



Description

The **TOTALPAC® N₂** integrated fire protection system consists of a single interlock **SUREFIRE®** release preaction system for automatic sprinklers, combined with a nitrogen generating system, integrated in a single cabinet. All electrical and mechanical components are fully assembled, pre-wired and tested at factory.

The **TOTALPAC® N₂** system uses an ECS® PGEN-5 FF system, manufactured by Engineered Corrosion Solutions.

The activation of the normally closed solenoid valve by the listed VFR-400 release control panel opens the deluge valve.

The activation of the normally open solenoid valve by the listed VFR-400 release control panel prevents the deluge valve to open when the very low air pressure switch is activated. Shall the normally open solenoid valve being unable to activate, the system will operate as a dry pipe system.

The deluge valve is rated up to a maximum of 250 PSI WWP (1724 kPa) and are available in the following pipe diameters:

- | | |
|------------------------------------|-------------------------------------|
| <input type="checkbox"/> 2" (50mm) | <input type="checkbox"/> 4" (100mm) |
| <input type="checkbox"/> 3" (80mm) | <input type="checkbox"/> 6" (150mm) |

Standard features

- Trouble free design for safe and easy application
- Available in 2 cabinet sizes according to pipe size
- Uses Engineered Corrosion Solutions® PGEN-5 FF, the best value in nitrogen generation technology
- Limits the liability of early pipe replacement
- Significant cost savings by using black pipe in combination with nitrogen
- Prewired to the Viking VFR-400 releasing control panel
- Uses the Viking deluge valve model F-1 or F-2
- Compact, aesthetic and easy to move
- User-friendly standardized owner's manual with every unit
- Unique serial number on every unit
- FM Approved as an assembled unit
- Uses only c-UL-us Listed and FM Approved Components
- Designed in accordance with NFPA Standards
- Trim is fully assembled and tested at the factory
- All trims are galvanized steel, Listed and Approved for 250 PSI (1724 kPa) service maximum
- Quick connections to water supply and drain on both sides, and sprinkler riser on top of unit, all available with grooved end or flanged fittings
- No open drain cup inside unit
- Sturdy 14 gauge steel cabinet, painted fire red with oven baked polyester powder on phosphate base
- Textured rust proof finish
- Neoprene gasket on all doors to eliminate vibrations
- Separate unlocked access hatch to emergency manual release
- Key-alike locks on all cabinet doors
- Manufactured under ISO-9001 quality control procedures
- Prewired to terminal blocks

ECS® PGEN-5 FF nitrogen generator features:

- Handles up to 950 gallons (3596 liters) of nitrogen for sprinkler piping capacity
- Initial sprinkler piping capacity lower than 250 gallons (946 liters) only requires the ECS® PGEN-5 FF compressor
- Fully automatic with pressure monitoring
- Pre-filters and pressure regulator
- Control panel with gauges, hour meter and power, bypass

Sequence of operation

Preaction system operation

The activation of the detection condition activates the normally closed solenoid valve (F1) which opens; it generates an alarm.

The pressure maintained in the priming chamber of the deluge valve (A1) is released to the open drain faster than it is fed by the restriction orifice (B3). The deluge valve clapper opens, allowing water to flow into the system piping and alarm devices, allowing the activation of the alarm pressure switch (C1) and the operation of the optional hydraulic alarm device (C2). When a sprinkler head will open, water will discharge through sprinklers piping network.

When the deluge valve (A1) opens, the detection port of the PORV (B9) is pressurized, causing it to open. The priming chamber of the deluge valve is continuously drained, thus preventing it from resetting. The deluge valve can only be re-armed once the system has been shut down, and the deluge valve outlet and sprinkler piping have been properly depressurized and drained.

The operation of the manual emergency release valve will depressurize the priming chamber, causing the deluge valve (A1) to open and allowing water to enter the system piping. The alarm pressure switch (C1) will activate. When a sprinkler head will open, water will discharge through sprinklers piping network.

When a sprinkler opens in the sprinkler piping network, the pneumatic activator (F3) opens. The very low air pressure switch (E4) is activated and allows the activation of the normally open solenoid valve (F2) which closes, and thus prevents discharge.

ECS® PGEN-5 FF nitrogen generator system operation

The air and nitrogen supply systems are fully integrated and fully automatic in the TOTALPAC® N₂ unit.

For piping system lower than 250 gallons (946 liters), the initial air supply fill of the piping system is accomplished within 30 minutes as per NFPA 13 using the ECS® PGEN-5 FF air compressor. **Optional air Style "A" is mandatory for system with water supply higher than 175 PSI - 1207 kPa.**

For piping system higher than 250 gallons (946 liters), the initial air supply fill of the piping system is accomplished within 30 minutes as per NFPA 13 using an auxiliary "initial fill" air compressor. This air compressor is equipped with a factory-adjusted ON/OFF pressure switch which is tied into the outlet sprinkler system piping.

The air compressor cut-in and cut-out pressures thresholds for are factory set according to the specified system operation at 175 PSI (1207 kPa) or 250 PSI (1724 kPa). A pressure switch continuously monitors the air/nitrogen pressure of the sprinkler piping system. The pressure switch is factory set to signal a low air pressure condition when the pressure drops below the set point, determined by whether the system is specified at 175 PSI (1207 kPa) or 250 PSI (1724 kPa).

Warning: The final adjustment of the air pressure must be carried out on site according to the pressure level of the water inlet; see the air supply section.

The nitrogen generation/maintenance is accomplished using the ECS® PGEN-5 FF air compressor. Should the ECS® PGEN-5 FF generator running for more than 4 hours consecutively, the ECS® leak monitor alarm will automatically shut it down and activate a supervisory contact.

Systems hydraulic limitations

WARNING The information contained herewith is for estimation and evaluation purposes only. Its use remains the responsibility of the designer.

Designers should refer to the appropriate NFPA Standards and any other applicable codes for their final design.

System size	Usage range (gpm)	Piping equivalent lengths w/o shut off valve		Piping equivalent lengths c/w shut off valve	
		(ft)	(m)	(ft)	(m)
2" (50mm)	0 – 360	38.2	11.65	38.9	11.85
3" (80mm)	100 - 700	55.1	16.8	66.7	20.33
4" (100mm)	200 – 1400	71.8	21.89	83.1	25.33
6" (150mm)	400 - 3500	109.15	33.28	N.A.	N.A.

System drain flow:

System size	USGPM Formula	LPM Formula
2" (50mm)	$GPM = 11.4 \sqrt{PSI}$	$LPM = 16 \sqrt{kPa}$
3" (80mm)	$GPM = 24.1 \sqrt{PSI}$	$LPM = 35 \sqrt{kPa}$
4" (100mm) & 6" (150mm)	$GPM = 48 \sqrt{PSI}$	$LPM = 70 \sqrt{kPa}$

Standard equipment

Releasing control panel

- ☐ 120Vac, 60HZ, 165VA or
- ☐ 220Vac, 50HZ, 185VA
- ☐ 12Vcc, 12Ahr batteries (standard) or
- ☐ 12Vcc, 18Ahr batteries (optional)
- ☐ Detection in single zone
(by zone 1 only)

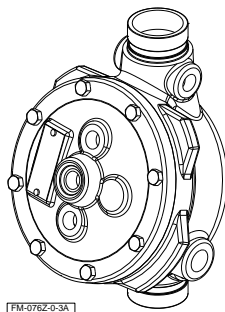
The releasing control panel integrated into the **TOTALPAC® N₂** cabinet is Viking's model VFR-400. The panel includes four Class B (optional in Class A), programmable detection zones; two Class B supervisory zones and four Class B (optional in Class A), programmable output circuits. It also provides menu driven configuration, including a system specific program, assigned at the factory.

The panel is compatible with many types of fire alarm and supervisory devices such as linear heat detectors, spot-type heat and smoke detectors, water flow and release indicators, low and high air pressure switches, manual pull stations.

