



# NJEX<sup>®</sup>

Odorization Systems



*Focusing on Your Priorities*

# NJEX® Odorization Systems

## Superior Technology, Reliable Results

The NJEX odorant injection systems measure and inject precise amounts of liquid odorant into cubic feet or meters of gas that flows down a pipeline to ensure detectability. Originally developed in response to the market's demand for technically superior odorization equipment, NJEX systems have a simple, standard design with a full complementary list of optional equipment to meet your operational requirements. They provide exceptional performance with features such as proportional-to-flow odorant injection, onboard metering for positive verifications of the odorant injected, system monitoring and alarm notification. The entire NJEX System is patented and CSA and Cenelec certified and each system comes with our standard manufacturer's warranty, Service ValuePlus.

### NJEX System Components: Packed with Features for Enhanced Reliability

- Patented, pneumatically-actuated, positive-displacement plunger pump reliably injects the odorant
- N-300 Controller controls and verifies the exact quantity and rate of injection and can be set for proportional-to-flow or time-based operation
- Sentry monitor module and software remotely monitors the operation in real time



### A History of Reliability

YZ Systems is committed to the safety of people and the environment and has provided precision equipment to the energy industry for the past 60 years. Our innovative designs deliver accuracy while our versatile solutions accommodate a wide range of performance requirements. Commitment to quality is our top priority to ensure the protection of your most precious assets.

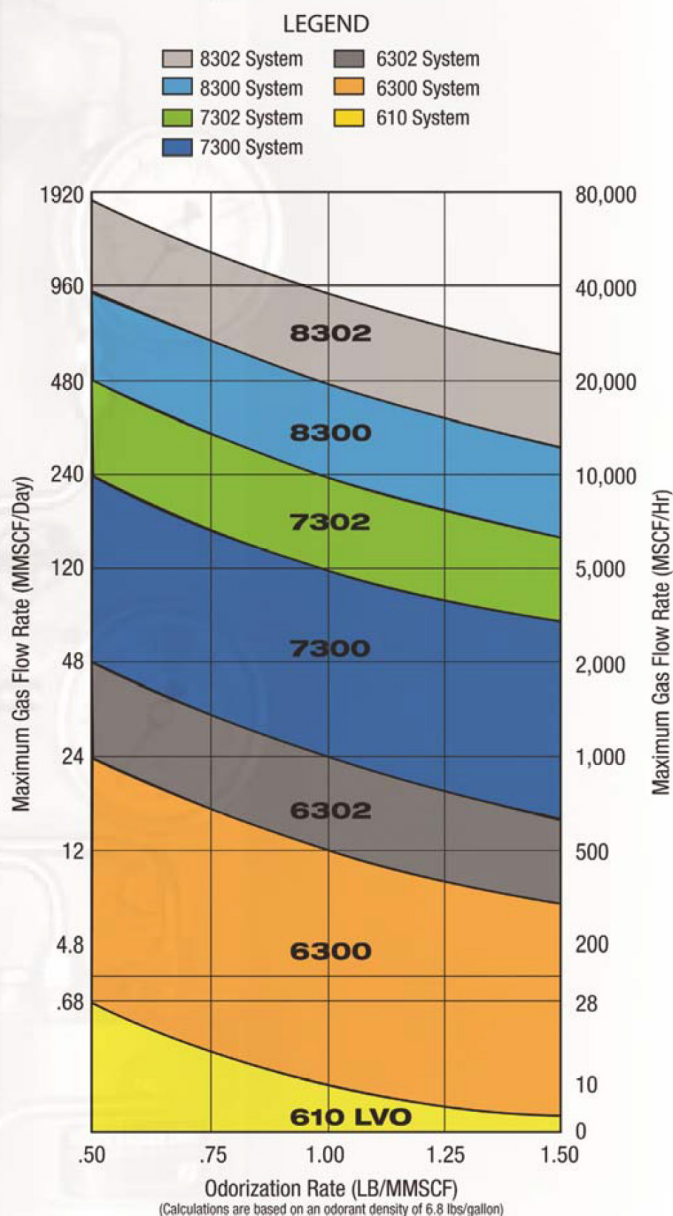
*The NJEX system reduces complexity of design with a simple, standardized operation.*



## Quality System, Simple Operation

The NJEX system reduces complexity of design with a simple, standardized operation. Odorant is received from the bulk storage tank and is filtered prior to a fill valve. The fill valve opens up automatically when it receives a signal from the N-300 controller. The verometer begins to fill with liquid odorant. The odorant level is electronically monitored. When the meter is full, the fill valve closes. The pump receives its odorant supply from the verometer. The pump strokes when it receives a signal from the N-300. As odorant is pumped from the verometer, the N-300 calculates pump displacement and odorant usage. The N-300 interfaces with a pipeline flow signal and maintains the desired odorization rate (in lbs/MMSCF) and adjusts the stroke rate of the pump.

