

ICEnews

November 2006

All that's Cool in Instrumentation and Control Engineering

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Welcome to the November 2006 issue of *ICEnews*, the Instrumentation, and Control Engineering news source. A formatted version of this newsletter can be found at <http://www.iceweb.com.au/icenews/icenews11-2006.pdf>. ICEnews is a compendium of useful information which we endeavour to issue quarterly.

We want to make this newsletter a source of information that YOU can use in YOUR job, while also keeping you informed on what is happening in our industry both directly and indirectly. If you have something you would like to contribute, please send it to the editor at Ian Verhappen (<mailto:ian.verhappen@iceweb.com.au>) or Jim Russell (<mailto:jimrussell@iceweb.com.au>). We welcome your Press Releases, information, AND any technical articles you may have that could be appropriate for this newsletter or our web site <http://www.ICEweb.com.au>.

ICEweb's primary purpose is to disseminate information about Instrumentation, Control Engineering to you the practitioners and developers of these arts. The average page views are 900 per day with a peak of 1900. In October ICEweb received a record 30,000 page views. ICEnews is another mechanism to get this information out to you. Our database is in excess of 1600 quality contacts.

The authors encourage you to support our newsletter sponsors and also appreciate if you tell those companies to which you reply based on this newsletter that the inquiry is based on an article in ICEnews. Thank you.

As an ICEnews member you are on our mailing list so that we can keep you up-to-date technical information.

At ICEweb/ICEnews we take Spam very seriously and aim to make any information that we send out useful and informative.

Whilst we encourage you to remain on the mailing list to benefit from this important information, we would like to provide you with the option of removing yourself from our mailing list.

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If you select either of these options we will remove you from the list. If you wish to continue to receive the information you do not need to take any action.

The newsletter materials are ‘subdivided’ into various topics as follows though not all categories may be present in every issue:

ICEart — Technical articles related to instrumentation and control.

ICEbus — Information on any of the 26 different bus systems in use in the area of instrumentation and control. The authors however have a definite bias towards Foundation Fieldbus.

ICEfolks — News about promotions and changes people in the Instrumentation Control Engineering world.

ICEletters — electronic newsletters of potential interest to our readers.

ICEmerge — Mergers and acquisitions in the Instrumentation Control Engineering community

ICEnet — Internet related topics and sites that may be of interest to our readers. In addition to ICEWEB that is.

ICEnew — Great new technical links posted on <http://www.iceweb.com.au/new.htm>

ICESponsor — Newsletter sponsor recognition. Normally at the beginning and end of the newsletter. These people have kindly contributed to the creation and sharing of this information by offsetting the costs associated with its production and distribution.

ICEtime — Seminars, Tradeshow, Conferences and Events of interest to our readership.

ICEtools — Software and offers that will help with engineering design.

ICEart

Circor Instrumentation Technologies have announced their new Hoke 7G Multi-Directional Ball Valves that offer high flow capacity and operating pressure capability up to 3000 psi. The 7G Series is a 3 piece, 316 stainless steel; Teflon[®] seated ball valve offered in 2 and 3 way configurations. For more information about Hoke, please visit the company’s website at www.hoke.com.

The OPC Foundation reports that 12 automation vendors have already announced their intentions to support the new OPC Unified Architecture Specification.

http://www.opcfoundation.org/Default.aspx/DevCon/Vendors/UA_Vendors.asp

In the latest release of the SMAR LD300 series of pressure transmitters, suitable also for level and flow applications, the range has been further extended a very high performance option having an accuracy of 0.04 % and a rangeability of 120:1. The stability is 0.1 %/2 years and 0.2 %/12 years.

