

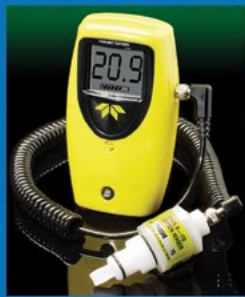


TELEDYNE ANALYTICAL INSTRUMENTS

E-CHEM, ZrO₂, Paramagnetic, TLDAS, TCD, FID, Catalytic-Bead
Global Approvals, Global Solutions, Global Support

Process Gas & Liquid Solutions Provider

UV/VIS, Fluorescence, NIR, NDIR, Fiber Optics, Liquid Analytics





Quality Policy

Teledyne Analytical Instruments is dedicated to a never ending commitment to improving the quality of our products and the satisfaction of our customers through:

- Products that consistently meet or exceed expectations for performance, reliability, and durability
- Service to our customers that is prompt and courteous
- Deliveries that are on time
- Involvement and accountability of our entire management team

Our employees pledge to meet this commitment through a quality process based upon a solid foundation of ethical principles, conscientious attention to detail, proven product engineering, and manufacturing practices.

A handwritten signature in black ink, appearing to read "Tom Compas". The signature is fluid and cursive, written over a white background.

Tom Compas
General Manager

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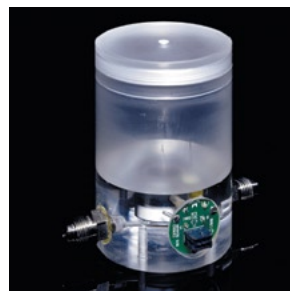
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Sensing Capabilities

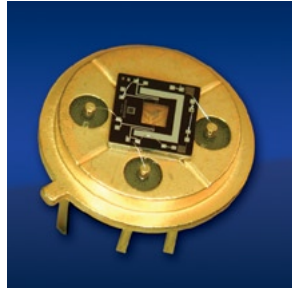
TAI SENSING TECHNOLOGIES

FID
TCD
TDLAS
INFRARED
UV / VIS
FIBER OPTICS
CAPACITANCE
POLARGRAPHIC
NEAR INFRARED
FLUORESCENCE
PARAMAGNETIC
CATALYTIC BEAD
ELECTROCHEMICAL
ZIRCONIUM OXIDE
CHEMILUMINESCENCE



MEASURED PARAMETERS

O₂
H₂
N₂
He
AR
OIL
TOC
NOX
H₂O_v
TOTAL SULFIDES
HYDROCARBONS
CO, CO₂, CH₄
CL₂, SO₂, H₂S
PH, CONDUCTIVITY
DISSOLVED OXYGEN



TAI has over 15 sensing technologies to continuously monitor a wide variety of process gas and liquid parameters. This broad sensing technology-reach allows TAI to cater to a myriad of applications within the industrial, medical and automotive markets.

Our standard product range is routinely extended by developing turnkey system solutions tailored to a client's exact needs. The expertise and flexibility to design and manufacture proven, cost-effective sample preconditioning systems as well as co-bundling multiple analyzers into a single packaged solution is a core competency within TAI that serves to effectively differentiate us from our competition.

SENSORS

TAI's feature-rich, standard analyzer platform -- which provides the operator with user-programmable ranges, auto or fixed ranging, automatic calibration and bi-directional serial interface -- allows TAI to maximize its economies of scale where PCBs, power supplies and housings are concerned. This streamlined manufacturing capability results in quick deliveries and competitive product pricing -- not to mention the ease in field commissioning and servicing.

TAI's product diversity, global approvals and well established distribution network provides our clients with the assurance that we can continue to deliver the proper solution for their challenging application requirements.



Combustible & Oxygen Leak Detection

The **Model 1220** is designed to monitor large industrial plants for flammable gases and vapors to detect and warn of leaks before explosive concentrations of materials can accumulate, providing personnel and equipment safety. In addition, the 1220 can activate a ventilation or sprinkler system or shut down process equipment. The system is composed of a central control station plus remote detectors. The microprocessor-based module is programmable by the user to customize the system's functions, and provides one man calibration capability. It is also easy to add channels for infield upgrades. As few as one or as many as 128 detectors located over a mile away can be connected to one system.



1220	Multipoint Combustibles (4 to 64 points)
1223A	Multipoint Combustibles (1 to 3) - Panel
1223B	Multipoint Combustibles (1 to 3) - Wall



COMBUSTIBLES SERIES 1000

1223A
Panel mount

The **Model 1223A & B LEL Flammable Gas Detection System** is designed for those applications where a smaller, more focused area requires continuous safety detection -- for example, within a battery room, cylinder filling station, or gas station. The 1223 is composed of up to three independent control units. TAI can combine both the 3220 O₂ and 1220 Combustibles Channel Modules into a Model 1223 -- which can be provided in either a flush panel (A) or wall mount (B) configuration.



