CONTROL SIGNAL

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Gilson Engineering Flow and Level Lab

With the support of many of our manufacturers, Gilson Engineering has begun construction of a unique working demonstration facility in our Pittsburgh office. The "Gilson Flow and Level Lab" features two 1550-gallon water tanks connected by 4 different lines, ranging from ½" through 2" diameter pipes. Through the use of many different instruments, some you may have seen or used, the lab can transfer water from tank to tank automatically while recording and reporting flow, level, pressure, temperature, analytical and control variables.

Customers are encouraged to visit our facility to view any of these instruments in operation. This will be a convenient way to train plant personnel on installation, calibration, and maintenance of instruments in an indoor classroom environment.

Gilson Engineering indoor flow and level lab

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Hot New Products

Web Based Remote Data Manager

The new remote data manager Sitrans RD500 in one device integrates web access, alarm event handling and data capture for remote installed process instruments. The new product of the Siemens Industry Automation Division is suitable for the management and monitoring of remote installed process instruments, including flow, level, pressure, temperature and weighing. The user is able to monitor equipment from anywhere using a standard web browser by computer, PDA or smart phone.

The compact Sitrans RD500 requires only simple configuration; no engineering or programming is required.

RD500 web based data logger

Sitrans RD500 offers flexible I/O and communications and scalability. It accepts analog, voltage, digital, temperature and Modbus inputs, and provides flexible communications options via Ethernet, cellular and land line modems. The standard compact flash memory slot offers up to 2 Gigabytes of memory for data storage. Data logging uses file formats of common computer platforms, which can be accessed without special software. Sitrans RD500 offers

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Pump Control Stations - Gilson Engineering Offers a Complete Solution

Pump control stations come in all shapes and flavors, and the type of instruments used to help run the lift station efficiently will vary from user to user. That's where Gilson Engineering Sales comes in, because we can offer the customer a complete solution for their pump control station monitoring needs. Flowmeters, level devices, alternating pump controllers, radios, and safety gas detection monitors are some of the more common instruments found at a typical municipal lift station. Gilson Engineering

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Inside This Issue

Employee Profile

Introducing Gilson Engineering's newest Outside Sales Engineer, Mike Gorman. Mike began his career with Gilson as an Applications Engineer last November, after having previously worked for two years as a Radar Systems Engineer at the Nevada Test and Training Range for a military contractor.

Upon moving to Pittsburgh, he was immersed full-time in the "Gilson Boot Camp"; where he developed his technical knowledge of the process measurement field and his skills in customer service, sales, and research and planning.

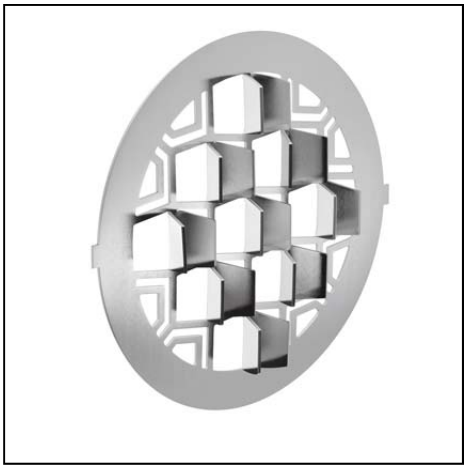
"I've learned so much since coming to Gilson, and building effective working relationships with my customers while continuing to develop as a valuable resource to them is the most rewarding aspect of the job. I believe that continuous self-examination and self-improvement is necessary to succeed, and that is a strong part of what drew me to Gilson as I saw from the start that that is a core principle of the company philosophy."

Mike is a native of east Tennessee and graduated from Tennessee Technological University in 2006. He covers the Kentucky area from our Louisville office, and when not working he enjoys travel, the great outdoors, fitness, and trying new things.