Fluidwell products have released a new configurator tool that allows you to prepare the configuration of the product you wish and provide a quotation at the same time. <http://www.predig.com/configurator>

Emerson Process Management and Siemens Automation and Drives (A&D) have announced the expansion of their of system interfaces to enable both companies to expand support of global fieldbus standards.

http://www.emersonprocess.com/home/news/pr/607_interfaces.html

Applied Analytics have announced the introduction of a UV VIS diode array process spectrometer. Typical applications for the include the monitoring of chlorine, trace impurities, metal ions, nitrogenous compounds in exhaust gas, sulfur based components such as H₂S and SO₂, as well as clean in-place monitoring for pharmaceutical facilities. <http://www.a-a-inc.com/Newpressrelease.htm>

The newly published second edition of the *ISA Handbook of Measurement Equations and Tables* is a much expanded and improved version of the original handbook printed in 1994.

http://www.isa.org/Content/ContentGroups/News/2006/June36/pinto_Handbook_of_measurement_equations_tables.htm

An EnergAir compressed air management and communication system installed at a UK car plant has achieved an impressive 17 per cent reduction in energy usage. The efficiency gains were made by close control of compressor speed and system pressure including the use of a retrofit variable speed drive.

<http://www.energair.co.uk>

The OASIS international standards consortium members have approved the Emergency Data Exchange Language Distribution Element (EDXL-DE) version 1.0 as an OASIS Standard, a status that signifies the highest level of ratification. Developed by the OASIS Emergency Management Technical Committee, EDXL-DE facilitates emergency information sharing and data exchange across local, regional, tribal, national, and international organizations in the public and private sectors.

http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=emergency

Several new announcements on the integration of real time data with distribution of the repository and sources have recently been issued by RTI www.rti.com including demonstrations and white papers.

ABB have announced new innovations to their DC Drives with the DCS800 in a 20 - 20,000 Amps DC range plus IEC 61131 programmability integrated into the controller. The power connection procedure consists of three cables in, four cables out. Communication options include DCS-Link for direct communication from drive to drive as well as several fieldbus protocols plus an Ethernet module to support remote maintenance and diagnostics.

Australian distributor AMS Instrumentation & Calibration Pty Ltd have moved to new premises Unit 20 / 51 Kalman Drive, Boronia, Vic., 3155 Phone: 03 9017 8225, Fax: 03 9729 9604

In response to the last issue of ICEnews, we thank Ted Caster for sending the following additional information on heat loading of junction boxes:

Firstly useful websites include Birdwell <http://www.birdwellco.com> , Matticks <http://matticks.com/> , Bartec http://www.bartec.de/homepage/eng/20_produkte/182_schaltsteuer/s_20_182_15_40.shtml and Intertec <http://www.intertec-hess.com> .

If the IP66 requirement is applied to the A/C unit you may have problems in that for some reason they are only able to meet IP54/ IP56, however that does not affect the integrity of the IP66 cabinet, if installed properly.

It is recommended that a heat load calculation is done so that you get an idea of how much heat is dissipated through the cabinet walls. Does it exceed the heat generated in the cabinet? Most field power supplies are pretty efficient. The biggest producer of heat is probably the I/O power supply and you should be able to reduce the nominal heat dissipated number by minimising the installed I/O cards and their loading.

Another option is a water cooled unit, however it needs to be approved for marine use and the appropriate area classification. A further consideration is to ensure you can supply the required water quality.

The color of the box is a factor. A study of junction boxes back in the 70's and found that significant cooling can take place if the inside of the box is painted black and the outside is a reflective surface such as Stainless steel. The paint eliminated the need for some cooling (exhaust) fans that had to be used in explosive areas of the plant. Also, circulating the air inside the box also has a positive effect on heat reduction if the motor on the fan is low power. There are other means to get the heat out through conduction including heat pipes etc.

DAQ computing has released a new series of USB based data acquisition products. Information on these and their complete line can be found at <http://www.mccdaq.com>

The OMAC Packaging Workgroup (OPW) has updated the Guidelines for Packaging Automation to Version 3.1. This version of the guidelines includes the guidelines for PackAL, an application library of common software elements used in packaging machinery applications that was developed by the PackSoft subgroup of the OPW.

Pepperl+Fuchs Systems & Solutions Business Unit have received UL508A, UL698A and UL698B accreditation from the Underwriters Laboratories Inc. for the manufacture and certification of general purpose and hazardous location control panels.