MULTIPOINT O₂ SERIES 3220



The **Model 3220 Multichannel Percent Oxygen Monitoring System** monitors oxygen levels at one or more locations. The system is designed to easily add channels for in-field upgrades, and is field-programmable to meet the needs of specific process or ambient O₂ deficiency applications. Oxygen probes with maintenance free sensors can be mounted up to a mile away from the control unit. No zero gas is required. Numerous remote sensor probe configurations are available including designs suitable for hazardous areas.

Applications: Process monitoring; Life support; Area monitoring; Controlled environments; Inert gas blanketing

Thermal Conductivity (TCD)



2000A - Panel Mount

The **Series 2000 TCD Analyzers** are designed to continuously monitor the concentration, or purity, of a desired gas in a mixture of background gases (i.e., 70-100% H₂ in HCs). Thermal conductivity is a property of gases relating to their ability to conduct heat. The detector (TCD) used responds to changes in the component of interest by comparing the sample gas with a reference gas - which is either sealed or flowing. The TCD can be applied in various wetted parts for both corrosive and non-corrosive gas streams. Features include 110 pre-programmed combinations of gases, built-in digital linearization, and the ability to reconfigure the analyzer in the field to detect a new parameter.

Applications: Air separation; Turbine generators; H₂ purity in HC Recycle Streams; Annealing furnaces

THERMAL CONDUCTIVITY SERIES 2000

2000A	Panel mount
2000B	Wall mount
2010A	Split - Panel mount control unit
2010B	Split - Wall mount control unit
2020	Fully explosion proof
2000XTC	Low cost TCD transmitter
2750	Portable TCD analyzer



2010 - Split version



2750 - Portable Turbine Generator analyzer



2000XTC
ATEX Approved I/S TCD Xmtr



2020 - Fully explosion proof version



2220 - General purpose version

2240 - Portable hydrogen leak detector

HYDROGEN MONITORING

SERIES 2200

The **Series 2200** utilizes a palladium-based, H₂ specific sensor for monitoring hydrogen on a spot-checking, ambient leak detection or process basis. The dynamic range capabilities of the Series 2200 H₂ sensor allows the operator to monitor for either trace levels -- for early warning of an impending, potentially hazardous leak -- to 100% when qualifying for H₂ purity.

Applications: Hydrogen cooled generator leak detection; Nuclear waste monitoring; Hydrogen degassing monitoring in battery storage facilities; Power station off-gas monitoring; Process hydrogen monitoring of recycle gas streams; Hydrogen leak detection of fuel cell power generation devices; Monitoring hydrogen generated via electrolysis; Hydrogen Reformers and HYCO plants

2220	Hydrogen area monitor / Leak detector
2230	Explosion proof hydrogen analyzer
2240	Portable hydrogen leak detector

Electrochemical, Paramagnetic & Zirconium Oxygen

Series 3000M Paramagnetic Oxygen Analyzers offer superior performance for percent oxygen analysis due to the advanced, maintenance free, paramagnetic O2 sensor design. The 3000M provides the operator with long-life, fast response oxygen sensing capability in both inert and corrosive CO2 gas streams. Properly maintained paramagnetic sensors last for years with little or no attention making them ideal for critical measurements.

Applications: Challenging petrochemical, steel and cement applications; O2 purity analysis and emissions monitoring



"A" - Panel Mount

PARAMAGNETIC

- "A" - Panel mount
- "B" - Wall mount
- "C" - CENELEC (EU)
- "T" - Trace
- "P" - Percent
- "M" - Paramagnetic
- "Z" - Zirconium

3000MA	Panel mount
3000MB	Wall mount
3010MA	Oxygen purity panel
3020M	Fully explosion proof

SERIES 3000



"B" - Wall Mount

3000PA	Panel mount
3000PB	Wall mount
3010PA	Split - Panel mount control unit
3010PAC	Panel mnt control unit (analysis unit CENELEC)
3010PB	Split - Wall mount control unit
3010PBC	Wall mount control unit (analysis unit CENELEC)
3020P	Full explosion proof



"10" - Split version (USA)