The releasing control panel includes an alphanumeric display 16 characters on 2 lines of describing all the system conditions, as well as a set of red and yellow LED type lamps, individually indicating each of the alarm, supervisory and trouble conditions of the system. Control buttons provide easy access to the various functions of the panel.

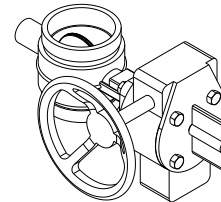
Deluge valve

The Viking deluge valve is a quick-opening, differential diaphragm flood valve with one moving mechanism. The deluge valve is used to control water flow in preaction sprinkler systems. The valve is held closed by system water pressure trapped in the priming chamber, keeping the outlet chamber and system piping dry. In fire conditions, when the releasing system operates, pressure is released from the priming chamber. The deluge valve clapper opens to allow water to flow into the system.



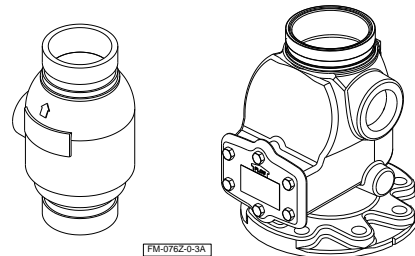
Water supply control valve

The water inlet control valve is a supervised, indicating butterfly valve. Purpose of this valve is to manually shutoff the preaction system.



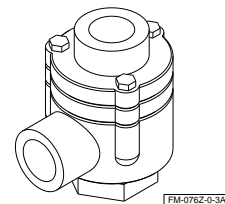
Preaction riser check valve

The Viking spring loaded in-line check valve is a general-purpose rubber-faced check valve approved for use in fire-service systems. The valve is for use in preaction system risers and in any application requiring a check valve with a drain connection.



Pneumatic actuator

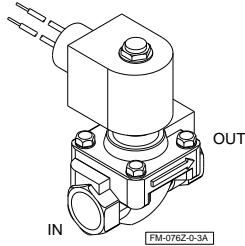
The Viking pneumatic actuator is a spring loaded, rolling diaphragm and piston operated valve. It is used in conjunction with the release trim to activate the preaction system.



Standard equipment (continued)

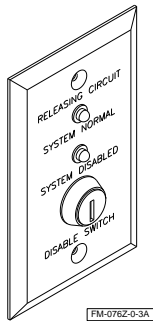
Solenoid valve

The high-pressure solenoid valve is a two-way type with one inlet and one outlet. It is a packless, internal pilot operated valve, suitable for use in releasing water pressure from the priming chamber of Viking deluge valve. The solenoid valve has floating diaphragm construction, which requires a minimum pressure drop across the valve to operate properly.



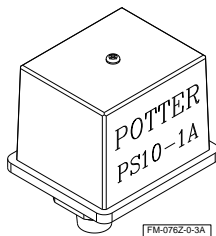
Releasing circuit disconnect switch

The releasing circuit disconnect switch is used to disable the N.C. solenoid. When the key is set to "DISABLE", the releasing solenoid will be disconnected from the control panel's releasing circuit, causing a trouble signal and preventing accidental discharge during maintenance or inspection.



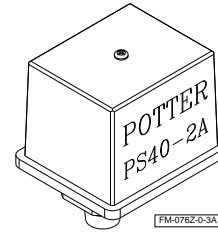
Alarm pressure switch

The alarm pressure switch monitors the water flow within the sprinkler piping. Should the deluge valve clapper opens to allow water to flow into the sprinkler piping, the alarm pressure switch will activate, indicating a water flow signal.



Low air pressure switch

The low air pressure switch monitors the pressure within the sprinkler piping should a loss of the air occur. The pressure switch contacts transfer indicating low air pressure and very low air pressure supervisory signals.



ECS® Nitrogen generator

Engineered Corrosion Solutions utilizes membrane technology in the ECS® PGEN-5 FF corrosion inhibiting systems in order to efficiently separate nitrogen molecules from the air we breathe. Membrane technology has a simple air flow design, is wall-mounted and easy to service.

The ECS® PGEN-5 FF system provides an economical, precise means of generating high purity nitrogen. Since air is comprised of ~79% N₂, we simply and cost-effectively separate the N₂ from the air. Nitrogen is an inert gas (non-combustible) and widely used in thousands of industries along with fire protection systems. The N₂ is "generated" by means of the air compressor pushing air into the simple, safe membrane element, which in turn mechanically separates N₂ molecules from other molecules found within air.

The ECS® PGEN-5 FF nitrogen generation system effectively inhibits electrochemical, galvanic and microbiologically influenced corrosion (MIC), as well as freeze-ups and ice plugs. The ECS® PGEN-5 FF corrosion inhibiting system produces 98% or higher pure nitrogen on demand and introduces it to the preaction piping network. In doing so, oxygen and moisture are displaced from the piping through the ECS® PSV-D SMART vent system.

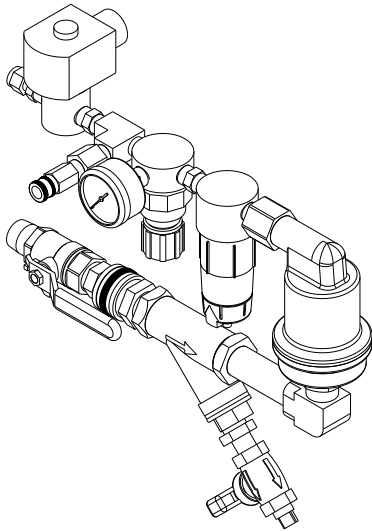
ECS® Leak monitor alarm

Minor leaks will cause the ECS® PGEN-5 FF air compressor to run excessively in order to maintain supervisory pressure. The nitrogen generator and air compressor are designed to run up to two (2) hours at a time when filling the system to specified pressure of high purity nitrogen. If the ECS® PGEN-5 FF air compressor is running greater than four (4) hours, the TOTALPAC® N₂ system activates an audible alarm and transmit a supervisory signal to the release control panel. Corrective procedures must be taken to resolve the leaks.

Standard equipment (continued)

ECS[®] PSV-D SMART vent

High purity Nitrogen must be equally distributed throughout the entire sprinkler piping system in order to effectively inhibit corrosion. The patented PSV-D SMART vent provides a low volume, constant purge of nitrogen within sprinkler piping. The rate in which gas is evacuated from the sprinkler piping is within NFPA guidelines and allows breathing to occur. The PSV-D SMART vent also assists in drying out the residual water from a hydrostatic test. Computational fluid dynamics modeling proves that this is the most effective way to ensure that high purity nitrogen reaches all branches within the sprinkler piping. The PSV-D SMART vent is installed within the **TOTALPAC[®] N₂** cabinet.

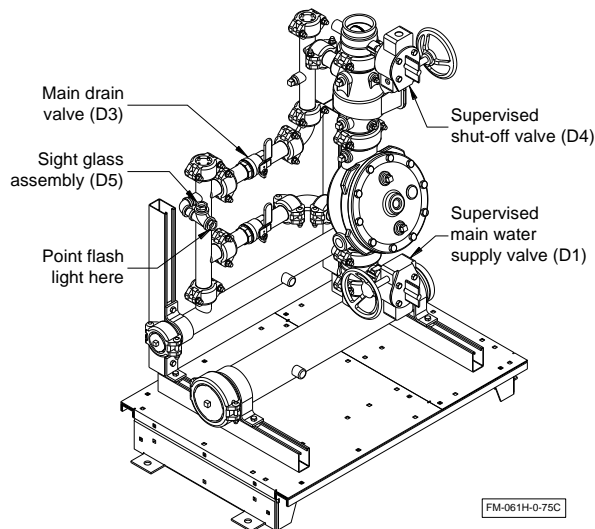


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Optional equipment - Preaction system

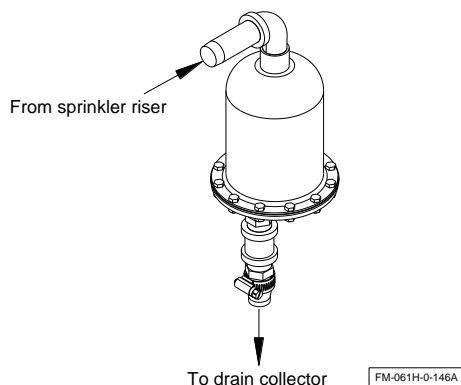
❑ Shut-off valve & sight glass

The shut-off valve & sight glass option is intended to be used for applications where testing of the system operation without filling the sprinkler piping network is desirable and where it is critical that all functions of the preaction system be tested under actual discharge conditions.



