



**More time at the Face.**

## MaestroLink™ Basic

MaestroLink™ Basic allows a visual interface to Maestro's Air Quality Stations right on the ventilation team's desktop.

Simply plug in Maestro Vigilante AQS™ air quality

**“No more custom requirement of HMI or SCADA screen development.”**

**“No more six or twelve month waiting time.”**

stations or AirScout™ airflow meters into any network switch and allow MaestroLink™ to scan the network and self-populate the equipment.

Within moments, you will have live information on your desktop.



Device	Name	Location	Last Communication	Status
AQI02	VIGILANTE		February 06, 2014 13:59:30	✔ Normal Operation
AQI02	VIGILANTE		February 06, 2014 13:59:30	⚠ 2 Sensor Errors Detected
MAF01	MAESTRO		February 06, 2014 13:58:42	✖ Communication Error: No response from device

**MaestroLink**  
mine ventilation

Information | Status | Diagnostics

Name:

Location:

Module Type:

IP Address:

MAC Address:

Device ID:

SW Rev:

HW Rev:

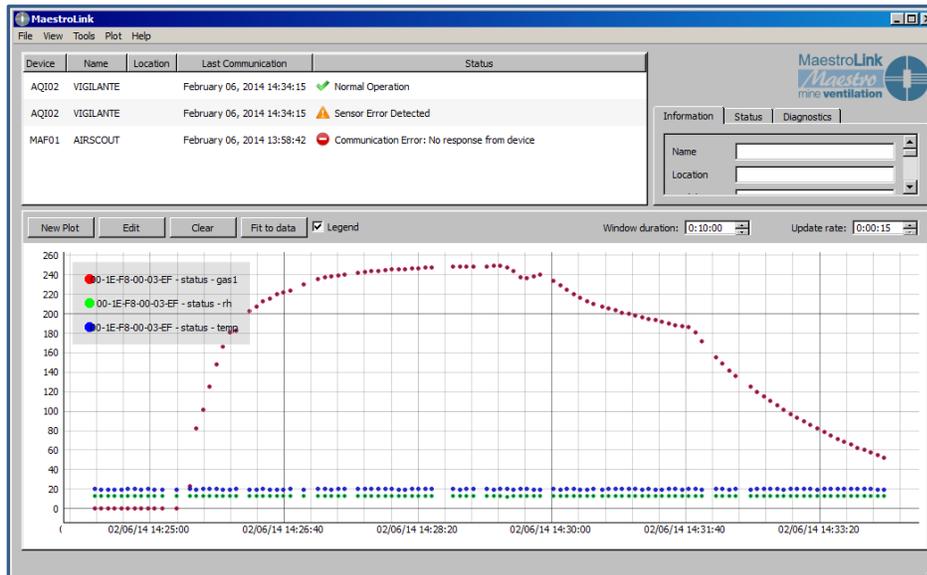
Description:

87 Magill Street, Sudbury, Ontario, Canada P3Y 1K6  
+1 705 805-6918

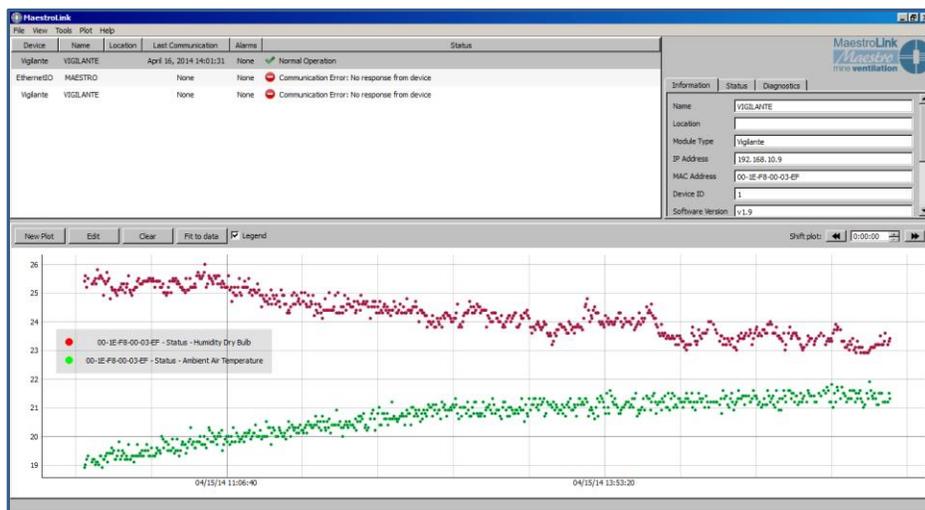
[www.maestrodigitalmine.com](http://www.maestrodigitalmine.com)

**Increase Safety and Productivity**

## Real time data



MaestroLink™ also provides and stores historical information so you can easily go back in time to access ventilation events.