**System Selection Chart**



# NJEX® 610

## Low-Volume Odorant Injection System

### Model 610

The NJEX 610 low-volume odorant injection system injects precise amounts of liquid odorant into a flowing pipeline to ensure detectability. Designed specifically for low-flow applications, the pump is volumetrically adjustable and positively injects a precise, repeatable increment of liquid odorant into cubic feet or meters, of gas that flows down a pipeline. Its unique design ensures accuracy, reliability and odor-free performance and it eliminates the risk for “vapor locking” at even the lowest of flow rates. Capable of injecting up to 1.44 liters/day (.38 gallons/day), the system provides three levels of verification to confirm only the desired amount of odorant is introduced into the pipeline.

### Features and Benefits

- Patented, pneumatically-actuated, positive-displacement plunger pump
- 1.44 liters/day (.38 gallons/day) maximum odorant output
- Versatile, electronic controller for proportional-to-flow or proportional-to-time operation
- Intrinsically safe electronics
- Modular design for ease of maintenance

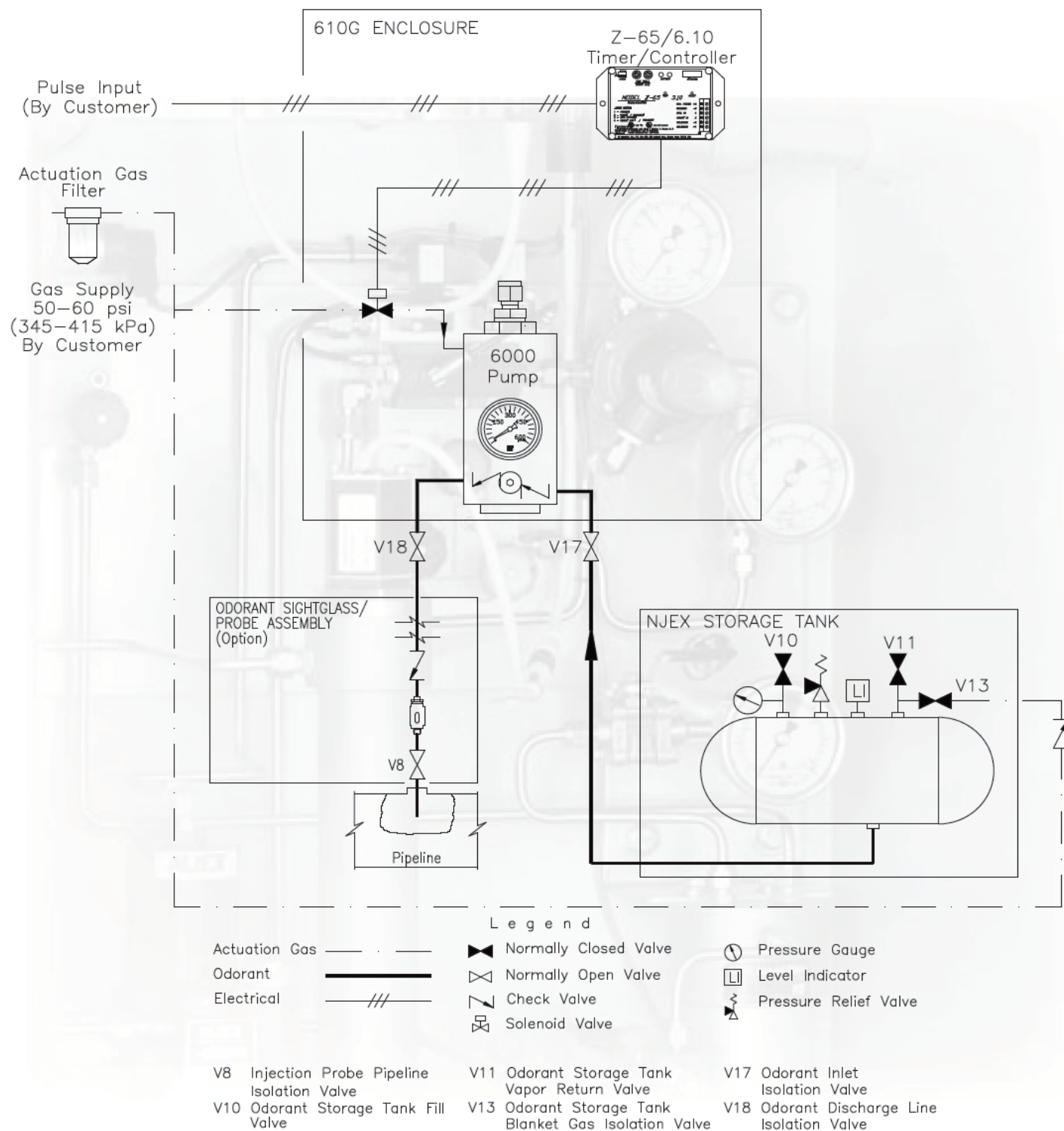
### Specifications

Maximum Odorant Output	1.44 liters/day (.38 gallons/day)
Maximum operating pressure	99.28 bar (1440 psig)
Operating temperature range	17°C to 60°C (0°F to 140°F) <sup>1</sup>
Power supply	LBP-14 Battery (standard)
Gas flow rate input signal	Pulse (dry contact or voltage pulse)

<sup>1</sup>At temperatures below 0°C (32°F) conditioning of the actuation gas supply may be required.