FUEL CELL - PERCENT & TRACE

3000TA-XL	Panel mount (0-1 ppm O2)
3000ZA-XL	Panel mount (0-5 ppm O2) - ZrO2 type
3000TA	Panel mount (0-10 ppm and above)
3000TB	Wall mount
3010TA	Split - Panel mount control unit
3010TB	Split - Wall mount control unit
3010TAC	Split - I/S Cenelec, Panel mount control unit
3010TBC	Split - I/S Cenelec, Wall mount control unit
3020T	Fully explosion proof



"C" - Split Version EU Cenelec Probe

Series 3000T & 3000P Trace and Percent Oxygen Analyzers utilize Teledyne's advanced Micro-fuel Cell (MFC) electrochemical oxygen sensors. Teledyne's MFCs provide users with an easy-to-use, disposable, no maintenance O2 sensor design that can be freely applied in inert gas streams as well as in pure or gas mixtures containing H2, hydrocarbons and CO2 for accurate O2 detection from 0-1 ppm up to 0-100%.

Applications: Air separation; Petrochemical; Steel and heat treating; Glove boxes; N2 blanketing



"20" - Fully Ex-proof version

Cost-Effective & Portable Oxygen

Low Cost, Highly Flexible Oxygen Analyzer: The 3190 Trace and 3290 Percent O₂ Analyzer platforms offer ease-of-use and the essential analyzer requirements in a compact design. The flexibility of this platform allows TAI to mate the 3190 or 3290 controllers with fuel cell, ZrO₂ or paramagnetic sensing technologies. The units can be purchased either as stand-alone units or on a high volume OEM, private label basis. Various configurations are available with either AC or DC powered options.

If interested in a value-added configuration -- with cal gas selector valve, flow control, and 19" rack or wall mounting -- TAI offers the Series 3300 turn-key solution.

Applications: Nitrogen generators; Nitrogen blanketing / pneumatic conveyors (with sample system and enclosure)



Model 3190 and 3290

**LOW COST
OXYGEN**

Model
3350



3190Z	Panel mount - PPM / Zirconium oxide
3290Z	Panel mount - percent / Zirconium oxide
3190P	Portable - PPM
3300MA / TA / PA / ZA	Rack mount Paramagnetic / Trace / Percent / Zirconium Oxide
3350	3290 in a NEMA-4 wall mount enclosure

SERIES 3300

**PORTABLE
OXYGEN**



Series 3300



GB300 Portable Oxygen Analysis

Portable Oxygen Analysis: The 3110 and 311XL series provide high accuracy and fast response, and are FM approved intrinsically safe (I, 1, B C D). The 3110 offers two user selectable ranges between 0-10 ppm and 0-25%. The 311XL and 311TCXL (BASEEFA) provide analysis in decade steps ranging from 0-2 to 0-10,000 ppm full scale.

The 320P portable flue gas analyzer series is ideal for spot checking the oxygen content of flue gas from a boiler, firebox, furnace, or other combustion process. Three ranges are provided and calibration is accomplished with ambient air.

Applications: Cryogenic gas delivery certification; Spot checking storage tanks; Welding; Diving; Weather balloons; Combustion efficiency monitoring



Series 3110
Portable Oxygen Analysis



Insta Trans Oxygen Transmitter

3110	Portable O ₂ - FM Approved
311TC	Portable O ₂ - Trace CENELEC
311XL	Portable O ₂ - (0-2 ppm)
311PC	Portable O ₂ - Percent CENELEC
320P	Portable O ₂ - Percent with pump
320PD	Portable O ₂ - Percent with pump / digital
GB300	Portable O ₂ - Percent no pump

Oxygen Transmitter: The Insta Trans is a two-wire, loop-powered 4-20 mA oxygen transmitter packaged within a weather proof NEMA 4 housing. Insta Trans can instantly transform from ppm to percent analysis by changing the sensor and resetting the range scale on the function keypad. The operator can ensure changes have been made via the range indication continuously shown on the built-in meter. No other electrical or resistor changes are required. The Insta Trans has six user selectable ranges from 0-10 ppm to 0-25%. This unit is suitable for use in non-hazardous and Division 2 environments in its standard configuration or for Division 1 / Zone 0 areas with optional intrinsic safety barriers.

