CONTROL SIGNAL

A publication of Gilson Engineering Sales, Inc.

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Custom Solutions from Gilson Engineering

Gilson Engineering is pleased to introduce its line of custom instrumentation developed in-house to solve even more industrial applications. These instrument groups combine our various products with the Unitronics Jazz PLC programmed with custom software developed by Gilson Engineering. Our products are configured specifically for each application, and are supplied with wiring diagrams and instruction manuals specific to each custom application.

BTU meter displaying rate and total

BTU Meter

The BTU Meter was designed to determine the BTU rate and total energy transfer to or from a thermal system, such as a boiler or chiller, us-

(Continued on page 5)

Hot New Products

Siemens LR250 Radar Level Transmitter

The new SITRANS LR250 is a 2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft).

The SITRANS LR250 includes a graphical local user interface (LUI) that improves setup and operation by including an intuitive Quick Start Wizard, and echo profile displays for diagnostic support. You don't need a PC to see the echo profiles any more! Start-up is easy using the Quick Start Wizard with a few parameters required for basic operation.

The 25 GHz frequency creates a narrow, focused beam allowing for smaller horn options and decreasing sensitivity to obstructions. Minimum nozzle size is just 1 ½"!

The SITRANS LR250's unique design allows safe and simple programming using the intrinsically safe handheld programmer without having to open the instruments lid.

The SITRANS LR250 meas-

(Continued on page 6)

Echo profile shown on integral LCD display

Turck: Delivering Advanced Automation Products

As the market for automation components continues to evolve and demands smarter, smaller, more robust sensing and productivity products, TURCK is rising to meet these challenges with a complete offering of automation components and solutions. Established as the industry's leading brand in proximity sensors, the TURCK name is synonymous with high quality, rugged sensing products. Now, users can expect that same quality in an expanded offering of automation technologies that will help improve their products and bottom line.

Encoders

TURCK brings a complete line of incremental and absolute encoders with

(Continued on page 3)

Inside This Issue

Employee Profile

A voice many of you may be familiar with is that of Applications Specialist Tim Pappert. Tim received an Associates Degree in Marketing while working 20+ years in the family retail business before joining Gilson Engineering in 2002. Tim was hired to be the first permanent Application Specialist at Gilson Engineering.

"At first I didn't know what I was getting into as I didn't have the engineering background the others have. My natural interest and understanding of mechanics has been very helpful. All the years of retail has taught me to listen to the customers needs."

"Everybody in the organization has devoted their time to educate me on

the many products Gilson offers. I learn something new everyday working at Gilson Engineering."

Tim and his wife of 25 years, Cindy, have two sons- Tim Jr. (18) and Nick (15). All three "boys" enjoy the outdoors, playing hockey and riding quads. Tim also enjoys tinkering in his home wood shop. He is also an active member of the Pittsburgh section of ISA.

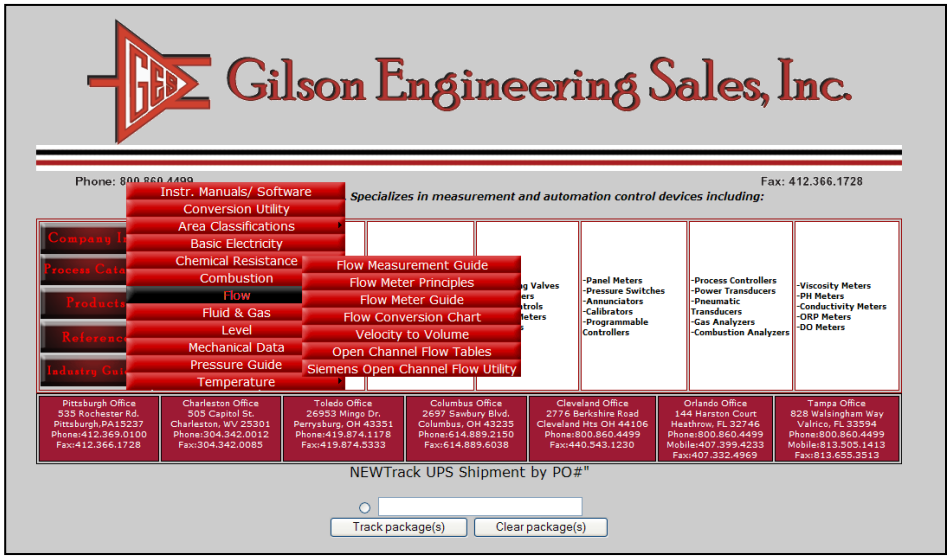
Whether your need is basic or urgent, Tim will take the time to get you what you need.

Gilson Engineering Website Reference Section Enhanced

The reference section of Gilson Engineering Sales Inc. website contains an abundance of powerful search engines and data. Users guides, instruction manuals, and software downloads are available for every manufacturers equipment that we represent at the simple click of the mouse.