The information is stored in a MS SQL database which can serve this data to any other software platform like Ventsim, OSIsoft PI, Rockwell Factory Talk, GE CIMPLICITY, Wonderware, Citect, HMI or any industrial SCADA system.

*“From my standpoint, it's a very good tool to validate the ventilation model and make the required adjustment if needed.*

*Being able to read in the model, both live airflows and gas concentrations helps to react fast and take the appropriate measures when a problem occurs in the ventilation system. It also helps to ensure good air quality at any time.”*

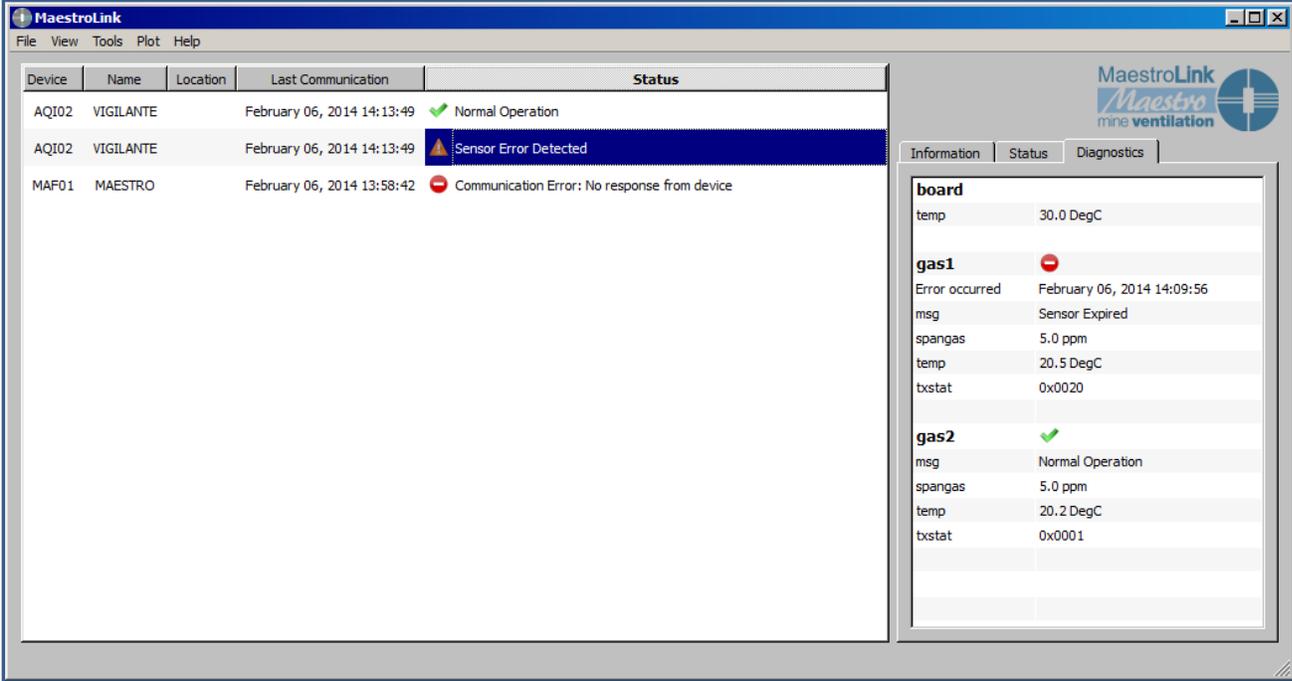


*Ivan Edoun  
Mine Ventilation  
Engineer*

*AuRico Gold Inc.  
Ontario, Canada*

## Real time diagnostics

The additional benefit of MaestroLink™ is real time based diagnostic functions. MaestroLink™ will provide the health status on the complete air quality station right down to the gas sensor or airflow sensor.