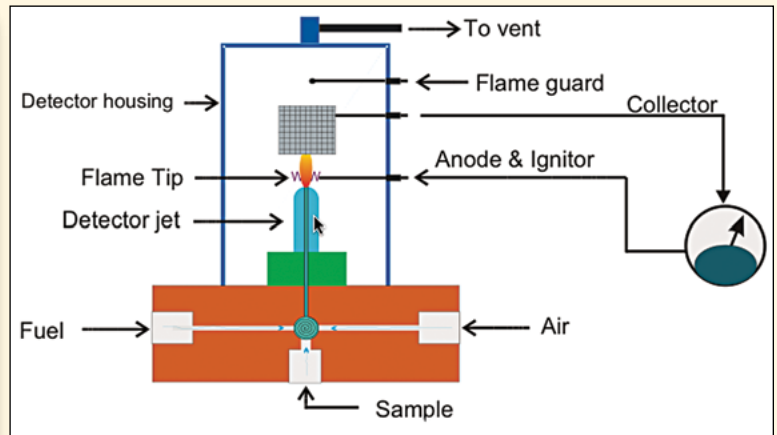
Applications: Petrochemical; Natural gas transmission; Any O₂ application where 24V loop power is desired

Flame Ionization Detection (FID)

The **Series 4000** FID platform is highly flexible. In its most basic configuration - the Model 4020 - Teledyne provides a continuous analysis of the total hydrocarbon (THC) impurities found in bulk gases (N₂, H₂, O₂, He, Ar, CO₂) manufactured by the air separation industry.

We can also apply this same configuration, in tandem with a sample stripper system, to detect the THC content found in cooling tower water / heat exchanger condensate within a power plant.

By placing a packed column upstream of the FID, in conjunction with the added valving and temperature control capabilities, TAI is also capable of speciating various compounds (i.e., methane, benzene, acetaldehyde, etc.) within a gas stream. TAI has developed specific analyzers with these capabilities.



4020 THC Analyzer

Applications:

- Monitoring the total hydrocarbon (THC) impurities found in bulk gases which are used in the manufacturing of microcircuits
- Gas purity certification
- Detecting THC in CO₂ used within the food & beverage industry

4020	Total Hydrocarbon analyzer
4030	Total Hydrocarbon analyzer heated for emissions
4040	Methane / Non-Methane analyzer for ambient and process applications
4060	Benzene analyzer for ambient, food & beverage, and process applications; and Acetylene measurement in air separation plants
4080	Total Hydrocarbon in Water analysis system

4030 Heated THC Analyzer

Applications:

- Monitoring THCs for emissions compliance purposes
- Detecting THCs found in a high temperature wet-process gas to confirm the efficiency of incinerators, scrubbers, carbon adsorbers and catalytic oxidation units to remove THCs prior to release to the atmosphere

4040 Methane / Non-Methane Analyzer

Applications:

- The ambient detection and speciation of methane and non-methane THCs found in the atmosphere for environmental control and reporting purposes
- Gas certification applications within the air separation industry

SERIES 4000

4060 Benzene (or BTX) Analyzer

Applications:

- Monitoring the benzene (or BTX) content found in purified CO₂ used within the food & beverage industry
- Detecting the benzene (or BTX) content found within the ambient air (i.e., fence-line monitoring) for environmental compliance purposes

PROCESS GAS CHROMATOGRAPHS

4080 THC in Water Analyzer

Applications:

- Detecting the THC content found in cooling tower water for environmental compliance purposes. The FID approach can detect both aliphatic and aromatic hydrocarbon content.



Moisture / O₂ Analysis Systems



The **Series 8800 Trace Moisture Analyzers** detect moisture from -100° C to ambient dewpoint levels of +20° C on either a continuous or spot checking basis. The user can select the moisture analysis readout to be displayed as Deg C, Deg F, ppm - and for natural gas applications -- in lbs of H₂O/million cft or g/m³. The moisture sensor employs unique Hyper Thin Film (HTF)[™] technology which offers structural improvements in Al₂O₃ sensor design. These structural changes provide increased sensitivity, greater stability, and a quicker response time. The 8800 Series can be applied to detect moisture on either gas or liquid phase applications.

Applications: Air separation; Glove boxes; Heat treating furnaces; Dryers; Polyethylene plants

TRACE MOISTURE

The **8800NG** is specifically designed to detect H₂O_v found in natural gas. TAI's unique system solution includes on-board calibration capability to periodically ensure that the moisture sensor is accurately responding to a known calibration standard. This affirms proper analysis of the moisture content found in the natural gas stream.