❑ Anti-column device

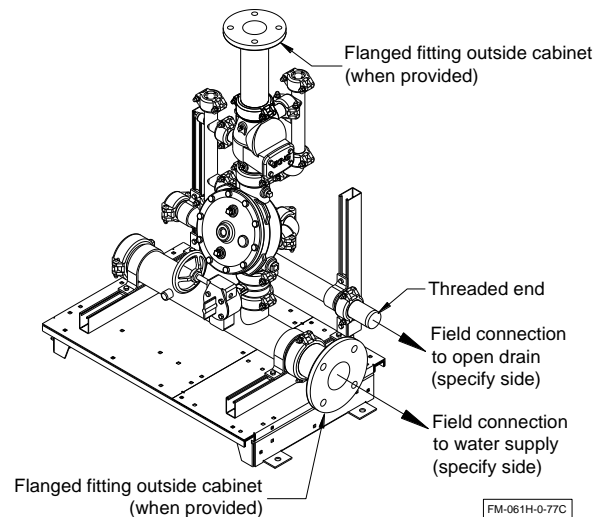
The model LD-1 anti-column device is an optional trim component designed for use with preaction sprinkler system. The anti-column device automatically prevents an unwanted water column from establishing within the system riser. The anti-column device prevents water from columning downstream of the easy riser check valve.



❑ Semi-flange inlet / outlet

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 provided with a threaded connection (left or right side). The rest of the fittings are the same as usual with the main components being provided in the standard flanged/grooved configuration.

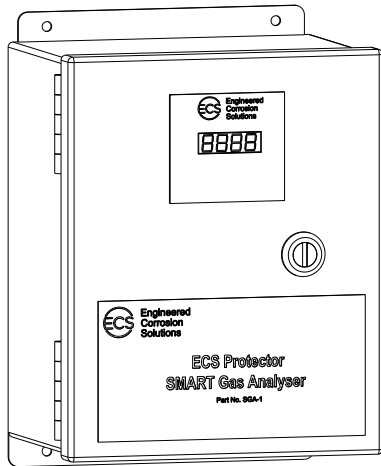
When supplied, the face of the flanges is always located 6" (150mm) from the outer face of the cabinet.



Optional equipment - Corrosion inhibition system

☐ **ECS[®] Protector SMART gas analyzer**

The **ECS[®]** Protector SMART gas analyzer provides a continuous real-time monitoring of nitrogen/oxygen concentration levels within a preaction fire protection system.

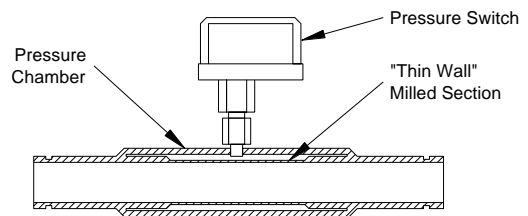


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☐ **ECS[®] in-line corrosion detector**

The **ECS[®]** in-line corrosion detector is designed to provide an early warning indication of internal corrosion activity in water-based preaction system. The device is designed to be installed outside cabinet where corrosion is most likely to occur: the air/water interface. A cross-section of the device shows the two key attributes that allow for early detection of corrosion: an externally milled section of the pipe that creates a "thin wall" section and a pressure chamber created by an external sleeve welded over the pipe. The thin wall section of the device will fail before other system piping to provide an early warning indication.

The **ECS[®]** in-line corrosion detector is equipped with a pressure switch to remotely monitor the pressure chamber.



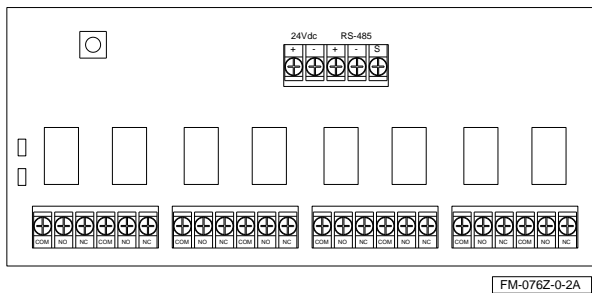
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The **ECS[®]** in-line corrosion detector is available for pipe size from 2" to 6" (50mm to 150mm) in black pipe sch10 or 40. It is also available in galvanized pipe upon request.

Optional equipment - Release control panel

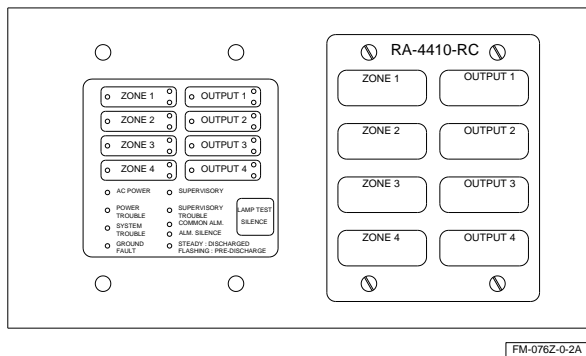
❑ Relay module ARM-44

The ARM-44 module is an auxiliary relay module designed to operate with the **VFR-400** releasing control panel to providing 4 independent form C relay outputs. The 4 output circuits are dedicated to their own relay. Each relay is rated 3 amp at 30 VDC resistive load. The relay module is installed within the junction's box of the cabinet and is connected to the main board via TBC terminals. All relay terminals are available from the junction's box. A disable switch allows to disable the relays when the system is being tested or serviced.



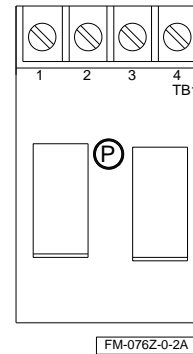
❑ Remote annunciator RA-4410-RC

The RA-4410-RC remote annunciator is designed to operate with the **VFR-400** releasing control panel. 34 LED type lamps indicate a change in panel status. A local buzzer on the annunciator sounds for any supervisory or trouble condition. The 24VDC power and RS-485 communication requirements of the RA-4410-RC come from the releasing control panel via TBC terminals. Separate cables should be used for power and communication. Shielded cable must be used for the RS-485 communication line.



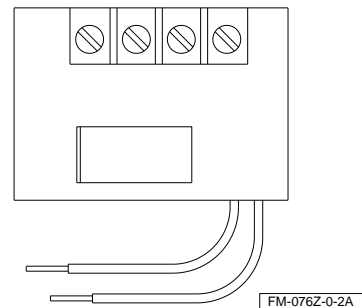
❑ Class A initiating device module CA2Z

The model CA2Z Class A module is designed to be used with the **VFR-400** releasing control panel to convert two Class B initiating device circuits in two Class A circuits; two modules are required when using up to four Class A circuits. The module is mounted in the upper right hand corner of the main board of the control panel. All connections are wired at factory back to the junction's box.



❑ Class A indicating appliance circuit module

The model CAM Class A module is designed to be used with the **VFR-400** releasing control panel to convert two Class B initiating device circuits in two Class A circuits; a module is required for each circuit required in Class A. Once the CAM module installed, the indicating appliance circuit should be activated to ensure proper operation and connections. The module is provided with double-sided foam sticker tape and should be mounted in the field wiring junction box so that the terminals are accessible.



Air supply

□ ECS® PGEN-5 FF air option Style "D1"

Default air style with ECS® PGEN-5 FF air compressor, primarily used for initial system piping network filling with volume less than 250 gallons (946 liters) and maximum water supply pressure of 175 PSI (1207 kPa). The air supply Style "D1" only provides an air pressure supervisory switch.

