



Series = **Original Vigilante AQS™ Air Quality Station**

1 to 7 = I/O Slots

VAQS = Vigilante AQS™ Air Quality Station;
Web Page configurable;
Enclosure designed to IP65/NEMA 4X;
Universal power supply (24VDC, 120-240 VAC, 50/60 Hz, PoE);
Push buttons, LED display & status lights;
Integral mounted climate sensor with barometric pressure; pressure compensated humidity; wet & dry bulb temperature; worker heat stress & thermal work limit;
Gas TWA and STEL calculations;
CE Compliant;
Discovery Tool software.

Total of Seven I/O slots available

- NR** = Not required.
 - DR** = Universal drift, tunnel, heater house or shaft type airflow installation; complete with airflow sensors, cables and junction box.
 - LR** = Long range tunnel or drift type airflow installation; complete with airflow sensors, cables and junction box.
 - DM** = Duct mount airflow installation; c/w airflow sensors, cables and junction box.
 - PF** = Primary fan airflow installation; c/w airflow sensors, cables and junction box.
 - Gxxx or RGxxx** = Integral or remote gas sensor, where **xxx** is three-digit code from Table 2. Maximum of six (6) gas sensors per Vigilante AQS™.
 - RRH** = Remote mounted climate sensor with barometric pressure, pressure compensated humidity sensor; relative humidity, wet and dry bulb temperature, worker heat stress & thermal work limit.
 - ADO** = 1 analog output, 3 discrete output relays.
 - ADOLH** = ADO board complete with light and horn alarm (mounted on an integral or remote plate).
 - AD4** = 4 isolated analog inputs & 4 isolated analog outputs, two or three wire devices; 4 discrete inputs and 4 discrete relay outputs; includes an IP65/NEMA 4X enclosure & mounting plate. Two single loop controllers for louver, fan or door controls.
 - AD4PS** = Same as above - includes a 100-240 VAC /24 VDC power supply.
 - PT** = Digital pressure transmitter, 1-1/2" NPT flush mounted stainless steel transmitter. Include full part number with this option. See below pages for details.
 - PPT** = Digital paste or back fill pressure transmitter, 2" NPT flush mounted stainless steel transmitter with a 1/4" plate diaphragm. Include full part number with this option. See below pages for details.
 - DPT** = Digital differential pressure transmitter, 1-1/2" NPT flush mounted stainless steel transmitter. Include full part number with this option. See below pages for details.
 - RTD12** = Twelve (12) 2 or 3-wire, PT100 ohm RTD temperature input module; includes an IP65/NEMA 4X junction box and mounting plate.
- Note 1:** See below pages for airflow sensor types.
Note 2: Maximum of four (4) airflow sets per VAQS.
Note 3: Maximum of two (2) - AD4 and/or two (2) - RTD12 modules per VAQS.
Note 4: Select **NR** if slot position is not used.



8 = Communications

MB-AB = Native on-board Ethernet Modbus TCP/IP and EtherNet/IP™ communication protocols; Standard RJ45 copper connection; All values, inputs and outputs and diagnostics are available through the digital registers.

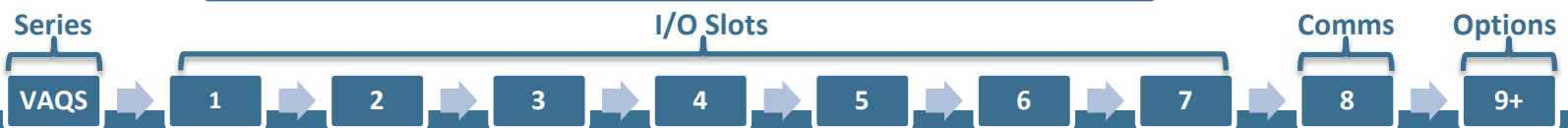
EZN-E = Wireless Ethernet 802.11.

Note 5: See EZ Node™ wireless for more details.

