

JCS Industries Inc.

Model 4200 Gas Vacuum Chemical Feeder



- **A wide flow range:
0 to 2,000 PPD**
- **High accuracy:
+/-4% of Full Scale**
- **System flexibility: three control
modes**
- **Vacuum feed: safety and zero
leaks**
- **Battery backup: >2.5 hours
of backup**
- **Programmable microprocessor**
- **Multiple failure mode alarms**

The JCS Industries Model 4200 Gas Vacuum Chemical Feeder mixes and feeds gaseous chemicals commonly used for water and wastewater disinfection accurately, reliably and safely. The system is comprised of a vacuum injector to safely introduce the gas into the feed-water stream, a reversing servo motor coupled with a V-notch valve to regulate the chemical flow rate, a calibrated rotameter to visually indicate the flow rate, and a control module for complete electronic control and communications.

Control Modes

Flow Proportional Control – An external 4-20mA DC signal is connected to the feeder. Chemical feed is controlled at a rate that is proportional to the incoming signal. Dosage control is available to adjust the feeder output 0.2 to 4.0 ratio.

Residual Control – An external 4-20mA DC signal from a residual analyzer is connected to the feeder. Chemical feed is controlled via the setup menu in the residual mode. Parameters, such as sample lag and target residual, are entered in the controller for responsive control.

Compound Loop Control – External 4-20mA DC signals from both flow meter and residual analyzer are connected to the feeder. Chemical feed is controlled via the setup menu in the compound loop mode. Parameters such as sample lag, target residual, and flow over-ride are entered in the Model 4200 Controller for responsive control.

Technical Specifications Model 4200

Range		➤	PPD ranges of 25 PPD to 2,000 PPD are available in specific increments
Accuracy		➤	+/- 4% of full scale
Power Supply		➤	110/220 VAC, 50/60Hz
Battery Backup		➤	12V, 2.5 Amp Hours
Operating Temperature		➤	32° to 120° degrees F
Enclosure Protection		➤	IP 66,67
Display		➤	Backlit LCD, 16 characters X 2 lines
Connections	0 to 2,000 PPD Over 2,000 PPD	➤	0.5" NPT 1.0" NPT
Inputs	Flow, Residual Chlorine Remote Start/Stop	➤	4-20mA DC Volt Free
Outputs	System Failure	➤	Power supply, chemical feed, drive motor, and set point—all volt free
Dimensions (includes Mounting Board)		➤	12.0"W x 33.0"H x 7.5"D w/ floor stand 14.0"W x 71.5"H x 7.5"D
Weight		➤	26 lbs (11.8 kg) (+10kg) panel floor stand

Characteristics

The water stream to be treated passes through the injector, creating a vacuum that provides the motive force to draw the disinfection gas to be fed through the entire system. The injector creates strong turbulence, rapidly and thoroughly mixing the gas into the water stream. The chemical flow rate to the injector is regulated using an annular, tapered V-notch and orifice plate. The area through which the gas/water mixture can pass, and hence the chemical flow rate, is varied by moving the V-notch through the orifice plate, which is achieved by directly coupling a reversible servo type motor using a rack and pinion gear. The motor is controlled by a micro-processor based control unit, which also provides the user interface. The chemical flow rate through the system is monitored using a calibrated gas rotameter tube and float. The controller retransmits the valve position to any external device.