## System Flow Schematic





## System Flow Schematic

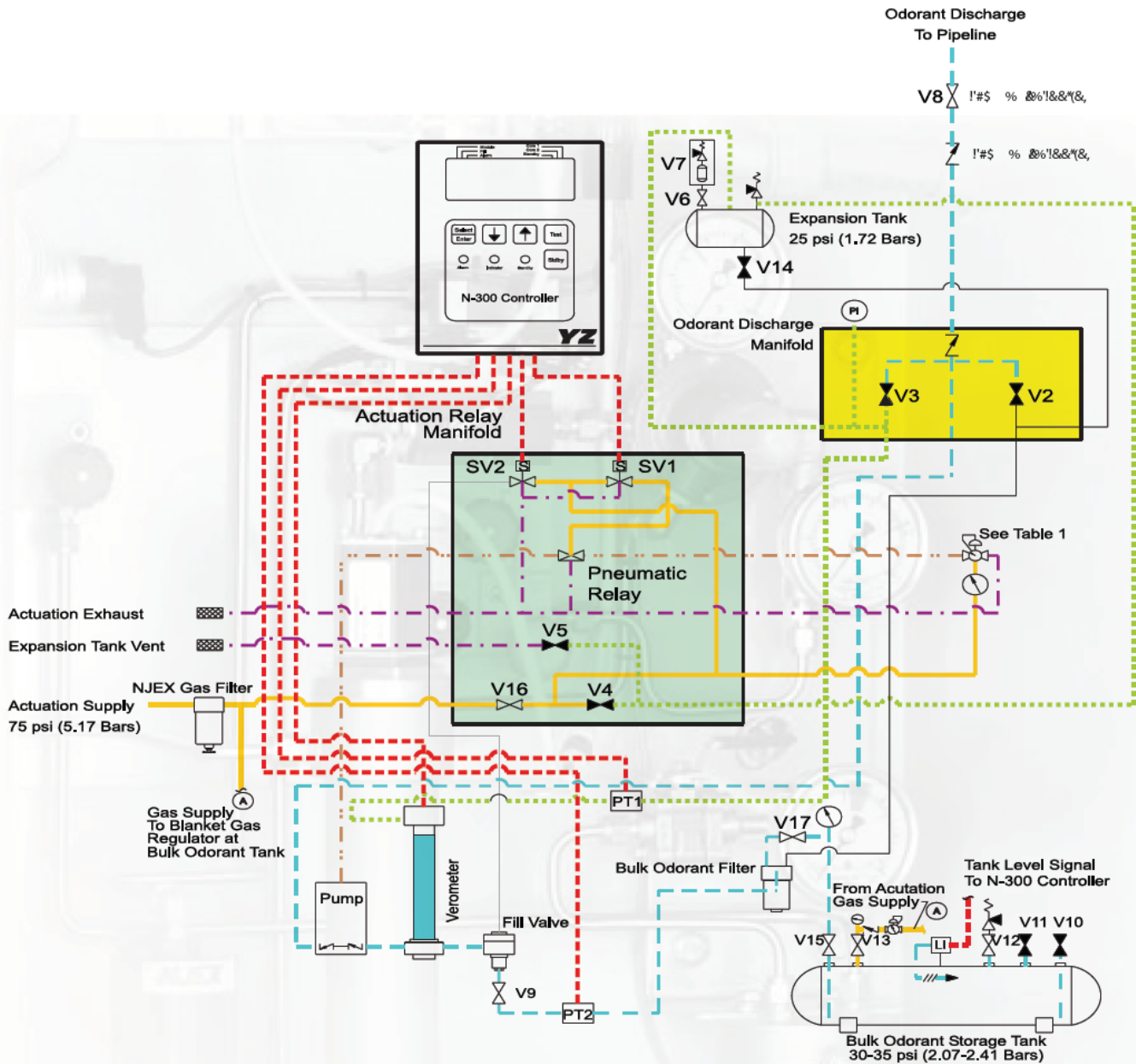


Table 1	
6300	
Pipeline Pressure	Actuation Pressure
100-200 psi (6.89-13.8 Bar)	30 psi (2.07 Bar)
200-500 psi (13.89-34.5 Bar)	40 psi (2.76 Bar)
500-900 psi (34.5-62.1 Bar)	50 psi (3.45 Bar)
900-1400 psi (62.1-96.5 Bar)	60 psi (4.14 Bar)

