

## Real-Time and Fixed Point Solutions for Gas and Water Applications

### Fermentation Control



#### Applications:

- Fermenter off-gas composition analysis
- Fast and accurate analysis for control parameters such as Respiratory Quotient (RQ) and fermentation endpoint
- Continuous monitoring to improve yield, quality and reduce waste
- Single species or multi-component analysis (e.g. CO<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, Ar, H<sub>2</sub>O, CO, H<sub>2</sub>, He, hydrocarbons, alcohols, aldehydes, sulfurs, etc.)

**extrel**

**Tiger**optics



#### MAX300-BIO

Real-Time, Multi-Stream,  
Industrial Mass Spectrometer  
for Bioreactor Control



#### MAX300-LG

Benchtop Mass Spectrometer  
for Real-Time, Multi-Stream,  
Bioreactor Control



#### Spark CRDS

Single Species Trace Gas Analyzer  
for PPB-Level of H<sub>2</sub>O, CH<sub>4</sub>,  
CO and CO<sub>2</sub> Detection

### Solvent Drying & Endpoint Determination



#### Applications:

- Accurate endpoint determination to improve product yield, production efficiency and minimize waste
- Easy configuration for stream switching to multiple chambers
- Optimized sampling for ambient pressures, vacuum drying and lyophilization
- Trace moisture analysis and multi-species analysis of isopropanol, alcohols, methylene chloride, acetone, ethyl acetate, etc.

**extrel**

**Tiger**optics



#### MAX300-BIO

Real-Time, Multi-Stream, Industrial  
Mass Spectrometer for Solvent Drying  
and Endpoint Determination



#### MAX300-LG

Benchtop Mass Spectrometer for  
Real-Time, Multi-stream, Solvent  
Drying and Endpoint Determination



#### HALO RP/QRP

CRDS Trace-Level Low-  
Pressure Moisture Analyzer  
for Lyophilization

## Evolved Gas Analysis

### Applications:

- Connects to thermal gravimetric analyzers (TGA) for off-gas monitoring
- Quality control in reaction monitoring, natural product analysis and synthesis studies
- Microreactor off-gas and headspace analysis
- Single species or multi-component analysis (e.g. CO<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, Ar, H<sub>2</sub>O, CO, H<sub>2</sub>, He, hydrocarbons, alcohols, aldehydes, sulfurs, etc.)

**extrel**



#### MAX300-EGA

Benchtop Mass Spectrometer with Heated Evolved Gas Inlet for Real-Time, Continuous Process Control

**Tiger**optics



**HALO RP/QRP**  
CRDS Trace-Level Low-Pressure Moisture Analyzer



**T-I Max**  
Ambient Pressure Analyzer for Trace HCl, NH<sub>3</sub>, HF, CO and CH<sub>4</sub>



**Spark CRDS**  
Trace Gas Analyzer for PPB-Level of H<sub>2</sub>O, CH<sub>4</sub>, CO and CO<sub>2</sub> Detection

## Glove Box Monitoring

### Applications:

- Real-time, in situ glove box and incubation monitoring
- Ideal for vessel and climatic chamber monitoring/ and validation
- PPB to 100% H<sub>2</sub>O and O<sub>2</sub> (aerobic and anaerobic activity), relative humidity and dew point, temperature and compositional gas analysis

**extrel**



#### MAX300-CAT

Benchtop Real-Time PPB-Level to 100% Catalysis, Reaction Monitoring, and Environmental Research



**MAX300-LG**  
Benchtop Mass Spectrometer for Real-Time PPB-Level to 100% Compositional Analysis of Glovebox Gases

**Tiger**optics



**Spark CRDS**  
Trace Gas Analyzer for PPB-Level Detection of H<sub>2</sub>O, CH<sub>4</sub>, CO and CO<sub>2</sub> Detection

**AO** ALPHA OMEGA INSTRUMENTS



**Series 3520 | Oxy-Sen**  
Portable and Fixed Trace to Percent Oxygen Monitors

**COSAX**ENTAUR



**XDT | XPDM /LPDT Models**  
Aluminum Oxide Dew Point Meters with Hyper-Thin-Film Technology

**MBW** calibration



**473-SH2 Model**  
Chilled Mirror Dew Point Hygrometer with Measuring Head for Temperature and RH Measurements

## Facility, Safety and Compliance

### Applications:

- Oxygen safety monitoring
- Quality of process gas supplies (CDA, N<sub>2</sub>, CO<sub>2</sub>, etc.)
- Online and/or remote moisture sensor calibration and control
- PPB to 100% moisture; 0-25% O<sub>2</sub>

**AQ** ALPHA OMEGA  
INSTRUMENTS



**Series 1300**  
Oxygen Deficiency Monitors

**COSAX** XENTAUR



**XDT | XPDM | LPDT Models**  
Portable/Fixed/Loop-Powered  
Aluminum Oxide Dew Point Meters  
with Hyper-Thin-Film Technology

**MBW** calibration



**373 Model**  
Chilled Mirror  
Dew Point Hygrometer

## Water Analysis

### Applications:

- On-line water quality analysis for total organic carbon (TOC), chemical oxygen demand (COD), biological oxygen demand (BOD)
- Water influent and effluent discharge control for environmental compliance
- Water for injection (WFI)
- Monitor return/boiler water quality to prevent system corrosion

**LAR** THE  
TOC  
COMPANY



**QuickTOCultra**  
TOC Water Analyzer for Harsh  
Wastewater Applications



**QuickTOCuvll**  
TOC Water Analyzer for  
Pure Water Applications



**QuickTOCpurity**  
TOC Water Analyzer for  
Pure and Process Water  
Applications



**QuickCODLab**  
COD-Water Analyzer  
for Laboratories

## OUR PREMIUM GLOBAL BRANDS

**AQ** ALPHA OMEGA  
INSTRUMENTS

**ATOM**  
INSTRUMENT

**extrel**

**MBW** calibration

**COSAX** XENTAUR

**HYGROCONTROL**

**LAR** THE  
TOC  
COMPANY

**Tiger** optics