9+ = Options

(Extend matrix as required)

NR = Options not required.
BP = Bumper protection (One required for each drift mounted airflow system).
IM = VAQS and gas sensors mounted on a single aluminum checker plate, c/w stainless steel mounting hardware.
RM = VAQS mounted on an aluminum checker plate and gas sensors are mounted on a second checker plate for remote mounting, c/w stainless steel mounting hardware.
ESA = ESA (Electrical Safety Authority) approval for general purpose applications.
CSA = CSA special approval for general purpose applications.
ES = Labels and documentation in Spanish.
SST = Stainless Steel Tag; 8-lines; 2.5" H x 5.5" W
PT = Polyester Tag; 8-lines; 2" H x 4" W



Original Vigilante AQS™ – Input Device Limitations



DEVICE OPTIONS

- A.) Airflow Sensors (maximum of 4 sets)
- B.) Gas Sensor (maximum of 6 sensors)
- C.) Remote AD4 Module (maximum of 2 on ports 5,6,7 or 8)
- D.) Remote RTD12 Module (maximum of 2 on ports 5,6,7 or 8)
- E.) Remote Climate Sensor (maximum of 2 on ports 7 or 8)
- F.) ADO Module (maximum of 2 on port 7 or 8)
- G.) RS-485 Slave (port 3 will disable port 4)
- H.) Pressure or DP Sensor (maximum of 4 sensors on ports 5,6,7 or 8)

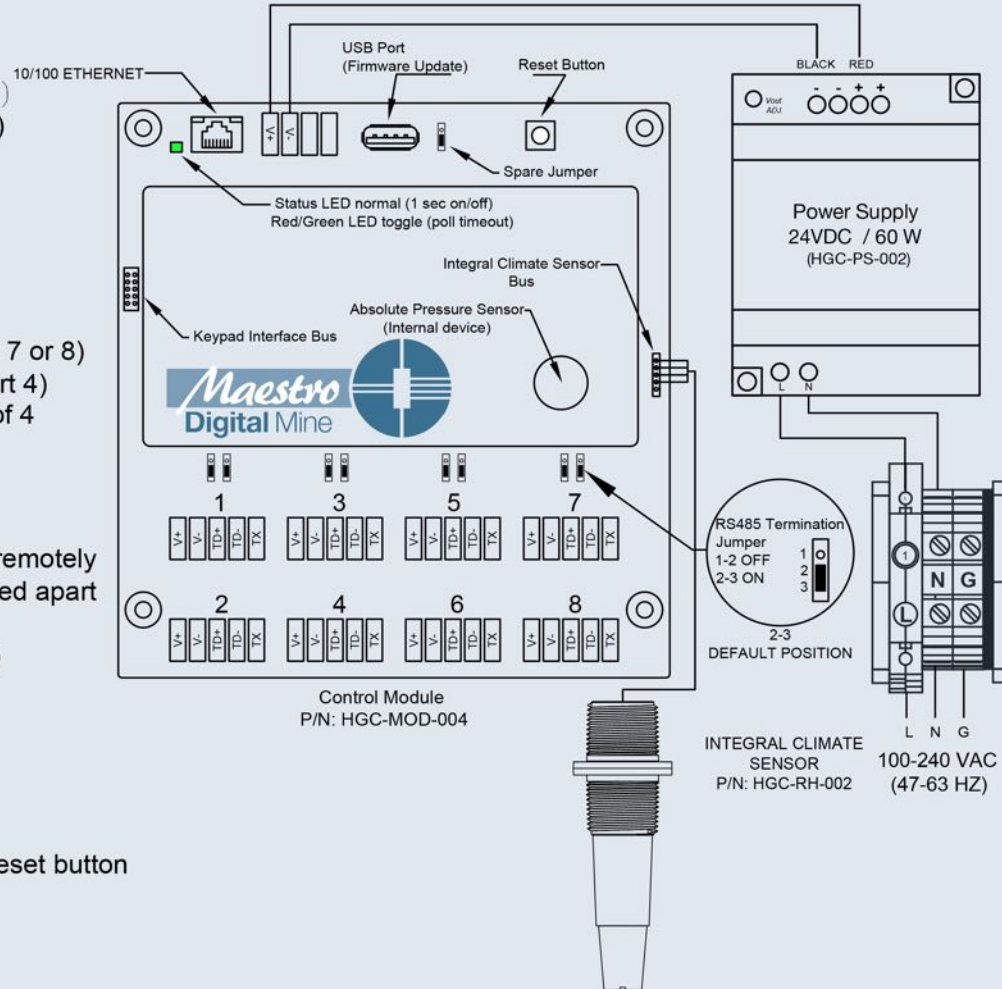
RULES:

- LED Display (Always in port #1)
- Gas sensors can be installed local or remotely
- Multiple airflow systems must be spaced apart (ex. ports 2, 4, 6, 8)
- Ethernet or PoE (100 m / 328 ft. max)
- RS-485 (305 m / 1000 ft. max)

DEFAULT IP: 169.254.1.2

To reset IP address:

- Remove power from control board
- Press reset power
- Power device and continue pressing reset button until red status led turns off.