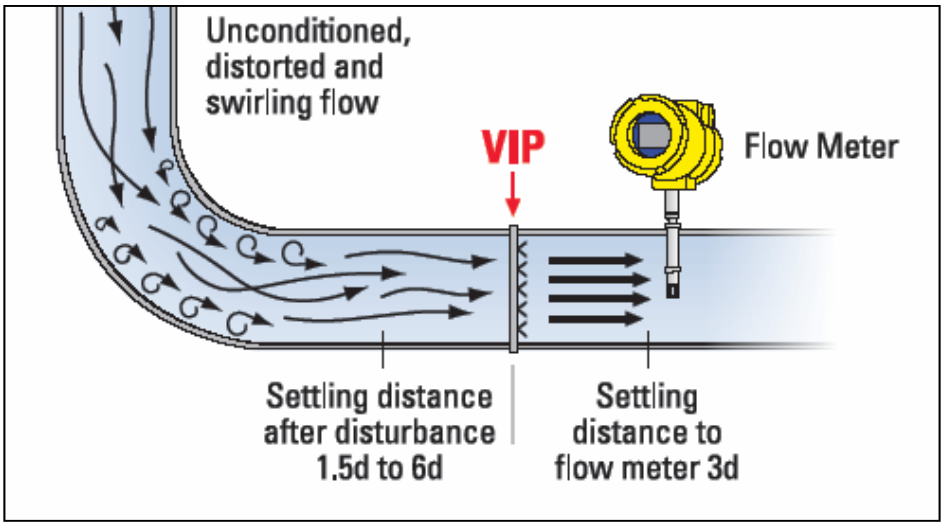
Low Cost Insertion Panel Flow Conditioner

Many flow meter technologies, and particularly center-point types, require several diameters of straight pipe run to meet their published accuracy specification. This straight-run is required to provide a swirl-free and repeatable flow profile to the flow meter. However, in practical applications industrial plant piping is rich with elbows, valves, tees and real estate limitations that make these straight-runs impossible to attain. These create an unrepeatable, asymmetric and swirling flow profile ultimately resulting in flow meter inaccuracies. Further, in low-flow, wide turndown applications, the transitional zone between laminar and turbulent flow conditions may induce additional inaccuracies.

The Vortab VIP flow conditioner may be the solution. Installed in as little as 1.5 pipe diameters downstream from the flow disturbance and with the flow meter at 3 diameters downstream of the VIP, flow profile anomalies are completely neutralized so that the flow meter receives a swirl-free, symmetric and repeatable flow profile. VIP has been engineered and validated utilizing sophisticated flow modeling software tools, and in Vortab's NIST traceable flow stands under actual installation conditions with elbows, valves, headers and other disturbers. It is particularly effective with wide-turndown and/or low flow sensitive flow meter technologies (e.g. thermal dispersion) to provide a highly repeatable flow profile during laminar, transitional and turbulent flow conditions



Flange mount Vortab Insertion Plate



General News, Schedule of Events

Mike Gorman and Ryan Dean have been promoted to outside Sales.

Mike Gorman has completed his training, and has moved to our Louisville, KY office. Mike brings his previous process measurement experience, along with extensive training at Gilson to assist customers with their instrumentation and control requirements.

Ryan Dean has also completed his year of training, and has moved back to Florida to start our Miami office. Ryan is anxious to return to his home state of Florida after enjoying one of Pittsburgh's snowiest winters in recent years. Check eBay for snow shovel, ice scraper, bag of salt, etc.

(Gilson Flow Lab, Continued from p 1)

This facility will showcase the many different technologies Gilson can offer, and can compare/contrast performance capabilities of each. Products featured include:

10 flow meters
- Siemens, Mag 5100W/Mag 5000
- Siemens, 2100/Mass 6000, coriolis
- FCI, FLT93L, thermal dispersion
- Seametrics, WMP101, magmeter
- Seametrics, EX80/FT420, magmeter
- Seametrics, PE102 low flow magmeter
- UFM, CP16, vortex flowmeter
- UFM, CMP8, vortex flowmeter
- UFM, SN, vane-style flowmeter
- UFM, P420 vortex flowmeter

11 level sensors
- Siemens, Probe LU ultrasonic
- Siemens, Hydroranger/XRS5 ultrasonic
- Siemens, LVL200 vibrating fork switch
- Siemens, CLS200 capacitance level
- Siemens, LG200 guided waver radar
- Siemens, LR250 airborne radar
- PBLT2, submersible pressure
- Banner, QT50U
- Turck, LevelProx (2)
- Promag, PM26 Site gauge