IMPORTANT: Read And Follow Steps 1-4 BEFORE Proceeding																
1. Place the controller in the "standby" mode. 2. Close all valves marked "X". 3. Open all valves marked "O". 4. Place controller in the proper mode of operation as needed. 5. Open to build pressure to 60 psi (4.14 Bars) then close valve * - Adjust as needed																
	V2	V3	V4	V5	V6	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	
Normal Operation	X	X	X	X	O	O	*	X	X	O	O	X	O	O	O	
System Purge	O	X	X	X	*	X	X	X	X	O	O	X	O	O	O	
System Vent	O	O	X	O	X	X	*	X	X	O	O	X	O	O	X	
Leak Test	O	O	X	X	*	X	X	X	X	O	O	X	O	O	X	
Prime Pump	X	O	X	X	O	X	*	X	X	O	O	X	O	O	O	

LEGEND			
	Normally Closed Valve		V2 Purge Valve (Red Knob)
	Normally Open Valve		V3 Prime Valve (Blue Knob)
	Pneumatic Relay		V4 Expansion Tank Pressure Supply Valve (Gold Knob)
	Check Valve		V5 Expansion Tank Vent Valve (Green Knob)
	Float Valve		V6 Expansion Tank Overflow Preventor Isolation Valve
	Pressure Gauge		V7 Expansion Tank Isolation Valve
	Electronic Level Transmitter		V8 Odorant Storage Tank Fill Valve
	Solenoid Valve		V9 Odorant Storage Tank Vapor Return Valve
	Pressure Regulator w/Gauge		V10 Odorant Storage Tank Vapor Return Valve
	Pressure Relief Valve		V11 Odorant Storage Tank Vapor Return Valve
	Pressure Transmitter		V12 Odorant Storage Tank Relief Valve Isolation Valve
			V13 Odorant Storage Tank Blanket Gas Isolation Valve
			V14 Expansion Tank Drain Valve
			V15 Odorant Storage Tank Expansion Tank Isolation Valve
			V16 Gas Supply Isolation Valve (Black Knob)
			V17 System Odorant Supply Isolation Valve
			SV1 Pump Actuation Valve
			SV2 Fill Valve
			PT1 Expansion Tank Pressure Transmitter
			PT2 Odorant Inlet Pressure Transmitter

# NJEX® Odorant Injection System

## Models 6300 and 6302

NJEX 6300 and 6302 odorant injection systems inject precise amounts of liquid odorant into cubic feet or meters, of gas that flows down a pipeline to ensure detectability. Ideal for lower flow applications, these proven systems provide proportional-to-flow odorant injection, onboard metering of the odorant injected, system monitoring and alarm notification. Additionally the system will document and verify the performance of each system component, parameter changes, alarms and injection rates. Available in a single or dual-unit configuration, the systems are capable of accurately injecting up to 6.7 liters/day (1.76 gallons/day).

### Features and Benefits

- Patented, pneumatically-actuated, positive-displacement plunger pump
- 6.7 liters/day (1.76 gallons/day) maximum odorant output
- Versatile, electronic controller for proportional-to-flow or time-based injection
- Real-time system monitoring and alarm notifications
- Remote communication via ModBus or Sentry4 Software
- Intrinsically safe electronics
- Single or Dual Configuration to meet application requirements
- Weatherproof enclosure for protection from the elements.

### Specifications

Maximum odorant output		6.7 liters/day (1.76 gallons/day)
Maximum operating pressure		99.28 bar (1440 psig)
Operating temperature range		17°C to 60°C (0°F to 140°F) <sup>1</sup>
Power supply		
	Standard	SPS-12 solar panel
	Optional	LPS 120/240 volt, 50/60 Hz AC charger
Battery reserve		Approximately 30 days
Gas flow rate input signal		1-5 VDC, 4-20 mA or pulse

<sup>1</sup>At temperatures below 0°C (32°F) conditioning of the actuation gas supply may be required.



# NJEX® Odorant Injection System

## Models 7300 and 7302

NJEX 7300 and 7302 odorant injection systems inject precise amounts of liquid odorant into cubic feet or meters of gas that flows down a pipeline to ensure detectability. These mid-use, primary odorizers provide proportional-to-flow odorant injection, onboard metering of the odorant injected, system monitoring and alarm notification. Additionally the system will document and verify the performance of each system component, parameter changes, alarms and injection rates. Available in a single or dual-unit configuration, the systems are capable of accurately injecting up to 67 liters/day (17.6 gallons/day).