The reference section also includes conversion utilities that provide conversions for flow, temperature, pressure, and even distance measurements. Take for instance if you want to convert 1 bar to psi , or how many millimeters are in an inch. It is all right there !

Other highlights of the reference section of our website include open channel flow tables and formulas for weirs and flumes, chemical compatibility charts, area classifications, steam tables, how to select the best level technology for your application, as well as flange and pipe dimensions and data. Take a moment and visit us www.gilsoneng.com



General News, Schedule of Events

Pittsburgh

March 3, 2008 Pittsburgh ISA Show, Heinz Field

Charleston

May 20, 2008 Charleston ISA Show, West Virginia State University Student Center, Institute WV

www.gilsoneng.com

No Power…No Wires… No Problem… Gilson Engineering solves Remote Storage Tank Level Application

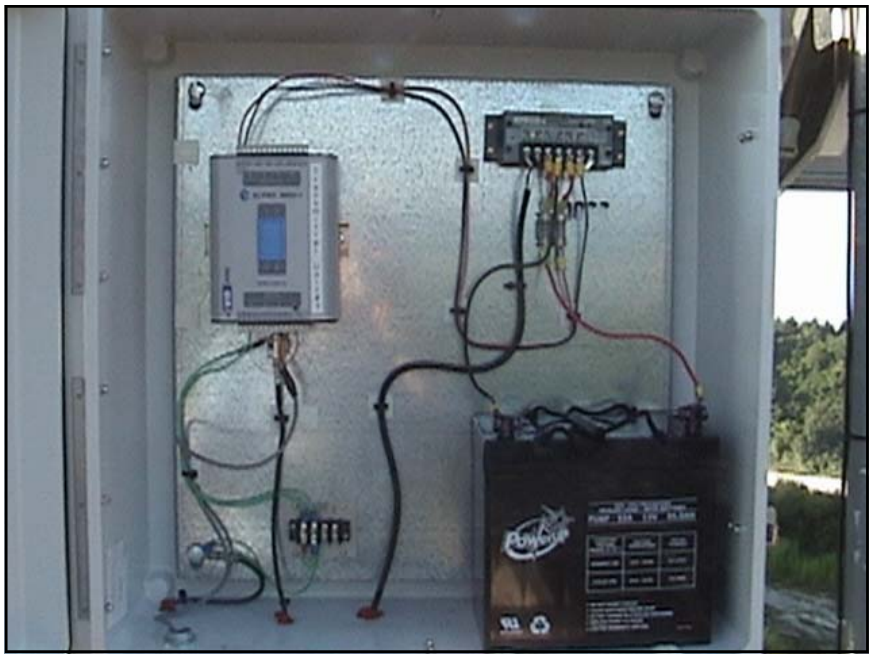
Central Power and Lime (CPL), a 150 mw coal fired power plant located in Brooksville, FL has a remote one million gallon water storage tank located up on a hill approximately ½ mile behind the plant. CPL pumps water from their deep well into this storage tank using two pumps. The tank then stores water for both the power plant and the cement plant located right next door. The water is used primarily for service water and the two plants fire protection systems.

The plant electrical and instrumentation supervisor wanted to monitor the water level in the tank, but the problem was that no power/wires existed in this remote location. After visiting the plant and looking at the application, here is how Gilson provided a complete solution for CPL.

Since the water tank was only 14.5 FT span, the continuous level measurement could be made with an ultrasonic level transmitter that has a 4-20 mA dc analog output. We also tested our wireless radios and transmitting the level signal (4-20 mAdc) from the storage tank down the hill to the plant control room (approximately 1/2 mile), could be easily done as we had both line of sight and height on our side. To power both the ultrasonic level device and the wireless radio, we provided a solar panel and battery which CPL mounted directly up on the tank's catwalk.

CPL can now read the continuous remote water storage tank level in their Bailey Net 90 DCS and perform trending as well.

Wireless I/O, solar panel, and antenna mounted on water tank



Elpro wireless I/O module has solar regulator for direct connection to solar panel

(Turck, continued from page 1)

unique advantages, including temperature and aging compensation, plus improved EMI, vibration and shock resistance.

Modular System I/O

The BL67 delivers all the flexibility in the cabinet PLC I/O systems with the modularity, IP 67 ruggedness, and connectorization. Configure with up to 32 electronic modules, up to 256 digital, 64 analog I/O and 3 feet in length with DIN rail or flange mounts.

LDT's

EZ-track® magnetorestrictive linear displacement transducers offer up to +0.01% accuracy. This could save wear, breakage, downtime and cost.

Rod style

Profile style

EZ-Track magnetorestrictive LDT

Connectivity

TURCK has the Industry's broadest line of connectors, cable and cordsets. New flexlife-10® withstands 10 million flex cycles, twice competitive manufactures. Junction boxes consolidate devices and save wiring costs. HART compatible 4-20ma models are available.