For water supply pressure higher than 175 PSI (1207 kPa), external air supply or air supply Style "A" is required.

When sprinklers piping network volume exceeds 250 gallons (946 liters), external air supply or air supply Style "A" is required.

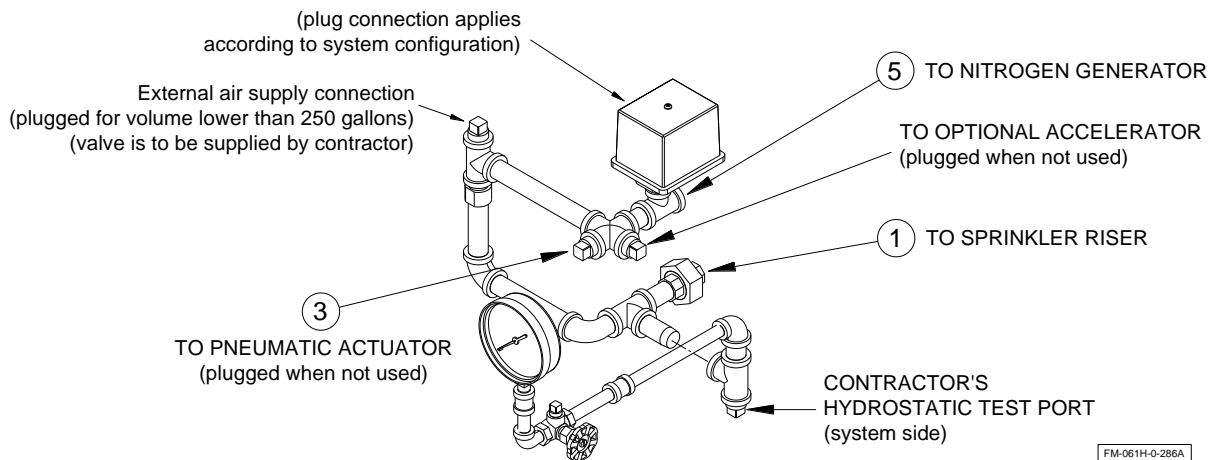
Ambient temperature at the special external air supply unit location should not exceed 104°F (40°C). Refer to NFPA and Factory Mutual Codes & Standards for details on refrigerated spaces applications.

WARNING When the air option Style "D1" is used, the air supply IS NOT supplied with the unit. It must be supplied and installed by the installation contractor OUTSIDE the TOTALPAC® N₂ cabinet.

External air supply when required *

Inlet water pressure	Air pressure
Up to 175 PSI (1207 kPa)	35 PSI (241 kPa)
From 175 PSI to 250 PSI (1207 kPa to 1724 kPa)	55 PSI (379 kPa)

* For system with more than 250 gallons (946 liters).



Factory pressure settings (Styles "D1" and "A")

Inlet water pressure	Low air pressure supervisory	Very low air pressure supervisory	ECS® PSV-D SMART
Up to 175 PSI (1724 kPa)	25 PSI (172 kPa)	22 PSI (152 kPa)	28 PSI (193 kPa)
From 175 PSI to 250 PSI (1207 kPa to 1724 kPa)	45 PSI (310 kPa)	42 PSI (290 kPa)	48 PSI (3313 kPa)

Note: The final adjustment of the air pressure must be set on site according to the pressure level of the water inlet.

Air supply (continued)

□ Direct air compressor Style "A"

Used for initial system piping network filling with volume over 250 gallons (946 litres) or any system with water supply pressure higher than 175 PSI (1207 kPa). Air supply Style "A" includes the air compressor mounted inside the TOTALPAC® N₂ cabinet with its supervisory trim and options. Compressor is of the tankless, oilless piston type. It is connected to the system riser of the sprinkler piping network.

Compressor is available in six (6) sizes:

- ☐ 1/2 HP ☐ 1 HP ☐ 1-1/2 HP
☐ 0.56 kW ☐ 1.2 kW ☐ 1.5 kW

Warning: 1½ HP and 1.5 kW air compressors are only available on remote controlled systems.

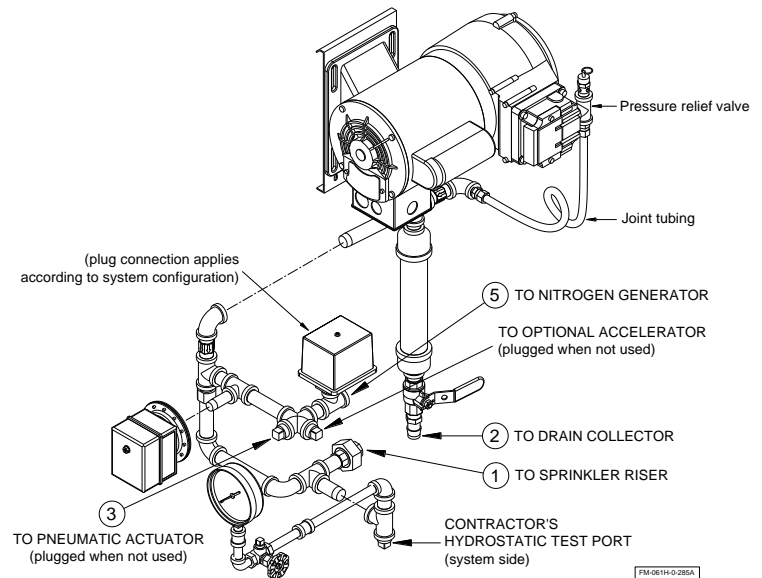
Compressor amperage (amp)

Compressor Size		115Vac 60Hz	230Vac 60Hz
1/2 HP	F.L.A.	10	5
	Start-up	70	35
1 HP	F.L.A.	18	9
	Start-up	126	63
1½ HP	F.L.A.	16.6	8.3
	Start-up	116.2	58.1

Compressor Size		220Vac 50Hz	240Vac 50Hz
0.56 kW	F.L.A.	4	4.5
	Start-up	28	31.5
1.2 kW	F.L.A.	6	6
	Start-up	42	42
1.5 kW	F.L.A.	6.3	6
	Start-up	44.1	42

Note: Selection of the appropriate wire size is the responsibility of the installing contractor.

WARNING The information contained herewith is for estimation and evaluation purposes only. Its use remains the responsibility of the designer.



Air compressor selection table - 115 / 230 Vac 60Hz

HP	CFM @ 40 PSI	System capacity to fill system to 35 PSI in 30 minutes *	System capacity to fill system to 55 PSI in 30 minutes **
1/2	4.43	454 gal	253 gal
1	7.46	796 gal	458 gal
1½	11.10	1060 gal	650 gal

Air compressor selection table - 220 / 240 Vac 50Hz

kW	LPM @ 276 kPa (40 PSI)	System capacity to fill system to 241 kPa (35 PSI) in 30 minutes *	System capacity to fill system to 379 kPa (55 PSI) in 30 minutes **
0.56	103	1351 L	723 L
1.2	178	2316 L	1317 L
1.5	260	3407 L	1912 L

* For systems with maximum water supply pressure of 175 PSI (1206 kPa).

