

# *Continuous, Reliable H<sub>2</sub>S Monitoring in Wet Conditions*



*Model Q45S*

H<sub>2</sub>S Monitor

# Eliminate water vapor blinding for accurate H<sub>2</sub>S Monitoring

Odor control in wastewater treatment plants and sewage collection systems often requires the use of scrubber systems. Many of these scrubbers employ a wet process using hypochlorite solution to remove H<sub>2</sub>S from air streams prior to discharge. Monitoring the hydrogen sulfide in both inlet and discharge air has presented problems for standard sulfide gas sensors. ATI has developed sensor technology that now allows continuous monitoring in this type of application, where condensing humidity conditions are normal.

Designated Model Q45S, the odor monitoring system uses our standard Q45 electronics package in conjunction with a special "Wet H<sub>2</sub>S" sensor. Measurements may be made either at the inlet to scrubber systems where concentrations can run as high as 200 PPM, or at the outlet where concentrations are ideally down below 0.5 PPM. Special sensor configurations are available for either duct insertion or flowcell use.

Because Q45S systems are often monitoring gas streams with condensing levels of water vapor, provision has been made for eliminating water droplets from the sensor that could present a barrier to the diffusion of H<sub>2</sub>S into the sensor. An optional air-purge system controlled by the transmitter will periodically deliver a blast of air across the critical sensor surfaces to remove water droplets. This system insures a clear gas diffusion path to the sensor and reliable measurements on a continuous basis.

Q45S transmitters provide a large, easy to read LCD display of H<sub>2</sub>S concentration with a second display line to indicate other status information. An alarm contact is available for external alarming functions, and a second contact may be used for alarm purposes if the air purge system is not implemented in a given application. An isolated 4-20 mA output is provided for remote data transmission, and output spans are user programmable for ranges of 0-2,000 PPM up to 0-200.0 PPM.

A special battery-powered version of the Q45S is available for use in temporary installations. This system runs on an internal 9 volt



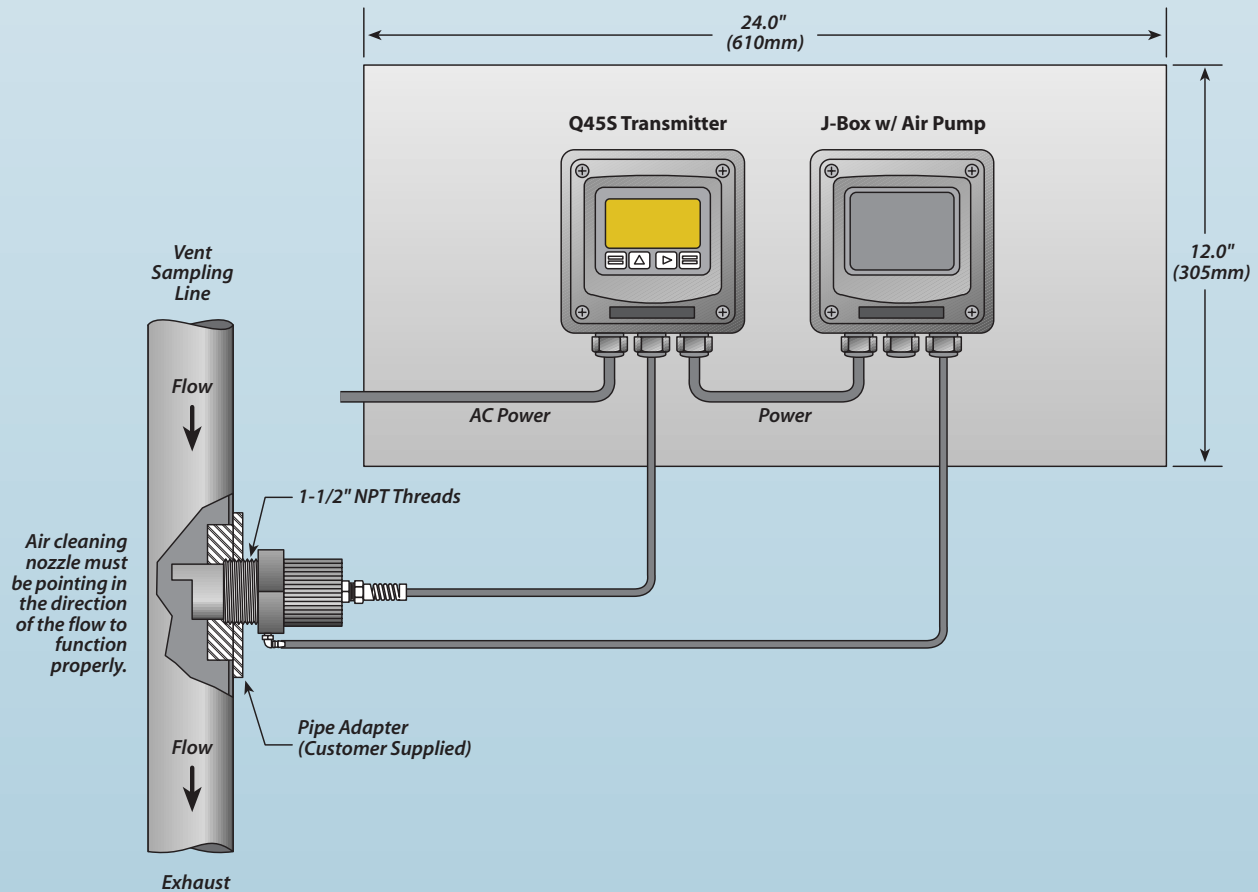
Q45S Monitor and Sensor



An optional air-purge system controlled by the transmitter will periodically deliver a blast of air across the critical sensor surfaces to remove water droplets.

