



## Model IQ1000 MEGA-CHANNEL Gas Detector



Gas Detection & Monitors

### Description

The Matheson Model IQ1000 is a very unique gas detection instrument offering features not found in any other portable multi-channel monitor. Its innovative technology gives you the flexibility to monitor for more than 100 gases and vapors, without having to change sensors.

While the IQ1000 is a 1-4 channel instrument that can accommodate several types of sensors, units equipped with the MEGA-Gas sensor offer an exclusive "Gas Search" feature. This innovation enables the IQ1000 to scan the air to quickly determine if any of more than 100 gases or vapors are present. Additionally, ordering the IQ1000-14 provides a calibration curve for specific gases so the MEGA-Gas sensor can be set to monitor for a particular gas or vapor.

The IQ1000 is an intelligent, microprocessor based instrument that is operated through easy to follow menu driven controls. The viewing screen is a large 8 line, 40 character per line LCD supertwist display, with backlight switch and display contrast adjustment for easy viewing in any lighting condition.

The IQ1000 furnishes three user-adjustable alarm setpoints (low, mid, high) for each sensor, with both audible and visual alarm indicators. An alarm acknowledgement function silences the audible alarm while keeping the visual alarm active as long as the alarm condition exists.

An optional data logging feature stores months of readings for all four sensors, which can easily be downloaded to a printer or computer at a later date using its RS 232 serial interface. The IQ1000's optional data management software allows you to plot accumulated data and calculate time weighted averages. Data can also be exported to your favorite spreadsheet.

The IQ1000 will operate approximately 20 hours on its standard six size D alkaline batteries, or 14 hours on optional rechargeable NiCad batteries. The amount of battery power remaining is monitored on the LCD display.

Other features include touch of a button calibration, a built-in sampling pump with sampling wand, and weatherproof case. The IQ1000 also has UL Intrinsic Safety Approval for use in Class 1, Division 1, Group B, C, D.

### Sensor Technologies

The IQ1000 can accommodate several kinds of sensor technologies. Which ones to select depends upon your application requirements.

The revolutionary MEGA-Gas Sensor is a specially developed solid state sensor capable of detecting over 100 gases and vapors. While it cannot readily differentiate between these gases, the MEGA-Gas sensor does enable you to perform a "Gas Search" of the air, as described above. In addition, because the IQ1000 is microprocessor controlled with 256K memory, it contains a complete library of the setup and calibration parameters for all 100+ gases that the MEGA-Gas sensor can detect. At the touch of a button, you can configure the instrument to monitor specifically for any one of these gases, and can then switch gases as frequently as you like without changing any sensors. See the table on the facing page for the MEGA-Gas sensor gas list.

Any of the more than 140 gas specific Solid State Sensors can be selected to provide more selective gas detection than the MEGA-Gas solid state sensor. (See the preceding page for a complete listing of available solid state sensors.)

Electrochemical Sensors, a popular sensor used in many gas detection instruments, can also be accommodated by the IQ1000. Choose from 11 available gases and vapors (ranges in ppm):

|                               |                               |
|-------------------------------|-------------------------------|
| Ammonia (0-50, 0-100)         | Hydrogen Sulfide (0-20, 0-50) |
| Carbon Monoxide (0-50, 0-100) | Nitric Oxide (0-50)           |
| Chlorine (0-5, 0-10)          | Nitrogen Dioxide (0-10)       |
| Hydrogen (0-500)              | Oxygen (0-25%)                |
| Hydrogen Chloride (0-25)      | Sulfur Dioxide (0-10, 0-20)   |
| Hydrogen Cyanide (0-25)       |                               |

For combustibles, a Catalytic Bead Sensor is available to detect for LEL levels of most combustible gases and vapors.

While there are hundreds of sensor combinations, keep the following guidelines in mind when customizing your Model IQ1000 detector: Channels 1 and 2 can be equipped with any of the four sensor types listed; Channels 3 and 4 can only be equipped with electrochemical sensors.





