

Advanced Integrated Fire Protection Systems

TOTALPAC[®] 3

*Owner's Operation
and
Maintenance Manual*

WET SYSTEMS

TOTALPAC[®] 3

Integrated Fire Protection System

OWNER'S OPERATION & MAINTENANCE MANUAL

Manufactured by *FireFlex Systems Inc.*

1935 Lionel-Bertrand Blvd

Boisbriand, QC (Canada) J7H 1N8

Tel: (450) 437-3473 Toll free: (866) 347-3353

Fax: (450) 437-1930

Web Site: <http://www.fireflex.com> - E-Mail: info@fireflex.com

Integrated Fire Protection System

OWNER'S OPERATION & MAINTENANCE MANUAL

Table of contents

Wet systems

<u>Description</u>	<u>Form N°</u>
General	FM-076A-39
1- Applicable standards	
2- Listings & Approvals	
3- Environment	
4- General description	
5- Features	
6- Configuration Description	
 Mechanical Section	 FM-076A-59
1- Installation, Operation and Instruction	
1.1- Installation	
1.2- Preliminary inspection before placing the system in service	
1.3- Placing the system in service	
1.4- System operation	
1.5- Emergency instructions	
1.6- Placing system back in service	
1.7- Inspections & tests	
1.8- Maintenance	
2- Wet pipe system with retard chamber Trim Schematic	
3- Wet pipe system with excess pressure pump Trim Schematic	
 Wet systems Trim Option	 FM-076A-85
1- Fire department connection	
2- Semi & Full flange option	
 Controls Section	 FM-076A-90
1- With Control Panel	
2- Without Control Panel	

Continued on next page...

Integrated Fire Protection System

OWNER'S OPERATION & MAINTENANCE MANUAL

Table of contents (cont'd)

Wet systems

<u>Description</u>	<u>Form N°</u>
Electrical Section	FM-076A-79
Dimensional Data & cabinet	FM-076A-94
1- Skid Unit	
2- Cabinet Unit	
Limited Warranty	FM-076A-96

Copyright © 2013 FireFlex Systems Inc.

All Rights Reserved

Reproduction or use, without express written permission from FireFlex Systems Inc, of any portion of this manual is prohibited. While all reasonable efforts have been taken in the preparation of this manual to assure its accuracy, FireFlex Systems Inc assumes no liability resulting from any errors or omissions in this manual, or from the use of the information contained herein. TOTALPAC® is a registered trademark of FireFlex Systems Inc.

FireFlex Systems Inc. reserves the right to make changes to this manual and the data sheets herewith at any time, without prior notification.

Integrated Fire Protection System

General Section - Wet Pipe Systems

General

1. Applicable Standards

The **TOTALPAC[®]3** complies with the following standards:

- NFPA-13 Sprinkler Systems;
- NFPA-15 Water Spray Fixed Systems;
- NFPA-16 Foam-Water Deluge and Foam-Water Spray Systems;
- NFPA-72 Fire Alarm Systems.

Before the installation, the contractor installing the unit shall be familiar with the following documents and standards:

- Applicable Local & State Building Codes
- Any additional requirements of the Local Authority Having Jurisdiction.

2. Listings and Approvals

Note: Although most **TOTALPAC[®]3** units are Listed and Approved, the Wet Pipe is not. Components in these special units maintain their individual Listings/Approvals but the units are not Listed or Approved as an assembled unit.

- OSHPD certification pre-approval: OSP-0341-10

CAUTION ! Any unauthorized modification or addition made on-site to a factory built Listed Unit will void this Listing. Such modifications or additions may void the unit's warranty as well. Consult your nearest FireFlex Systems Authorized Distributor before proceeding with such modifications or additions.

3. Environment

TOTALPAC[®]3 units shall be installed in a dry and clean location. Verify that all equipment is properly heated and protected to prevent freezing and physical damage.

The unit and its components must be kept free of foreign matter, freezing conditions, corrosive atmospheres, contaminated water supplies, and any condition that could impair its operation or damage the components.

The frequency of the inspections and maintenance will vary depending on these environmental conditions. The owner is responsible for maintaining the fire protection system and devices in proper operating condition.

Refer to the configuration description for maintenance instructions.

4. General Description

The Standard Wet Pipe system uses closed automatic sprinklers in the sprinkler piping.

This **TOTALPAC[®]3** integrated fire protection system by *FireFlex Systems Inc.* consists of a wet pipe system trim totally pre-assembled, pre-wired and factory tested. All electrical and mechanical components of the system are contained in one single unit.

Note: Skid units include the trim components only and must be wired by the installing contractor.

The only connections required for installation are the water supply inlet, water discharge outlet, main drain, and the electrical detection and alarm connections. The discharge outlet is connected to a fixed piping system of automatic sprinklers. Water is the extinguishing agent.

Wet pipe systems are usually supervised. The **TOTALPAC[®]3** system is completely supervised in order to monitor its integrity. The sprinkler piping is supervised by the water. If there is a leak on the system or if a sprinkler head is accidentally broken, an audible signal will sound.

The most common applications are any structure not subject to freezing, to automatically protect the structure, contents and/or personnel from loss due to fire. The structure must be substantial enough to support the piping system filled with water.

Using water as the extinguishing agent, one wet pipe system can cover as much as 52,000 square feet in a single fire area. Small unheated areas of a building may be protected by a wet system if an antifreeze-loop or auxiliary dry system is installed. For rules and limitations, see appropriate codes and standards.

Systems should be designed by qualified fire-protection engineers in conjunction with the appropriate Authority Having Jurisdiction.

Note: Each **TOTALPAC[®]3** Unit is identified with its unique Serial Number. This number is located on a sticker inside the main door panel and is used to maintain a record in our computerized data base. Have this Serial Number handy when calling for information on your unit (format is TOT3#### or TOTS#### for skids).

Integrated Fire Protection System

General Section - Wet Pipe Systems

5. Features

The **TOTALPAC®3** unit is superior than many other products available on the market now and has been manufactured by the company that has introduced and developed the concept of integrated fire protection systems in the market.

Main features are:

- Trouble free design for safe and easy application
- Standard trim available in 4 sizes: 3", 4", 6" & 8" diameter
- Uses the Viking J-1 Alarm Valve
- Compact, aesthetic and easy to move
- User-friendly standardized owner's manual with every unit
- Unique serial number on every unit
- Uses only UL, C-UL Listed and FM Approved components
- Designed in accordance with NFPA Standards
- Trim is fully assembled and tested at the factory
- Water supply and drain connections on both sides, available both with grooved end or flanged fittings
- Sturdy 14 Gauge steel cabinet or skid painted fire red with oven baked polyester powder on phosphate base
- Textured rust proof finish
- Neoprene gasket on all doors to eliminate vibrations
- Easily removable doors for ease of access
- Key-alike locks on all cabinet doors
- Manufactured under ISO-9001 quality control procedures.

6. Configurations Description

A wet pipe system is a fixed fire-protection system using piping filled with pressurized water, supplied from a dependable source. Closed heat sensitive automatic sprinklers spaced and located in accordance with recognized installation standards are used to detect a fire. Upon operation the sprinklers discharge water over a specific area to control or extinguish the fire. As the water flows through the system an alarm is activated to indicate the system is operating. Only those sprinklers immediately over or adjacent to the fire operate, minimizing water damage.

TOTALPAC®3 Standard Wet Pipe systems are built around the Viking trim using Alarm Check Valves Model J-1. The valves are rated up to a maximum of 250 psi WWP (1724 kPa) and are available in the following diameters:

- ▶ 3" (80 mm) ▶ 4" (100 mm)
- ▶ 6" (150 mm) ▶ 8" (200 mm)

Standard Wet Pipe systems are available in three types of pressure trims: Constant pressure or variable pressure, available either with a Viking Retard Chamber or an Excess pressure pump (1/3 or 1/2HP).

TOTALPAC®3 Wet Pipe systems are supplied with a grooved Alarm Valve. Units with a flange-flange Alarm Valve are also available on request.

Integrated Fire Protection System

Mechanical Section - Wet Pipe Systems

1- Installation, Operations & Instructions

See Trim Schematic at the end of the current Section

1.1 Installation

1. Install the **TOTALPAC[®]3** unit and connect the system according to instruction manual and technical data supplied.

Note: The drain collector shall be connected to an open drain. Do not restrict or reduce drain piping.

2. Install the automatic sprinkler piping, in accordance with applicable NFPA standards.
3. Conform to local municipal or other codes regarding installations of fire protection systems.
4. Perform preliminary inspection outlined below prior to putting system in service.
5. Put the system into operation as outlined below.

Perform the annual inspection sequence and test each device and alarm unit (if applicable).

6. If the system does not operate as it should, make the necessary corrections according to manuals issued or consult your distributor or *FireFlex Systems Inc.*
7. Make sure that building owner or a delegated representative has received instructions regarding the operation of the system.

TOTALPAC[®]3 Units must be installed in an area not subject to freezing temperatures or physical damage.

1.2 Preliminary inspection before placing the system in service

1. Open door to mechanical section. Main Water Supply Control Valve (*D1*) should be CLOSED. Alarm test valve (*B5*) must be CLOSED. All gauges (*B12 and B13*) should show 0 psi pressure.
2. Fill sprinkler system with water and maintain a pressure of 200 psi for 2 hours.
3. Correct leaks if any before completing test. OPEN main drain valve (*D3*) completely. Completely drain the sprinklers piping.

