



## INSTRUMENTATION

### System Measures Level of Silo Farm Inventories



The Ensemble-L provides high-performance level measurement of silo farm inventories. Up to four silos can be monitored from a single screen, which may be installed locally or remotely; the four silos do not need to be in the same location. The Ensemble-L offers field accuracies of 1% of full scale on silos supported by legs, and 3–4% on skirted silos. It has an Ethernet interface, and it comes with free software to connect to the company's Windows-based SOLO Manager and Android-based Connexion software to provide remote access by mobile device.

**Strain Systems, Inc.**

[www.strainsystems.com](http://www.strainsystems.com)

### Proportional Level Detector Controls Small-Scale Liquid Levels



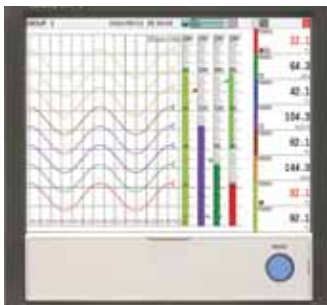
The CL-10GP proportional level detector is designed specifically for liquid level control in pilot plants, pharmaceutical processing, or any small vessel. It is paired with the EC-103C(G) control unit to activate electro-pneumatic transducers, valve positioners, indicators, controllers, or other devices. The level detector

and control unit monitor and control precise levels through a unique, high-resolution, proportional output signal. They can withstand harsh process conditions, such as high temperature and high pressure. Both the CL-10GP and EC103C(G) operate on either a 50-Hz or 60-Hz power supply.

**Dynatrol**

[www.DynatrolUSA.com](http://www.DynatrolUSA.com)

### Product Family Combines Smart User Interface and Enhanced Architecture



The GX and GP data acquisition stations and GA10 software are part of the SMARTDAC+ product family. The GX and GP measure input signals, save data over long time periods, and display data on touch-screen user interfaces. The GX is a NEMA-4-rated panel-mount system, and the GP is a portable benchtop model. Both have fully modular and scalable input/output (I/O), so input channels and alarm relays can be added in any combination at any time. The GA10 file viewing and configuration software is a free download that supports analysis of the secure binary data files from the GX and GP. Data can be printed and converted to Excel file format for additional analysis. The Ethernet interface provides a full range of network functions, such as file transfer protocol (FTP), email messaging, and Modbus TCP client/server connectivity.

**Yokogawa Corp. of America**

[www.yokogawa.com/us](http://www.yokogawa.com/us)

### Thermal Mass Flowmeters Achieve High Measurement Accuracies



The QuadraTherm thermal mass flowmeters have a unique four-sensor design — featuring three temperature sensors and one no-drift DrySense mass velocity sensor — to improve accuracy and stability. The flowmeters isolate forced convection by calculating and then eliminating unwanted heat-transfer components, such as sensor stem conduction. The QuadraTherm is available in two models: the 640i insertion model and the 780i inline model. The QuadraTherm can measure all inert and noncondensing gases, and flammable gases such as methane, propane, hydrogen, and digester gas.

**Sierra Instruments**

[www.sierrainstruments.com](http://www.sierrainstruments.com)

### Ultrasonic Immersion Sensor Measures Interfaces

The Turbimax CUS71D ultrasonic immersion sensor can measure interfaces in processes where suspensions separate into their liquid and solid components by sedimentation. It can monitor the separation and transition zones of the clarification and settling phases continuously. The sensor has a piezoelectric crystal that generates an ultrasonic signal and measures the time required for the signal to reach solid particles in the separation zone. The sensor can be combined with the

company's Liquiline M CM44x series of transmitters to form a complete measurement system. Two sensor models are available: a standard sensor, and a sensor with a wiper to prevent the formation of films and air bubbles at the sensor transducer. Each model can detect an interface at distances of 1–32 ft with a maximum error of 1.3 in. The sensor can be installed in open basins, channels, and tanks, and operates at process temperatures of 34–122°F and pressures up to 87 psi.

**Endress+Hauser**  
[www.us.endress.com](http://www.us.endress.com)

### **Vibrating-Rod Level Sensors Are Certified for Hazardous Locations**

The VR-21 and VR-41 vibrating-rod level sensors can detect product levels in bins, silos, and hoppers that contain powders or dry bulk solid materials.

The sensors are approved by the Canadian Standards Association (CSA) for use in Class II, Division I, Groups E, F, and G hazardous locations. Enclosures are certified to NEMA 4X, 5, and 12. The sensors have a low-energy, piezoelectric-driven vibrating rod that will not cause false alarms, an LED indicator light to display sensor status, and a switch-selectable high/low fail-safe setpoint. They have three sensitivity settings and can reliably detect very light materials with bulk densities as low as 1.25 lb/ft<sup>3</sup>. The VR-21 model can be used for low-, mid-, and high-level detection. The VR-41 is mounted on the top of the bin and is used for high-level detection.