Intrinsic Safety

Isolated barriers eliminate the need for a dedicated ground. Zener barriers feature narrow 7 mm design and replaceable fuses. IS fieldbus I/O systems install directly in hazardous classified areas. DIN rail availability.

Flow and Pressure

Omni-directional flow monitors have no moving parts, offering greater reliability. Fully programmable pressure sensors offer the flexibility to perform in any application.

Gas Detection Requirements for Waste Water Plants

The National Fire Protection Association 820 (NFPA) standard concerns itself with fire and explosive hazards that are inherent within the treatment facility. For compliance with the NFPA standard, permanent gas detection devices are employed. Improper design or installation may have potentially hazardous consequences.

Explosive Gas Hazards

The NFPA 820 standard does not explicitly state the nature of explosive hazards in wastewater treatment facilities. There are normally only two primary gases of concern: methane and petroleum vapor. Both of these gases are explosive in relatively small concentrations in air. Methane becomes explosive at 5 percent by volume, and the explosive concentration of petroleum vapor varies depending on the particular petroleum product present. For example, gasoline becomes explosive at 1.4 percent by volume while kerosene is explosive at 0.7 percent by volume.

Not only are these gases explosive, but each gas has a particular vapor density relative to air. Gasoline and kerosene are heavier than air, while methane is lighter than air. The vapor densities of these gases require different locations for the gas sensors in order to ensure effective detection. When monitoring methane, the gas sensor should be mounted as high as possible, whereas for most petroleum vapors, mounting the sensor as low as possible allows the earliest possible detection.

Specific Areas for Monitoring Gas

There are many areas within a wastewater treatment facility where gas buildup and explosive conditions may exist. Enclosed pumping stations, flow equalization tanks, coarse and fine screening rooms, grit rooms, and sludge-blending rooms and holding tanks are a few of the areas where gas detection is employed. Other areas include enclosed anaerobic digesters, digester control buildings, processor rooms, storage tanks, and any underground piping or tunnels for natural-gas or sludge-gas piping.

Methane sensor mounted near ceiling

Wet and dry wells and lift stations also require gas detection, but they present unique challenges. These areas may contain not only explosive gases but also hydrogen sulfide. Hydrogen sulfide, which has the odor of rotten eggs, is a very toxic and corrosive gas that may require monitoring as well. Wet and dry wells and lift stations may also be subject to periodic flooding. Some gas detectors are damaged when submerged in water, so the location of sensors in these areas must be carefully considered.

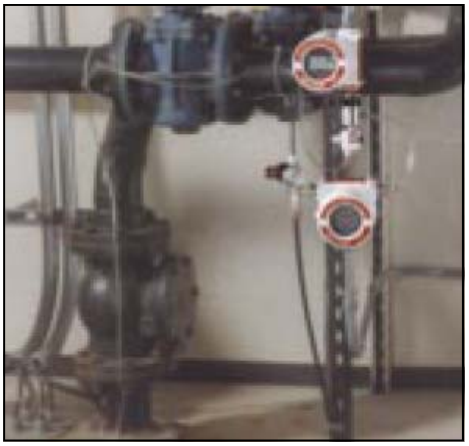
If personnel will be entering a wet well, the oxygen concentration should be monitored. If the wet well is a confined space as defined by OSHA, then oxygen monitoring is required. It is conceivable that, within a wet well or lift station, all three gases: combustible gas, hydrogen sulfide, and oxygen, may need to be monitored.

Benefits of Monitoring

Worker Safety: The most important benefit of monitoring for oxygen and toxic and explosive gases is worker safety. Sometimes insurance carriers will even require gas detection in order to mitigate their exposure to personal injury or wrongful death lawsuits.

Facility Protection. Besides the obvious benefit of increased worker safety, there are also other benefits of gas monitoring. A methane explosion can damage and destroy physical property and interrupt plant service, forcing end-users to find alternate ways to dispose of waste. Hydrogen sulfide will corrode any exposed metal, concrete, or electrical equipment, so monitoring for this gas to mitigate its presence will pay dividends in longer equipment life.

"Good Neighbor": Many treatment facilities were built in areas that were previously isolated but are now surrounded by residential developments. Gas monitoring helps ensure that the facility is a "good neighbor" by preventing obnoxious and explosive gases from migrating out of the facility toward homes.



Gas detector with pump module, to pull sample from inaccessible areas

(Custom Solutions, continued from P. 1)
ing water as the process fluid. The Unitronics PLC takes a steady-state flow signal from any of our flow transmitters, such as paddle wheel/turbine pulse meters, magnetic flow meters, insertion meters, differential pressure transmitters (for flow), ultrasonic flow meters, or any other electronic flow signal. In addition, RTD temperature measurements are taken immediately upstream and downstream of the heating or cooling process.