Note: For proper operation of the wet system and to minimize unwanted (false) alarms, it is important to remove trapped air from the system when filling it with water. Air trapped in the system may also cause intermittent operation of the water motor alarm during sustained flow of water (such as the flow required by an open sprinkler or the system test valve). Consider installation of auxiliary vents to facilitate venting.

Integrated Fire Protection System

Mechanical Section - Wet Pipe Systems

1.3 Placing the system in service

(Refer to mechanical trim description and TRIM SCHEMATIC)

1. Verify that auxiliary drains are CLOSED and that the system is free of leaks.
2. Open the system test valve (and any auxiliary vents provided to facilitate removal of air from system) to allow air to escape from the system while it is filling with water.
3. If desired, CLOSE the Alarm Shut-off Valve (B6) to prevent local alarms from operating while filling the system.

Note: Alarms and electric panels controlled by the alarm pressure switch (C1) cannot be interrupted.

4. Slowly OPEN the Water Supply Main Control Valve (D1).
5. Allow the system to completely fill with water. Allow water to flow from the system test valve, and from any other open vents provided, until all air is exhausted from the system.
4. After all air is exhausted from the system, CLOSE all other open vents and inspector tests connections.
5. The pressure gauge (B13) on the system side of the Alarm Check Valve (A1) clapper should indicate water pressure equal or greater than the pressure gauge located on the supply side of the clapper (B12).
6. OPEN the Alarm Shut-Off Valve (B6) and verify that all other valves are in their normal operating position.
7. Secure all valves in their normal operating position.
8. Notify the Authority Having Jurisdiction, remote station alarm monitors, and those in the affected area that the system is in service.

For additional information, refer to current Viking Technical Data describing individual components of the specific Viking Wet pipe System. Technical Data describing the Viking Wet pipe valve, and other system components are available in the Viking Engineering Design Data Book, CD-ROM or Web Site.

Also, refer to applicable installation standards, codes and Authorities Having Jurisdiction.

Note: When a valve has been removed from service and is subject to freezing or will be out of service for an extended period of time, all water must be removed from the priming chamber, trim piping, water supply piping and any other trapped areas.

1.4 System Operation

1.4.1 In the SET condition:

In the normal set condition the system piping is filled with water. When a fire occurs, the heat produced operates a sprinkler head, allowing the water to flow. The Alarm Valve (A1) clapper is opened by the flow of water allowing pressurized water to enter the alarm port to activate the connected alarm devices. When using variable pressure trim the water flowing through the alarm port overcomes the retard chamber's drain restriction, filling the retarding chamber then activating the connected alarm devices. The alarms will continue to sound until the flow of water is manually turned off.

Note: Wet Pipe systems sold in Canada are provided with a jockey pump instead of the Retard Chamber.

1.4.2 Trouble conditions:

- Intermittent alarms – bleed air from the high points of the system. If the system pressure is seldom, if ever, greater than supply pressure, drain the system and check valve rubber and by-pass check valve rubber for cold flow and sealing efficiency. Clean valve seats and replace rubbers as necessary.
- False alarms – If water pressure surges produce false alarms check the following:
 - a. Air trapped in the sprinkler piping can cause false alarms, the alarms to cycle on and off during testing and other nuisance problems. To correct bleed as much air as possible from the trapped high points of system piping. This condition can be minimized by opening the remote inspectors test valve and slowly filling the system with water when placing the system in service.
 - b. Clean drain restriction on retarding chamber trim.
 - c. Clean or replace check valve on external by-pass trim.
 - d. Clean or replace alarm valve clapper rubber.

Integrated Fire Protection System

Mechanical Section - Wet Pipe Systems

1.5 Emergency Instructions

(Refer to TRIM SCHEMATIC)

To take system Out of Service:

WARNING ! Placing a control valve or detection system out of service may eliminate the Fire Protection capabilities of the system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employ a fire patrol in the affected areas.

After a fire, verify that the fire is OUT and that placing the system out of service has been authorized by the appropriate Authority Having Jurisdiction.

- .1 Close Water Supply Control Valve (D1).
- .2 Open system Main Drain Valve (D3) and inspectors test valve.

Note: Electric alarms controlled by a pressure switch installed in the ½" (15mm) NPT connection (C3) for a Non-interruptible Alarm Pressure Switch cannot be shut-off until the Alarm Valve is reset or taken out of service.

- .3 Sprinkler systems that have been subjected to a fire must be returned to service as soon as possible. The entire system must be inspected for damage, and repaired or replaced as necessary.
- .4 Replace any sprinkler heads that have been damaged, or have been exposed to fire conditions.
- .5 Perform all maintenance procedures recommended in MAINTENANCE, describing individual components of the system that has operated.
- .6 Return the system to service as soon as possible. Refer to PLACING THE SYSTEM BACK IN SERVICE.

1.6 Placing the system back in service

(Refer to TRIM SCHEMATIC)

Note: For additional details, refer to instructions provided in the Viking Data Book describing the Viking Alarm Valve, and other system components.

When the wet pipe system is ready to be placed in service, verify that all the equipment is adequately heated and protected to prevent freezing and physical damage.

Note: For proper operation of the wet system and to minimize unwanted (false) alarms, it is important to remove trapped air from the system when filling it with water. Air trapped in the system may also cause intermittent operation of the water motor gong during a sustained flow of water (such as the flow required by an open sprinkler or the system test valve). Consider installation of auxiliary vents to facilitate venting.

CAUTION: Opening of the water supply main control valve (A1) will result in water flow from any openings in the system.

- .1 Verify that main drain valve and auxiliary drains are closed and that the system is free of leaks.
- .2 Open the system test valve (and any auxiliary vents provided to facilitate removal of air from the system) to allow air to escape from the system while it is filling with water.
- .3 If desired, close the alarm shut-off valve (B6) to prevent local alarms from operating while filling the system.

Note: Electric alarms controlled by the pressure switch on the ½" (15mm) NPT outlet (C3) for a non non-interruptible switch cannot be stopped.

- .4 Slowly open the water Supply Main Control valve (D1).
- .5 Allow the system to completely fill with water. Allow water to flow from the system test valve, and any other open vents provided, until all air is exhausted from the system.
- .6 After all air is exhausted from the system, close the system test valve and all other open vents.
- .7 The pressure gauge (B13) on the system side of the Alarm Check Valve Clapper should indicate water pressure equal to or greater than the gauge located on the supply side of the clapper (B12).
- .8 Open the Alarm Shut-off Valve (B6) in the alarm trim, and verify that all other valves are in their normal operating position.
- .9 Secure all valves in their normal operating position.
- .10 Notify the Authority having Jurisdiction, remote station alarm monitors, and those in the affected area that the system is in service.

Integrated Fire Protection System

Mechanical Section - Wet Pipe Systems

1.7 Inspections & Tests

It is imperative that the system be inspected on a regular basis. Refer to INSPECTIONS and TESTS recommended in current Viking technical Data describing individual components of the Viking Wet pipe System used.

The frequency of the inspections may vary due to contaminated water supplies, corrosive or humid atmospheres as well as the condition of the air supply to the system. In addition to the instructions herewith, local Authority Having Jurisdiction may have additional maintenance, testing and inspection requirements which must be followed.

WARNING ! Any system maintenance which involves placing a control valve or detection system out of service may eliminate the fire protection capabilities of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected areas.

Riser flow test:

Performance of a riser flow test is recommended annually during warm weather.

1. Fully open the system Inspectors Test Valve to simulate operation of a sprinkler.
2. Water flow alarms should operate. Water should fill the sprinkler piping and flow from the system Inspectors Test Valve, simulating an open sprinkler.
3. Close Inspectors Test Valve.
4. When testing is complete, return the system to service by following instructions in PLACING SYSTEM BACK IN SERVICE.

1.8 Maintenance

Note: The owner is responsible for maintaining the fire protection system and devices in proper operating condition.

For additional information, refer to MAINTENANCE INSTRUCTIONS provided in current Viking Technical Data describing individual components of the Viking Wet Pipe System used.

Where difficulty in performance is experienced, the valve manufacturer or his authorized representative shall be contacted if any field adjustment is to be made.

The following requirements are based upon NFPA-25:

Records.

Records of inspections, tests, and maintenance of the system and its components shall be made available to the authority having jurisdiction upon request. Typical records include, but are not limited to, valve inspections; flow, drain, and pump tests; and trip tests of wet pipe, dry pipe, deluge, and preaction valves.

Acceptance test records should be retained for the life of the system or its special components. Subsequent test records should be retained for a period of 1 year after the next test. The comparison determines deterioration of system performance or condition and the need for further testing or maintenance.

Monthly:

- .1 Inspection of gauges (water supply and system pressure) to ensure good condition and normal water supply pressure.
- .2 Alarm valves shall be externally inspected. The valve inspection shall verify the following:
 - a. The gauges indicate normal supply water pressure is being maintained.
 - b. The valve is free of physical damage.
 - c. All valves are in the appropriate open or closed position.
 - d. There is no leakage from the retarding chamber or alarm drains (depending on configuration).
- .3 Control valve shall be externally inspected. The valve inspection shall verify the following:
 - a. The gauges indicate that normal supply water pressure is being maintained.
 - b. The valve is free of physical damage.
 - c. All valves are in the appropriate open or closed position.
 - d. There is no leakage from the retarding chamber or alarm drains (depending on configuration).

Integrated Fire Protection System**Mechanical Section - Wet Pipe Systems****Quarterly:**

- Alarm Device (pressure or flow switch).
(Testing by opening the inspector's test connection)
- Main Drain Test (Riser Flow Test) to determine if change in water supply or control valve position.