**BinMaster**  
[www.binmaster.com](http://www.binmaster.com)



### **Profibus PA Communication Protocol Enhances Digital Valve Controller Line**



The DVC6200p Profibus PA digital valve positioner is part of the Fisher FIELDVUE digital valve controller family. For throttling control applications, it offers an analog output function block. A digital output function block is available for on/off applications. The DVC6200p provides several alerts, trends, and diagnostics to allow for process visibility and control. A quick setup and calibration, including performance tuning, can be performed in a matter of minutes. The device features linkage-less noncontact sensor technology, and IECEx and FM approvals are available.

**Emerson**  
[www.emerson.com](http://www.emerson.com)

### **Coriolis Mass Flowmeter Withstands Caustic Fluids**



The Optimass 7300 straight-tube Coriolis mass flowmeter is now available in a tantalum version. This flowmeter is suitable for safe and reliable measurement of fluids that are aggressive or corrosive, or that

require glass-lined piping. With a chemical resistance similar to that of glass, tantalum is typically used with chemicals such as hydrochloric acid, sulfuric acid, nitric acid, and bromine, among others. The single straight-tube design is resistant to blockage and fouling, which allows the meter to handle high-viscosity fluids with ease. This flowmeter maintains a high level of accuracy, even in the presence of entrained air.

**KROHNE**  
[www.us.krohne.com](http://www.us.krohne.com)

### **Corrosion Transmitter Measures Pitting Tendency in Water Systems**



The Corrat CWT-9020 wireless corrosion transmitter measures corrosion rate and pitting tendency in water systems. It is designed for installation in electrically hazardous areas and has an allowable operating range of –40°C to 70°C. The CWT employs a patented high-frequency measurement technique on two electrodes for compensation of the solution resistance. Each wireless corrosion transmitter can function as a node in a self-organizing wireless network to ensure consistent data delivery. The CWT can be quickly and easily installed without the time and expense required for wiring.

**Rohrbach Cosasco**  
[www.cosasco.com](http://www.cosasco.com)



## HEAT TRANSFER

### Flange Immersion Heaters Are Available in Many Configurations



These flange immersion heaters come with hundreds of options and can be shipped in two weeks. The heaters are available in sizes ranging from 3 to 14 in., with sheath materials of construction such as Type 316 stainless steel, copper, and Incoloy 840. Available voltages and wattages range from 60 W/in<sup>2</sup>, 6 kW, 240 V for single-phase units to 16 W/in<sup>2</sup>, 167 kW, 480 V for 3-phase systems. Flange immersion heaters are typically used in large-volume and high-power applications, or where flange connections to tanks, vessels, or pipe are preferred. The company offers application support and field service with the purchase of a heater.

**Durex Industries**  
[www.durexindustries.com](http://www.durexindustries.com)

### Heat Tracing Cable Provides Low-Wattage Output



Heat Trace 2700 Series self-regulating heating cables can be cut and terminated in the field and safely overlapped without overheating or burnout. Their multilayered construction supplies a specified amount of heat at any point along their length in

direct response to local temperature variations, which makes them useful for freeze-protection of fluid transport systems. Models are available for 3-, 5-, 8-, and 10-W/ft at 50°F. They can maintain temperatures up to 150°F, with intermittent exposure to 185°F. The cables accept 110–227 VAC supply and are offered in standard and hazardous-area configurations.

**Heat Trace Products, LLC**  
[www.rscc-heattrace.com](http://www.rscc-heattrace.com)

## LABORATORY EQUIPMENT

### Liquid Handling System Increases Research Productivity



The Encore Multispan liquid handling system combines pipetting with a built-in robotic arm and intelligent software control to enable easy automation of research. A multispan pipetting system contains two banks of pipettes that move on independent axes. Each pipette can address a variety of sample formats, including tubes, vials, and microplates. The software package features a 3D simulator that lets researchers set up, visualize, and optimize their protocols remotely. The robotic arm has a span of 21 in. and features one-touch teaching. The Encore system quickly and easily automates complete workflows for a wide range of applications, such as high-throughput screening; enzyme-linked immunosorbent assay (ELISA); absorption, distribution, metabolism, and excretion, plus toxicity (ADME/TOX); compound management; and sample preparation for genomics, proteomics, and more.

**Agilent Technologies, Inc.**  
[www.agilent.com](http://www.agilent.com)

## FLUIDS AND SOLIDS HANDLING

### Porous Media Chip Advances Petrochemical Research

The porous media chip enables representative modeling of porous sandstone rock structures. The chip has a 2D structure of intersecting 100- $\mu$ m diameter capillaries, which form pore bodies joined by different types of throats; both pore bodies and throats have standard geometries. It can be used in single- and multi-phase fluid flow studies. The standard chip has a pressure range up to 30 bar; capillary connections can be added to increase the operating pressure to 350 bar. The porous media chip is suitable for applications in academic research, environmental testing, and groundwater analysis, as well as industrial research in the petrochemical industry.