8800NG System

8800A	Flush mount DIN enclosure with connections made via a pluggable screw terminal block
8800B	Wall mount N4X (IP65) enclosure with connections made via 3 bottom watertight fittings
8800P	Portable battery operated design available in a Standard Version, I/O Version, and I/S Version (I/S version suitable for hazardous areas)
8800T	Low-cost, loop powered 4-20 mA transmitter design with built-in LCD display
8800NG	Moisture system for natural gas

SERIES 8800



in Class I, Division 2, Group B, C and D hazardous areas when used in conjunction with a non-incendive power source. The OT-3 with a regulator, coalescing filter, flow control and calibration valving, all within a NEMA-4 weatherproof enclosure. TAI can also provide AC powered systems and an optional on-board heater for installations in cold environments (OT-3H).

when used in conjunction is provided

Applications: O₂ in natural gas gathered from low pressure coal-bed methane (CBM) wells

OT-3 & OT-3H O₂ System for Natural Gas



The **Oxygen Snitch** is a compact, low cost alternative to the standard oxygen analyzer. In many natural gas processes, the user simply needs to be advised if the oxygen content has moved beyond specific parameters. Complex sample systems and large instruments with electronics and LCD displays are not always required. Teledyne's solution is a softball-sized device that provides the customer with a desired output signal. The unit consists of a sensor block which measures oxygen using Teledyne's own sensor technology. It then provides the customer with a voltage, current, or alarm contact, signaling an oxygen reading or alarm condition.



NATURAL GAS

NIR & UV Analyzers / Systems



5000B & 6000B Design

5000 Series Near Infrared (NIR) Photometer

The Series 5000 NIR Photometer utilizes a chopper stabilized single sample cell, dual wavelength design to continuously monitor water and organic compounds (in the liquid phase) that have distinct absorbance peaks within the NIR region of the light spectrum. In addition to providing inherent stability, this design provides automatic compensation for the background components with an absorbance overlapping that of the component of interest. The Series 5000 is set apart from other commercially available NIR analyzers by its unique sample cell pre-heater design that ensures stable performance over a wide temperature range. The Series 5000 is available in either general purpose or hazardous configurations.

Applications: PPM or percent level detection of H₂O in organics / solvents in petrochemical plants (EDC/VCM, HOAC, MCB, etc.)

NEAR INFRARED PHOTOMETERS SERIES 5000

5000B	Wall mount NIR - folded optics
5020	Fully explosion proof NIR
6000B	Wall mount UV
6020	Fully explosion proof UV
6200	Total sulphides analyzer
6400	Fluorescent SO ₂ analyzer
6600	Oil in Water analyzer system
6650	Oil in Water analyzer, fluorescence probe



5020 NIR - Fully explosion proof



6020 UV - Fully explosion proof

Note: Virtually all photometers are made to order and typically have value added elements incorporated into the design.



6200A UV Fluorescence Total Sulphides Analyzer

SERIES 6000 UV, VIS & FLUORESCENCE PHOTOMETERS

6000 Ultraviolet Photometer Series

The 6000 Series of microprocessor controlled ultraviolet photometers provides continuous on-line detection of selected gases or liquids that absorb in the UV / VIS region. The field proven single source, dual wavelength optical design allows for compensation of turbidity, source lamp aging or window coatings, thereby producing a high degree of stability. General purpose, non-hazardous configurations as well as totally explosion proof versions (6020) for use in Class I, Division 1, Groups B, C & D are available. The 6000 Series is normally applied to detect H₂S, SO₂, CL₂ as well as Phenol-in-Water and the color of refinery oils on a Saybolt, ASTM or APHA basis.

Applications best suited for: Petrochemical; Refining; Emissions; Pulp & Paper; Food & Beverage; Electrostatic precipitators

Oil in Water & TOC Analyzers

6600 Oil in Water Analysis System

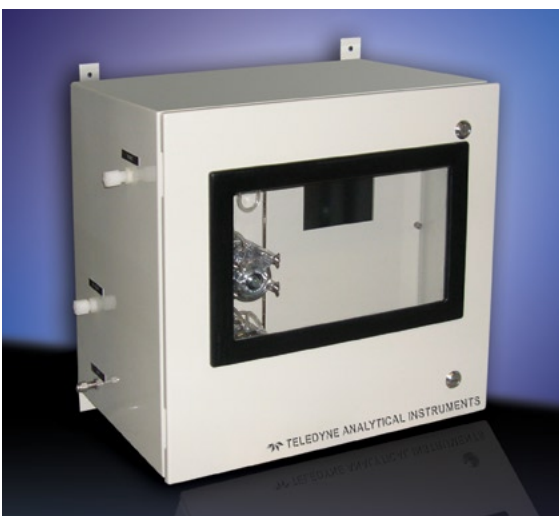
The 6600 utilizes the ultraviolet absorption principle to detect and continuously measure oil concentration in water with a reproducibility that exceeds standard laboratory techniques.