The screenshot shows the MaestroLink software interface. On the left, a table lists device status:

Device	Name	Location	Last Communication	Status
AQI02	VIGILANTE		February 06, 2014 14:13:49	✓ Normal Operation
AQI02	VIGILANTE		February 06, 2014 14:13:49	⚠ Sensor Error Detected
MAF01	MAESTRO		February 06, 2014 13:58:42	✖ Communication Error: No response from device

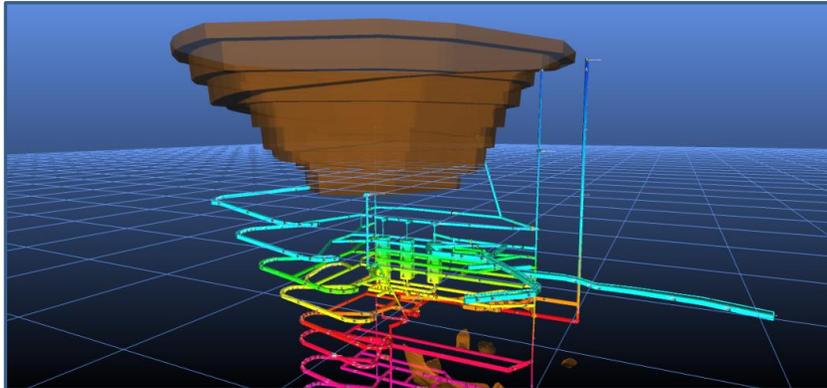
On the right, the 'Diagnostics' panel shows details for the selected 'gas1' sensor error:

- board**
  - temp: 30.0 DegC
- gas1** (Error)
  - Error occurred: February 06, 2014 14:09:56
  - msg: Sensor Expired
  - spangas: 5.0 ppm
  - temp: 20.5 DegC
  - bxstat: 0x0020
- gas2** (Normal)
  - msg: Normal Operation
  - spangas: 5.0 ppm
  - temp: 20.2 DegC
  - bxstat: 0x0001

Real time diagnostics allow the ventilation department to deploy maintenance in the proper location and with the proper replacement equipment while analog based systems require on-site inspections to determine failure conditions.

## Ventsim Visual™ - LiveVIEW™ Integration

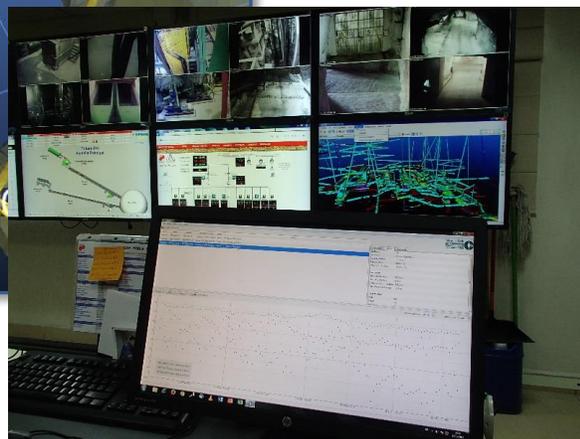
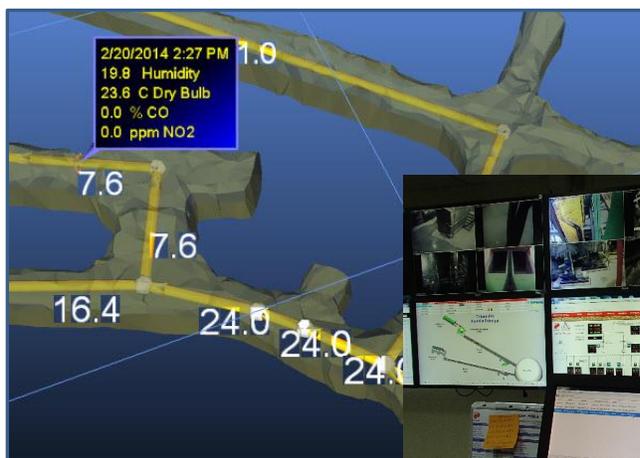
Ventsim Visual™ is an advanced 3D mine ventilation modeling software suite. The modeling software provides a full toolbox of tightly integrated utilities to analyse ventilation flows, heat, contaminants and financial aspects of mine ventilation. Building on the success and experience of fifteen years of Ventsim implementation at over 1000 sites, Ventsim Visual™ goes a generation further in its approach to ventilation simulation and analysis, and sets a new standard in ventilation software design and implementation.



LiveVIEW™ is an extension of Ventsim Visual™ software, and will operate in conjunction with the main Ventsim Visual™ license.

LiveVIEW™ provides a number of additional functions to enable the software to connect externally to Maestro Vigilante AQS™ and AirScout™ instruments and display the data within the Ventsim model.