5 pressure sensors
- Siemens, DSIII, P250, ZD
- Neo-Dyn, 162P, 100P

3 temperature sensors
- Smart Sensors Inc, RTD Assembly (3)

5 automated valves & pressure regulators
- Jordan, MK50 (2), MK75
- Marwin, 3000 Series Ball Valves (2)

2 analytical instruments
- MSA, Ultima X3 Gas Monitor
- Insite IG, 2000 Series DO/TSS

1 wireless system
- Banner, DX80

1 Gilson-programmed PLC control system with web-based controls
- Unitronics, V570 PLC

Quick disconnect process wiring solutions
- Turck, Eurofast & Microfast Connectivity

4 webcams for live views

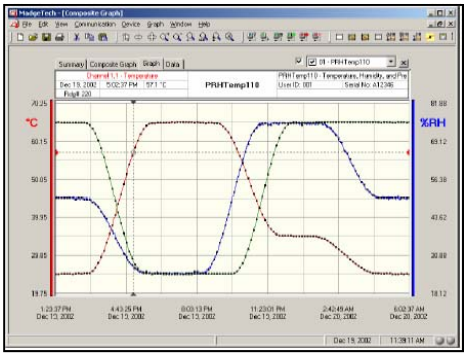
Check our website, www.gilsoneng.com, for a link to our online interface, where you can control flows, read process data, and look at display screens of our sensors via webcam. We will also offer quick video clips explaining the functionality & basic setup programming of each device in the lab.

Madgetech Solid State Data Loggers

MadgeTech data loggers are a small, battery powered, intelligent, electronic devices that record measurements of physical parameters in industry for later retrieval by computers. Data loggers are available for Temperature, pressure, humidity, vibration, shock and low level current and voltage. In conjunction with the software complicated analyses is made simple.

Digital recorder with display for temperature, humidity, and pressure

Individual temperature inputs from Thermocouples (TCTemp2000) or RTD's (RTDTemp2000) in single or multiple inputs units are available, as well as in combination with humidity and/or barometric pressure. Units for pressure, low level DC current or voltage are also available or in combination with each other are available. Units are available with a large back-lit LCD display for local display, front keypad with lock



Data logger software allows user to collect, display, analyze, and export data

feature and user selectable measurement units.

Data loggers without displays for temperature, pressure, voltage, current, shock (tri-axial), and pulse are available.

The MadgeTech software starts with basic data logger functions: starting, stopping, and downloading the data loggers. All of these functions bring up intuitive windows allowing users to view and set parameters to their specific needs. The software has the ability to do customizable graphs, summary and table views, overlayed graphs, units of measure and analysis, engineering units, and real time and wireless recording and alarming.

(Pump control, continued from p. 1)
can provide you with the correct instrumentation and controls to help your lift station run both smoothly and efficiently.

Before specifying any instrumentation for a sewage lift station, one should consider the area electrical classification. NFPA 820 dictates electrical classifications for Wastewater treatment and collection facilities. Lift stations may be classified as Class 1 Div 1 or Div 2 areas, depending on if there is ventilation. Many engineers and operators overlook the NFPA 820 electrical classification for lift stations.

Flowmeters: Many customers are required to monitor flow and record totals coming in and out of the lift station. Typically, the flow is measured by a magnetic flowmeter or an ultrasonic clamp on flowmeter. For raw sewage, magnetic flowmeters (magmeters) are a simple solution because they have no moving parts and an accuracy of +/- 0.5% of rate. Because the magmeter is obstructionless, it works very well on raw sewage. Another excellent option for monitoring flow is an ultrasonic clamp on flowmeter. This type of meter clamps onto the outside of the pipe making installation on existing pipelines simple and cost effective. The pipeline does not need to be cut open, and the flow does not need to be shut off during installation. Clamp on flowmeters have an accuracy of +/- 1% of rate. For Gilson territories in PA, Ohio, WV and KY we represent Siemens for flowmeters, and in the Florida territory we represent both Sparling and Thermo Polysonics.

