631,878	3,667,493	3,762,224	4,215,790
4,215,790	3,793,803	4,718,245	3,793,803
3,858,403	D-292-310	D-229-629	4,215,790
4,289,335	4,352,511	4,559,065	4,631,073
4,689,969	4,696,320	3,889,484	3,945,465
4,631,073	D-234-848		

WILKERSON®

Customer/Technical Service
Pneumatic Division
Richland, MI 49083

Tel: (269) 629-2550
Fax: (269) 629-2475



OIL-LESS COMPRESSOR INSTRUCTION SHEETS

NOTE

This compressor is intended for installation indoors for use on dry sprinkler systems in accordance with the Standard for Installation of Sprinkler Systems, NFPA 13 and the National Electrical Code, NFPA 70. The compressor should be sized to restore and maintain the air pressure in the sprinkler system in accordance with the requirements in NFPA 13.

DANGER

This compressor is not equipped and should NOT be used "as is" to supply breathing quality air.

WARNING

Motors, electrical equipment and controls can cause electrical arcs that will ignite a flammable gas or vapor. Never operate or repair in or near a flammable gas or vapor. Never store flammable liquids or gases near the compressor.

WARNING

These compressors are suitable for pumping only atmospheric air. As defined in Compressed Gas Association Pamphlet G-7, page 3, atmospheric air is a mixture of elements and compounds where nitrogen and oxygen comprise more than 99% with all other trace gases comprising less than 1%. **DO NOT USE THIS COMPRESSOR IN CONTAMINATED ENVIRONMENTS OR FOR PUMPING MIXTURES OTHER THAN ATMOSPHERIC AIR**

WARNING

Compressed air contains liquid water and is saturated with water vapor, which can freeze. Do not connect compressor outlet to freezer rooms or systems exposed to temperatures below freezing. If system connects to a freezer room or area exposed to freezing temperatures, a Dry Air Pac™ should be used.

Receiving

Your compressor is inspected at the factory and packaged to protect against shipping damage. When the compressor is unpacked, inspect for damage or missing parts. All claims should be settled directly with the freight company.

WARNING: Do not operate this compressor if damaged during shipment, handling, or use. Damage may result in bursting and cause injury or property damage.

Location

NOTE: Do not connect compressor intake to freezer room. – CALL 1-800-345-8207.

Locate the compressor in a clean, well-ventilated area where the air is relatively cool, clean, and dry. A 110°F (35 C) maximum and 40°F (4.5 C) minimum temperature for surrounding and inlet air are recommended. Provide at least 12 to 18 inches from any wall or other obstruction that will interfere with airflow through the motor's fan built into the motor. Blocking airflow through the fan may cause the compressor to over heat. Do not place the compressor in an area of excessive heat, such as near a boiler.

Mounting

Riser mounted compressors may be mounted to a firm level floor, wall or system riser. A mounting bracket

and straps are provided. Tank mounted compressors should be bolted to the floor using the bolt holes provided in the tank legs. Always shim the unit level before bolting it to the floor. Vibration isolators (P/N KVP4X4) are recommended. When using isolator pads, do not draw bolts tight. Allow the pad to absorb vibrations. When isolators are used, a flexible hose (P/N P1202MP) should be installed between the compressor and service piping.

Lubrication

NOTE: This compressor is designed for non-lubricated service. Bearings are permanently lubricated. Do not lubricate any part of the compressor or motor.

Piping (reference "Installation Instructions" drawings)WARNING

Compressed air contains liquid water and is saturated with water vapor, which can freeze. Do not connect compressor outlet to freezer rooms or systems exposed to temperatures below freezing. If system connects to a freezer room or area exposed to freezing temperatures, a Dry Air Pac™ should be used.

Piping between the compressor, accessory items and the sprinkler system should be at least ½" internal

For Assistance Please Call 1-800 345-8207

Please keep these instructions for future reference.

GENERAL AIR PRODUCTS, INC.

diameter to minimize pressure drop from the compressor to system. Larger pipe size may be required by code and may be substituted with no adverse effects. Smaller line size must not be used and will restrict the compressor flow, lowering capacity and causing the compressor/motor to work harder, which shortens compressor/motor life. All piping connected to the compressor must be fully supported and not transfer any loads to the compressor.