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



*“Real time integration and display of underground ventilation data is a goal we have had at Ventsim for over 15 years, however lack of standard protocols and connection integration has always been a stumbling block despite many of our customers wanting this ability.*

*For the first time, Maestro have introduced a range of sensors and integration systems that will allow connection directly with our software and customer ventilation models, allowing full 3D, real-time display and simulation of atmospheric conditions underground based on actual data.*

*This is an exciting step forward and offers Ventsim and Maestro customers real improvements in mine ventilation safety and management.”*



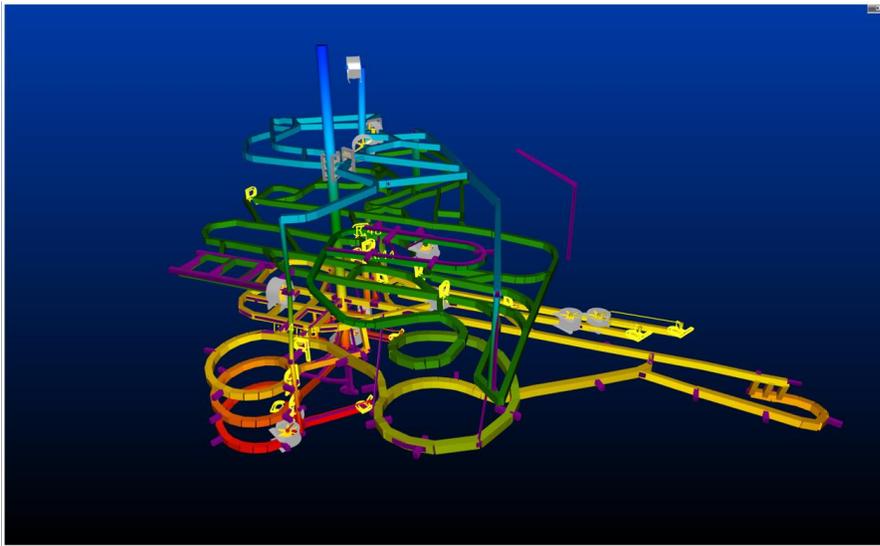
**Craig Stewart**  
Developer of Ventsim

## VUMA3D-live™ - Integration

BBE Consulting is a specialized mine ventilation, mine cooling and refrigeration consultancy with over 27 years' experience gained in the deepest and hottest mines in the world.

As mines continue to get deeper and warmer, there is an increased dependency on accurate data for proactive ventilation management. With that also comes the challenge of finding a mine ready data acquisition system that is mine proof, easily maintained with a low OPEX requirement.

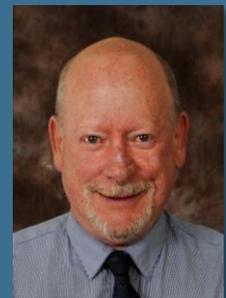
Safety and productivity in underground operations are highly dependent on the environmental conditions in which employees work. VUMA3D-live allows for real-time risk management and rapid response to any alarms. In a large mine it is not always practical or cost effective to install and maintain monitoring instruments in every underground intake and return airways.



Therefore, the use of real-time ventilation software such as VUMA3D-live is important to predict environmental conditions downstream of a limited number of strategically placed measuring stations. Not only can this software predict the conditions in workplaces, it also provides a 3D graphical interface to better visualise the results for temperatures, velocities, dust and gas concentrations, etc.