** For systems with water supply pressure between 175 PSI (1207 kPa) and 250 PSI (1724 kPa).

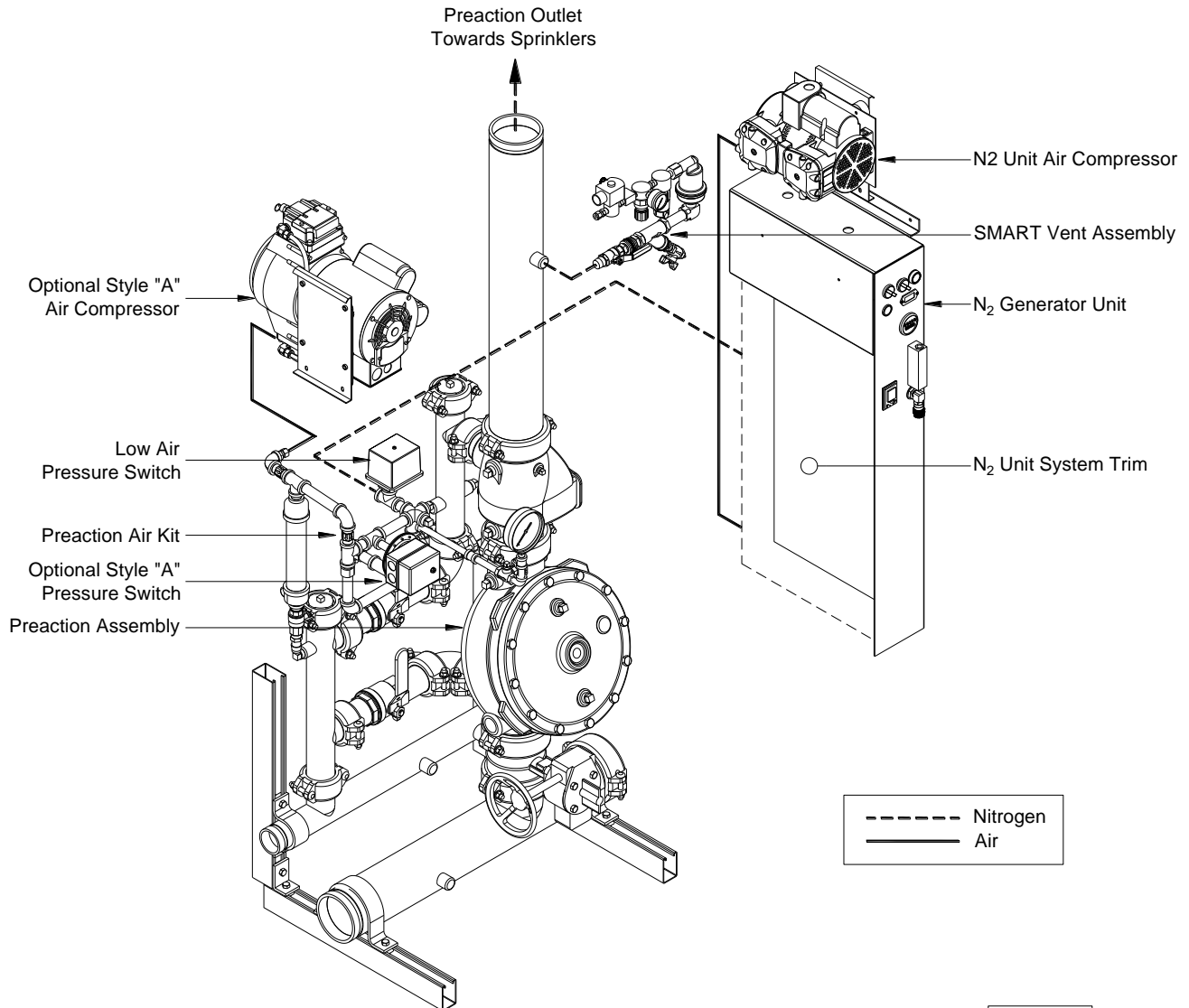
Factory pressure settings

Inlet water pressure	Compressor start	Compressor stop
Up to 175 PSI (1207 kPa)	30 PSI (207 kPa)	35 PSI (245 kPa)
From 175 PSI to 250 PSI (1207 kPa to 1724 kPa)	50 PSI (345 kPa)	55 PSI (379 kPa)

Note: The final adjustment of the air pressure must be set on site according to the pressure level of the water inlet.

System details

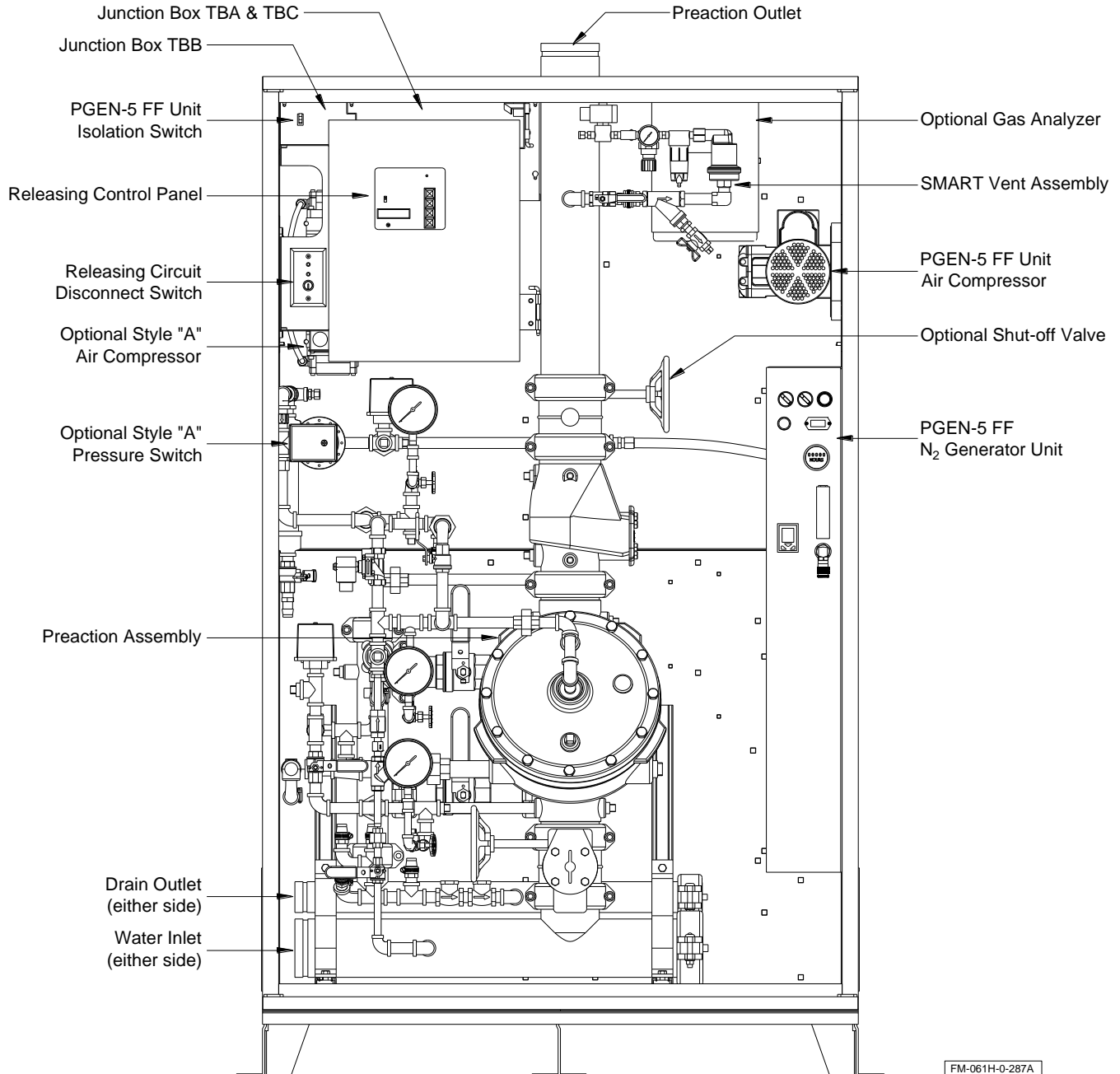
TOTALPAC® N₂ P & ID



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System details (continued)

