TELEDYNE
ANALYTICAL INSTRUMENTS

Series 7600

Non-Dispersive Infrared Gas Analyzer

NO, CO2, CO, CH4, SO2, O2

Teledyne's Series 7600 Infrared (IR) Gas Analyzer is capable of detecting up to four chosen, individual IR absorbing components (i.e. NO, SO2, CO2, CO, and CH4) on a continuous basis.

Conveniently packaged in either a 19" rack mount or NEMA-4 wall mount enclosure, the Series 7600 can also be supplied with an oxygen sensor, providing the operator with a space-saving, five in one, cost-effective design. The NEMA-4 enclosure can be X or Z-purged to satisfy hazardous area installation requirements.

A high-sensitivity mass flow type twin detector is utilized for infrared measurements. By utilizing a single beam, double path design in conjunction with a serial dual-layer transmission detector, the Series 7600 delivers long term, drift-free performance. The oxygen concentration in the sample gas can be detected by either a built-in paramagnetic sensor or an externally mounted, in-situ based zirconium oxide sensor.

The concentration of the desired gases is displayed on a large, easy-to-read back-lit LCD. The user interface is very intuitive and the menu / mode selection buttons, which are readily accessible, provide the operator with dynamic control and extensive diagnostic capabilities.

APPLICATIONS

The Series 7600 is ideally suited for multi-parameter gas analysis requirements for:

- Combustion control within the power, pulp and paper, steel, and cement industries
- Heat treating / Inert gas blanketing atmosphere control
- Bulk-gas impurity analysis within the air separation industry
- Anaerobic digester / Bio-gas / Land-fill gas analysis
- Vent gas analysis of oxyhydrochlorination reactors (EDC)
- Off-gas analysis on PTA and Maleic Anhydride reactors
- Fluid Catalytic Cracker (FCC) regeneration gas analysis
- Ammonia / Fertilizer process gas stream analysis
- Continuous Emissions Monitoring Systems (CEMS)

FEATURES

- Simultaneous measurement of up to five components
- Excellent long-term stability
- Large, easy to read LCD display showing all simultaneous measurements and computations
- Slide-out, chassis design to facilitate any optical or maintenance adjustments required to fine tune analyzer performance (7600A)
- In-depth, valuable analyzer functions attainable from the front-panel user interface buttons
  - Follow & Hold output signal control (during calibration)
  - Remote range change contro
  - Low / Hi limit alarms
  - Range ID signals
  - Auto-calibration with user adjustable frequency and gas flow time setting programming capabilities
  - Remote auto-calibration initiation
  - Auto-calibration status contacts
  - Instrument or calibration error contact outputs
  - Extra functions included such as average value computation, O2 conversion

OPTIONS

- Percent O2 detector – Paramagnetic (built-in) or ZrO2 (externally installed), user preference
- O2 correction (the conversion of measured CO and SO2 readings into values at standard O2 concentration). Consult factory for more detail of functionality
- Communication functions:
  - RS-232C (9 pins D-Sub connector)
  - Half-duplex bit serial
  - Modbus protocol

SPECIFICATIONS

Principle of measurement: Non-dispersive infrared (NDIR) absorption method. Single source, dual beam, dual-layer transmission design.

Measurable gas components and measuring range:

	Min range	Max range
NO	0 - 100 ppm	0 - 5000 ppm
SO2	0 - 100 ppm	0 - 10 vol%
CO2	0 - 20 ppm lower ranges available upon request	0 - 100 vol%
CO	0 - 50 ppm	0 - 100 vol%
CH4	0 - 500 ppm	0 - 100 vol%
O2 (built in)	0 - 5 vol%	0 - 25 vol%
O2 (external zirconia)	0 - 5 vol%	0 - 25 vol%
N2O	0 - 200 ppm	0-100%

- Maximum five components measurement including oxygen
- 1 or 2 measuring ranges per component
- Measuring range ratio: ≤ 1:5 (built-in O2); ≤ 1:20 (except built in O2)

A maximum of five components and two ranges are selectable: includes oxygen measurement. Other gases / ranges can be measured with the Series 7600. Please contact the factory for details.

Display: Digital indication (4 digits – back-lit LCD)

Analog output signal: 4-20 mADC or 0-1 VDC; 550 ohms max for 4-20 mADC and 100k ohms for 0-1 VDC

Analog input signal: For externally mounted ZrO2 percent O2 sensor (purchased separately)

Relay contacts: 250 VAC / 2 Amp; resistive load; all relay contacts are isolated from internal circuits

Contact input: Non-voltage contact (On / 0V; Off / 5V, 5mA flowing at ON). Contact inputs are not isolated from one another.

