



Protected under US Patent 7,056,360 (others pending)

# ODORIZATION Formula for Safety

Small  
Dose Size

+

High  
Frequency

=

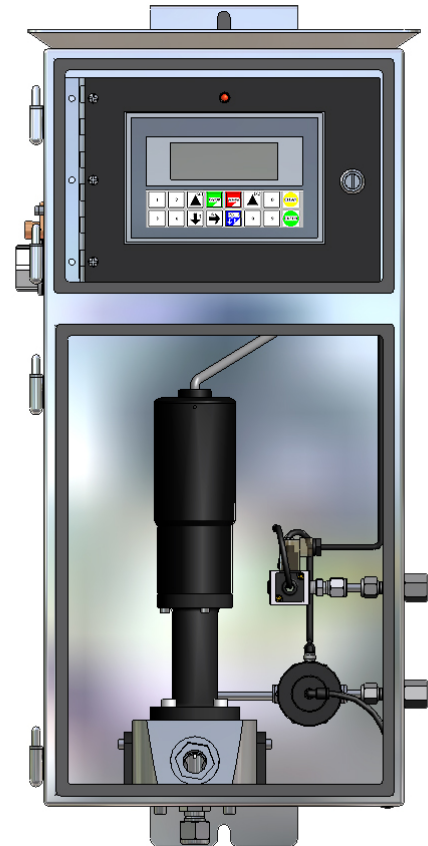
High Turn Down  
with SAFETY



- Capacity at .5#/mm
  - Low: Zero
  - High: 1,500 mscfh
- Small dose size and high frequency
  - No seasonal adjustments
  - No large dead-times between doses
  - Accurate odorization at all flow rates

## Simple Advantages

- **Two moving parts** exposed to odorant
  - Metering valve
  - Isolation valve
- **Comfort**
  - You see the drop as it falls and is counted
  - You control the process
- **Friendly neighbors**
  - No exhaust gas
  - No smell
  - No noise



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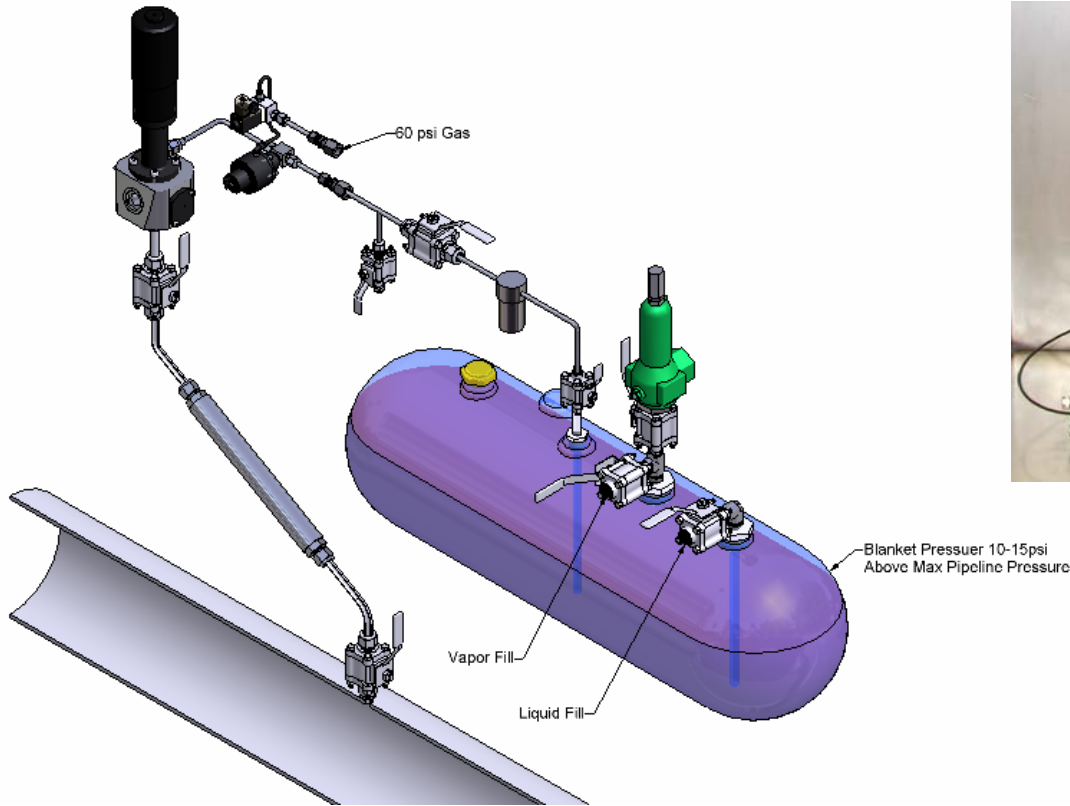
 **Zeck Systems, LLC**  
ODORANT INJECTION  
TECHNOLOGY  
*Simple—Accurate—Better*



# ODORIZATION

## Simple & Reliable

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9999 Site Name			
Z9000 Odorizer Overview			
10/06/2006	16:25:37	Gas Flow Rate (mascfh)	94.813
4.60	3.17		
24	110	Injection Rate (#/mmscfh)	0.50
Status (green - on)	<span style="background-color: green; color: black;">██████████</span>		
Remote Stop (red/active)	<span style="background-color: red; color: black;">██████████</span>	Lbs Odorant (since msg)	0.0035
Alarm			<input type="button" value="Reset"/>
Purge			
Isolation Valve	<span style="background-color: green; color: black;">██████████</span>		
Valve Position (target)	0.33	<span style="background-color: green; color: black;">██████████</span>	
Valve Position (actual)	0.33	<span style="background-color: green; color: black;">██████████</span>	
Zone	Dmp Mode		
1		Zone 1 is the most accurate / Zone 3 is the most responsive	
Drops Remaining	13	At zero the valve will adjust for accuracy	
Elapsed Time	0	Seconds since the last drop fell	
Last Interval	2.688	Seconds between the last two drops	
Gas Until Injection	0.977	ms of gas that must flow before another pump move	
Target Drops	9	Calculated dose size during the next pump move	
Dose Calculation		Yellow when calculating the first dose size	
Current Drops	15	Actual drops that fell during the last pump move	
Tune with an or all Unit is On			

Browser Interface

- Storage & Isolation**—Odorant is pushed from the storage vessel to the spring closed isolation valve.
- Metering**—When the isolation valve is opened, odorant flows to the metering valve. The encapsulated servo opens the metering valve to achieve the desired injection rate.
- Measurement**—The optical array (not exposed to odorant) accounts for every drop as it falls into your gas stream.
- Process Control**—The controller accurately controls the process and reports the results. Alarm conditions are reported and provide the assurance and comfort mandated by the gas industry.
- HMI**—Everything can be monitored and controlled

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