Test procedure:

- Record the pressure indicated by the supply water gauge.
- Fully open the main drain valve.
- Record residual pressure.
- Close the main drain valve slowly.
- Record the time taken for supply water pressure to return to the original pressure.

Semi-Annually:

- Valve supervisory switch shall be tested to verify the operation of the switch upon movement of the hand wheel.

Annually:

- Riser flow test:
- Record indicating the date of the last trip, tripping time and name of organization conducting the test shall be maintained at a location available for review by the Authority Having Jurisdiction.

Every 5 years:

- Alarm valve and associated strainers, restriction orifice, gaskets, moving parts shall be inspected internally.
- Test on gauge (gauge precision required: less than 3% of the full scale)
- Test on control valves operation
- Main drain test.

Integrated Fire Protection System

Mechanical Section - Wet Pipe Systems

2- Wet Pipe System (with Retard Chamber)

1. Description

The **TOTALPAC®3** Wet Pipe System with the Viking Wet Pipe Trim utilizes a Viking Alarm Valve (A1). The system piping from the Alarm Valve to the fusible sprinklers is filled with water.

When a fire occurs, the heat produced operates a sprinkler allowing the water to flow. The alarm valve clapper is opened by the flow of water allowing pressurized water to enter the alarm port to activate the connected alarm devices. In variable pressure conditions, the water flowing through the alarm port overcomes the retarding chamber's drain restriction, filling the retarding chamber then activating the connected alarm devices. The alarms will continue to sound until the flow of water is manually turned off.

Wet Pipe **TOTALPAC®3** Systems are commonly used to protect structures or areas not subject to freezing conditions, to automatically protect the structure, contents and/or personnel from loss due to fire.

2. Normal condition

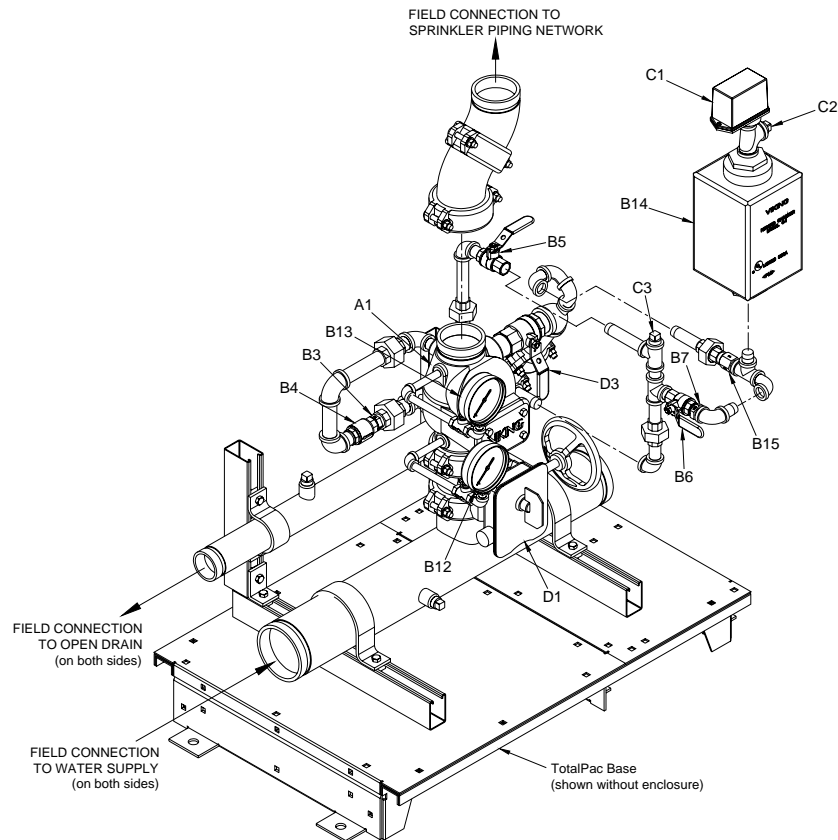
1. Valves
 - a) Main water supply control valve (D1) is OPEN.
 - b) All upstream water supply valves are OPEN.
 - c) System main drain valve (D3) is CLOSED.
 - d) Alarm test valve (B5) is CLOSED and alarm shut-off valve (B6) is OPEN.
 - e) All gauge valves are OPEN.
2. Gauges
 - a) Water supply (B12) - at water supply pressure
 - b) Water pressure (B13) - should be equal to, or higher than, water supply pressure (B12).

REFER TO TRIM SCHEMATIC ON REVERSE.

Integrated Fire Protection System

Mechanical Section - Wet Pipe Systems

Trim Schematic: Wet Pipe System (with Retard Chamber)



FM-061H-G-116A

Trim Components:

A. Valve:

- A1 Alarm Check Valve

B. Alarm Valve Trim:

- B3 3/8" Restricted orifice
- B4 Spring loaded check valve
- B5 Alarm test valve
- B6 Alarm shut-off valve
- B7 7/32" Restricted orifice
- B12 Water supply pressure gauge & valve - Supply
- B13 Water pressure gauge & valve - System
- B14 Retard chamber
- B15 1/8" Restricted orifice
- B3 3/8" Restricted orifice
- B4 Spring loaded check valve
- B5 Alarm test valve
- B6 Alarm shut-off valve
- B7 7/32" Restricted orifice
- B12 Water supply pressure gauge & valve
- B13 System water pressure gauge
- B15 1/8" Restricted orifice

C. Water Flow Alarm Equipment:

- C1 Alarm pressure switch
- C2 Connection to water motor gong (strainer supplied by contractor)
- C3 Connection to optional electric alarm switch

D. Valve:

- D1 Water supply control valve
- D3 Main drain valve

Integrated Fire Protection System

Mechanical Section - Wet Pipe Systems

4- Wet Pipe System (with Excess Pressure Pump)

1. Description

The **TOTALPAC®3** Wet Pipe System with the Viking Wet Pipe Trim utilizes a Viking Alarm Valve (A1). The system piping from the Alarm Valve to the fusible sprinklers is filled with water.

When a fire occurs, the heat produces operates a sprinkler allowing the water to flow. The alarm valve clapper is opened by the flow of water, allowing pressurized water to enter the alarm port. The Excess Pressure Pump cannot compensate and the water flow activates the connected alarm devices.

Wet Pipe **TOTALPAC®3** Systems are commonly used to protect structures or areas not subject to freezing conditions, to automatically protect the structure, contents and/or personnel from loss due to fire.

2. Normal condition

1. Valves

- a) Main water supply control valve (D1) is OPEN.
- b) All upstream water supply valves are OPEN.
- c) Excess pressure pump isolation valves (B7) are both OPEN.
- d) Excess pressure pump pressure switch is adjusted at 25psi over the supply water pressure.
- e) System main drain valve (D3) is CLOSED.
- f) All gauge valves are OPEN.

2. Gauges

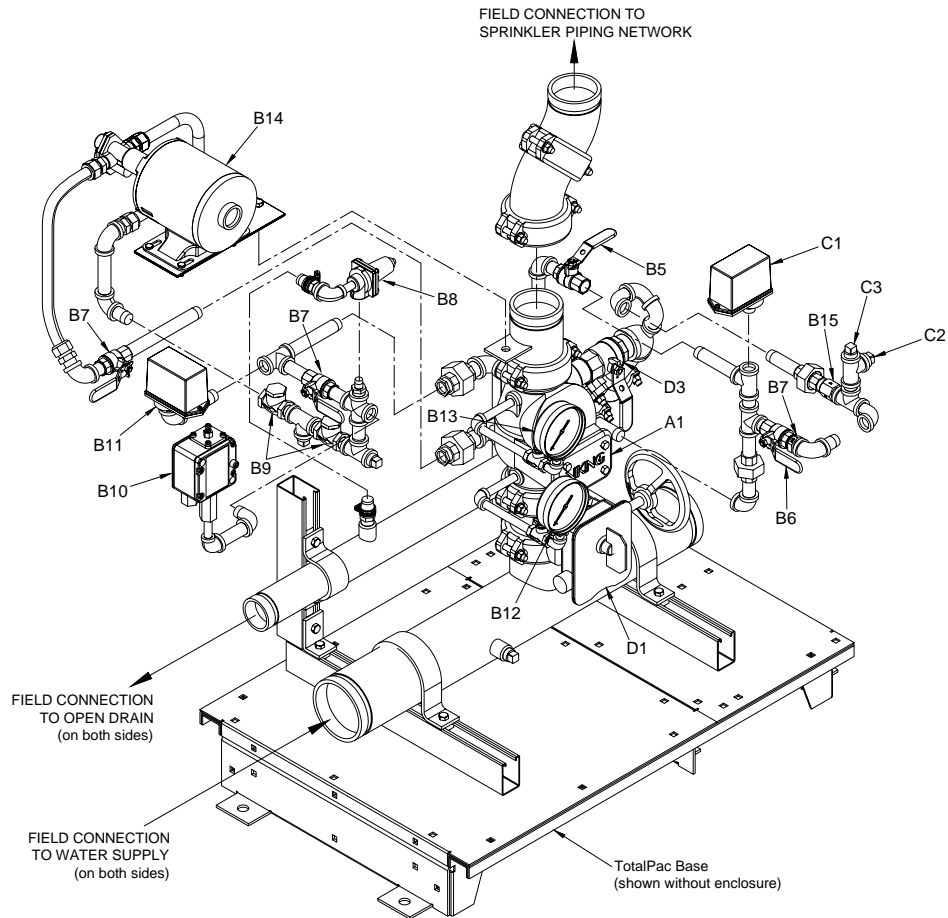
- a) Water supply (B12) - at water supply pressure
- b) Water pressure (B13) - should be 25 psi above water supply pressure (B12).