Airflow sensor arrangement types



DR – Universal airflow sensor mounting

- Universal airflow sensor mounting for drift, tunnel, heater house and shaft mounting installations for applications with a maximum width of 10 m (33 feet).
- Easy airflow sensor alignment with built-in optical alignment lasers.
- Includes two ultrasonic airflow sensors; two mounting brackets; two sensor cord sets both 25 metres (82') & one junction box on an aluminum mounting plate
- Heavy duty 316L Stainless Steel tilt and swivel mounting bracket with 18-8 SS hardware. Built in 1/2" (13 mm) mounting holes.



LR – Long range tunnel or drift airflow sensor mounting

- Long range airflow sensor mounting for wide drift or tunnel installations normally found in potash or salt mines and road or railway tunnels with a maximum width of 20 m (66 ft.)
- Easy airflow sensor alignment with built-in optical alignment lasers.
- Includes two ultrasonic airflow sensors; two mounting brackets; two sensor cord sets both 25 metres (82') & one junction box on an aluminum mounting plate
- Heavy duty 316L Stainless Steel tilt and swivel mounting bracket with 18-8 SS hardware. Built in 1/2" (13 mm) mounting holes.



Airflow sensor arrangement types



DM – Universal Duct Mounting

- Includes two ultrasonic airflow sensors; two flexible, gasketless, corrosion resistant polyurethane mounting brackets for rigid duct installations from 36" to 60" (900 to 1500 mm) diameters; two sensor cord sets both 25 metres (82') & one junction box on an aluminum mounting plate



PF – Primary or Booster Fan (inlet cone) Mounting

- Includes two ultrasonic airflow sensors; two corrosion resistant polyurethane adjustable, ball & socket mounting brackets & two gaskets for the mounting to the inlet duct work of a primary fan; two sensor cord sets both 25 metres (82') & one junction box on an aluminum mounting plate
- NOTE: If the sensors are to be installed on the discharge side of the fan, the flow profile will need to be fully developed for all variable speed or variable pitch applications



Gas Sensor Option Codes



Integral mounted gas sensor
(mounted on Vigilante AQS™
or Zephyr AQS™)



Remote gas sensors and/or
remote mounted humidity sensor
(mounted remotely to
Vigilante AQS™)

Table 2 - Gas sensor option codes

INTEGRAL GAS SENSOR CODE	REMOTE GAS SENSOR CODE	GAS, TYPE & RANGE
G000	RG000	CO; EC; 25 PPM
G001	RG001	CO; EC; 100 PPM
G002	RG002	CO; EC; 500 PPM
G003	RG003	CO; EC; 1000 PPM
G004	RG004	NO ₂ ; EC; 10 PPM
G005	RG005	NO; EC; 100 PPM
G006	RG006	NO; EC; 500 PPM
G007	RG007	NO; EC; 1000 PPM
G008	RG008	O ₂ ; EC; 0-25%
G009	RG009	H ₂ S; EC; 50 PPM
G010	RG010	H ₂ S; EC; 100 PPM
G011	RG011	SO ₂ ; EC; 10 PPM
G012	RG012	SO ₂ ; EC; 1000 PPM
G014	RG014	Cl ₂ ; EC; 5 PPM
G015	RG015	NH ₃ ; EC; 100 PPM
G016	RG016	CO ₂ ; IR; 0.5%
G017	RG017	CO ₂ ; IR; 2%
G018	RG018	CO ₂ ; IR; 5%
G019	RG019	LEL Methane; IR; 0-100%
G020	RG020	LEL Propane; IR; 0-100%
G021	RG021	HCN; EC; 10 PPM
G027	RG027	NO ₂ ; EC; 5 PPM
G028	RG028	HF; EC; 10 PPM

EC = Electrochemical sensor (approximate 1 year sensor life)
IR = Infrared sensor (approximate 5 year sensor life)



Remote I/O Modules & Integral Output Card for the *Original Vigilante AQS™*



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, fully 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 an *original 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 – RTD remote I/O module

- 12 RTD input signals, two or three wire, jumper selectable
- PT 100 ohm, $\alpha = 0.00385$ ohms/ohm/°C or PT 1000 ohm
- Modbus RS-485 communication to an *original 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



ADO – Analog/Discrete output card

- One (1) 4-20 mA analog output with 2.5 kV optical isolation
- Three (3) discrete outputs, 120-240 VAC or 24 VDC, Form C, SPDT relay, 8 AMP@ 250 VAC, 5 AMP@ 30 VDC
- Card is integral to an *original Vigilante AQS™* enclosure