All oil-less compressors include a relief valve. For riser mounted models, the relief valve is installed on the compressor outlet. For tank mounted models, an ASME Code relief valve is mounted on the compressor's tank. This valve will open at a preset value above the pressure switch setting to prevent excess tank pressure in the event of switch failure.

WARNING: Do not attempt to change the safety relief valve setting.

The compressor outlet piping should contain an accessible drain. As a minimum a manual drain may be used, but an automatic drain is recommended to remove excess water.

NOTE: Accumulation of condensed water in a system causes corrosion of components and reduces system capacity.

NOTICE: Warranty is void if a separate check valve is not installed to prevent water back flow.

Wiring (reference "Wiring Instructions" drawings)

WARNING

Have a qualified electrician wire the compressor to ensure that the supply line has the same characteristics (voltage, frequency and phasing) as the motor. Wiring must comply with all local and national codes.

CAUTION

Inadequate wiring size can cause insufficient voltage at the compressor during start-up. Overheating and damage to the motor and controls may result

The supply wire must be of adequate size and no other equipment should be connected to the same line. The table below lists the recommended wire size for each model, based on a 100' run. Consult factory for longer runs.

The motors supplied are multiple voltage motors. A label on the pressure switch cover indicates the voltage the motor is pre-wired for. If the supply voltage, on site, is different from the voltage indicated on this label, change the internal motor voltage connections to match the supply voltage. To change internal voltage connections, remove the cover plate located on the rear or side of the motor and reconnect the wire leads as shown on the motor's wiring diagram.

On all three phase and ½ Hp and ¾ Hp single phase models, an arrow on the motor indicates the direction of rotation of the compressor. If the compressor rotates in the opposite direction, reverse the rotation of the motor. On single phase units, reverse motor rotation by interchanging the red and black motor leads. Interchanging any two incoming supply wires reverses rotation of three phase motors.

NOTICE: Single-phase oil-less compressors can not be operated at 208V. Operating the compressor at 208V voids the warranty.

NOTICE: Single-phase motors include internal thermal overload protection, which has an automatic reset device.

WARNING: Disconnect electrical power before servicing to disable reset devices. Thermal protection can automatically start the motor when the protector resets.

On single phase models, the motor is pre-wired to the pressure switch provided, which controls starting (cut

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in pressure) and stopping (cut out pressure) of the motor. The pressure switch is factory set. Standard models switch is set at 27 psig cut in and 40 psig cut out. Low pressure models (“-LP”) switch is set at 13 psig cut in and 18 psig cut out. Consult General Air Products before adjusting the pressure switch.

<p>NOTE: Failure to use the pressure switch may result in overpressure of the compressor or other components in the system. Overpressure of the compressor may result in blown head gaskets or other damage.</p>

Maintenance Instructions

<p style="text-align: center;">WARNING</p> <p>DISCONNECT, TAG AND LOCK OUT POWER SOURCE THEN RELEASE ALL PRESSURE FROM THE SYSTEM BEFORE ATTEMPTING TO INSTALL, SERVICE, RELOCATE OR PERFORM ANY SERVICE.</p>
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The following instructions are based on NORMAL operation. If the compressor is in an excessively dusty area, increase frequency of maintenance checks.

WEEKLY

- Drain condensate from receiver and traps.
- Check for unusual noise or vibration.
- Clean air filters. –

NOTE: Do not clean filters with petroleum based products.
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- Clean all external parts of the compressor and motor.

MONTHLY

- Manually test safety relief valve.
- Inspect air system for leaks and tighten nuts and cap screws as required.

QUARTERLY

- Change filters.

Limited Warranty

General Air Products, Inc. warrants its products to be free of defects in material and workmanship under normal use and service for 12 months from date of purchase. Our warranty applies only when such defective parts are returned to us, or our Authorized Service Depot, transportation prepaid, and subject to our inspection and approval. Liability is limited to repair or replacement of material found defective, free of charge, FOB our plant. Unauthorized repairs or replacements will not be subject to factory warranty. This warranty is in lieu of all other warranties, expressed or implied.