REFER TO TRIM SCHEMATIC ON REVERSE.

Integrated Fire Protection System

Mechanical Section - Wet Pipe Systems

Trim Schematic: Wet Pipe System (with Excess Pressure Pump)



FM-061H-C-117A

Trim Components:

A. Valve:

- A1 Alarm Check Valve

B. Alarm Valve Trim:

- B3 7/32" Restricted orifice
- B5 Alarm test valve
- B6 Alarm shut-off valve
- B7 Isolation valve
- B8 1/4" Relief valve
- B9 1/2" Swing check valve
- B10 Pump pressure switch
- B11 Low water pressure switch
- B12 Water supply pressure gauge & valve - Supply
- B13 Water pressure gauge & valve - System
- B14 Excess pressure pump
- B15 1/8" Restricted orifice

C. Water Flow Alarm Equipment:

- C1 Alarm pressure switch
- C2 Connection to water motor gong (strainer supplied by contractor)
- C3 Connection to optional electric alarm pressure switch.

D. Valve:

- D1 Water supply control valve
- D3 Main drain valve

Integrated Fire Protection System

Mechanical Section - Wet Pipe Systems

This page was intentionally left blank

Integrated Fire Protection System

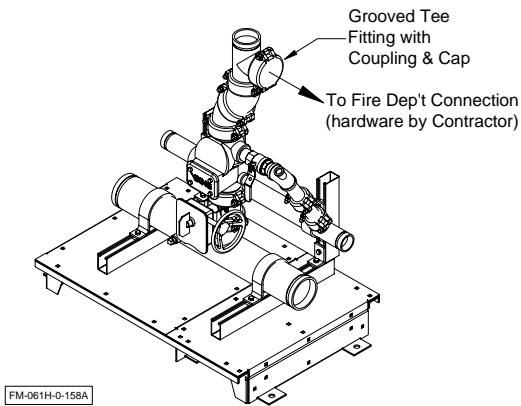
Wet system - Trim Options

1. Fire Department Connection:

The Fire Department Connection Option consists of a grooved Tee fitting installed in lieu of the 90 degree elbow at the outlet of the Deluge / Flow Control Valve (A1 or A2). An access hole of the proper diameter is factory pre-drilled on the side of the TOTALPAC[®] 3 enclosure for connection of the piping going to the Fire Department Connection.

Note: The Fire Department Connection hardware itself (drain, Siamese, etc.) is NOT provided with this option and shall be provided by the installing contractor. Refer to NFPA-13 Standard for additional information about the equipment layout and installation.

Figure 1 – Fire Department Connection for Wet Systems:



Integrated Fire Protection System

Wet system - Trim Options

2. Semi and Full-flanged Option:

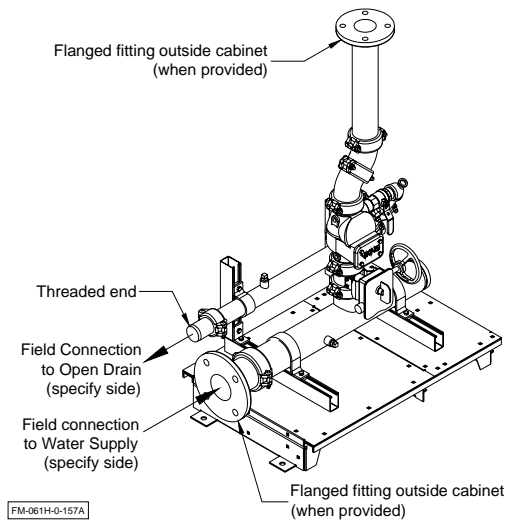
When required by the user, **TOTALPAC® 3** units can be provided in either a semi-flanged or full flanged configuration.

The semi flanged option provides flanged fittings only on the water inlet pipe (side needs to be specified at the time of order) and on the system riser outlet. The drain manifold is then provided with a threaded end that also needs to have its side specified (left or right). The rest of the fittings are the same as usual with the main components being provided in the standard flanged -grooved configuration.

The full flanged option is the same as above but goes a step further with the main components being also provided with a flanged-flanged configuration.

When provided, the face of the flanges will always be situated 6 inches from the outside face of the mounting base or cabinet surface. On skid units, the surface of the flange on the outlet riser will always be 6 inches above the dimension shown on the dimensional data of the system ordered.

Figure 2 – Semi-flanged unit typical detail:



Integrated Fire Protection System

Control Section

1- Control Section without control panel.

1.1 Product Description

TOTALPAC[®] 3 Dry & Wet system units are provided without any control panel.

A field wiring electrical junction boxes is integrated with the cabinet for connection of all electrical components in the trim. Pressure switches, supervisory switches, etc. are all factory wired to a terminal strip (TBA) for contractor's field wiring.

1.2 Technical Data

Cabinet:

Steel enclosure: Refer to Cabinet Data Sheet for further details.

Environment (electrical section):

Temperature: 32°F. (0°C) to 120°F (48°C)

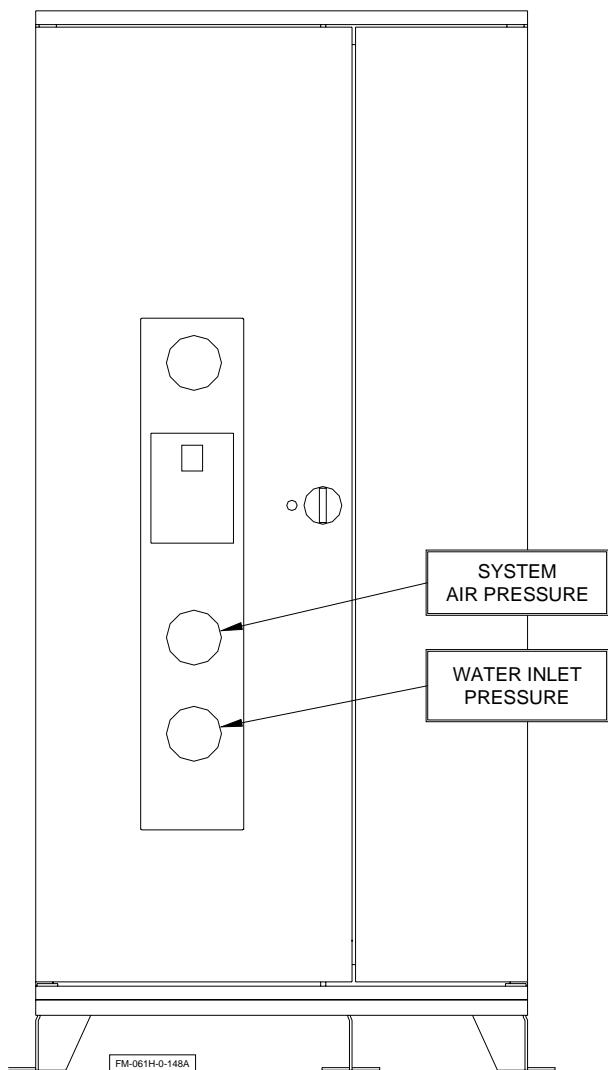
Humidity: 85% Relative Humidity (non-condensing) at 90°F (32°C) maximum.

AC Power:

The unit may be provided with an air compressor .Refer to the appropriate Field Wiring Diagram in "Programming Section" to determine applicable power requirements.

Integrated Fire Protection System
Control Section

Figure 1 - Cabinet layout:



Integrated Fire Protection System Control Section

Figure 2 – Junction box layout:

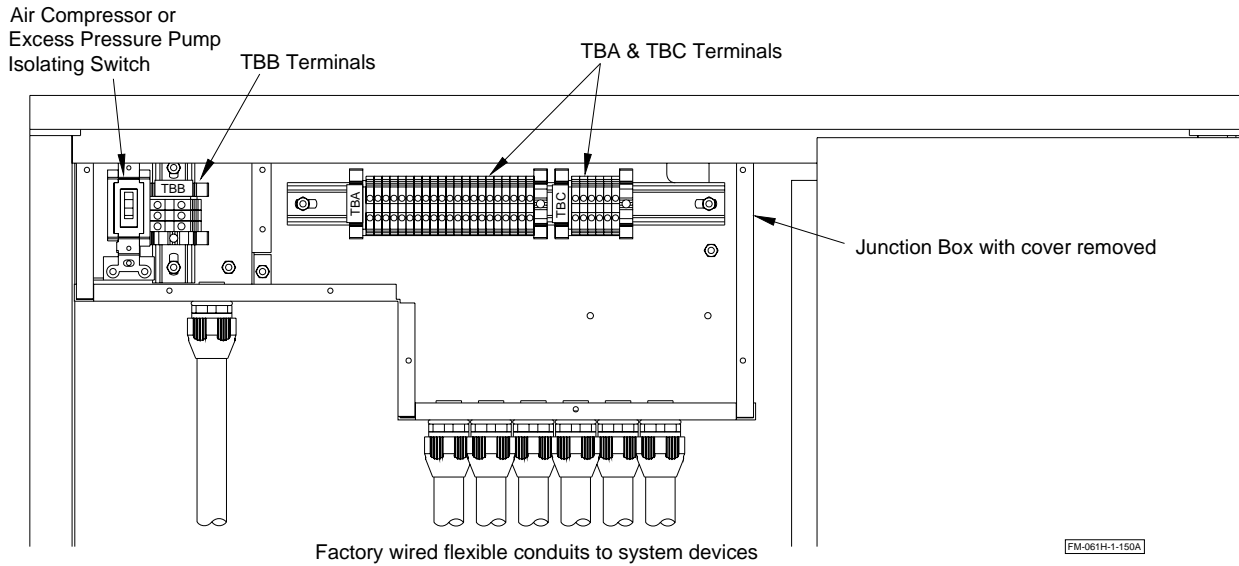
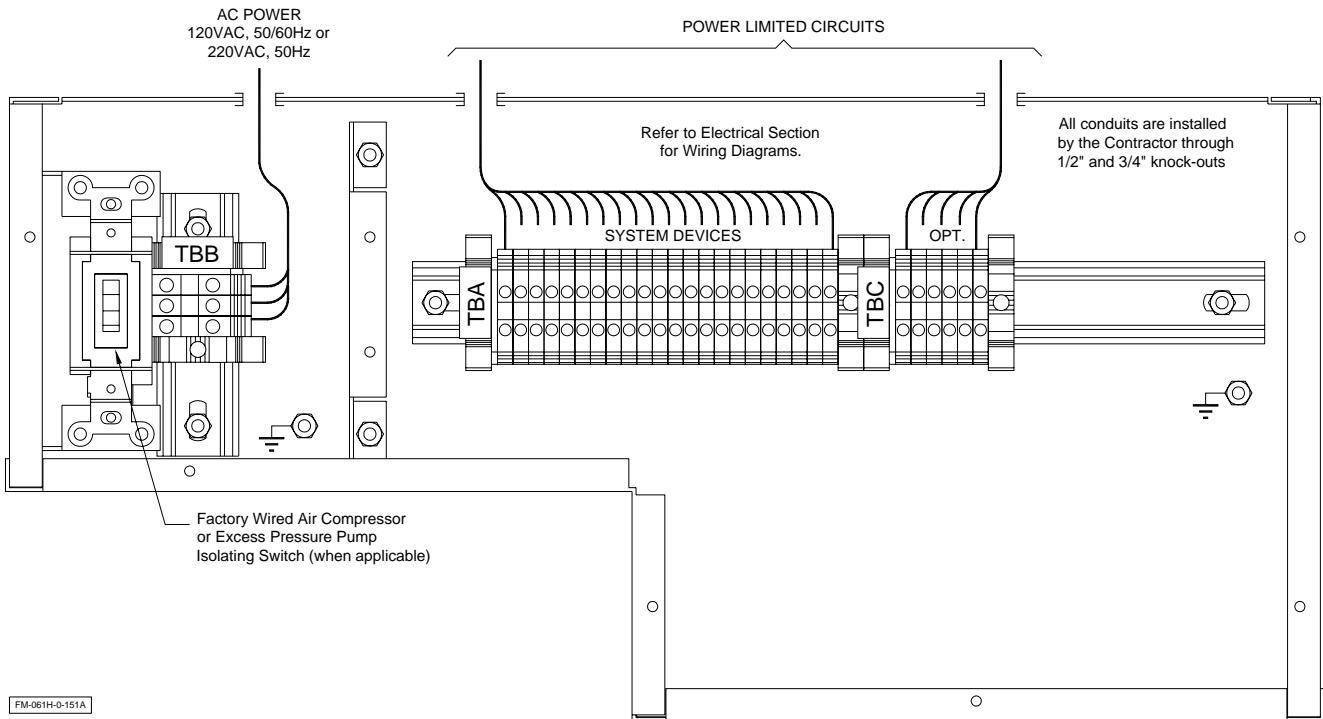


Figure 3 - Detail of wiring routing:



Integrated Fire Protection System

Control Section

Integrated Fire Protection System Electrical Section – Wet Pipe System

1- Wet Pipe with Retard chamber

The TOTALPAC[®]3 Unit without control panel is factory wired for the following configuration:

► Wet Pipe with Retard Chamber

This TOTALPAC[®]3 Unit has been provided without an Integrated Control Panel since its dry contacts are supervised by a remote panel. Refer to FIELD WIRING DIAGRAM for more details. Make sure the system will perform as required and is tested to confirm it meets all requirements.

Note: All field wiring should be terminated in the contractors junction box and terminals provided (TBA) as shown on the FIELD WIRING DIAGRAM. No connection should be made directly in the trim components as this would void warranty and might prevent the normal operation of the unit.

Operation

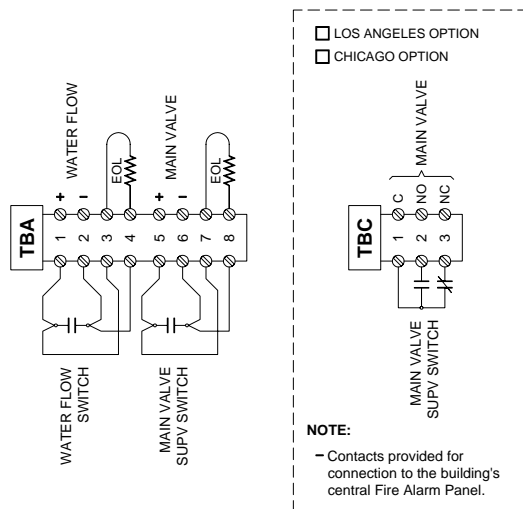
In the set condition, the system piping is filled with water. When a fire occurs, at least one sprinkler head reaches its trip point. The operation of a sprinkler head will allow the water to flow. The alarm valve clapper is opened by the flow of water allowing pressurized water to enter the alarm port and overcome the retarding chamber's drain restriction, filling the retarding chamber then activating the connected alarm devices.

The sprinkler system will continue to operate until the main water supply control valve is manually closed.

1. Supervisory of the Valves

An abnormal position of a valve will cause the closing of the Valve Supervisory Switch contact. The Water Supply Control Valve is supervised.

Field wiring diagram:



NOTES:

- All devices are factory wired.
- All devices are shown in their normal supervisory state.
- Contacts are rated:
 Pressure switch: 2A, 30VDC 10A, 125/250VAC
 Supervisory switch: 0.5A, 125VDC 0.25A, 250VDC 5A, 1/6HP, 125/250VAC
- Use dry contacts with power limited circuits only.
- EOL devices (not included) must be compatible with the Release Control Panel used.

FM-061H-0-99A

Integrated Fire Protection System
Electrical Section – Wet Pipe System

2- Wet Pipe with Excess Pressure pump

The **TOTALPAC[®]3** Unit without control panel is factory wired for the following configuration:

► **Wet Pipe with Excess Pressure (Jockey) Pump**

This **TOTALPAC[®]3** Unit has been provided without an Integrated Control Panel since its dry contacts are supervised by a remote panel. Refer to FIELD WIRING DIAGRAM for more details. Make sure the system will perform as required and is tested to confirm it meets all requirements.

Note: All field wiring should be terminated in the contractor's junction box and terminals provided (TBA & TBB) as shown on the FIELD WIRING DIAGRAM. No connection should be made directly in the trim components as this would void warranty and might prevent the normal operation of the unit.

Operation

In the set condition, the system piping is filled with water. When a fire occurs, at least one sprinkler head reaches its trip point. The operation of a sprinkler head will allow the water to flow. The alarm valve clapper is opened by the flow of water allowing pressurized water to enter the alarm port. The Excess Pressure Pump cannot compensate and the water flow activates the alarm devices.

The sprinkler system will continue to operate until the main water supply control valve is manually closed.

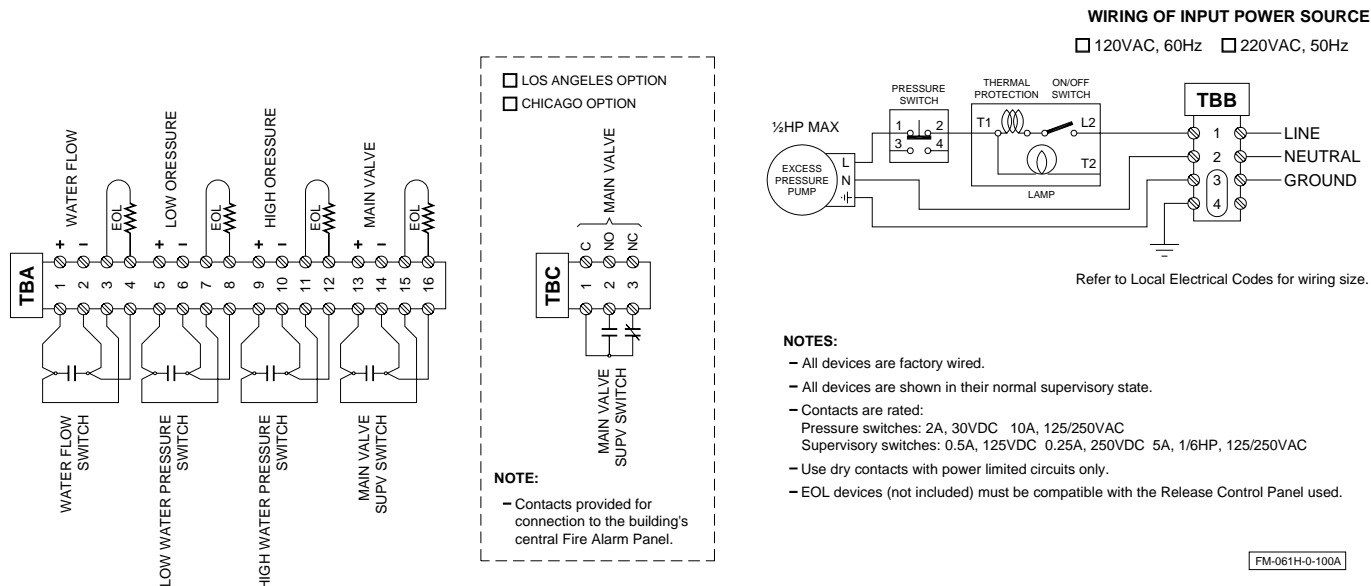
1. Supervisory of the Valves

An abnormal position of a valve will cause the closing of the Valve Supervisory Switch contact. The Water Supply Control Valve is supervised.