**Dolomite Microfluidics**  
[www.dolomite-microfluidics.com](http://www.dolomite-microfluidics.com)

### Fine-Particle Filter Handles Variable Streams

The Tequatic Plus fine-particle filter offers crossflow filtration with centrifugal separation and boasts over 99% uptime. It provides continuous cleaning and handles highly variable total suspended solids (TSS) flowrates with almost no maintenance, fouling, or backwashing. The filter enhances safety and sustainability by reducing handling and waste. The Tequatic Plus may be used for applications such as pretreatment for ultrafiltration and reverse osmosis, and filtering produced water in the oil and gas industries.

**Dow Water & Process Solutions**  
[www.dowwaterandprocess.com](http://www.dowwaterandprocess.com)



### Mixers Provide Consistent Concentrations Despite Variable Fluid Levels



These mechanical concentrate mixers can replace the traditional manual fluid-mixing methods that often result in imprecise concentration control. The Drum Top Mixer is available in 3-gpm and 10-gpm models, with an adjustable mixing range of 2% to 10%. A needle valve allows for infinite adjustments across the mixture range. The Proportioner, which has an average flowrate of 5 gpm and a mixing range of 1% to 25%, is a water-driven, positive-displacement unit that dispenses coolant on demand. Because it is driven by the plant's water supply pressure, it can also deliver properly mixed fluid through overhead piping to machine tools without a booster pump.

**Eriez**

[www.eriez.com](http://www.eriez.com)

### Condensate Pump Is Backed by a 3-Year Warranty

The Pivotrol PTF4 is a high-capacity pressure-powered condensate pump that can withstand pressures up to 200 psig. It can be operated with steam, air, or other pressurized gases. The PTF4 incorporates dual Pivotrol pumping mechanisms with Power-Pivot technology. It is also backed by a standard warranty that covers 3 million cycles or three years, with a 5-million-cycle or five-year warranty also available; an integrated electronic counter monitors the pump's performance and confirms warranty

coverage. Unique vent-assist valves release pressure in the pump body during the exhaust stroke for faster filling and cycling, which increases capacity.

**Spirax Sarco, Inc.**

[www.spiraxsarco.com/us](http://www.spiraxsarco.com/us)

### Aerator Features a Rotating Water Cannon



The Turbo X-Treme Magnum water cannon is a high-efficiency, 50-hp floating surface aerator that has been designed with a rotating water cannon. The water cannon provides foam suppression, aeration, evaporation, and cooling. The cannon rotates 360 deg. in 1 min 35 s, and sprays over 100 gal of water per minute over a 230-ft-dia. area. The aerator is constructed of stainless steel and carries a one-year warranty. It is suitable for a wide variety of applications and performs well in high-foam environments.

**Airmaster Aerator, Inc.**

[www.airmasteraerator.com](http://www.airmasteraerator.com)

### Pump Diaphragms Are Certified for Demanding Sanitary Applications



The Gylon One-Up pump diaphragms are designed for use in nonabrasive service, and are suitable

for sanitary applications in the food and pharmaceutical industries. They are constructed of chemical-resistant polytetrafluoroethylene (PTFE) with proprietary ethylene propylene diene monomer (EPDM) backing. The diaphragms feature a patented rib construction. They are supplied with either bolt holes or perimeter sealing beads for easy installation, and can withstand temperatures from 40°F to 300°F. The diaphragms comply with U.S. Food and Drug Administration (FDA) regulations (21CFR177.1550), 3A Sanitary Standards, NSF Standard 61, USP Class VI Chapters 87 and 88, and USP Parts 31, 281, and 661.

**Garlock Sealing Technologies, LLC**

[www.garlock.com](http://www.garlock.com)

## ENGINEERING SERVICES

### Treatment Service Turns

### Used Water into

### Hydraulic Fracturing Fluid

The H2prO water-management service designs high-performance hydraulic fracturing fluids from produced and flowback water. It integrates technical expertise with mechanical and chemical treatment technologies to reduce the high costs associated with fresh water sourcing, storage, and transportation by as much as 90%. The service includes extensive pretreatment analysis in which a team of scientists and engineers determines the contaminants in the water that must be treated in order to meet production requirements. Application engineers choose the appropriate treatment technologies to maximize production. This service can address all major produced water contaminants, including total dissolved solids, total suspended solids, heavy metals, and hydrogen sulfide, among others. Post-treatment analysis verifies that the treatment has met or exceeded specifications.

**Baker Hughes**

[www.bakerhughes.com](http://www.bakerhughes.com)