Pressure and DP Transmitters



Digital Pressure Transmitter Model # PT-G-B-NR

- -0.1 to 0.1 Bar (-40 to +40" W.C); $\leq 0.5\%$ of full-scale accuracy; $\pm 0.25\%$ F.S. accuracy; 3 Bar (43 psig) maximum over-load pressure
- Modbus RS-485 communication to any AQS™, 4 wire connection; M12, male, 5 pin connector
- Flush mounted 1- $\frac{1}{2}$ " NPT (male) 316L SS process connection with Ceramic sensor; FKM (Viton) seal; Gortex filter
- -25 to +85°C (-13 to +185°F) temperature range
- Typically used on primary/booster fans and automated regulators
- **NOTE: Includes HGC-SC-002 interconnection cable (can be supplied as a separate line item)**



Digital Pressure Transmitter Model # PT-H-B-NR

- -0.1 to 0.1 Bar (-40 to +40" W.C); $\leq 0.5\%$ of full-scale accuracy; $\pm 0.25\%$ F.S. accuracy; 3 Bar (43 psig) maximum over-load pressure
- Modbus RS-485 communication to any AQS™, 4 wire connection
- Flush mounted 1- $\frac{1}{2}$ " NPT (male) 316L SS process connection with Ceramic sensor; FKM (Viton) seal
- 3 metres of PUR connection cable and J-Box with two Gortex filters for high condensing environments
- -25 to +85°C (-13 to +185°F) temperature range
- Typically used in extreme humidity and condensing conditions normally on return raises



Digital Pressure Transmitter Model # PT-D-B-NR

- 0 to 10 Bar (0 to 145 psig); $\leq 0.35\%$ of full-scale accuracy; $\pm 0.5\%$ repeatability; 600 Bar (8700 psig) maximum over-load pressure
- Modbus RS-485 communication to any AQS™, 4 wire connection; M12, male, 5 pin connector
- Flush mounted 1- $\frac{1}{2}$ " NPT (male) 316L SS process connection; FKM (Viton) seal
- -25 to +85°C (-13 to +185°F) temperature range
- Typically used on water applications for each mine level
- **NOTE: Includes HGC-SC-002 interconnection cable (can be supplied as a separate line item)**



Pressure and DP Transmitters



Digital Pressure Transmitter Model # PT-E-B-NR

- 0 to 100 Bar (0 to 1450 psig); $\leq 0.35\%$ of full-scale accuracy; $\pm 0.5\%$ repeatability; 600 Bar (8700 psig) maximum over-load pressure
- Modbus RS-485 communication to any AQS™, 4 wire connection; M12, male, 5 pin connector
- Flush mounted 1- $\frac{1}{2}$ " NPT (male) 316L SS process connection; FKM (Viton) seal
- -25 to +85°C (-13 to +185°F) temperature range
- **NOTE: Requires HGC SC 002 interconnection cable (supplied as a separate line item)**



Digital Paste/Back Fill Pressure Transmitter Model # PPT-E-C-NR

- 0 to 100 Bar (0 to 1450 psig); $\leq 1.0\%$ of full-scale accuracy; $\pm 0.5\%$ repeatability; 600 Bar (8700 psig) maximum over-load pressure
- Modbus RS-485 communication to any AQS™, 4 wire connection; M12, male, 5 pin connector
- Flush mounted 2" NPT (male) 316L SS process connection; FKM (Viton) seal; silicon oil fill; heavy duty $\frac{1}{2}$ " thick plate seal for abrasive applications
- -25 to +85°C (-13 to +185°F) temperature range
- **NOTE: Requires HGC SC 002 interconnection cable (supplied as a separate line item)**



Digital Paste/Back Fill Pressure Transmitter Model # PPT-F-C-NR

- 0 to 400 Bar (0 to 5800 psig); $\leq 1.0\%$ of full-scale accuracy; $\pm 0.5\%$ repeatability; 1000 Bar (14500 psig) maximum over-load pressure
- Modbus RS-485 communication to any AQS™, 4 wire connection; M12, male, 5 pin connector
- Flush mounted 2" NPT (male) 316L SS process connection; FKM (Viton) seal; silicon oil fill; heavy duty $\frac{1}{2}$ " thick plate seal for abrasive applications
- -25 to +85°C (-13 to +185°F) temperature range
- **NOTE: Requires HGC SC 002 interconnection cable (supplied as a separate line item)**