- Typical ranges of 0-5 to 0-200 ppm Oil (higher ranges available – contact factory)
- Compact, folded optic packaging with approved purged designs for use in hazardous areas
- Automatic self-cleaning sample cell design suitable for high sample pressure and temperature applications
- Field-proven, value-added sample system designs available; configuration is based upon intended application use

Applications: Oil in boiler return condensate; Refinery run-ogf, Waste water treatment plant; Oil in Produced Water analysis on an offshore oil rig; Ship ballast discharge for environmental compliance; Cooling tower water / heat exchangers



6600 Oil-in-Water Analysis System



The **Series 6700** covers a complete range of **Total Organic Carbon (TOC) Analyzers** capable of addressing a wide variety of industrial applications for process and environmental compliance purposes. Depending on the application, TAI can provide an recommendation as to which technique would be best suited to continuously detect TOC within your process.

UV / Heated Persulfate Combustion Ozone Promoted Ultrapure

Each configuration is available with an advanced Microsoft Windows-based computer with touch screen control. The robust and reliable Infrared CO₂ analyzer is the heart of each design. It provides specific, interference-free CO₂ detection, has no moving parts, and is extremely easy to access and service, as required. Depending on your specific needs, TAI is capable of providing a complete turn-key system solution suitable for use in hazardous, outdoor environments.

Applications: Boiler feedwater; Cooling water; Wastewater; River water; Pharmaceuticals; Process control

TOC ANALYZERS SERIES 6700

Infrared Analyzers / Systems



INFRARED PHOTOMETERS SERIES 7000

Teledyne's **7300 series of Non-Dispersive Infrared (NDIR) gas analyzers** features fast response, high accuracy, sensitivity, stability, and excellent linearity. The analyzers offer cost competitive measurement solutions due in part to the uniquely designed and

7300A	Panel mount
7300B	Wall mount
7320	Fully explosion proof

patented IR detector. The heart of these microprocessor-based units is a temperature compensated, hermetically sealed, steady state thermopile detector integrated into an IR photometric bench. This design eliminates the traditional motor driven chopper wheel, signal conditioning circuitry, and complex optics resulting in a compact and rugged analyzer.

Applications: Chemical and petrochemical processes; Combustion and flue gas processes; Pulp & Paper; Vapor recovery systems; Enhanced oil recovery; Food; Agriculture; Medical; Metals; Ceramics and heat treating atmospheres; Landfill gas power stations; Emissions testing (part of the mobile stations); Carbon dioxide scrubber efficiency; CO / CO2 monitoring in oxyhydrochlorination process in EDC manufacturing



7500	Rack mount - CO2, CO, CH4, SO2, O2
7500B	Wall mount - CO2, CO, CH4, SO2, O2
7600	Rack mount - NO, CO2, CO, CH4, SO2, O2
7600B	Wall mount - NO, CO2, CO, CH4, SO2, O2



The **Series 7500 IR Gas Analyzer** can detect up to three individual IR absorbing components (i.e., CO, CO2, CH4, SO2) on a continuous basis. As either a 19" rack mount or NEMA-4 wall mount enclosure, the 7500 can also be supplied with an oxygen sensor, making a four in one, cost-effective design. The NEMA-4 enclosure can be X or Z-purged to satisfy hazardous area installation requirements. The **Series 7600 Infrared (IR) Gas Analyzer** is capable of detecting up to four individual IR absorbing components (i.e., NO, SO2, CO2, CO, and CH4) on a continuous basis.

GFC-7000	Rack mount - trace CO2
GFC-7001	Rack mount - trace CO
GFC-7002	Rack mount - NO2

The **GFC-7000 Gas Filter Correlation Analyzer** detects CO2 on an ultra-low range from 0-100 ppb to 0-100 ppm. The sensitivity is achieved via a multiple optical pass sample (white) cell. Advanced electronics provide extensive self-diagnostic capabilities, and built-in data acquisition provides the means to log multiple calibration and operational parameters. The modular construction makes service, when required, a simple operation.

Applications: Air separation; Medical grade air and O2



Stack Emissions & Combustion Efficiency



The **LGA-3500** is an in-situ, cross stack **Tunable Laser Diode Array Spectrometer (TLDas)** capable of detecting a number of compounds, such as O₂, CO, CO₂, within a combustion process. The LGA-3500 provides an instantaneous response to process changes, has no moving parts, no cross interference from other gases, and eliminates the need for a costly extractive sample preconditioning system. The rugged design and air purge applied on the optical windows of the laser transmitter and receiver units makes the LGA-3500 easy to maintain and leads to a low cost of ownership. Configurations suitable for hazardous areas are also available.