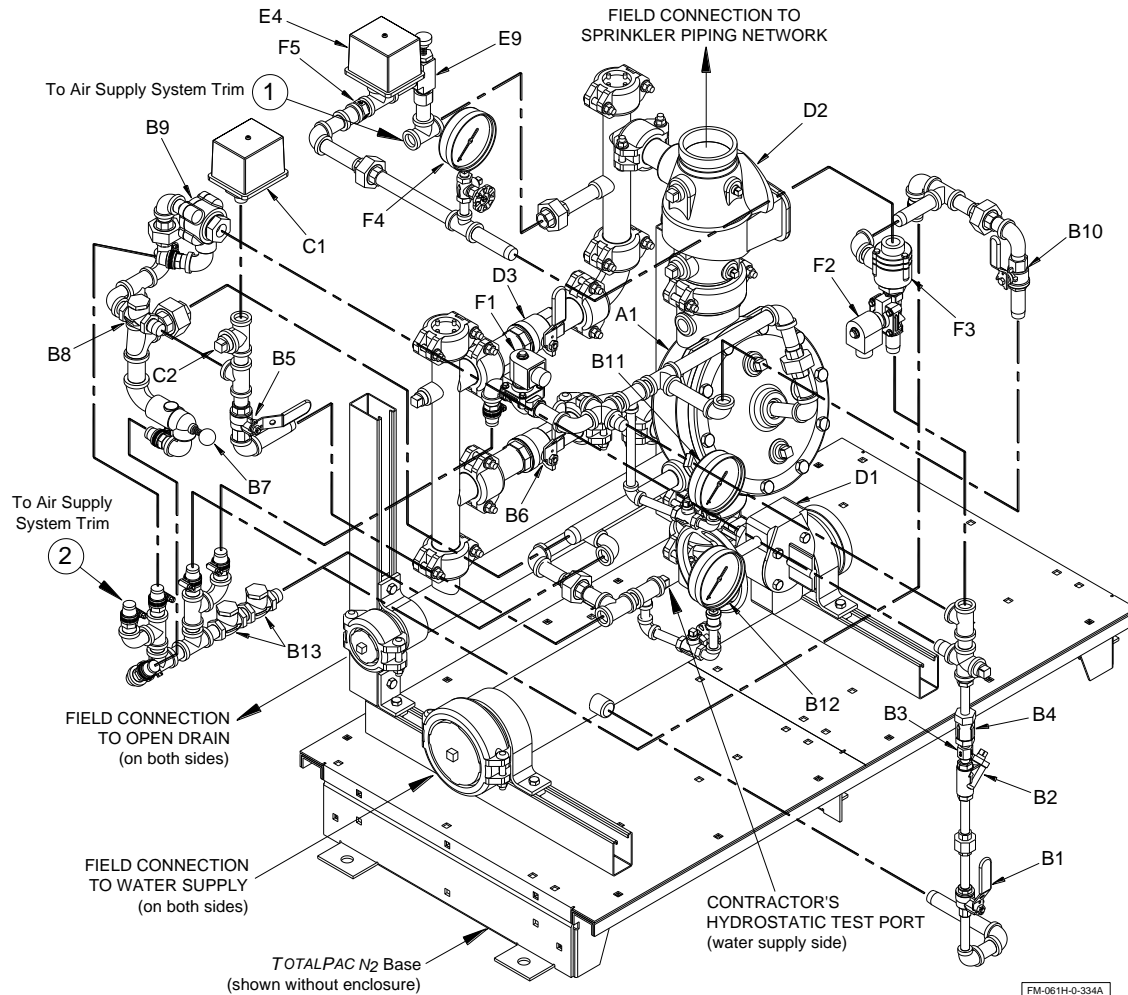
TOTALPAC® N₂ Cabinet with main components (shown without doors)



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System details (continued)

TOTALPAC® N₂ Trim diagram

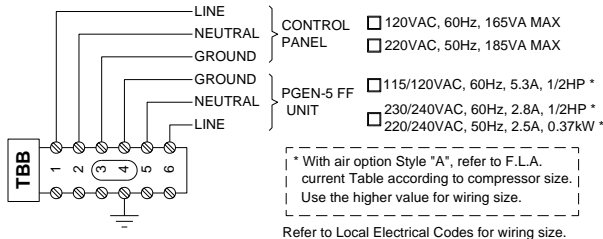


Trim Components

- | | |
|---|--|
| A1 Deluge valve | C1 Alarm pressure switch |
| B1 Priming valve | C2 3/4"-NPT (20mm) connection to optional water motor gong (strainer to be supplied by contractor) |
| B2 Strainer | D1 Main water supply valve |
| B3 1/16" (1.6mm) Restricted orifice | D2 Riser check valve |
| B4 Spring loaded check valve | D3 Main drain valve |
| B5 Alarm test valve | E4 Air supervisory pressure switch |
| B6 Flow test valve | F1 24VDC normally closed solenoid valve |
| B7 Drip check valve | F2 24VDC normally open solenoid valve |
| B8 Drain check valve | F3 Pneumatic actuator |
| B9 PORV (pressure operated relief valve) | F4 Pneumatic actuator pressure gauge & valve |
| B10 Manual emergency release valve (shown in closed position) | F5 5/64" (2mm) Restricted orifice |
| B11 Priming pressure water gauge & valve | |
| B12 Water supply pressure gauge & valve | |
| B13 Clapper check valve | |

System wiring diagrams

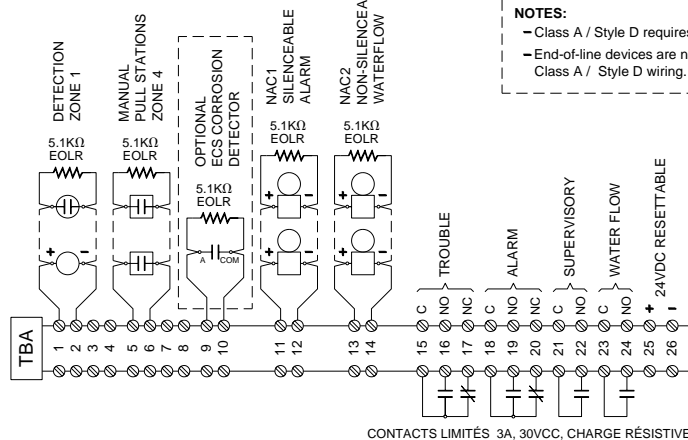
WIRING OF INPUT POWER SOURCES



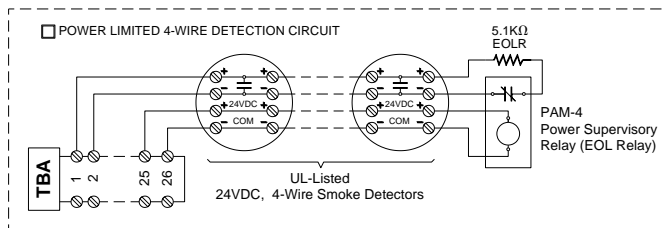
Branch circuit for PGEN-5 FF unit shall not be the same as the control panel power source.

WIRING IN CLASS B / STYLE Y

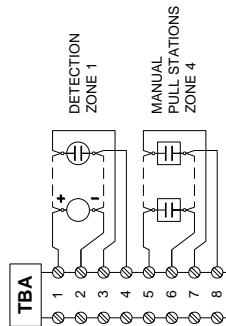
WIRING IN CLASS B / STYLE B



CONTACTS LIMITÉS 3A, 30VCC, CHARGE RÉSISTIVE









OPTIONAL WIRING IN CLASS A / STYLE D



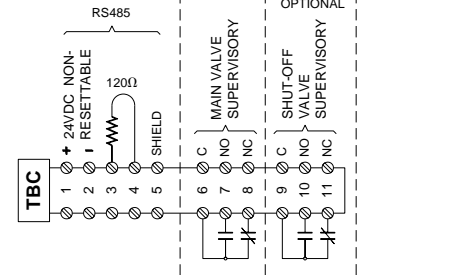
NOTES:

- Class A / Style D requires CA2Z modules
- End-of-line devices are not required for Class A / Style D wiring.