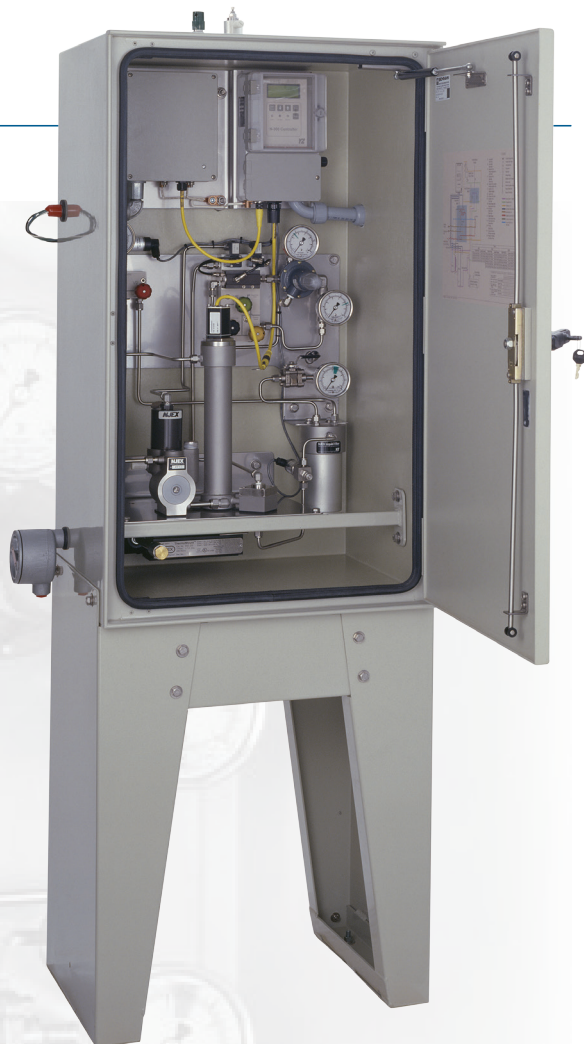
### Features and Benefits

- Patented, pneumatically-actuated, positive-displacement, reciprocating plunger pump
- Teflon diaphragm isolates all dynamic seals from the odorant
- 67 liters/day (17.6 gallons/day) maximum odorant output
- Versatile, electronic controller for proportional-to-flow or time-based operation
- Real-time system monitoring and alarm notifications
- Remote communication via ModBus or Sentry4 Software
- Intrinsically safe electronics
- Single or dual Configuration to meet application requirements
- Weatherproof enclosure for protection from the elements

### Specifications

Maximum odorant output		67 liters/day (17.6 gallons/day)
Maximum operating pressure		99.28 bar (1,440 psig)
Operating temperature range		17°C to 60°C (0°F to 140°F) <sup>1</sup>
Power supply		
	Standard	SPS-12 solar panel
	Optional	LPS 120/240 volt, 50/60 Hz AC charger
Battery reserve		Approximately 30 days
Gas flow rate input signal		1-5 VDC, 4-20 mA or pulse

<sup>1</sup>At temperatures below 0°C (32°F) conditioning of the actuation gas supply may be required.





# NJEX® Odorant Injection System

## Models 8300 and 8302

NJEX 8300 and 8302 odorant injection systems inject precise amounts of liquid odorant into cubic feet or meters of gas that flows down a pipeline to ensure detectability. Designed for high-volume applications, these odorizers provide proportional-to-flow odorant injection, onboard metering of the odorant injected, system monitoring and alarm notification. Additionally the system will document and verify the performance of each system component, parameter changes, alarms and injection rates. Available in a single or dual-unit configuration, the systems are capable of accurately injecting up to 257 liters/day (68 gallons/day).

## Features and Benefits

- Patented, pneumatically-actuated, positive-displacement reciprocating plunger pump
- Teflon diaphragm isolates all dynamic seals from the odorant
- 257 liters/day (68 gallons/day) maximum odorant output
- Versatile, electronic controller for proportional-to-flow or time-based operation
- Real-time system monitoring and alarm notifications
- Remote communication via ModBus or Sentry4 Software
- Intrinsically safe electronics
- Single or Dual Configuration to meet application requirements
- Weatherproof enclosure for protection from the elements

## Specifications

Maximum odorant output		257 liters/day (68 gallons/day)
Maximum operating pressure		99.28 bar (1,440 psig)
Operating temperature range		17°C to 60°C (0°F to 140°F) <sup>1</sup>
Power supply		
	Standard	SPS-12 solar panel
	Optional	LPS 120/240 volt, 50/60 Hz AC charger
Battery reserve		Approximately 30 days
Gas flow rate input signal		1-5 VDC, 4-20 mA or pulse

<sup>1</sup>At temperatures below 0°C (32°F) conditioning of the actuation gas supply may be required.



