AIR QUALITY MONITOR / CONTROLLER

- **Wide spectrum gas sensor**
- **4 to 20mA & 0 to 10V output**
- **Temperature/rH compensated**
- **Easy to configure**

AQT-S-2000

AQT-D-2000

AQT-2000

The AQT operates by looking at the signal from a full spectrum sensor, automatically zeroing out temperature and humidity effects, and judging the degree of pollution.. The sensor is sensitive to a wide variety of air pollutants such as carbon monoxide, ketones, aldehydes, esters benzene, alcohols, hydrogen, reducing hydrocarbons, and cigarette smoke.

Since the sensor is also sensitive to temperature and humidity, data is fed from on-board humidity and temperature sensors to the micro-processor to remove the effects of these variables from the air quality measurement.

Our new version is the result of 4 years of development work in the air quality field. Our previous versions have demonstrated, in hundreds of installations, that they can improve levels of clean air in occupied spaces while saving energy by providing fresh air in proportion to demand.

New Features

1. Easier set up with an interactive, user friendly hand-held module (HHM) with 40 character alpha-numeric display

2. Better accuracy with a 15 bit instead of 10 bit A/D converter providing high resolution.

3. Micro-processor based temperature and humidity compensation for more accurate air quality monitoring.

4. Programmable continuous analog output in addition to the previously available stepped output.

5. 4-20mA output in addition to the previously available voltage output.

6. Improved algorithm and more powerful micro-processor for determining control output.

7. Convenient, inexpensive data logger built into the HHM for performance evaluation.

8. Built in switching power supply to reduce power consumption by up to 75%.

For the unit to perform efficiently it must work as a monitor/controller, i.e. it must be able to act upon pollution level changes. The analog outputs are continuous or stepped 4 to 20mA and 0...10 VDC. Most commonly, the user would select the continuous analog output. If desired, the user can choose four adjustable settings, corresponding to clean, low, mid and high levels of pollution for compatibility with previous versions.

Hand held module

AQT-HHM

AIR QUALITY

ENERCORP instruments ltd

25 Shorncliffe Rd, Islington, ON, M9B 3S4 Tel (416)231-5335 Fax (416)231-7662 1(800)ENERCORP

Visit our on-line catalogue at www.enercorp.com *our e-mail address is info@enercorp.com*

Hand held module

To obtain the best results from any instrument it is necessary to be able to set it up easily and accurately. This is accomplished with our hand held module (HHM) which incorporates a 40 character alpha-numeric display to question the operator about his choice of setup parameters. It then offers to log air quality for later downloading to a spread sheet on a PC or Macintosh.

The HHM simply plugs into and derives its power from the air quality monitor with an 8 pin telephone jack.

The operator is asked by the HHM if he would like:

0...10V or 4...20mA output signal?

A continuous output signal or a stepped one?

How sensitive to pollutants the unit should be on a scale of 0 to 100?

What percent of full scale output should be sent when the air is CLEAN? This can be used to ensure that a certain percentage of fresh air is introduced.

What percent of full scale output should be sent when LOW, MID and HIGH levels of pollutants are detected? These scaling factors can be used to accurately set the monitor to control actuators with different characteristics.

The operator is then asked if he would like to send this data to the AQT-2000. If he does, the micro-processor in the air quality monitor is programed and these values are stored in non-volatile memory. They remain permanently stored even without power until such time as the operator may choose to re-program the instrument with different values. Programing multiple units from one HHM program eliminates time consuming individual programing.

If the operator wishes to monitor air quality the HHM can be left connected and operated as a data logger. In this mode it will log air quality, humidity, temperature, and output signals for up to 2 months.

The HHM can be disconnected at any time and connected with a serial cable to a Macintosh or PC computer. The data can be downloaded to a spread sheet program for graphical analysis or performance documentation.

CO2 vs Air Quality Monitoring

The AQT sensor is better suited to measuring air quality than a sensor which measures carbon dioxide. For example if a person were to smoke a cigarette in a room, the carbon dioxide sensor would not be able to detect this, even though the air quality had significantly decreased. This same set of circumstances holds true for many other contaminants such as solvents, fuels, and even carbon monoxide, all of which are much more harmful than carbon dioxide.

The popularity of using CO2 as a tracer of air quality is well established. Since CO2 monitors were readily available, although expensive, they allowed a reasonable monitoring technique for air quality in occupied spaces.

Our newer technology now permits the monitoring of other tracer gasses which are produced by humans in proportion to CO2. In addition, the AQT-2000 is also sensitive to more harmful contaminants which CO2 monitors fail to detect. Coupled with much lower prices for the AQT-2000, it is an alternative that should be evaluated.

Application Note

Energy efficient heating and cooling in portable class rooms can be difficult since classrooms can be occupied irregularly by varying class sizes. They may be used also for activities such as art work where paints and glues give off vapors which should be flushed from the room. New classrooms with new carpets and other building materials can outgas vapors which should be removed from the room to provide good air quality. Carbon Dioxide above prescribed levels should be eliminated.

The AQT-2000 is designed to meet all these requirements. Gasses given off by the occupants, the building materials and the activities in the room are all sensed and acted upon by the AQT-2000. What is more, it senses the concentration of gasses and provides fresh air in accordance with requirements. Our tests show that while the sensor is not sensitive to carbon dioxide it still monitors it closely, since other gasses are produced by the occupants in proportion to CO2.

AIR QUALITY

TECHNICAL DATA

Supply Voltage	12 to 30 VDC
Supply Current	100 mA
Operating temperature	-10 to 60 C
Operating Humidity	10 to 95% rH
Outputs	4 to 20mA / 0...10 VDC
Output Impedance	> 1k ohms for voltage
	1000*Vs/24 for current

ORDERING DATA

AQT-S-2000	=	air quality monitor in space mounting
AQT-D-2000	=	air quality monitor in duct mounting
HHM-AQ	=	hand held module for AQT-2000
AQT-DEMO-KIT	=	air quality monitor, hand held module, indicator and power supply in carrying case
AQT-SERIAL-KIT	=	serial cabling for monitoring or graphing data on a desktop computer