LEGEND

-  SMOKE DETECTOR
 HEAT DETECTOR
 MANUAL RELEASE
 BELL OR HORN
 DRY CONTACT
 END OF LINE RESISTOR

- ☐ CHICAGO OPTION
- ☐ LOS ANGELES OPTION



CONTACTS RATED:
5A, 1/6HP, 125/250VAC
0.5A, 250VDC 0.25A, 250VDC

NOTE:

- Contact provided for connection to the building's central Fire Alarm Panel.

- Control panel AC power source is supervised and non-power limited.
- All devices are shown in their normal supervisory state.
- Use dry contacts with power limited circuits only.

FM-061H-0-319A

Power limited (supervised) initiating device circuits

Zones 1 (detection) and 4 (manual release):

Max. loop resistance: 100Ω

End of line: 5.1K ohms, 1/4W

Leave ELR (provided) on all unused circuits.

Refer to the VFR-400 release control panel manual for device compatibility.

Auxiliary power 24Vdc regulated source

Total current available: 0.2A

Resettable for 4 wires smoke detectors

Power limited (supervised) notification appliance circuits

Output circuits 1 and 2:

Maximum operating voltage: 27Vdc (ripple: 0.3Vdc)

Maximum usable current per circuit: 1.0A

Total current available (all circuits): 2.5A

Polarity is reversed in supervisory condition.

End of line: 5.1K ohms, 1/4W

Leave ELR (provided) on all unused circuits.

Refer to the VFR-400 release control panel manual for device compatibility.

Dimensions and weights

The **TOTALPAC[®] N₂** cabinet unit is pre-assembled, pre-wired and factory tested under ISO-9001 specifications.

The cabinet is made of sturdy 14 gauge steel. Bottom base is made of 11 gauge and 7 gauge steel. All external and internal surfaces are rust proof coated, inside and outside, with fire red, oven baked polyester powder on phosphate base. Cabinet is available in two (2) sizes:

- 35¾" x 25" x 77" (908mm x 640mm x 1960mm) for 2" (50mm) systems
- 46" x 25" x 77" (1170mm x 640mm x 1960mm) for 3" (80mm), 4" (100mm) and 6" (150mm) systems

Cabinet is provided with two doors, both provided with a neoprene gasket to absorb vibrations. Each cabinet door is provided with hinges that can be disassembled on site to remove the door assemblies for servicing.

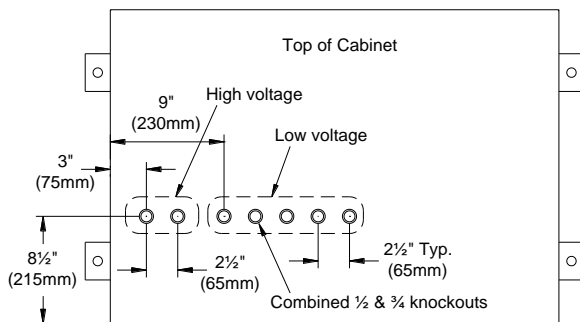
The left door gives access to the manual emergency release valve and gauges reading. Gauges to indicate water supply pressure, priming water pressure and air pressure are all visible through clear Lexan windows.

Multiple units installation is easily achieved by jointing manifold sections together at their water inlets. Drains outlet shall remain separate and open for each unit.

IMPORTANT ! **TOTALPAC[®] N₂** unit is NOT designed to be installed where it 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.

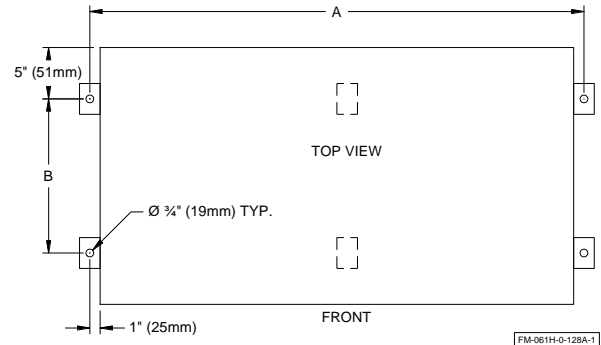
A field wiring electrical junctions box is integrated within the cabinet for connection of all electrical components in the trim to remote release control panel. Pressure switches, supervisory switches, etc. are all factory wired to a terminal strip TBA (and optional TBC) for contractor's field wiring. Terminal strip TBB is required for AC power connection to **ECS[®]** PGEN-5 FF unit and optional air compressor Style 'A' option.

Knockouts details at top of cabinet



FM-061H-0-68B-12

Floor anchoring template

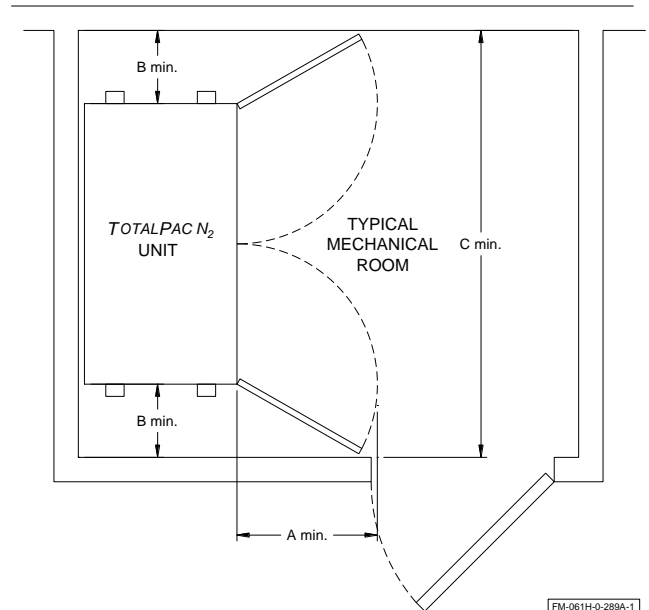


FM-061H-0-128A-1

Table 1 -Floor anchors dimensions

Unit size	A	B
2" (50mm)	37¾" (959mm)	15" (380mm)
3" (80mm)	48" (1220mm)	15" (380mm)
4" (100mm)	48" (1220mm)	15" (380mm)
6" (150mm)	48" (1220mm)	15" (380mm)

Cabinet and door clearance details



FM-061H-0-289A-1

Table 2 -Cabinet clearance dimensions

Unit size	A	B	C
2" (50mm)	24" (610mm)	12" (305mm)	60" (1524mm)
3" (80mm)	24" (610mm)	12" (305mm)	70" (1778mm)
4" (100mm)	24" (610mm)	12" (305mm)	70" (1778mm)
6" (150mm)	24" (610mm)	12" (305mm)	70" (1778mm)

Dimensions and weights (continued)