## System Flow Schematic

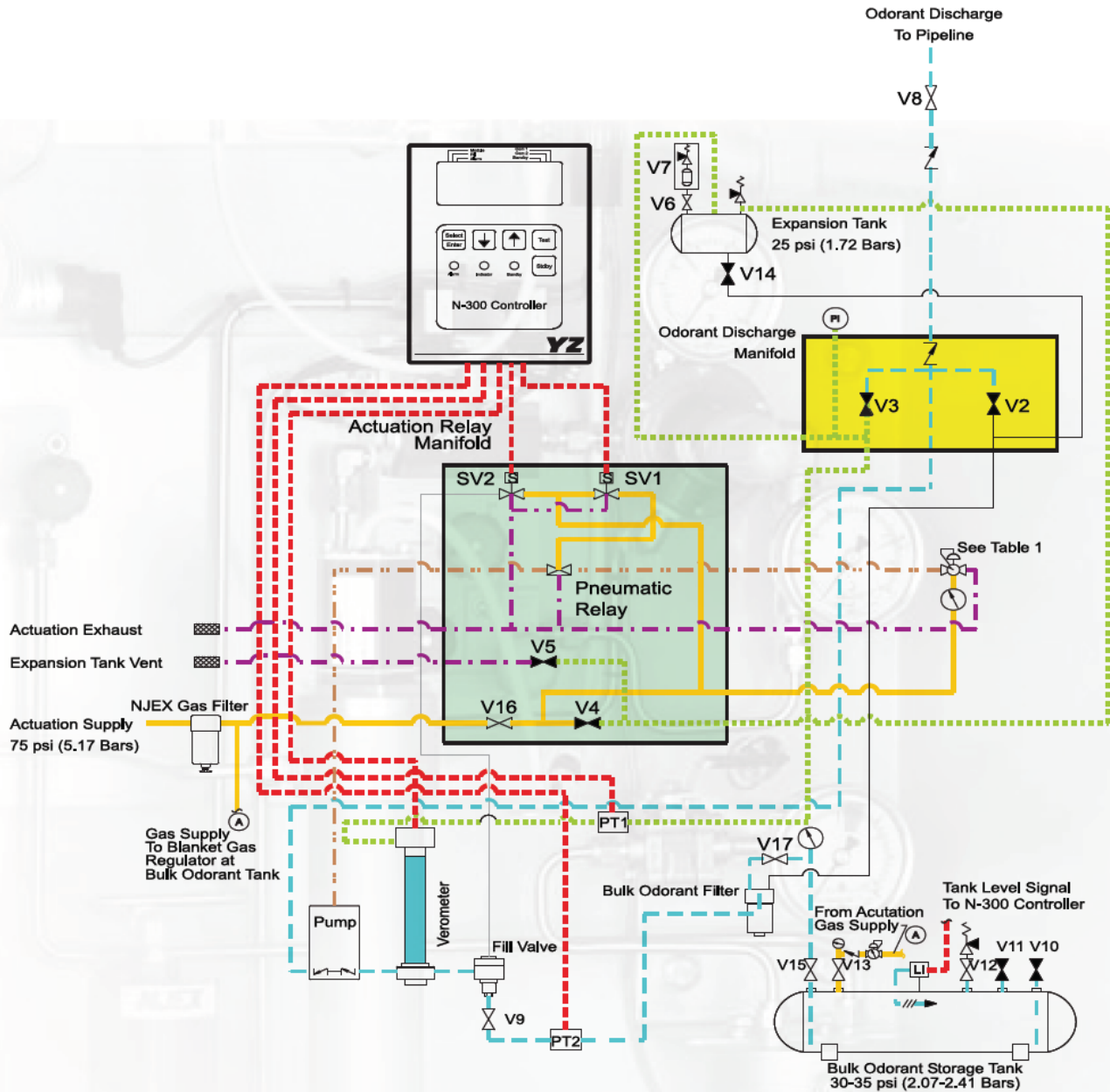


Table 1	
7300	
Pipeline Pressure	Actuation Pressure
100-200 psi (6.89-13.8 Bar)	30 psi (2.07 Bar)
200-400 psi (13.8-27.6 Bar)	35 psi (2.41 Bar)
400-600 psi (27.6-41.4 Bar)	40 psi (2.76 Bar)
600-800 psi (41.4-55.2 Bar)	45 psi (3.11 Bar)
800-1000 psi (55.2-68.9 Bar)	50 psi (3.45 Bar)
1000-1440 psi (68.9-99.3 Bar)	60 psi (4.14 Bar)

IMPORTANT: Read And Follow Steps 1-4 BEFORE Proceeding																
1. Place the controller in the "standby" mode. 2. Close all valves marked "X". 3. Open all valves marked "O". 4. Place controller in the proper mode of operation as needed. 5. Open to build pressure to 60 psi (4.14 Bars) then close valve. * - Adjust as needed																
Normal Operation	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17
System Purge	O	X	X	X	X	X	X	X	X	X	O	O	O	O	O	O
System Vent	O	O	X	O	X	X	X	X	X	X	O	O	O	X	O	X
Leak Test	O	O	O	X	X	X	X	X	X	X	O	O	O	O	O	X
Prime Pump	X	O	X	X	O	X	X	X	X	X	O	O	O	X	O	O