Pressure and DP Transmitters



Digital Differential Pressure Transmitter Model # DPT-G-B-NR

- -0.1 to 0.1 Bar (-40 to +40" W.C); $\leq 0.5\%$ of full-scale accuracy; $\pm 0.25\%$ F.S. accuracy; 3 Bar (43 psig) maximum over-load pressure
- Modbus RS-485 communication to any AQS™, 4 wire connection; M12, male, 5 pin connector
- Flush mounted 1- $\frac{1}{2}$ " NPT (male) 316L SS process connection with Ceramic sensor; FKM (Viton) seal; Gortex filter
- -25 to +85°C (-13 to +185°F) temperature range
- Typically used on primary/booster fans and automated regulators



Digital Differential Pressure Transmitter Model # DPT-H-B-NR

- -0.1 to 0.1 Bar (-40 to +40" W.C); $\leq 0.5\%$ of full-scale accuracy; $\pm 0.25\%$ F.S. accuracy; 3 Bar (43 psig) maximum over-load pressure
- Modbus RS-485 communication to any AQS™, 4 wire connection
- Flush mounted 1- $\frac{1}{2}$ " NPT (male) 316L SS process connection with Ceramic sensor; FKM (Viton) seal
- 3 metres of PUR connection cable and J-Box with two Gortex filters for high condensing environments
- -25 to +85°C (-13 to +185°F) temperature range
- Typically used in extreme humidity and condensing conditions normally on return raises

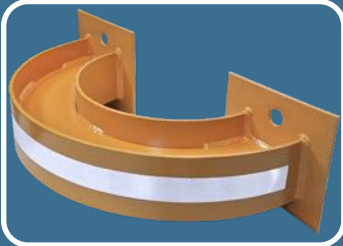


Pressure and DP sensor cable Model # HGC-SC-002

- 25 metres (82') interconnection cable to be used with any digital differential or pressure transmitter to connect to either to any AQS™
- Black PVC jacket, PA connector body, nickel-plated brass coupling nut and silver plating, IP 67 rating, CSA LR6837 and cCSAus certified
- 0.5 kg/1.1 lb



Bumper Protection and Mounting Options



BP – Lower drift sensor bumper

- Heavy duty steel, painted alkyd safety orange with reflective tape. Bumper is to be installed slightly lower than sensor. The bumper will help protect the sensor from mobile equipment. 16 kg/35 lbs weight
- *** TOTAL SHIPMENT WEIGHT AND DIMENSIONS INCLUDING PACKAGING IS 45 LBS - 16" X 30" X 10" (20.5 KG - 406 mm X 762 mm X 254 mm)



IM – Integral Mounting Option

- System mounted on an aluminum checker plate, complete with stainless steel mounting hardware and carrying handles



RM – Remote Mounting Option

- Remote mounted gas and/or humidity sensors on aluminum checker plate with a junction box, VAQS is mounted on a 2nd checker plate, complete with stainless steel mounting hardware and carrying handles
- The remote gas sensor plate size is dependent on the number of gas sensors required. Maximum of six (6) gas sensors per single Vigilante AQS™.



EZ Node™ Wireless Node - Model Number Matrix

Series = EZ Node™ Wireless Adapter



EZN = EZ Node™ Wireless Adapter

The EZ Node™ Wireless Adapter allows any Maestro product to connect directly to a wireless network.

Enclosure Specifications:
NEMA 4X enclosure;
ABS construction;
Heavy duty aluminum back plate with stainless steel hardware.

1 = Options

E = Ethernet, IEEE 802.11b/g/n/ac Wave 2 (WiFi 5) compliant, PoE (Power over Ethernet), 4 X 10/100/1000 Ethernet Interface (RJ-45). Includes 3 dBi Omni-directional antenna, waterproof RJ45 connector, and one 24 VDC power injector for Ethernet based Maestro products. The EZ Node™ is easily configured via web browser, no additional software required. Regulatory approvals: CE/RED, UKCA, CB, EAC, UCRF, RoHS, REACH, CITC, ICASA, ANRT, RCM, NBTC, GITEKI, NTC, FCC, IC, NOM.

LFV = Leaky Feeder, VHF Radio modem, 148 – 174 MHz , c/w unity gain stub VHF antenna, (Customer to provide upstream and downstream frequencies with order).

LFU = Leaky Feeder, UHF Radio modem, 450 – 480 MHz, c/w unity gain stub UHF antenna, (Customer to provide upstream and downstream frequencies with order).

SST = Stainless Steel Tag; 8-lines; 2.5" H x 5.5" W

PT = Polyester Tag; 8-lines; 2" H x 4" W

NOTE: Leaky Feeder applications will require a EZ Base™ Leaky Feeder Head End chassis and Protocol Converters.

Series



EZN

Options



1