battery and contains a data-logger for collecting information on existing air collection systems. A standard 9 volt battery will operate the unit for 4 days, while a 9 volt lithium battery will provide about 10 days of operation. Data is easily downloaded to a standard PC using software supplied with the unit.

# Installation



# Features

- **Special Wet H<sub>2</sub>S Sensors:** System utilizes a special sensor designed to operate in condensing gas streams without the water vapor blinding typical of standard sulfide sensors.
- **Automatic Sensor Air Purge:** An automatic system for purging accumulated droplet water from the face of the sensor insures long-term operation without loss of sulfides in condensed water on the sensor face.
- **Two Internal Alarm Relays:** Q45S monitors contain relays that can be used for local alarm functions. One relay is used to control the air-purge system and the other is available for external alarms. Relays are programmable for setpoint, hysteresis, and delay functions.
- **LCD Display:** Gas Concentration is displayed in large, easy to read numbers. The display also provides a second information line indicating raw sensor output, mA output, and other information. The display also allows easy programming using the 4 keys located on the front panel.
- **Internal Data Logger:** Available in the battery-powered version, the data-logger will store up to 10 days of data at 1 minute storage intervals.
- **Output Simulation:** Transmitter analog output can be set to user definable values and relay outputs can be set to specific states for complete simulation of detection system operation. Output and alarms may also be inhibited for maintenance and calibration.
- **Weather-proof Nema 4X Enclosure:** Transmitters are designed for operation in typical wastewater treatment plant environments. The electronic assembly is CSA/UL certified.



# Specifications

Gas Type:	Hydrogen Sulfide
Sensor Type:	Special wet gas sensor design
Display:	0-2.000 PPM, 0-20.00 PPM, 0-200.0 PPM (programmable)
Response Time:	90% in 120 seconds
Accuracy:	Generally $\pm 10\%$ of value, but limited by available calibration gas
Sensitivity:	0.1 PPM minimum
Zero Stability:	$\pm 0.04$ PPM
Electronic Linearity:	$\pm 0.5\%$
Span Drift:	Dependent on operating environment but generally less than 3% per month
Analog Output:	Isolated 4-20 mA, 575 ohms maximum
Power:	115 or 230 VAC, 50/60 Hz, 5 VA max. Optional: 9 VDC battery-powered with data logger
Alarm Relays:	Two SPDT, 5 A @ 230 VAC resistive
Relay Coil:	Programmable either normally energized or normally de-energized
Enclosure:	Nema 4X Polycarbonate, Wall, pipe, or panel mounted
Controls:	4 membrane switches on front of monitor.
Operating Temperature:	-20° to +50° C
Operating Pressure:	-0.2 to 10 PSIG
Weight:	4 Lbs (1.8 Kg.)

## Ordering Information: Model Q45S-A-B Wet Hydrogen Sulfide Monitor

### Model Q45S-A-B Wet Hydrogen Sulfide Monitor

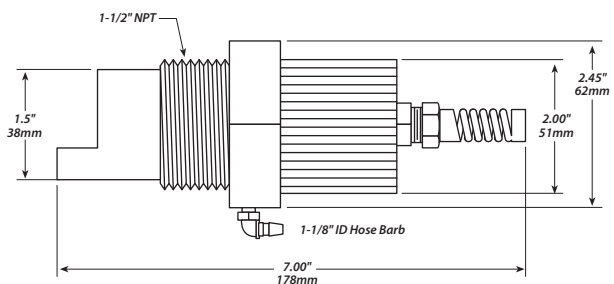
#### Suffix A - Power

- 1 - 24 VDC, 2-wire (single output only)
- 2 - 115 VAC with 2 Relays & 2 Outputs
- 3 - 230 VAC with 2 Relays & 2 Outputs
- 4 - 9 VDC Battery with two 0-2.5 V Outputs
- 5 - 9 VDC Battery with internal data logger & software

#### Suffix B - Air Purge System

- 1 - No air pump
- 2 - With air pump (not available with battery option)

## Dimensions

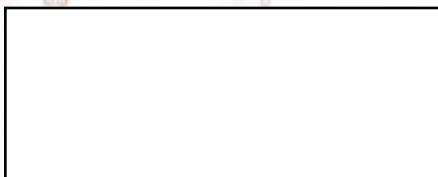


## Accessories

- 00-1251 - Calibration Adaptor
- 00-0180 - Calibration Kit



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