<ul style="list-style-type: none"> <li>Normally Closed Valve</li> <li>Normally Open Valve</li> <li>Pneumatic Relay</li> <li>Check Valve</li> <li>Float Valve</li> <li>Pressure Gauge</li> <li>Electronic Level Transmitter</li> <li>Solenoid Valve</li> <li>Pressure Regulator w/Gauge</li> <li>Pressure Relief Valve</li> <li>Pressure Transmitter</li> </ul>	<ul style="list-style-type: none"> <li>Liquid Odorant - Normal Operation</li> <li>Purge/Drain Line</li> <li>Expansion Line</li> <li>Intrinsically Safe Electrical Line</li> <li>Exhaust/Vent Line</li> <li>Actuation Line 75 psi (520 Kpa)</li> <li>Fill Valve Actuation Line</li> <li>Pump Actuation Line</li> </ul>	<ul style="list-style-type: none"> <li>V2 Purge Valve (Red Knob)</li> <li>V3 Prime Valve (Blue Knob)</li> <li>V4 Expansion Tank Pressure Supply Valve (Gold Knob)</li> <li>V5 Expansion Tank Vent Valve (Green Knob)</li> <li>V6 Expansion Tank Overflow Preventor Isolation Valve</li> <li>V7 Expansion Tank Overflow Preventor</li> <li>V8 Isolation Valve</li> <li>V9 Fill Rate Control Valve</li> <li>V10 Odorant Storage Tank Fill Valve</li> <li>V11 Odorant Storage Tank Vapor Return Valve</li> <li>V12 Odorant Storage Tank Relief Valve Isolation Valve</li> <li>V13 Odorant Storage Tank Blanket Gas Isolation Valve</li> <li>V14 Expansion Tank Drain Valve</li> <li>V15 Odorant Storage Tank Supply Isolation Valve</li> <li>V16 Gas Supply Isolation Valve (Black Knob)</li> <li>V17 System Odorant Supply Isolation Valve</li> <li>SV1 Pump Actuation Pilot Solenoid Valve</li> <li>SV2 Fill Valve Solenoid Valve</li> <li>PT1 Expansion Tank Pressure Transmitter</li> <li>PT2 Odorant Inlet Pressure Transmitter</li> </ul>
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# Services and Upgrades

## Results-Oriented Service and Support

YZ Systems offers full technical service and support for all of our products. Our global staff of experienced engineers, sales, customer services and representatives are ready to assist you.

In addition, YZ systems offers the NJEX system training program. The program includes onsite equipment operation and maintenance training for up to 15 employees. Manuals and employee materials, travel, and expenses are included.

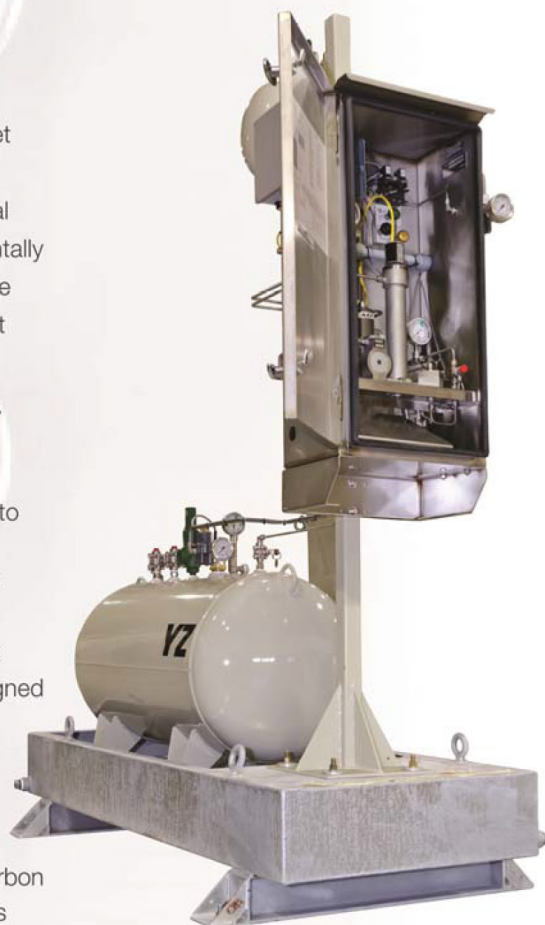
## One Source for Your Odorization Needs

We detail the most complete line of auxiliary equipment found on the market today. We design, manufacture and support systems complete with optional injection probe assemblies, environmentally safe containment skid packages, a wide range of ASME tanks, a paperless audit trail device and more.

- **NJEX Bulk Odorant Storage Tanks.**

We offer ASME-code-stamped bulk odorant storage tanks ready for fast delivery. These tanks are engineered to interface with the NJEX system and feature capacities ranging from 75 to 37,854 liters (20 to 10,000 gallons). Each tank is equipped with our NJEX fitting and valve package that is designed for high-volume odorant use. Field installation is also available.

