Maestro

Vigilante AQS™
Air Quality Stations

Engineered for the harsh underground mine environment.

The world's first total air quality monitoring station that measures multiple gas concentrations, airflow, wet bulb and dry bulb temperature and atmospheric pressure with a single digital IP connection.

Improved real time data means more time at the face.

Maestro
Digital Mine

The Vigilante AQS™ – designed by veteran engineers who know mining.

A "fit for purpose" solution, not simply a group of instruments hobbled together on a plate.

Light weight and portable for easy movement

The light weight design allows the system to be either fixed mounted or portable as the mine continues to advance.

A complete system mounted on a rigid aluminum back plate typically weighs between 10 to 30 lbs (5 - 15kg).

Reliable and maintainable

The digital gas sensors can be "hot swapped" under full power without the requirement of skilled technicians or electrically isolating the equipment. This allows the sensors to be calibrated on surface instead of lugging around calibration gas bottles, regulators and tubing.

Each sensor contains a non-volatile memory chip that stores calibration data, dates, hours of use, minimum and maximum gas concentration and temperature to provide both advanced diagnostics functions and a digital calibration record.

Flexibility means one AQS for multiple applications

Mix and match multiple digital sensors for gas, airflow, humidity, dust concentration, worker heat stress and more. Measure multiple airflows from intersecting drifts with the same instrument. Control and monitor fans, louvers or doors – all within the same instrument.
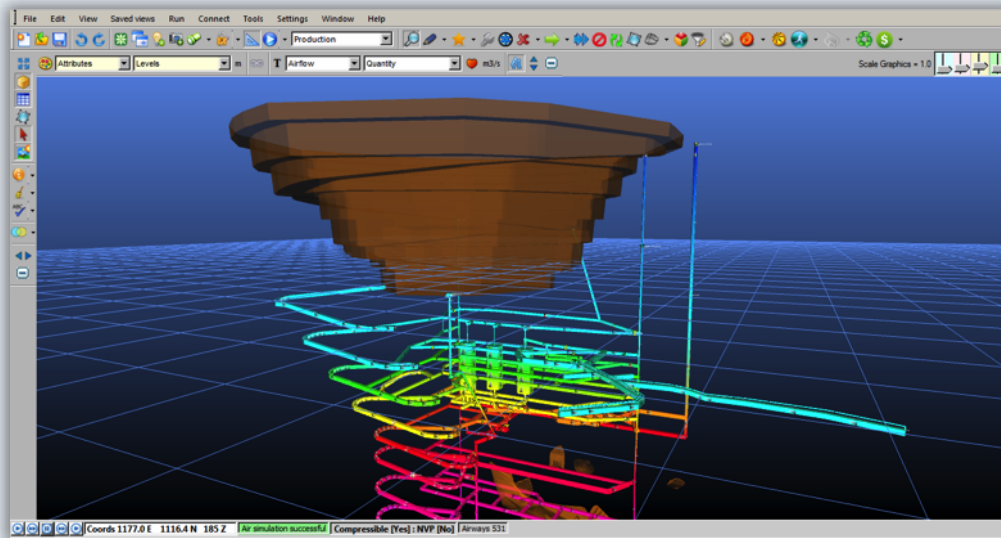
Universal and open communications provide information where and when you want it

Integrate simply to any SCADA, PLC, DCS, PLS or HMI system. Even OSI's PI. Whether it is Ethernet TCP/IP, RS485 serial, Leaky feeder or analog – the Vigilante AQS™ does it with grace and efficiency. No hooks attached.

Gas and humidity sensors can be mounted integral to the Vigilante AQS™ enclosure or remotely up to 1200 metres in distance.

Modbus   EtherNet/IP   RS 485   4-20 mA

Integrate directly in Ventsim LiveVIEW™ using MaestroLink™ Basic

Ventsim has over 1200 licensed sites around the world and is considered the leading underground ventilation package, providing ease of use in addition to its numerous features.

The LiveVIEW™ module provides a number of additional functions to enable the software to connect externally to Maestro devices and display the ventilation data within the program. Real time airflow, temperature, gases or barometric pressure are easily viewed on one platform.

LiveVIEW™ also provides an interface to simulate ventilation models using captured sensor data, offering an ability to display downstream simulated results from actual data.

