Teledyne’s Series IR7000 features excellent linearity and stability. Using advanced microprocessor technology, these instruments make monitoring a process gas stream quick and accurate.

**Optical Bench — The Heart of the System**

The optical bench consists of the IR source, sample cell, and patented detector. The source control circuit provides a current square wave to the infrared source. No mechanical chopper / motor is used, thereby avoiding moving parts. The closed sample path between source and detector eliminates interfering absorption from ambient air. Infrared energy from the source passes through the sample cell where energy at specific wavelengths is absorbed by the sample.

The patented detector consists of two chambers in optical series with a sensitive flow transducer to measure the relative infrared energy absorbed. The advantage of this detector over others is that the signals are balanced to improve sensitivity and selectivity, thereby minimizing background process gas interference.

**Front Panel Ease**

All operations are selected through the four front panel buttons. The operator can control calibration gas concentration, automatic calibration frequency, active chart well as manual zero and span calibrations. All operator settings are protected by battery backup.

**Standard Features**

- User selected auto-zero, auto-span calibration
- Linearized instrument range, eliminating need for separate instruments to achieve full scale span
- Closed sample path is not exposed to ambient air eliminating the need for periodic purging
- 4 selectable chart recorder ranges
- Modular design for easy maintenance
- Configured to accommodate an optional oxygen channel
- Low power requirements. No heat build up and therefore no premature failure of components.
- No moving parts associated with the optical bench.
- No “tuning” required with optics unlike competitive NDIR methods
- The signal from the detector is digitized making signal processing reliable and flexible
- Thorough self-diagnostics software package
- Easy set up and interface
- CE marked

**Applications**

- Chemical and petrochemical processes
- Combustion and flue gas processes
- Pulp and paper
- Vapor recovery systems
- Air separation
- Metals, ceramics and heat treating atmospheres
- Land fill gas power stations
- Carbon dioxide scrubber efficiency
- CO/CO₂/C₂H₄ monitoring in oxyhydrochlorination process in EDC manufacturing
- Cement plant applications (CO, CO₂, O₂)

**Model Designations**

- **IR7000** Panel / 19” rack mount - CE mark approved
- **IR7010** Split architecture
- **IR7000P** Portable
- **IR7000T** Trace gas
- **IR7000D** Dual bench
- **IR7000B** Wall mount
Specifications

Measuring method: NDIR single beam
Gas measured: User specified
Measuring range: Per application
Response time (T90): User selectable typically 15 - 60 seconds for nominal flow rates
Display: Vacuum fluorescent
Alarms: High and low limit, user selectable, 1 A, 60 VDC, 30 VAC
Analog output: Selectable 1.5, or 10 volts; optional isolated 4-20mA current loop
Max. load impedance: 4-20 mA isolated output 500 ohms
Analog ranges: 4, each with adjustable full scale; selectable auto range
Cal valve actuation: Isolated triac control. Rated maximum load: 0.6 amp at instrument voltage
Power source: 120/240 VAC, 50/60Hz
( Portable model includes rechargeable batteries - minimum 6 hours continuous operation)
Max. power consumption: 110 VAC supply - 2 amps
Power consumption: 50 watts/channel
Materials in sample flow path: Glass, gold, buna-n, lexan, epoxy, sapphire, 304 stainless steel
Sample flow: 0.2 to 2.0 liters/minute (Trace gas — 5.0 - 10.0 liters/minute)
Sample temp: -10° to +50°C
Sample condition: Non-condensing, particulate free
Warm-up time: Usable in 60 minutes. Optimum operation in 3 hours.
Ambient conditions: Operating: -10° to 50°C (non-condensing) Storage: -10° to 80°C (0° to 50°C for oxygen sensor)
Dimensions: Rack mounted and dual bench: 22.5" L x 17.1" W x 5.25" H
Sample drive: 571mm L x 447mm W x 133mm H (suitable for 19" rack)
Portable: 20.0" L x 8.5" W x 5.25" H
508mm L x 216mm W x 133mm H
Dimensions (cont.): Wall mount: 24.0" L x 20.0" W x 6.0" D
609mm L x 508mm W x 152mm D
Weight:
Rack mounted: 38 lbs (17.2kg)
Portable: 19 lbs (8.6kg)
Wall mount: 43 lbs (19.5kg)

Standard Ranges - IR7000 / IR7000P

<table>
<thead>
<tr>
<th>Gas</th>
<th>Typical Low Range</th>
<th>Typical Hi Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>0-100 to 0-1000ppm</td>
<td>0-10% to 0-100%</td>
</tr>
<tr>
<td>CO2</td>
<td>0-30 to 0-300ppm</td>
<td>0-5% to 0-50%</td>
</tr>
<tr>
<td>SO2</td>
<td>0-50 to 0-500ppm</td>
<td>0-10% to 0-100%</td>
</tr>
<tr>
<td>NO2</td>
<td>0-100 to 0-1000ppm</td>
<td>0-10% to 0-100%</td>
</tr>
<tr>
<td>CH4</td>
<td>0-300 to 0-3000ppm</td>
<td>0-10% to 0-100%</td>
</tr>
<tr>
<td>Propane</td>
<td>0-100 to 0-1000ppm</td>
<td>0-10% to 0-100%</td>
</tr>
</tbody>
</table>

Resolution: 0.1% of full scale
Repeatability: +/-0.1% of full scale
Noise: +/-0.1% of full scale
Accuracy: +/-0.3% of full scale determined on maximum range only and is absolute for all other ranges.

High Sensitivity Ranges - IR7000T

<table>
<thead>
<tr>
<th>Gas</th>
<th>Range</th>
<th>Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>0-5 to 0-50ppm</td>
<td>0-20 to 0-200ppm</td>
<td>+/-0.25ppm or better/24 hrs</td>
</tr>
<tr>
<td>CO2</td>
<td>0-2 to 0-20ppm</td>
<td>0-20 to 0-200ppm</td>
<td>+/-0.1ppm or better/24 hrs</td>
</tr>
</tbody>
</table>

Resolution: 0.01ppm
Repeatability: +/-0.25% of full scale
Noise: +/-0.1% of full scale
Accuracy: +/-0.5% of full scale determined on max range only; is absolute for all other ranges.

Options

- 0-25% Electrochemical oxygen channel
- RS-232 interface

Warranty

Instrument is warranted for 1 year against defects in material or workmanship

NOTE: Specifications and features will vary with application. The above are established and validated during design, but are not to be construed as test criteria for every product. All specifications and features are subject to change without notice.

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