- **NJEX Secondary Containment Skid Packages.** Our secondary containment skid is constructed of carbon steel and then hot-dip galvanized. This unit provides 110% of tank capacity.



## Sentry4 Monitoring Software

Sentry4 is a powerful tool allowing any organization the ability to remotely monitor in "real time" the operation of every NJEX installation. It provides the ability to change operating parameters, perform diagnostics and print multiple reports from a central location.

The NJEX System is capable of performing complex instructions quickly and efficiently. The mechanical tasks of injection, self-monitoring, communicating problems, and writing of reports have all become integrated logic. Such tasks include:

- System start/stops
- Daily odorant usage
- Hourly odorant usage
- System parameters
- System alarms





**Master Controls, Inc.**

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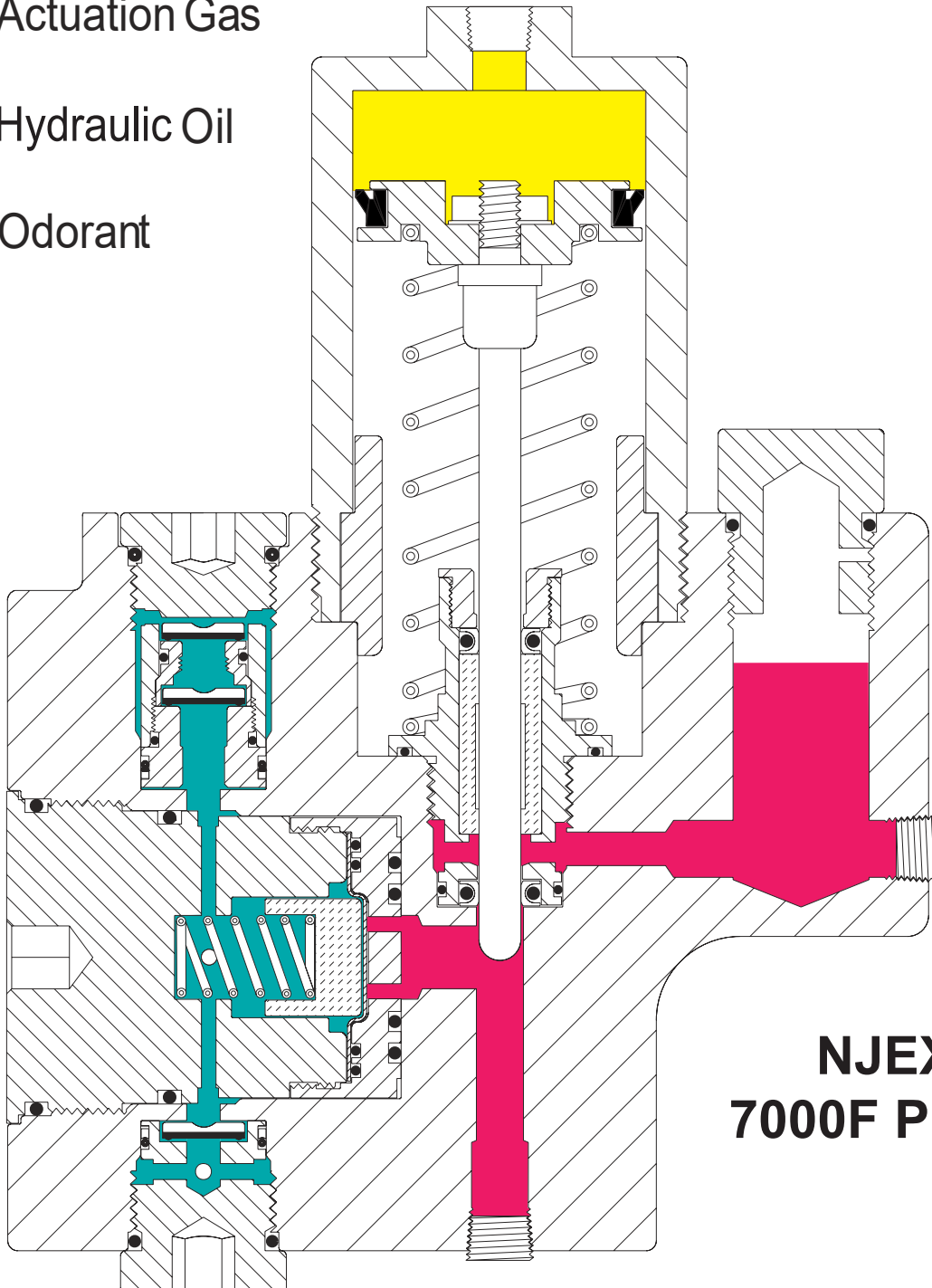
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[www.mastercontrolsinc.com](http://www.mastercontrolsinc.com)

 Actuation Gas

 Hydraulic Oil

 Odorant



**NJEX  
7000F Pump**