Applications: Combustion optimization; Challenging process applications within Steel and Petrochemical plants



LGA-3500

The **9060 Zirconium Oxide Flue Gas Oxygen Analyzer** provides reliable in-situ oxygen monitoring by combining our proven zirconium oxide sensor technology with a microprocessor based controller in a compact NEMA-4 housing.

Applications: Boiler / combustion efficiency; Stack gas / emissions monitoring; Process heater furnaces (ethylene plants)



SERIES 9000



The CEA-9001 and PEM-9002 digital flue gas analyzers, suited for inspecting and servicing small to industrial sized heater installations, are used for safety-relevant technical inspections of CO emission concentrations in gas combustion plants.

The **Series 9110** utilizes the chemiluminescence method for continuous detection of NO / NO₂ / NO_x for either the 0-50 ppb to 0-20 ppm (Model 9110A) or 0-5 ppm to 0-5000 ppm (Model 9110AH) range.

Applications: Continuous emissions monitoring (CEMs); Selective catalytic reduction of NO_x; Air separation (medical grade gases)



Liquid Analytics



The **Series LXT** is comprised of microprocessor based, loop powered process transmitters designed to provide liquid measurement and control in its simplest form. The units are provided in watertight NEMA-4X and NEMA-7C (LXT-280 only) configurations which can be panel, universal or hand-rail mounted in the field.

Applications:

- Power Industry - Heat exchanger leaks; Condensate monitoring; Cooling tower H2O control; Boiler feedwater control
- Pulp & Paper - Demineralizer; Digester; Bleach plant; Recovery & Waste Water
- Water Treatment - Influent monitoring; Reverse Osmosis & Desalinization plants
- Food & Beverage - pH in fermentation process; DO in carbonated beverages
- Pharmaceutical - Clean-in-Place (CIP) conductivity

LXT-220	AC powered, feature-rich controller, NEMA-4X
LXT-230	DC powered transmitter, NEMA-4X
LXT-280	DC powered transmitter, CSA / FM approved

PH, CONDUCTIVITY, DISSOLVED O2, SPECIFIC ION SERIES LXT

SP-2 Retractable and SP-1 Immersion Probe Design



Photo-X Series: Fiber Optic Based UV/VIS & NIR Transmitters

TAI offers an application specific family of fiber optic-based photometric transmitters that provide unique, in-situ solutions to challenging process problems.

By offering in-situ Front Surface Probes in SS and Hastelloy-C -- capable of contending with high sample temperatures and pressures -- we can determine the fluorescence or spectral reflectance from the surface of a liquid, solid, paste or slurry. The fiber optic probe is intrinsically safe and we can package the Photo-X Transmitter in a purged enclosure for installation in hazardous areas.

The Photo-X product offering allows us to extend our application reach within the petrochemical, pharmaceutical and food & beverage markets.

UV Applications: Oil-in-Water analysis; Clean in Place (CIP) validation; Protein purification, Viable cell growth (NADH); Rouging in Water / Water for Injection (WFI)

NIR Applications: Optical density of fermentation; Water in Solvents; Scale formation



PHOTOMETRIC TRANSMITTERS

PHOTO-X

Custom Design Solutions



Medical gas racks per US and European Pharmacopoeia regulations

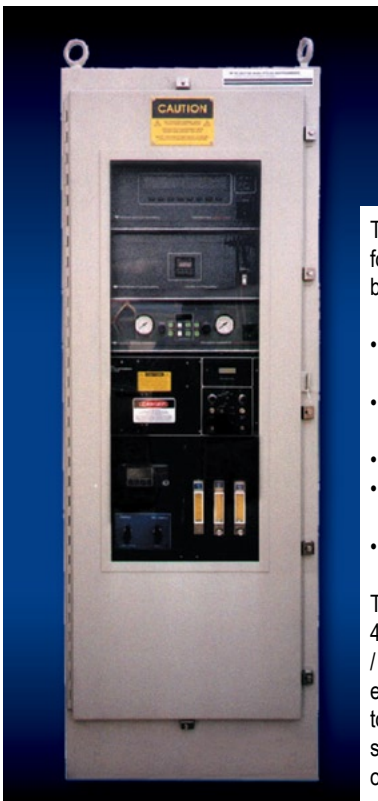
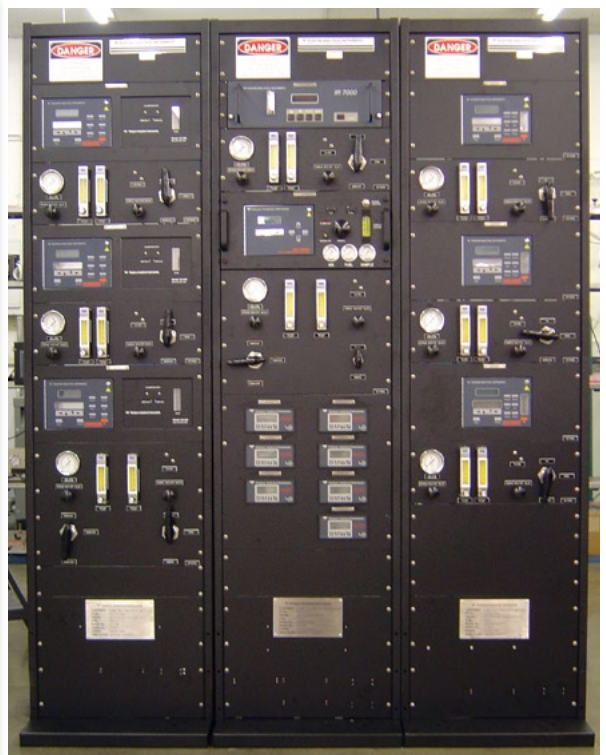
Custom Systems