2. Supervisory of high/low pressure

An abnormal water pressure will activate the water pressure supervisory switch.

Field wiring diagram:



Integrated Fire Protection System

Dimensional Data & cabinet

1- Skid mounted Unit

The **TOTALPAC[®]3** unit skids are made of sturdy 14 gauge steel, they are available in four (4) sizes;

23" x 25" x 6" (58.4 x 63.5 x 15.2 cm)

for 1½", 2" & 3" systems,

36" x 25" x 6" (91.4 x 63.5 x 15.2 cm) for 4" system,

46" x 25" x 6" (116.8 x 63.5 x 15.2 cm) for 6" system

54" x 31" x 6" (137.2 x 78.7 x 15.2 cm) for 8" system

Refer to Figures 1 for dimensions

All surfaces are rust proof coated, inside and outside, with fire red, oven baked polyester powder on phosphate base.

IMPORTANT The **TOTALPAC[®]3** skid units are NOT designed to be installed where they will be subjected to outdoors and/or freezing conditions. Subjecting the unit to conditions outside these limitations might hamper the normal operation of the system.

The skid assembly is pre-assembled and factory tested under ISO-9001 conditions (refer to following figures for installation and clearances details).

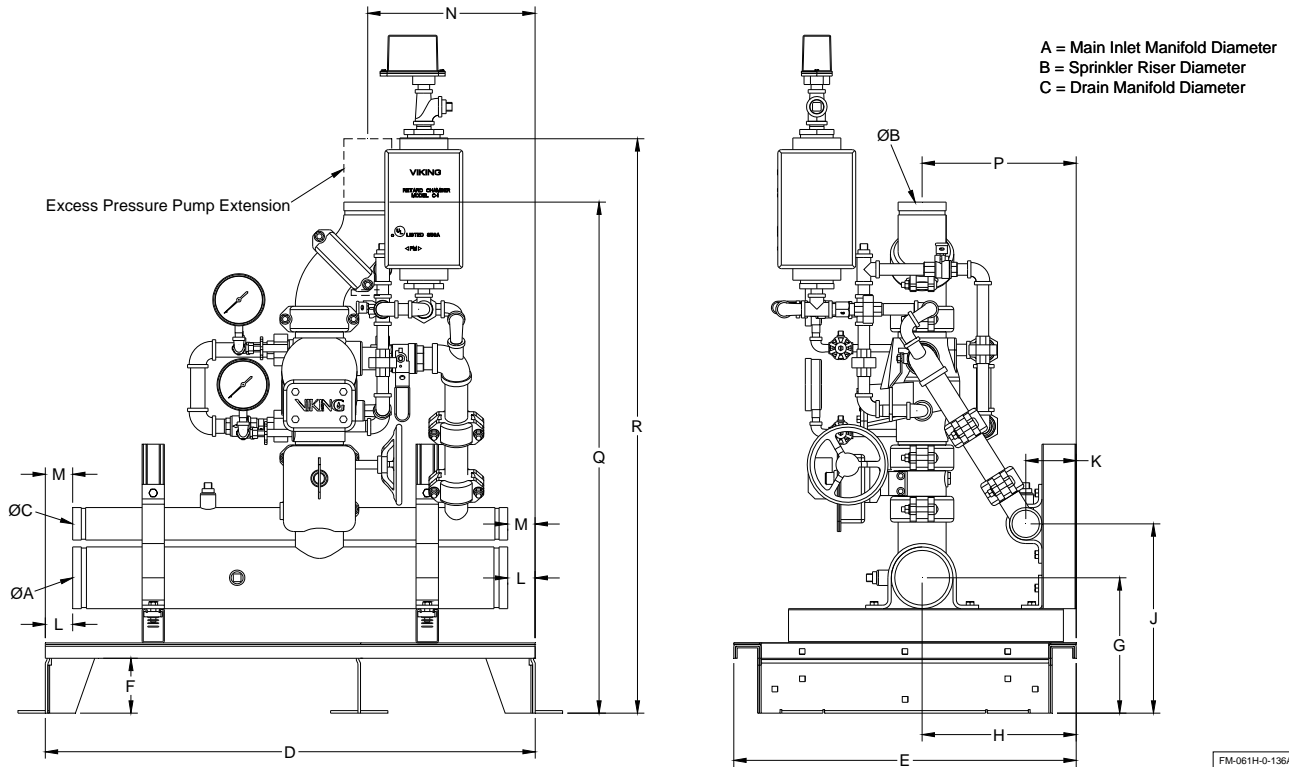
Note: This skid unit contains only the mechanical section of the **TOTALPAC[®]3** trim. Electrical connections, control panel and air supply when applicable are provided by others.

Multiple unit installations are easily achieved by manifolding units together at their water inlets but drains shall remain separate and open.

Integrated Fire Protection System

Dimensional Data & cabinet

Figure 1 – Dimensions – Wet systems:

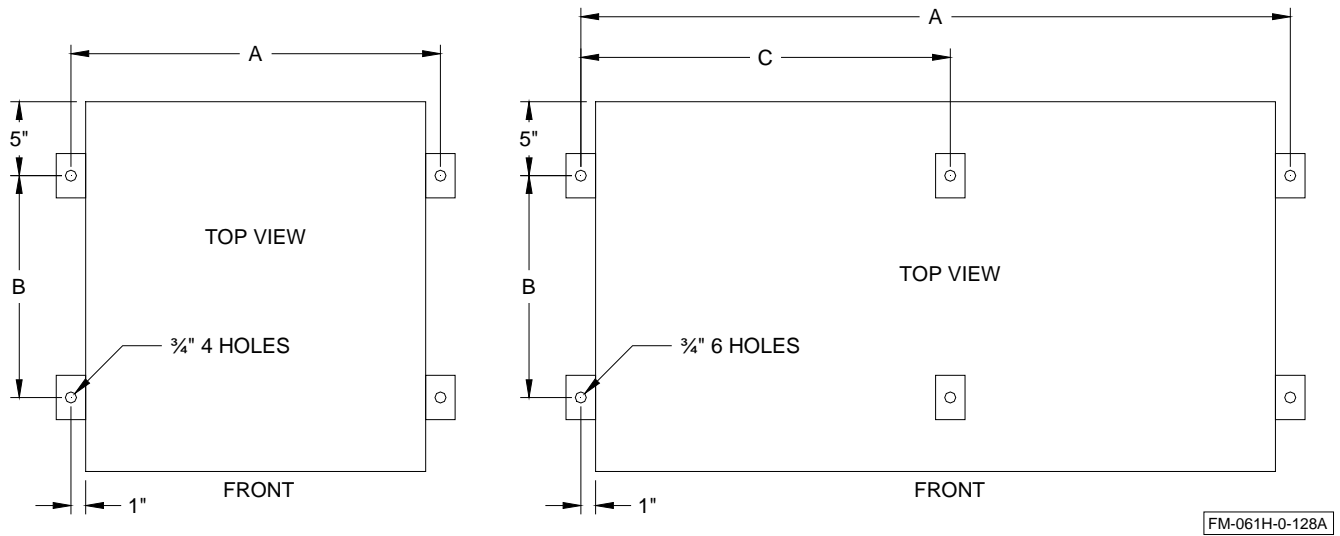


System Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
3"	3"	3"	2"	36"	25"	4"	10"	11¼"	13¾"	3¾"	2"	2"	15½"	11¼"	28¾"	37½"
4"	4"	4"	2"	46"	25"	4"	10½"	11¼"	13¾"	3¾"	2"	2"	16"	11¼"	29¼"	42½"
6"	6"	6"	2"	46"	25"	4"	11½"	11¼"	13¾"	3¾"	2"	2"	17"	11¼"	32"	54½"
8"	8"	8"	2"	46"	25"	4"	12½"	11¼"	13¾"	3¾"	2"	2"	19½"	11¼"	35¾"	64½"

Note: Dimensions are nominal and may vary ±¼".