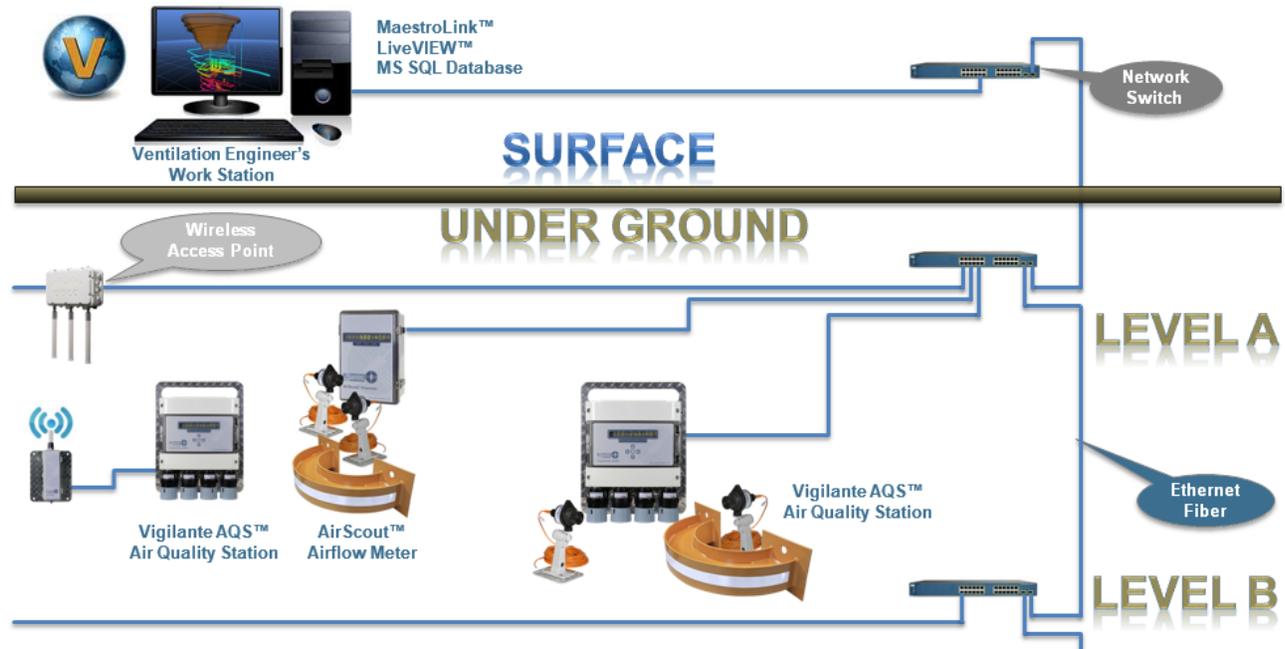
*"From my perspective, Maestro Digital Mine offers a leading solution in this sector. The Vigilante AQS™ Air Quality Station is a mine-hardened system purpose-built for the underground mining environment. The sensors are not only designed to be highly accurate in deep mining but also are easily maintained using high-level diagnostics available from surface."*

*Furthermore the systems integrate into VUMA3D-live, which provide a unique value proposition of being able to view an accurate real-time model of the mine. This further empowers the ventilation engineer by enabling them to monitor current real time conditions together with the simulation of various "what if" scenarios, with a high degree of certainty. Real time monitoring, using these systems, can result in increased production, lower energy costs and increased pro-active health and safety awareness."*



**Dr. Steven Bluhm**  
 Founder and CEO  
 BBE Group

## Typical network architecture drawing



### MaestroLink™ Basic - System Requirements for 32-bit

- Microsoft® Windows Server 2008, 2012 or Microsoft® Windows® 7 Enterprise, Ultimate, Professional, or Microsoft® Windows® XP Professional (SP3 or later)
- For Windows 7: Intel® Pentium® 4 or AMD Athlon™ dual-core processor, 1.0 GHz or higher with SSE2 technology
- For Windows XP: Pentium 4 or AMD Athlon dual-core processor, 1.6 GHz or higher with SSE2 technology
- 2 GB RAM (4 GB recommended)
- 30 GB free disk space for installation
- 1,024 x 768 display resolution with true color (1,600 x 1,050 with true color recommended)
- Microsoft SQL Server 2012 Express Edition x86 (Maximum 10 GB of data store)
- Microsoft SQL Server 2008 and 2012 (licenses required)
- 1x 10/100 Ethernet Port
- Microsoft® Internet Explorer® 7.0 or later web browser
- Install from download or USB

### MaestroLink™ Basic - System Requirements for 64-bit

- Microsoft® Windows Server 2008, 2012 or Microsoft® Windows® 7 Enterprise, Ultimate, Professional, or Microsoft® Windows® XP Professional (SP3 or later)
- AMD Athlon 64 with SSE2 technology, AMD Opteron® processor with SSE2 technology, Intel® Xeon® processor with Intel EM64T support and SSE2 technology, or Intel Pentium 4 with Intel EM64T support and SSE2 technology
- 2 GB RAM (4 GB recommended)
- 30 GB free space for installation
- 1,024 x 768 display resolution with true color (1,600 x 1,050 with true color recommended)
- Microsoft SQL Server 2012 Express Edition x64 (Maximum 10 GB of data store)
- Microsoft SQL Server 2008 and 2012 (licenses required)
- 1x 10/100 Ethernet Port
- Internet Explorer 7.0 or later
- Install from download or USB