

# Micro-Flow Sensors

## MODEL IL2-C & IL2-L

### Sensor Applications

Pressure leak testing

Leak Rates of 0.03 cc/min to 25 LPM

### Features

Intelligent Gas Leak Sensor (IGLS)

Measures volume flow - using ATC's patented ALF design

Measures absolute downstream pressure and temperature

Stainless steel rugged construction

No moving parts

No over-flow sensitivity

### Flow Range

0-1; 0-3; 0-5; 0-10; 0-25; 0-50; 0-100; 0-250; 0-500 cc/min (mL/min)

0-1; 0-5; 0-25 LPM (L/min)

Sensor Type: Accelerated Laminar Flow (ALF)

Measurement Uncertainty: +/- 1% (0.6% optional) of reading, calibrated range

### Pressure Range

0-15; 30;100;250; (psi-absolute)

Type: Absolute, micro-machined

Measurement Uncertainty: 0.2% of Full Scale (FS)

Maximum Overpressure: 1.2 times full range/scale



NOTE: The IGLS is a part of ATC's complete leak test instruments, portable unit, or part of a larger automated test system. The Micro-Flow sensor is not available by itself.

### Resolution

16 bits A/D and 16 bit D/A

### Max Differential Pressure

500 psid (DP) or max. range of pressure sensor, whichever is smaller

### Gases Used

Use dry non-condensing and clean gases

Air, nitrogen, helium, argon, & carbon dioxide

Other gases available, consult ATC.

### Response Time

Step function: from no flow to full range - 50 ms or less

Sensor only, no volume

# Micro-Flow Sensors

## MODEL IL2-M & IL2-KM

### Sensor Applications

- 2 psia to 65 psia (mild vacuum to low pressure)
- Leak rates: from  $1 \times 10^{-5}$  sccs at 2 psia
- Used for Mass Extraction applications
- Can be used for applications with low positive pressure and tight leak specification
- Detection of 2  $\mu$ m defects or larger

### Features

- Intelligent Gas Leak Sensor (IGLS)
- Measures volume flow – using ATC's patented ALF design
- Measures absolute downstream pressure and temperature
- Stainless steel rugged construction
- No moving parts
- No over-flow sensitivity
- Measurement units select by user, typically mm<sup>3</sup>/min ( $\mu$ L/min)

### Flow Range

- IL2-M: 0-25; 0-50; 0-100; 0-250; 0-500; 0-990, 0-3000, 0-5000 mm<sup>3</sup>/min (micro liters/min)
- IL2-KM: 0-10; 0-25; 0-50; 0-100; 0-250 cc/min (mL/min)
- Sensor Type: Accelerated Laminar Flow (ALF)
- Measurement Uncertainty: +/- 2% of reading (1% optional), calibrated range

### Pressure Range

- 0-15; 30; 65 (psi-absolute)
- Type: Absolute, silicon micro-machined
- Measurement Uncertainty: 0.2% of Full Scale (FS)
- Maximum Overpressure: 1.2 times full range/scale



NOTE: The IGLS is a part of ATC's complete leak test instruments, portable unit, or part of a larger automated test system. The micro-flow sensor is not available by itself.

### Resolution

16 bits A/D and 16 bit D/A

### Max Differential Pressure

50 psi

### Gases Used

Use dry non-condensing and clean gases  
Air, nitrogen, helium, argon, & carbon dioxide  
Other gases available, consult ATC.

### Response Time

Step function: from no flow to full range - 50 ms or less  
Sensor only, no volume

# Micro-Flow Sensors

## MODEL IMFS

### Sensor Applications

- Mass Extraction at vacuum under 0.2 psia (hard vacuum)
- Leak detection of 0.1 to 0.2  $\mu\text{m}$  defects
- AIR measurements from  $5 \times 10^{-7}$  sccs
- Intelligent Molecular Flow Sensor - operates mostly in transitional and molecular flow regimes
- Outgassing / Permeability applications
- Calibration of leak devices

### Features

- Intelligent Molecular Flow Sensor - Operates mostly in transitional and molecular flow regimes
- Measures mass flow, using ATC's patented ALF design
- Measures from hard vacuum to 15 psia
- Rugged, stainless steel construction
- No moving parts
- Optional dual range calibration

### Flow Range

- 0-1;0-2.5;0-5;0-10;0-100;0-400 micrograms/min
- Measurement Uncertainty: +/- 5 % (2% optional) of reading, calibrated range

### Pressure Range

- 0-0.2 or 0-15 (psi-absolute)
- Type: Absolute, capacitance
- Measurement Uncertainty: 0.25% of FS



NOTE: The IMFS is a part of ATC's complete leak test instruments, portable unit, or part of a larger automated test system. The micro-flow sensor is not available by itself.

### Resolution

16 bits A/D and 16 bit D/A

### Max Differential Pressure

15 psi

### Gases Used

- Use dry non-condensing and clean gases
- Air, nitrogen, helium, argon, & carbon dioxide
- Other gases available, consult ATC.

### Response Time

- Step function: from no flow to full range - 50 ms or less
- Sensor only, no volume

# Micro-Flow Sensors

| Sensor Model | Minimum Flow Range     | Maximum Flow Range      | Pressure Range (PSIA) | Leak Test Model                     |
|--------------|------------------------|-------------------------|-----------------------|-------------------------------------|
| IL2-C        | 0-1 cc/min             | 0-500 cc/min            | 2-500                 | E2, VE2, IPE, IPE2, ME2             |
| IL2-L        | 0-1 liters/min (L/min) | 0-25 liters/min (L/min) | Atm-100               | IPE, IPE2                           |
| IL2-M        | 0-0.025 cc/min*        | 0-5 cc/min              | 2-65                  | E-PDQ, E2, VE2, IPE, IPE2, ME2, ME3 |
| IL2-KM       | 0-10 cc/min            | 0-250 cc/min            | 2-65                  | E-PDQ, E2, VE2, IPE, IPE2, ME2, ME3 |
| IMFS         | 0-1 µg/min**           | 0-400 µg/min            | 0-0.2                 | ME2, ME3                            |

\* 0.025 cc/min at 2 psia is  $5.6 \times 10^{-5}$  std. cc/sec

\*\* Lowest capable measurement: 0.05 µg/min of nitrogen is  $6 \times 10^{-7}$  std. cc/sec

## Additional Specifications

### Temperature Range

Operating and Calibrated: 10 to 45 °C

Storage: -25 to 50 °C

Sensor Type: RTD 100 Ohms

Measurement uncertainty at calibrated range: 0.5 °C

### Interface

Serial port

Digital I/O: Start/Stop, type clamp and more...

Analog I/O

Power: 115 or 220 VAC, single phase