## Model IQ1000

### MEGA-CHANNEL Gas Detector (continued)

#### MEGA-GAS Sensor Gas List (gases with an \* have a 100% LEL range)

| Gas                  | PPM Range(s) | Gas               | PPM Range(s) | Gas                      | PPM Range(s) | Gas               | PPM Range(s) |
|----------------------|--------------|-------------------|--------------|--------------------------|--------------|-------------------|--------------|
| Acetic Acid          | 1000         | Cyanogen Chloride | 100          | *Hexane                  | 1000         | Monoethylamine    | 500          |
| Acetic Aldehyde      | 1000         | *Cyclohexane      | 1000         | Hexene                   | 1000         | *Naphtha          | 500          |
| Acetone              | 1000         | Cyclohexanol      | 2000         | Hydrogen                 | 500          | Nonane            | 2000         |
| Acetonitrile         | 200, 1000    | Cyclopentane      | 1000         | Hydrogen Bromide         | 100          | *Pentane          | 1000         |
| *Acetylene           | 1000         | Diborane          | 10           | Hydrogen Chloride        | 200          | Pentanol          | 1000         |
| Acrolein             | 50, 200      | Dibromomethane    | 100          | Hydrogen Cyanide         | 100          | Pentene           | 1000         |
| Acrylonitrile        | 1000         | Dichlorobutane    | 1000         | Hydrogen Sulfide         | 50           | Phosphine         | 10           |
| Allyl Methacrylate   | 1000         | Dichloroethane    | 500          | Isobutane                | 1000         | *Propane          | 1000         |
| Ammonia              | 200, 500     | Dichlorosilane    | 100          | Isobutanol               | 1000         | *Propanol         | 500          |
| Anisole              | 4000         | Diesel Fuel       | 2000         | *Isobutylene             | 1000         | *Propylene        | 1000         |
| Arsine               | 10           | Diethyl Benzene   | 2000         | *Isopropanol             | 1000         | Propylene Oxide   | 100, 1000    |
| Benzene              | 100          | Epichlorohydrin   | 100          | JP-4                     | 2000         | Silane            | 50           |
| Boron Trichloride    | 1000         | *Ethane           | 1000         | JP-5                     | 2000         | *Styrene          | 100% LEL     |
| Boron Trifluoride    | 2000         | *Ethanol          | 1000         | *Methane                 | 1000         | Sulfur Dioxide    | 50           |
| Butadiene            | 100          | *Ethyl Acetate    | 500          | *Methanol                | 500          | Tetrahydrofuran   | 200, 1000    |
| *Butane              | 1000         | *Ethyl Benzene    | 1000         | Methyl Acrylate          | 500          | Toluene           | 200          |
| *Butanol             | 2000         | Ethyl Chloride    | 100          | Methyl Bromide           | 50           | Trichloroethane   | 100          |
| *Butene              | 1000         | *Ethyl Ether      | 500          | Methyl Butanol           | 2000         | Trichloroethylene | 500          |
| Butyl Acetate        | 1000         | *Ethylene         | 1000         | Methyl Chloride          | 100, 1000    | Triethylamine     | 200          |
| Carbon Disulfide     | 50, 1000     | Ethylene Oxide    | 50           | *Methyl Ethyl Ketone     | 100          | Trifluoroethanol  | 1000         |
| Carbon Monoxide      | 500          | Formaldehyde      | 100          | Methyl Isobutyl Carbinol | 2000         | Trimethylamine    | 500          |
| Carbon Tetrachloride | 1000         | Formic Acid       | 2000         | Methyl Isobutyl Ketone   | 1000         | Vinyl Acetate     | 50           |
| Carbonyl Sulfide     | 100          | Freon 22          | 1000         | Methyl Mercaptan         | 50           | Vinyl Chloride    | 50           |
| Cellosolve Acetate   | 2000         | Freon 502         | 1000         | *Methyl Methacrylate     | 500          | Xylene            | 1000         |
| Chloroform           | 200          | Gasoline          | 1000         | Methylene Chloride       | 100, 500     |                   |              |

#### Specifications

|                     |   |
|---------------------|---|
| Power:              | 6 size D alkaline batteries standard, Optional rechargeable NiCad system              |
| Operating Time:     | 20 hours on alkaline batteries, 14 hours on NiCad battery                             |
| Sampling:           | Built-in sample pump with sampling wand draws up to 1000 cc/min                       |
| Controls:           | Touch button. Optional magnetic switches  |
| Display:            | Backlit LCD supertwist with contrast adjustment. 8 lines, 40 characters per line.     |
| External Interface: | With optional data logging feature, RS-232 using a DB-9 connector (1200-38400 baud)   |
| Temperature:        | 32° F to 122° F (0° C to 50° C) operating<br>4° F to 140° F (-20° C to 60° C) storage |
| Humidity:           | 0-95% RH non-condensing   |
| Size:               | 9.0"L x 4.5"W x 5.4"H<br>(229mm x 114mm x 137mm)                                      |
| Weight:             | 6 lbs (2.7kg) including batteries   |
| Approvals:          | UL Intrinsic Safety Approval for Class 1, Division 1, Group B, C, D locations         |
| Warranty:           | 1 Year  |

#### Ordering Information

| Model Number     | Description  |
|------------------|--|
| <b>IQ1000-01</b> | Mega-Channel Gas Detector with One Sensor                        |
| <b>IQ1000-02</b> | Mega-Channel Gas Detector with Two Sensors                       |
| <b>IQ1000-03</b> | Mega-Channel Gas Detector with Three Sensors                     |
| <b>IQ1000-04</b> | Mega-Channel Gas Detector with Four Sensors                      |
| <b>IQ1000-11</b> | Optional Rechargeable NiCad Battery System                       |
| <b>IQ1000-12</b> | Optional Data Logging System                                     |
| <b>IQ1000-13</b> | Optional Data Management Software                                |
| <b>IQ1000-14</b> | Optional Special Gas Calibration.<br>Order for each gas desired. |