Level Measurement: Continuous wet well level monitoring is a key component in lift station monitoring. Gilson Engineering is able to provide continuous level measurements with analog outputs as well as simple point level measurements for high and low levels with discrete outputs. For continuous level, ultrasonic transmitters are very popular because they are mounted up near the top of the lift station and are non-contacting to the influent process. The ultrasonic transducer "pings out" a sound wave into the well to determine the wet well level and will transmit a 4-20 mA dc output signal based upon the level reading. Many ultrasonics are available with a remote transmitter which includes relays for pump control/ alternation.

Submersible level transmitter

A low cost and simple alternative for monitoring continuous level is a rugged submersible pressure transducer. Once wired to the control system, it will output (4-20 mA dc) well level according to the head height of water. This unit is made with a large diaphragm and works well in sludge and slurries.

Finally, for high/low point level alarms simple float type alarms are extremely common. For Gilson territories in PA, Ohio, WV and KY we represent Siemens and BW Controls for level controls, and in our Florida territory we represent Ametek Drexelbrook.

Pump Controllers / Display Interface: The whole point of measuring flow and level in the lift station is so that the operator can determine when and how long to run the pumps. Since this is at a remote location, it is important to have a controller that can handle this task for the operator. As mentioned in the previous paragraph, some ultrasonic transmitters come with the ability to control your lift station with up to 6 relays and pump alternation. An alternate solution would be to take your level output to a digital display or small HMI. Gilson Engineering offers digital panel meters manufactured by Precision Digital that have the capability to alarm on high and low levels and have output relays to alternate between multiple pumps. Another product Gilson offers is a small HMI panel display manufactured by Unitronics. This package also comes with 6 relays and is able to alternate up to 3 pumps in one station. Both of these devices are simple to set-up, cost effective, and offer the customer a powerful local display interface.

Transmitting data back to the plant: Many customers monitor their lift station signals back at the main plant. This can be accomplished by either using Elpro wireless radios or an OmniSite cellular based system. Elpro radios operate at 900 MHz frequency range (un-licensed) and can send both analog and digital signals up to 20 miles line of sight. Fixed frequency 450 MHz units are available for longer distances. These radios offer two-way communication, and each unit can function as a "store and forward repeater" if required. Whether your control system operates with simple I/Os or a communication bus network such as Modbus, Profibus, Ethernet or DeviceNet, Elpro is able to fuse your lift station operation with your main plant control system.

Unitronics controller with pump control software

OmniSite is a cellular based lift station monitor that relies on a combination of cellular telephone and web-based technology. This device can take both discrete and analog inputs and then transmit that data to a local cellular tower. The signal is then bounced to the OmniSite web interface where customers can log on any day, any time, from any computer and see how each station is operating. Also, a list of employees is set up, and when an alarm is triggered a message is sent via email, voicemail, or text message to the appropriate personnel. OmniSite's GuardDog web interface software program can show alarm histories, pump data, and influent reports along with graphs and charts for reporting purposes.

Safety Gas Detection: Methane, Carbon Dioxide and Hydrogen Sulfide are released by decomposing sewage in sanitary systems. Storm or industrial sewers may contain petroleum vapors or indus-

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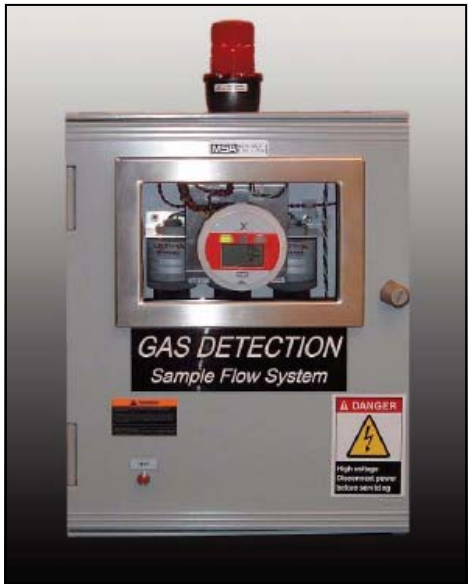
(Pump control, continued from p. 4)
trial solvents from accidental releases or leaking processes and tanks. NFPA 820 and OSHA Confined Space Regulations are the authority. They mandate combustible gas detection (Methane and floating flammable liquids), Toxic gas (Hydrogen Sulfide and Carbon Monoxide) and Oxygen deficiency monitoring. Gilson Engineering has fixed gas detection transmitters that would mount permanently at the lift station for continuous monitoring of combustibles and toxics as required. The sensor can be mounted inside the lift station while the electronics/transmitter



MSA Gas detector for Methane, Oxygen, and H2S. Includes sample pump

can be remote mounted near the rest of the pump control equipment.