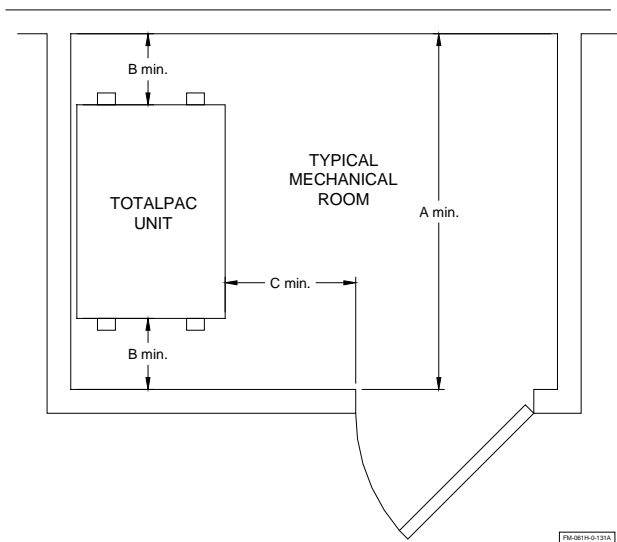
Integrated Fire Protection System Dimensional Data & cabinet

Figure 3 – Dimensions – Anchoring detail:



System size	A	B	C
3"	25"	15"	N/A
4"	38"	15"	25"
6"	48"	15"	25"
8"	56"	21"	29"

Figure 4 – Skid clearance detail



System size	A	B	C
3"	47"	12"	24"
4"	60"	12"	24"
6"	70"	12"	24"
8"	78"	12"	24"

Integrated Fire Protection System

Dimensional Data & cabinet

Figure 5: Open drain details for single unit:

(see dimensions in table below)

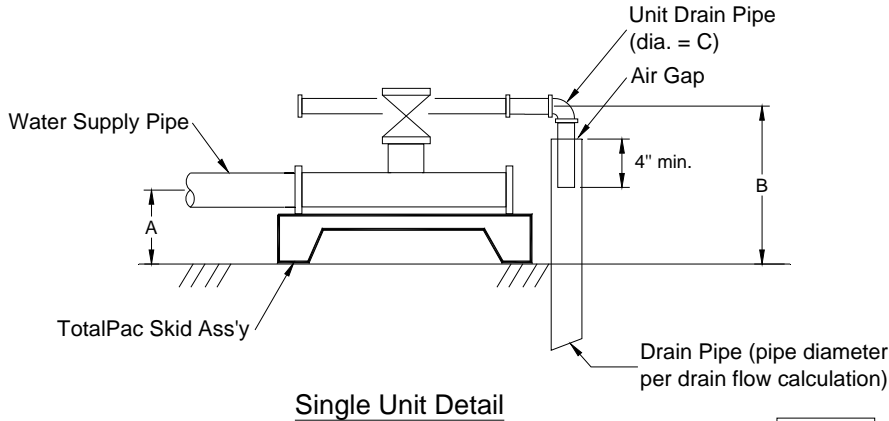
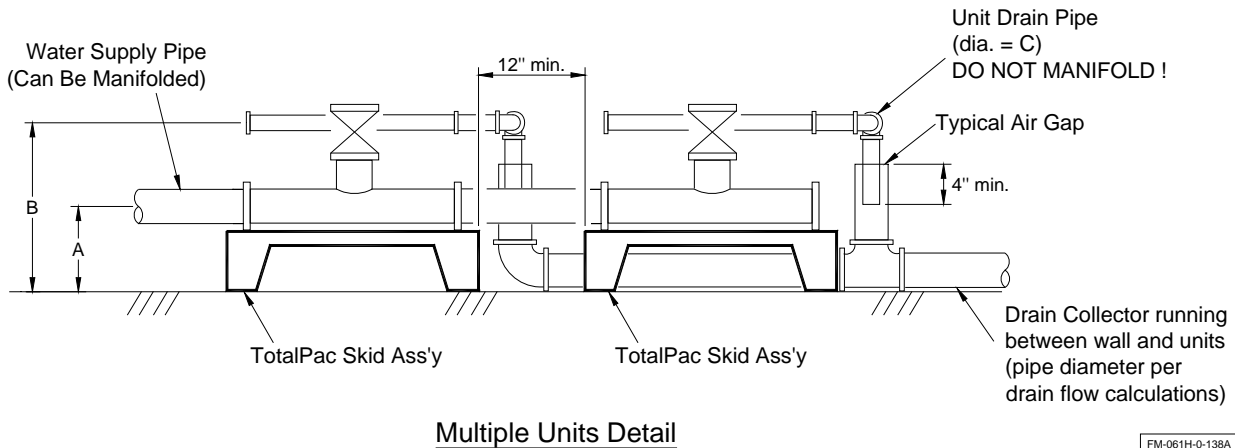


Figure 6: Open drain details for multiple units:

(see dimensions in table below)



Unit Size:	3"	4"	6"	8"
A	10"	10"	11"	12"
B	13½"	13½"	13½"	17½"
C	2"	2"	2"	2"

Notes:

1. Supply and drain pipes can be connected on either sides of cabinet.
2. All pipes and fittings should meet applicable codes.
3. Actual drain collector diameter shall be determined with detailed hydraulic calculations and is the responsibility of the system designer.

Integrated Fire Protection System

Dimensional Data & cabinet

2- Cabinet units

The TotalPac®3 unit skids are made of sturdy 14 gauge steel, they are available in four (4) sizes;

23" x 25" x 77" (58.4 x 63.5 x 195.6 cm) for 1½", and 2" systems,

36" x 25" x 77" (91.4 x 63.5 x 195.6 cm) for 3" and 4" system,

46" x 25" x 77" (116.8 x 63.5 x 195.6 cm) for 6" system

54" x 31" x 81" (137.2 x 78.7 x 205.7 cm) for 8" system

All surfaces are rust proof coated, inside and outside, with fire red, oven baked polyester powder on phosphate base. Cabinet is provided with one or two doors, all provided with a neoprene gasket to absorb vibrations.

Remote controlled;

A field wiring electrical junction boxes is integrated with the cabinet for connection of all electrical components in the trim. Pressure switches, supervisory switches, etc. are all factory wired to a terminal strip (TBA) for contractor's field wiring.

Gauges to indicate air, water supply pressure and priming water pressure are all visible through clear Lexan windows.

IMPORTANT! TotalPac®3 units are NOT designed to be installed where they will be subjected to outdoors and/or freezing conditions. Refer to environmental data for additional details. Subjecting the unit to conditions outside these limitations might hamper the normal operation of the system.

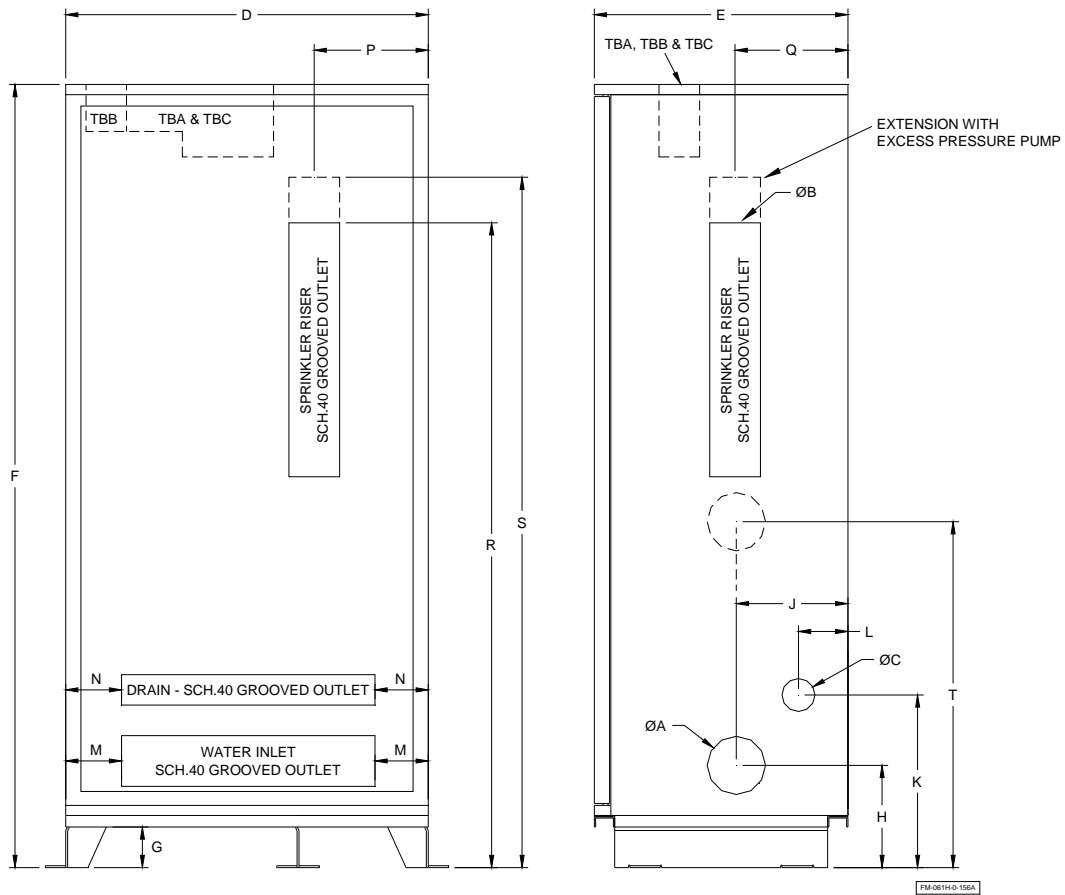
Cabinet doors are provided with hinges that can easily be disassembled on site to remove the door assemblies for servicing. The cabinet assembly is pre-assembled, pre-wired, and factory tested under ISO-9001 conditions.

Multiple unit installations are easily achieved by manifold units together at their water inlets but drains shall remain separate and open.