Teledyne provides turn-key solutions for a wide variety of complex, custom process monitoring applications. For over 50 years we have assisted customers with special monitoring needs. Drawing on our process expertise, our team of seasoned experts creates systems that offer reliability and performance our customers can rely on.

The development of a custom system involves evaluating chemical samples, process conditions, environmental requirements, and hazardous classifications. In addition, systems must often meet

international standards that require special knowledge. This work is done at no charge to the customer.

Teledyne also participates in joint cooperative efforts with end users, manufacturers and agencies to provide solutions to problems that no individual company can solve. Many Teledyne developments are shared with the scientific community to propel the analytical industry forward and better serve the scientific community. Whatever the application, Teledyne will endeavor to create a custom system specific to the application.

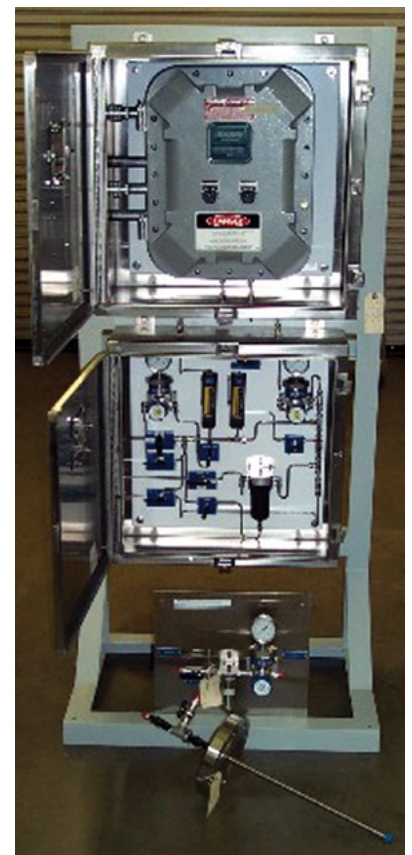


MADE TO ORDER SYSTEMS

The **CDQC System** can incorporate any combination of the following analyzers to ensure the CO₂ product used in food and beverage processes meets industry standards:

- Trace levels of Total Sulphides as SO₂ via UV Fluorescence (0-50 ppb to 0-20 ppm)
- Trace levels of Total Hydrocarbons via FID (0-1 ppm to 0-1000 ppm)
- Trace levels of Moisture via Al₂O₃ sensor (-100°C to + 20°C)
- Trace levels of Oxygen via Micro-fuel Cell sensor (0-10 ppm to 0-1%)
- CO₂ Purity Analysis via NDIR (98-100%)

The analyzers can be mounted in either a NEMA-12 or NEMA-4/4X system enclosure with dual door access to facilitate analyzer / sample system adjustments. The system can be designed for either stationary installation or with casters allowing the system to be easily moved to various points in the plant. If required, the system can be winterized allowing the system to be mounted in an outdoor environment.



IR Systems for Offshore Platforms

Carbon Dioxide Quality Control (CDQC) System for detecting total sulphides, total hydrocarbons, and trace moisture in pure CO₂ for the beverage industry

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ISO-9001
ISO-13485
CENELEC
ATEX
BASEEFA
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GOST
UL
CSA

Certifications for specific instruments available upon request. Specifications for systems are also available by contacting TAI or a local representative.

TAI Representative:

Teledyne Analytical Instruments

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