Note: Only M3.5 screw terminals are used for signal inputs and outputs

Power supply: 100 VAC – 240 VAC; 50/60 Hz (3-pin inlet terminal used)

Power consumption: 250 VA max

Operating conditions: -5 to 45º C, 95% RH max

Enclosure:

Model 7600A: Steel casing (19" rack design for indoor use)

- Dimensions: 8.66" H x 19.0" W x 26" D (220 x 483 x 661 mm)
- Weight: Approx 48 lbs (configuration dependent)

Model 7600B: NEMA-4 enclosure (wall mount design)

- Dimensions & Weight: Application dependent
- X and Z-Purge configurations available for hazardous area installations

Wetted parts:

- Inlet / Outlet fittings: SUS304 NPT 1/4 internal thread or Rc 1/4
- Sample cell: SUS304 / Neoprene Rubber
- Cell windows: CaF2
- Internal tubing: Application dependent (Std = Toaron tubing)

Standard sample gas conditioning requirements:

- Flow rate: 0.5L / min, ±0.2 L / min
- Gas temperature: 0 to 50º C
- Pressure: 10 kPa or less (1.5 psig); sample gas should vent to stable atmospheric pressure
- Dust: 100ug / Nm3 or less in particle size of 1um or less
- Moisture: Below the point at which saturation occurs at ambient temperature (non-condensing)
- No corrosive components such as HCL, CL2, HF, etc. (must be below 1 ppm max)

EC DIRECTIVE COMPLIANCE

The product conforms to the requirements of the Low Voltage Directive 73/23/EEC and EMC directive 89/336/EEC (as amended by Directive 92/31/EEC), both as amended by Directive 93/68/EEC. It conforms to following standards for product safety and electromagnetic compatibility:

EN61010-1: 2001 Safety requirements for electrical equipment for measurement, control and laboratory use.

"Installation Category II"

"Pollution Degree 2"

EN61326-1: 1997, AI: 1998, A2: 2001

Electrical equipment for measurement, control and laboratory use — EMC requirements.

SERIES 7600 - INFRARED GAS ANALYZER

PERFORMANCE

Repeatability: ±0.5% of full scale

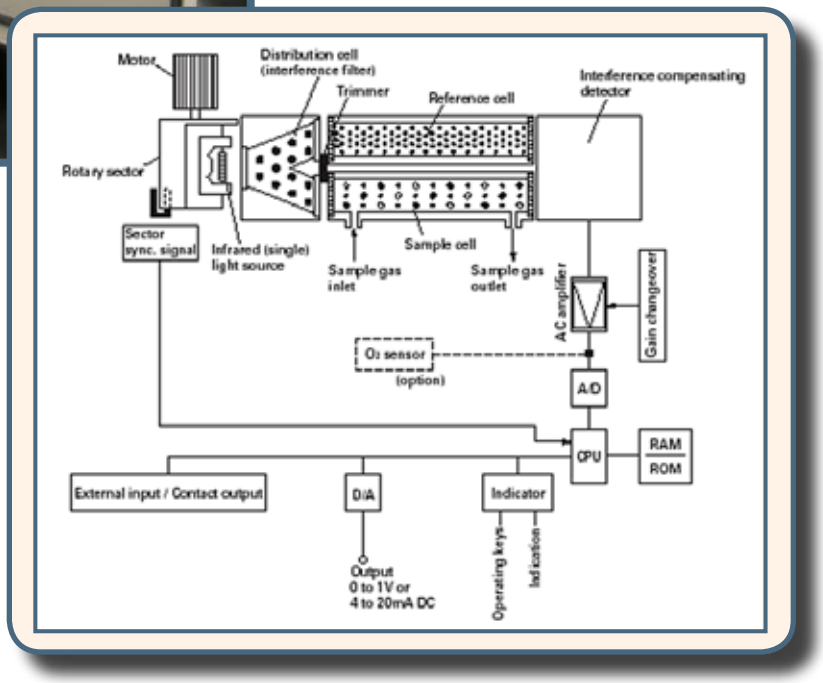
Linearity: ±1% of full scale

Zero drift: ±1% of full scale / week

Span drift: ±1% of full scale / week

Response time (for 90% FS response):
Within 60 seconds including replacement time of sample gas (when gas flow rate is 0.5L / min)

Model 7600B serves as the explosion proof configuration. The NEMA-4 enclosure can be X or Z-purged to satisfy hazardous area installation requirements.



Principle diagram of NDIR type measurement (for NO, CO2, CO, CH4, SO2)

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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.

ISO 9001:2000 – QMS

MGMT. SYS. RvA C 050

CERTIFICATION

ANAB ACCREDITED

Intertek