Integrated Fire Protection System

Dimensional Data & cabinet

Figure 7 – Dimensions:



FM-067A-0-105A

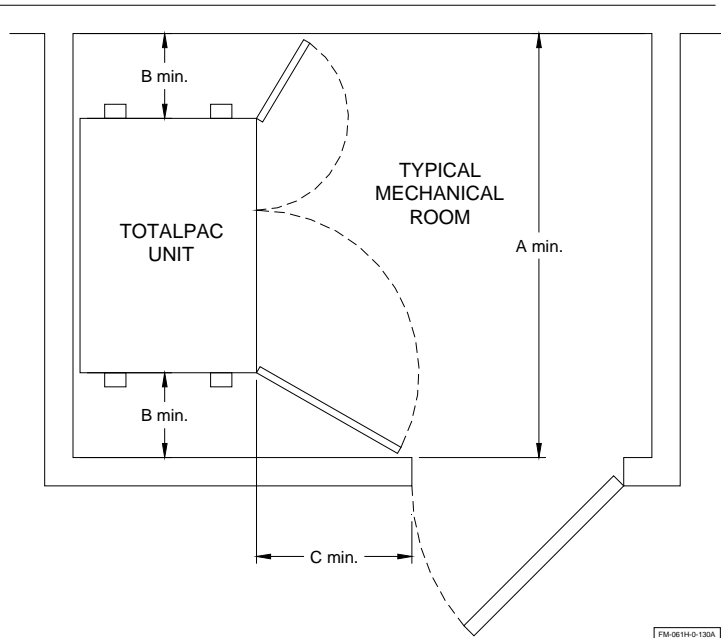
Wet systems

System Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
3"	3"	3"	2"	36"	25"	77"	4"	10"	11¼"	13¾"	3¾"	2"	2"	15½"	11¼"	28¾"	37½"	15"
4"	4"	4"	2"	46"	25"	77"	4"	10½"	11¼"	13¾"	3¾"	2"	2"	16"	11¼"	29¼"	42½"	16"
6"	6"	6"	2"	46"	25"	77"	4"	11½"	11¼"	13¾"	3¾"	2"	2"	17"	11¼"	32"	54½"	18½"
8"	8"	8"	2"	46"	25"	77"	4"	12½"	11¼"	13¾"	3¾"	2"	2"	19½"	11¼"	35¾"	64½"	18"

Notes: Dimensions are nominal and may vary ±¼".

Integrated Fire Protection System
Dimensional Data & cabinet

Figure 8 – Cabinet & doors clearance detail



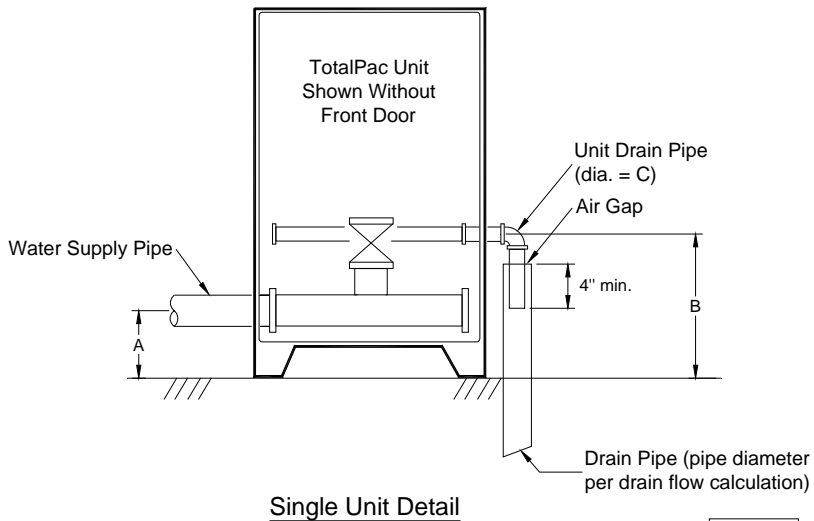
System size	A	B	C
3"	47"	12"	24"
4"	60"	12"	24"
6"	70"	12"	24"
8"	78"	12"	24"

Integrated Fire Protection System

Dimensional Data & cabinet

Figure 9: Open drain details for single unit:

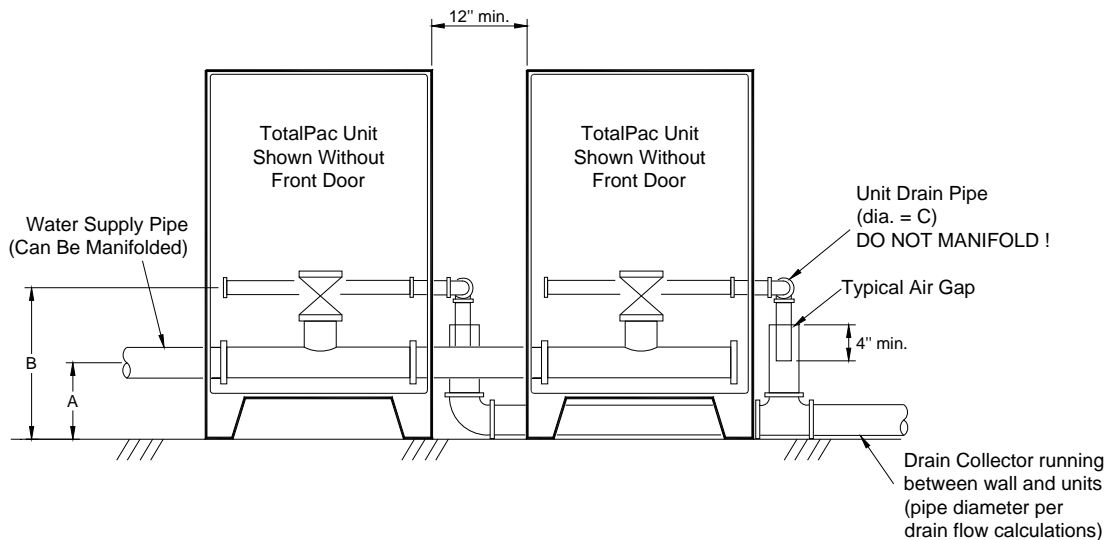
(see dimensions in table below)



FM-061H-0-139A

Figure 10: Open drain details for multiple units:

(see dimensions in table below)



FM-061H-0-140A

Unit Size	3"	4"	6"	8"
A	10"	10"	11"	12"
B	13½"	13½"	13½"	17½"
C	2"	2"	2"	2"

Notes:

1. Supply and drain pipes can be connected on either sides of cabinet.
2. All pipes and fittings should meet applicable codes.
3. Actual drain collector diameter shall be determined with detailed hydraulic calculations and is the responsibility of the system designer.

Integrated Fire Protection System

Dimensional Data & cabinet

This page was intentionally left blank

Integrated Fire Protection System**LIMITED WARRANTY****Limited Warranty**

FireFlex Systems inc. (known herein as "the Manufacturer") warrants to its customer that its products shall be free of defects in material [or part(s)] and workmanship for a period of twelve (12) months from the date of original delivery, under normal use and service by the Customer (and provided that the product has been properly installed and maintained).

The obligation of the Manufacturer in case of a claim made by the Customer hereunder, shall be, at the Manufacturer's option, limited to repair or replace, free of charge for parts or his labor, any product or part, which in the opinion of the Manufacturer, shall be proven to be defective. The Manufacturer will NOT accept labor back-charges incurred by the Customer to repair or replace said product or part.

The present warranty shall be void should the product [or part(s)] be altered by anyone other than the Manufacturer. In case of a claim under the present warranty, the Customer must contact the Manufacturer's Customer Service Department as soon as he is aware of a claim and, subject to the authorization of the manufacturer, return the defective product [or part(s)], transportation prepaid, to the address listed below.

This warranty constitutes the entire warranty given by the Manufacturer to the Customer with respect to the product. The present warranty is non-transferable and non-assignable. The Manufacturer does not represent that the products will prevent any loss by fire or otherwise or that the product will in all cases provide the protection for which it has been installed or intended.

The Customer acknowledges that the Manufacturer is not an insurer. The manufacturer shall not be liable for any loss or damages of any nature whatsoever, including but not limited to incidental or special or consequential damages including but not limited to, property damages, personal injury, revenue loss or lost profits, inconveniences, transportation charges or other damages suffered by anyone.

There are no other warranties, expressed or implied with regard to the products, other than those contained herein.

Some jurisdictions may not allow limitations on how long an expressed warranty lasts, so the above limitations may not apply to you. Under no circumstances, shall the Manufacturer be liable for any loss of, or damage to property, direct or indirect, incidental or special or consequential damages, arising out of the use or inability to use the Manufacturer's products. The Manufacturer shall not be liable for any personal injury which may arise in the course of or as a result of the use of the manufacturer's products.

This warranty replaces all previous warranties and is the only warranty given by the Manufacturer with respect to its products. This warranty shall not be modified, unless such modification is made in writing by an executive officer of the Manufacturer.

In consideration of the warranty provisions contained herein, the Customer hereby waives the benefit of any statutory warranty or protection or remedy to which he may be entitled under the terms of any sales of goods act or similar legislation available to him in any jurisdiction in which the Customer carries on business.

Defective part(s) must be returned to the address listed below within (30) days of receiving replacement parts(s). If defective part(s) is not returned before delay expires, an invoice will be issued for replacement part(s) and shipping. On reception, an extended analysis will be performed on the said part(s). If proven to be defective, no invoice will be issued. If the part(s) is proven to be in working condition an invoice will be issued for replacement part(s) and shipping.

Special Limitation: Due to their self discharge characteristics when not charged during extended storage periods, Batteries supplied with integrated Releasing Control Panels are covered by the above warranty for a period limited to three (3) months only.

FIREFLEX Systems Inc.

1935, Lionel-Bertrand Blvd.
Boisbriand, Quebec
Canada J7N 1N8

Tel.: (450) 437-3473 ♦ Fax: (450) 437-1930

Toll Free: (866) 347-3353 ♦ Web site:
<http://www.fireflex.com>

Integrated Fire Protection System

LIMITED WARRANTY

User Notes