In Gilson territories in PA, WV, and Ohio we represent MSA for fixed gas detection and in the FL market we represent Sensidyne. Also available from Gilson Engineering are portable personal protection gas units that are required for confined space entry. MSA manufactures the Altair 4 which is a 4 gas unit for Combustibles (LEL), CO, H2S and O2. Please remember "SAFETY FIRST"!

Gilson Florida Introduces Azbil- Yamatake Transmitters

Why pay $2,000+ for a standard DP or Gauge Pressure transmitter when you could purchase a high performance, field proven, rugged Azbil transmitter for $1,100?

Gilson Engineering of Florida is pleased to announce that we have been appointed the exclusive representative for Azbil-Yamatake in Florida. Azbil, located in Phoenix AZ, offers a complete line of differential, gauge, absolute and level transmitters. The work horse of the product line is the model AT9000 HART /smart loop powered advanced transmitter. The AT9000 is capable of measuring gas or liquid for both flow and level applications. The model AT9000 key features include:

Competitive pricing (40-50% less than most competitors) resulting in a substantial yearly cost savings while still maintaining high end performance accuracy.

Speed of Response: The Azbil AT9000 series offers a speed of response of less than 100 milliseconds vs. most standard transmitters 400 milliseconds.

Stability of 0.1% of URL for 10 years (the best in the industry).

Accuracy of +/- 0.04% of calibrated span as standard vs other standard transmitters +/- 0.075% of calibrated span. Other manufacturers offer a "high end specialty" transmitter equaling the standard Azbil accuracy statement.

Larger and thicker internal diaphragm ensuring both stability and reliability. The larger area helps make the transmitter more responsive while the increased thickness make the unit very robust.

Over Pressure Protection: The Azbil AT9000 series offers as a standard over

Model AT9000 pressure transmitter

pressure protection that is unique to Azbil. All transmitters utilize a system of two diaphragms with one being the measuring diaphragm and the second a sealing diaphragm. The measuring diaphragm will have a series of ridges that allows it to be more responsive. The typical sealing diaphragm will have a flat surface. In the case of an over pressure event, the measuring diaphragm will be squeezed against the sealing diaphragm effectively flattening out the ridges in the measuring diaphragm permanently affecting the zero of that transmitter. With the Azbil transmitter the sealing diaphragm has a ridge pattern that is a mirror image of the measuring diaphragm so that in the event of an over pressure the diaphragms matches up ridge to ridge allowing the measuring diaphragm to maintain its conformity. When the over pressure event subsides the transmitter goes back to normal operation.

Every AT900 transmitter is - placed in a controlled chamber for 24 hours. Pressure and Temperature are constantly adjusted and the effects of those adjustments are recorded. This data is placed on an e-prom resident in the transmitter itself offering literally hundreds of points of calibration versus the 3-5 points offered by competitive units. This offers much greater transmitter sta-

(Continued on page 6)

(Yamatake, continued from p. 5)
bility. Huge inventory offering 1-2 days shipment of standard product. Fully HART compatible (two wire / loop powered).

Trial/test units are available for field proving in your plant, so please contact us to arrange a product demonstration or to discuss any application for transmitters.

(Siemens RD500, continued from p. 1)
standard data transfer options for regular reporting and alarms to remote servers, email-clients – including cell phone, PDA and desktop computers, and SMS messaging.

Government regulations increasingly require industry to monitor critical applications for health, safety and environmental reasons. Cost reductions drive organizations to access their remote instrumentation for data synchronization to optimize logistic and corporate reporting systems. For these applications Sitrans RD500's remote monitoring, alarming and data logging provides an economic solution.

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