TOTALPAC® N₂ Cabinet dimensions

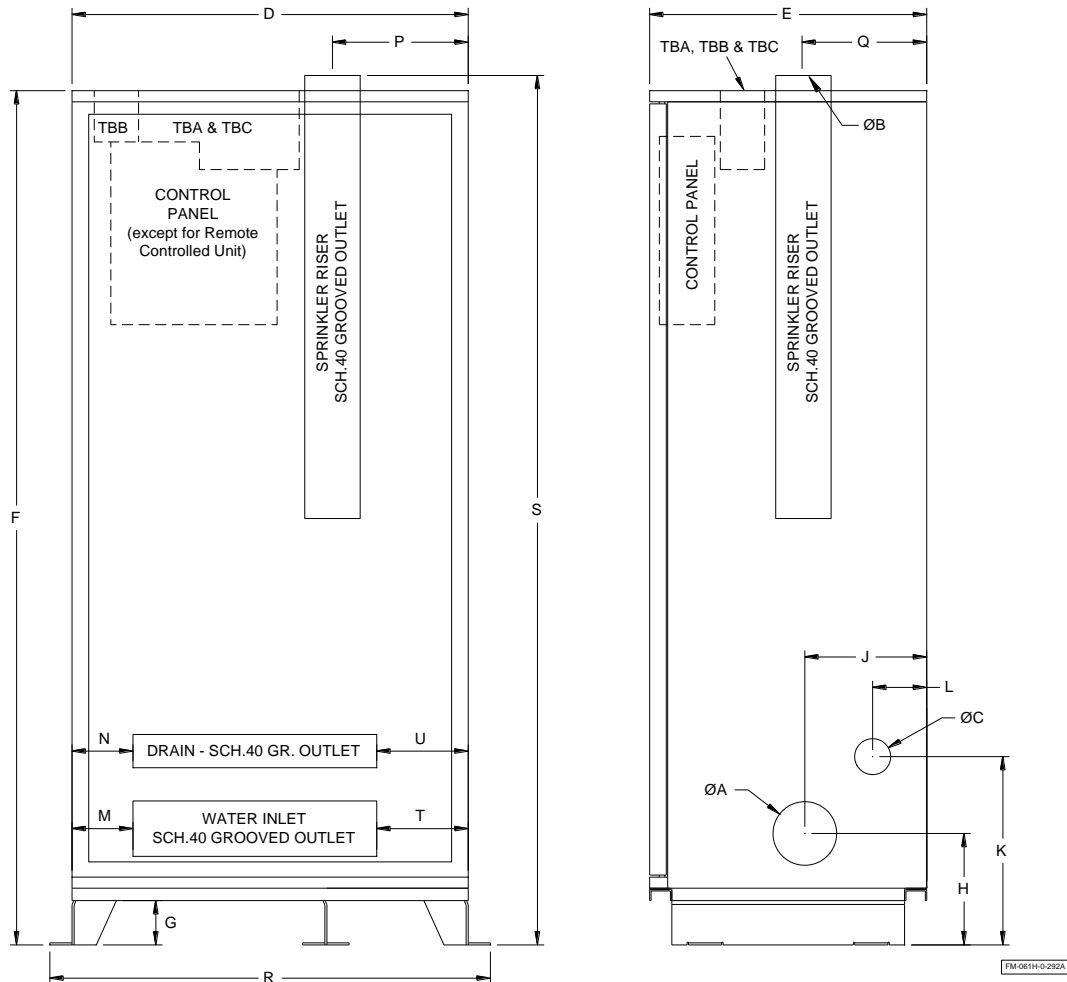


Table 3 - Cabinet dimensions - dimensions are in inches (mm)

Unit size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
2" (50)	2" (51)	2" (51)	2" (51)	35¾" (908)	25" (635)	77" (1956)	4" (102)	8¾" (222)	11½" (292)	13¾" (349)	3¾" (95)	2¾" (70)	2¾" (70)	20¾" (527)	11½" (292)	39¾" (1010)	79½" (1994)	15½" (394)	15½" (394)
3" (80)	4" (102)	3" (76)	2" (51)	46" (1168)	25" (635)	77" (1956)	4" (102)	10" (254)	11½" (292)	13¾" (349)	3¾" (95)	2¾" (70)	2¾" (70)	21¾" (552)	11½" (292)	50" (1270)	79½" (1994)	13" (330)	13" (330)
4" (100)	4" (102)	4" (102)	2" (51)	46" (1168)	25" (635)	77" (1956)	4" (102)	10" (254)	11½" (292)	13¾" (349)	3¾" (95)	2½" (64)	2½" (64)	22¼" (565)	11½" (292)	50" (1270)	79½" (1994)	12¾" (324)	12¾" (324)
6" (150)	6" (152)	6" (152)	2" (51)	46" (1168)	25" (635)	77" (1956)	4" (102)	11" (279)	11½" (292)	13¾" (349)	3¾" (95)	5¼" (133)	5¼" (133)	17¾" (451)	11½" (292)	50" (1270)	79½" (1994)	5¼" (133)	5¼" (133)

Note:

1. Dimensions are nominal and may vary ±¼" (±5mm).

Dimensions and weights (continued)

Open drain details for single unit

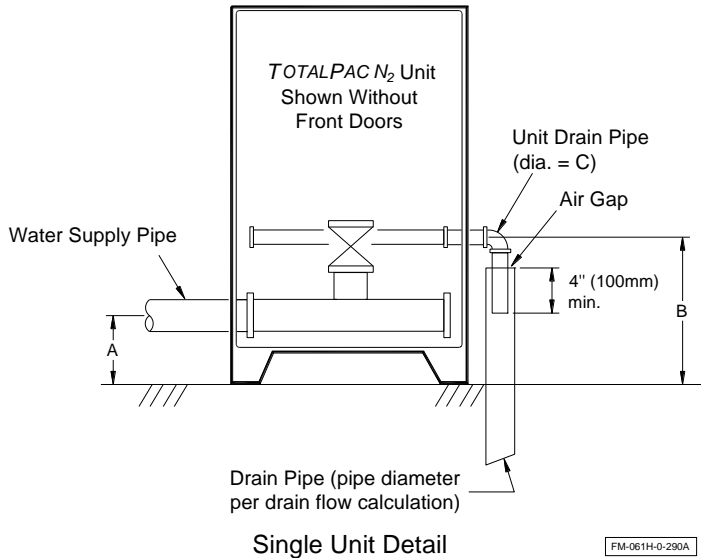


Table 4 - System weight with cabinet

System size	Weight ¹
2" (50mm)	623 lb (283 kg)
3" (80mm)	803 lb (346 kg)
4" (100mm)	878 lb (398 kg)
6" (150mm)	1175 lb (533 kg)

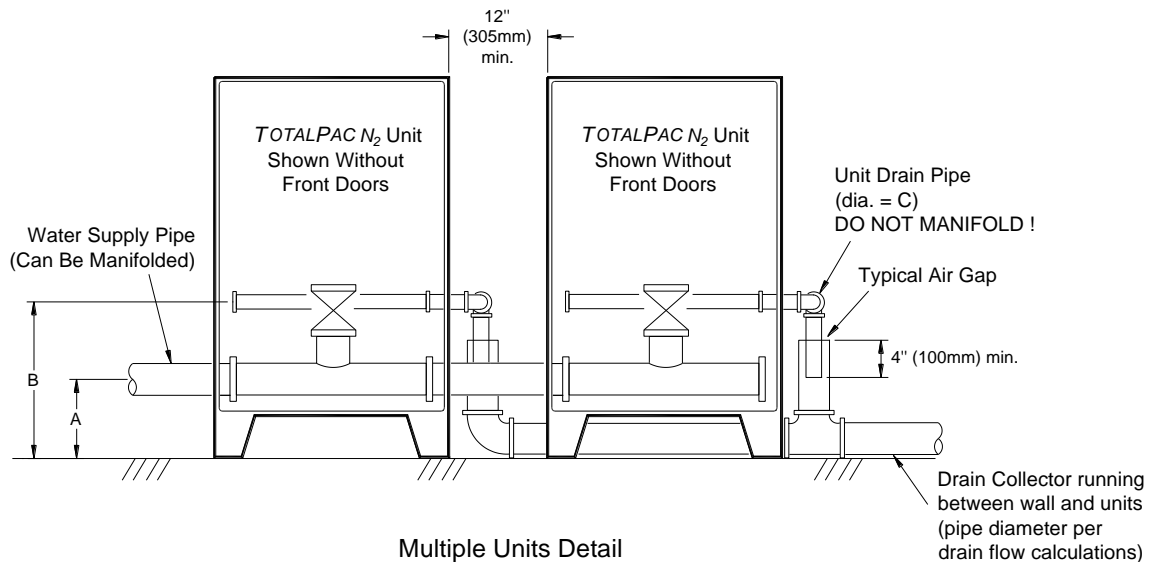
(1) Without additional air compressor Style 'A' option.

Table 5 - Manifold dimensions

Unit size	A	B	C
2" (50mm)	8¾" (222mm)	13¾" (350mm)	2" (50mm)
3" (80mm)	10" (255mm)	13¾" (350mm)	2" (50mm)
4" (100mm)	10" (255mm)	13¾" (350mm)	2" (50mm)
6" (150mm)	11" (280mm)	13¾" (350mm)	2" (50mm)

Open drain details for multiple units

(refer to dimensions in table 5)



Notes:

1. Water 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.



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