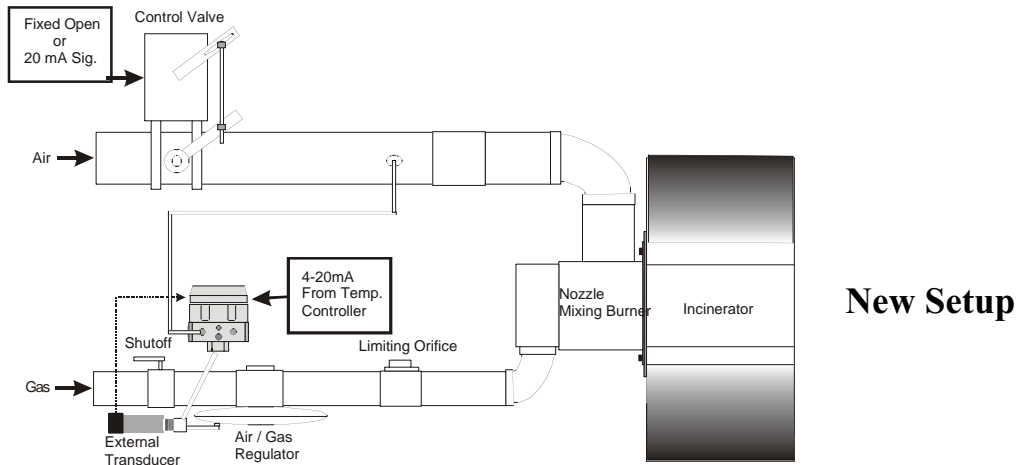
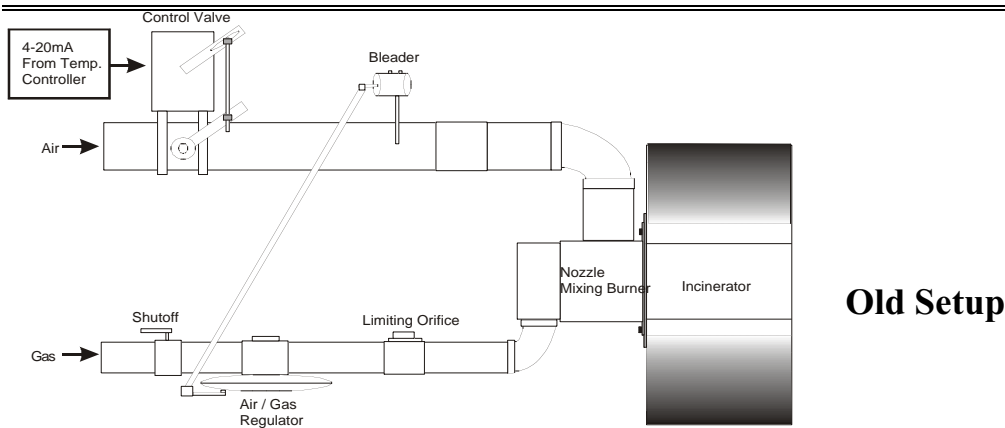


**D-MAP 2-01**  
**Wastewater Management**  
**Using ER3213 and ER3203**

(Key Words: waste water, sewage, incinerator, control valve)

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 ELECTRONIC CONTROLS DIVISION

- Customer:** Municipal waste water treatment plants
- Application:** Control of the incinerator's temperature by adjustment of air supply through a control valve
- Problems:**
- Excessive gas usage
  - High cost
  - Manual adjustment causing delays and laborious setup
- ECD solution:** ER3213 (ER3000 with high flow solenoid valves) + external transducer
- Benefits:**
- More efficient system
  - Less gas consumption
  - Cost reduction
  - Automated system with higher accuracy
- Potential market:** As many as 4-16 systems (ER+transducer) per incinerator, each plant has multiple incinerators
- Potential locations:** Urban treatment plants where storage of methane is not allowed, natural gas or propane pressure control using similar regulators or valves



**D-MAP 2-01**  
**Wastewater Management**  
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**Application Problem:** Sludge and polymer lines at wastewater treatment plants feed through mixers to the belt presses, which feed to the incinerator. Currently the incinerator's temperature is adjusted by a controller sending a 4 - 20 milliamp signal to a control valve, which regulates the amount of air going into the incinerator. A line with a bleeder installed comes from the air pipe to the dome of the gas regulator. Manually turning a bleed screw will cause a pressure drop to the dome of the gas regulator resulting in a leaner mixture. With the bleed screw shut off, the gas pressure to the incinerator is equal to the air pressure to the incinerator.

**APPLICATION SOLUTION:** By using an ER3000 to control the dome pressure of the gas regulator, the controller can send a signal to the ER3000 to limit the gas going through the system while maintaining the air pressure. By keeping the air pressure at its peak and adjusting the gas pressure, the incinerator will run more efficiently. The turbulence from the air pressure in the incinerator causes the sludge to burn better.

By using the air pressure as the inlet pressure to the ER3000, the maximum gas pressure could never be greater than the maximum air pressure. The ER3213 is used in this application to ensure faster responses (higher flow solenoid valves). With the span and zero features of the ER3213, the unit can be set so that 4 milliamps equals 4 osi (ounces per square inches) and 20 milliamps equals 16 osi. Using a 5-psig external transducer with 0.25% accuracy, the control accuracy of +/- 0.2 osi on the dome of the gas regulator is easily achieved.

## **A SECOND APPLICATION**

### *ER3000 controlling belt presses at Municipal Wastewater Treatment Plants*

*Sludge and polymer lines at wastewater treatment plants feed through mixers to the belt presses, prior to incineration. This is a corrosive application that requires valves to control flow as instructed by proportional monitors. Over-loading the belt presses with waste makes for a nasty cleanup. So, if for any reason the belt press goes down, these valves must shut down.*

*A modified ER3000 (ER3203) mounted to a flow booster (269-529-04) may be used to control the air actuated valve and eliminate the overload risk. The ER3203 is an ER3000 that has a normally open solenoid mounted to its gauge port. The customer connects the inlet pressure to both the ER3203 and to the solenoid. Power is also applied to the ER3203 and to the solenoid, which closes the solenoid allowing the ER3203 to function normally. If the customer should lose power, the solenoid will open allowing the inlet pressure to close the air actuated valve. The ER3203 is also setup to go into fail-safe if the analog setpoint signal is interrupted.*