Based on the temperature change of the water, along with the flow rate, an energy transfer rate in BTU/min (or any other time unit) is calculated. In addition, the BTU transfer is totalized.

Pricing for this unit is very competitive. For example, a complete package including the Unitronics Jazz loaded with the BTU software, a 2-inch Seametrics impeller flow meter with tee fitting and FT420 signal converter, and a Puls power supply sells for $1995.00 for the complete system. Upgrades can be made, such as a Seametrics turbine flow meter, which is only $99.00 additional.

The BTU Meter is a great solution to calculating thermal energy transfer, and can be ordered as a complete system or a simple addition to an existing flow meter.

Level Controller

Level Controller indicates level and alarm annunciation

The Level Controller was designed to accept any electronic level monitor with a 4-20mA output, such as ultrasonic, radar, conductivity, differential pressure, magnetic float, nuclear, or any other level transmitters. These transmitters are combined with the Unitronics

Advanced Controller with integral 5.7" color touch screen

PLC containing software developed by Gilson Engineering.

The PLC can alternate up to three pumps, and produces six relay outputs. In addition, the Level Controller stores individual pump run-times for maintenance scheduling. This controller, coupled with a Siemens Probe LU ultrasonic level monitor, sells for less than $1250.00.

Batch Flow Controller

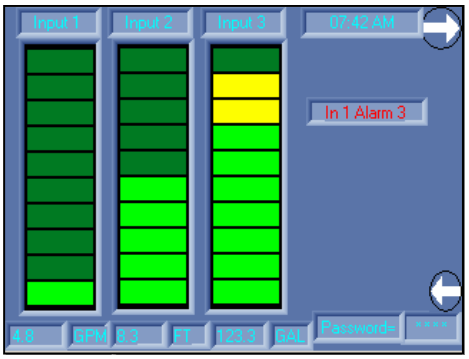
Gilson Engineering's Batch Flow Controller is designed to be paired with any of our pulse-output flow meters, including paddles wheels, turbines, and insertion meters. The Unitronics PLC with our self-developed software displays rate and total, and performs batching with a relay output on the total flow, and two alarms on the flow rate.

An optional 4-20mA output is also available to retransmit the flow rate. The Batch Flow Controller, when paired with a Seametrics turbine flow meter sells for less than $1250.00

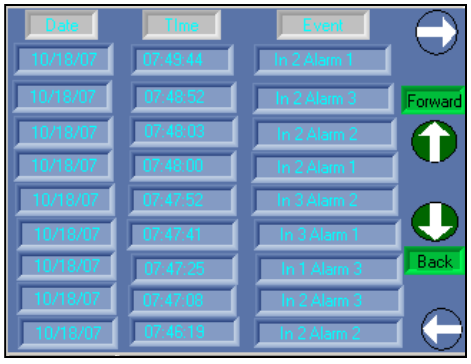
Display/Data Logger

The display pages will present analog information in digital and bar graph formats, as well as annunciating alarms. A trend screen can also be shown. Event data can also be displayed on the Data Log screen.

Besides displaying information, the controller can also send emails to notify personnel of events.



Main screen displays bar graph and digital value, as well as alarms



Data log screen

Other Solutions are Possible!

Gilson Engineering always welcomes a challenge. If modifications to these custom products are preferred, just ask. We would be happy to review any custom application and develop products to fit your needs.

Test Your Tech Knowledge

You have a J-type TC wired to a TRY transmitter measuring ambient temperature. Outside temperature is about 68 Deg F, but the TRY shows a temperature of -21 Deg F. He re -checks the program, and it looks ok. What is the problem?

(see page 6 for answer)

(Siemens LR250 continued from page 1)
ures superbly on low dielectric media, and in small vessels, as well as tall and narrow vessels.

Key Applications: liquid bulk storage tanks, process vessels with agitators, vaporous liquids, high temperatures, low dielectric media. Other features include:

- Graphical local user interface (LUI) makes operation simple with plug-and-play setup using the intuitive Quick Start Wizard
- LUI displays echo profiles for diagnostic support
- 25 GHz high frequency allows for small horn antennas for easy mounting in nozzles
- Insensitive to mounting location and obstructions, and less sensitive to nozzle interference
- Short blanking distance for improved minimum measuring range to 50 mm from the end of the horn
- Communication using HART® or PROFIBUS PA
- Process Intelligence signal processing for improved measurement reliability and Auto False-Echo Suppression of fixed obstructions
- Programming using infrared Intrinsically Safe handheld programmer or SIMATIC PDM Windows based software.

Tech Knowledge Answer, From P.5

TC Wires are connected at the terminals opposite of what they should be. Switch the wire connections.

The reference section of the Gilson Engineering website lists color coding for thermocouples.