General Notes

- 1) Warranty can be voided if modifications or adjustments are made without consultation and approval; from factory personnel.
- 2) If there are any questions regarding installation or operation of this compressor, please call the 800 number listed below.

 **GENERAL AIR PRODUCTS, INC.**

For Assistance Please Call 1-800 345-8207
Please keep these instructions for future reference.

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Trouble Shooting Guide

Symptom	Possible Cause(s)	Corrective Action
Motor hums and runs slowly or not at all	<ol style="list-style-type: none"> 1. Low voltage or no voltage 2. Shorted or open motor winding 3. Defective check valve 4. Defective pressure switch – contacts will not close 	<ol style="list-style-type: none"> 1. Check voltage during attempt to start. Voltage must be within +/-10% of nominal voltage to start motor. Increase wire size if necessary to lower voltage drop. 2. Replace motor 3. Replace check valve 4. Repair or replace pressure switch
Reset mechanism cuts out repeatedly or fuses blow repeatedly	<ol style="list-style-type: none"> 1. Insufficient voltage to motor 2. Pressure switch set too high 3. Wrong fuse size 4. Piping too restrictive 5. Defective motor 	<ol style="list-style-type: none"> 1. Check voltage during attempt to start. Voltage must be within +/-10% of nominal voltage to start motor. Increase wire size if necessary to lower voltage drop. 2. Consult factory, adjust or replace 3. Be sure fuses and heaters are rated properly 4. Add receiver vessel or increase pipe volume after compressor. 5. Replace motor
Unit short cycles repeatedly	<ol style="list-style-type: none"> 1. Piping too restrictive 2. Leak in line before system check valve 	<ol style="list-style-type: none"> 1. Add receiver vessel or increase pipe volume after compressor. 2. Repair leaks(s)
Compressor Overheating	<ol style="list-style-type: none"> 1. Dirty intake filter 2. Wrong motor rotation 3. Air flow to fan on flywheel blocked 	<ol style="list-style-type: none"> 1. Clean intake filter 2. Correct rotation 3. Clear air flow to fan or relocate unit
Excessive noise in operation	<ol style="list-style-type: none"> 1. Damaged bearings 2. Worn piston rings or skirts 3. Broken valves 4. Loose blower wheel 5. Damaged Blower baffle 	<ol style="list-style-type: none"> 1. Contact General Air Products, Inc. Service Department. 1-(800)345-8207
System pressure builds slowly	<ol style="list-style-type: none"> 1. Compressor sized incorrectly 2. Leaks or restrictions in piping 3. Dirty intake filter 4. Blown head gasket 	<ol style="list-style-type: none"> 1. Check system size and compressor sizing 2. Correct leaks and remove restrictions 3. Clean intake filter 4. Replace head gasket

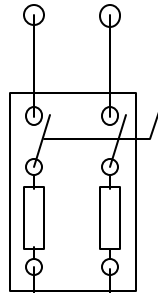
For Assistance Please Call 1-800 345-8207
Please keep these instructions for future reference.

OIL-LESS COMPRESSOR SINGLE PHASE WIRING INSTRUCTIONS

NOTE: MOST MOTORS ARE MULTIPLE VOLTAGE. CHECK NAMEPLATE AND VERIFY CORRECT INTERNAL CONNECTIONS FOR VOLTAGE BEING SUPPLIED TO UNIT.

FEEDER WIRE SIZE MUST BE CAPABLE OF CARRYING CURRENT LOAD OF COMPRESSOR AT MAXIMUM PRESSURE.

LINE



FUSED
DISCONNECT

PRESSURE
SWITCH

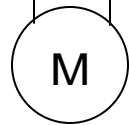
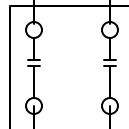


FIG 1

FIG 1

SINGLE PHASE
BUILT IN OVERLOAD
PROTECTION. (NOT
TO EXCEED 3/4 HP).

FOR 115V ELIMINATE
FUSE IN GROUND LEG.

PRESSURE SWITCH HP
RATING MUST NOT BE
EXCEEDED.

OTHER WIRING VARIATIONS
POSSIBLE DEPENDING ON
LOCAL CODES.

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