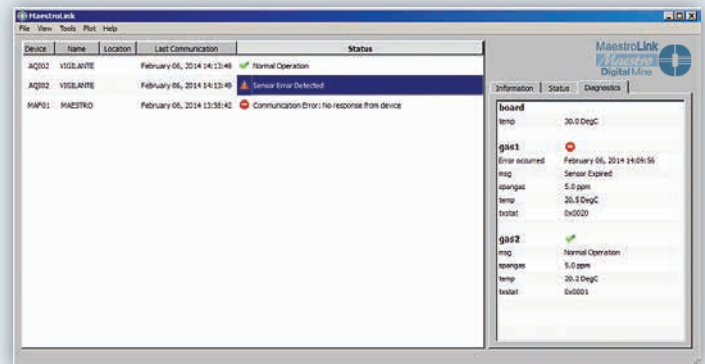## Modular design means easy expansion today or tomorrow

Each Vigilante AQS™ has eight ports for the direct connection of digital airflow, gas, pressure and humidity sensors and even remote I/O modules.

- Adding additional sensors is simple as a few clicks on the built-in web page.
- Adding an AD4 Remote I/O Module will allow double fail-safe control to regulators, doors or fans.
- Adding a RTD Module will allow the monitoring of fan stator and bearing temperatures.

All of this can be added as the mine continues to expand or change from remote environmental monitoring to full VOD control.

Reduce your operating capital with real time diagnostics

The Vigilante AQS™ provides complete diagnostic information on every air quality station right on your desktop by using MaestroLink™ – in real time – right down to the cable and sensor level. Deploy maintenance people when needed, to the right area and with the right replacements.

Leasing solutions – made simple

Not all mines want to own and maintain non-production related equipment.

The Vigilante AQS™ is for hire for either short-term or long-term rentals. Eliminate capital expenses and move to small monthly or weekly operational rental rates. Replacement – fully calibrated smart gas sensors are rotated out on a bi-annual basis or as required.

Communication

- Open communication protocol for easy connection to any PLC, SCADA, HMI, DCS or PC based system
- Ethernet Modbus TCP protocol
- Modbus RS-485 serial
- Optional Allen Bradley EtherNetIP™ protocol
- Optional Wireless 802.11 g Ethernet
- Optional Wireless Leaky feeder VHF or UHF

Power Requirements

- 110 to 220 VAC, 50/60 Hz CUL General purpose power supply
- Less than 300 milliamps

Physical Parameters

- Vigilante AQS™ Enclosure outside dimensions 12-1/2" W x 17" H x 6" D
- NEMA 4X / IP 66 enclosure rating
- -20 to +60° C operating temperature range

Airflow Sensors

- Digital ultrasonic transit time airflow sensors
- Modbus RS485 communication to Vigilante AQS™
- Maximum of 300 metres separation distance with power booster
- See individual airflow specifications sheets for additional information on ranges and accuracy

Gas Sensors

- Digital electrochemical and Infrared gas sensors
- Modbus RS485 communication to Vigilante AQS™
- Available as integral or remote mounted
- Maximum of 1200 metres separation distance
- CO, NO2, NO, O2, H2S, SO2, ClO2, CL2, NH3, CO2, LEL Methane, LEL Propane, HCN sensors are available
- See individual gas specifications sheets for additional information on ranges and accuracy

AD4 Analog/Digital remote I/O Module

- Four (4) analog inputs, 4-20 mA or 0-10 VDC, jumper selectable, loop powered or four wire devices
- Four (4) analog outputs, 4-20 mA , isolated
- Four (4) discrete inputs, two and three wire (24 VDC and 120 VAC)
- Four (4) discrete outputs, 120-240 VAC or 24 VDC , Form C, SPDT relay, 8 AMP@ 250 VAC, 5 AMP@ 30 VDC
- Modbus RS-485 communication to Vigilante AQS, 4 wire connection
- IP65, IP66, NEMA 1,2,4,4X,12,13 enclosure rating; ABS/PBT Blend, UL94 5VA flammability rating
- Complete with aluminum mounting plate and four (4) ½" mounting holes
- Total envelope size, 10" wide x 12" high x 7" deep, 5 lbs. (2.2 kg) weight

RTD12 remote I/O Module

- Twelve (12) 2 or 3-wire , PT100 ohm RTD temperature inputs
- Modbus RS-485 communication to Vigilante AQS, 4 wire connection
- IP65, IP66, NEMA 1,2,4,4X,12,13 enclosure rating; ABS/PBT Blend, UL94 5VA flammability rating
- Complete with aluminum mounting plate and four (4) ½" mounting holes
- Total envelope size, 10" wide x 12" high x 7" deep, 5 lbs. (2.2 kg) weight