Aberdeen Research has recently released a report "*The Legacy Application Modernization Benchmark Report*" Businesses have discovered the service-oriented architecture (SOA) as the future technological underpinning of enterprise information technology. This report covers the SOA enablement of a legacy application.

<http://www.aberdeen.com/link/sponsor.asp?spid=30410457&cid=3485>

ICEbus

The Fieldbus Foundation has released High Speed Ethernet (HSE) Conformance Test Kit 2.0. The new test kit version provides enhanced capabilities for development and testing of FOUNDATION[™] Class 42c HSE field and linking devices.

CAN in Automation (CiA) GmbH has launched a Product Guide for J1939-based devices and services on the group's web site <http://www.can-cia.org/products/j1939pg06>

Beamex have announced a new Foundation Fieldbus calibrator. The MC5 is capable of calibrating conventional, HART, Profibus, and Foundation Fieldbus transmitters from the same handheld unit.

Pepperl+Fuchs have released the Advanced Diagnostic Module (ADM) for their FieldConnex® Power Hub. The ADM monitors the fieldbus physical layer, to support the evaluation of FOUNDATION Fieldbus and Profibus installations. The information is displayed in a simple-to-use Device Type Manager (DTM) in the control room. P+F have also released Power Hub modular power supply, with an integrated DP-PA segment coupler, is now available for PROFIBUS. Power Hub can provide multiple power supplies for PROFIBUS PA devices, and is also available for FOUNDATION Fieldbus-based applications

If you are focused on discrete/factory automation, another option for fieldbus communications worth consideration is EtherCAT (www.ethercat.org). While this is originally a Beckhoff technology, it is now administered by the EtherCAT Technology Group (ETG) and there are currently more than 300 member companies including 100 different companies that have produced EtherCAT products. EtherCAT is a published IEC protocol (IEC/PAS 62407) and inclusion of the EtherCAT technology in the IEC SC65 standard is on going.

Echelon debuted its new Pyxos[™] Embedded Control Networking Platform at ISA. The Pyxos platform incorporates a set of technologies from Echelon's market leading LonWorks® control platform including self-organization (automatic self-installation), free-topology wiring, link power (power and data over a single pair of wire), polarity insensitivity, high speed, and truly deterministic messaging. The Pyxos platform yields lower, more flexible machine assembly, lower costs, higher performance, improved customer care, and higher margin installation. Together, the Pyxos and LonWorks platforms are a complete control ecosystem, able to span the smallest sensors and actuators within machines, to distributed sensor networks through the plant and facility control systems, to the Internet and remote service/monitoring applications, all the way to the enterprise software

Yokogawa will start the shipment of FieldMate Advance software that helps the configuration and maintenance of intelligent field devices. FieldMate uses Field Device Tool (FDT) and Electronic device description language (EDDL) interface technology to help customers optimize Asset Availability through improved device control and maintenance. Yokogawa has also released R3 of their device maintenance and management software.

ODVA announced that the first edition of the CompoNet Specification has been approved by its Technical Review Board and is scheduled to be published by ODVA in the next publication cycle of the CIP Networks Library and associated network specifications. Complementary to the entire family of CIP Networks - DeviceNet, ControlNet and EtherNet/IP - CompoNet meets the requirements of applications using large numbers of simple sensors and actuators by providing high speed communications with configuration tools and combining this with efficient construction, simple set-up and high availability - all on a single network. Further, CompoNet offers a flexible network architecture offering a range of data rates - 4, 3 and 1.5 Mbps and 93.75 kbps - and overall network lengths up to 1500 meters with repeaters.

<http://www.odva.org/>

Siemens Automation and Drives has added a Profisafe driver to the standard device, the Sitrans P DSIII digital pressure transducer (the first Profibus-PA device available on the market that is suitable for SIL2 safety shutdown in accordance with IEC 61508/IEC 61511-1), for measuring pressure, absolute pressure, differential pressure, flow and level. This allows failsafe transfer of pressure transducer measured values via Profibus for the first time.

CLPA (CC-Link Partners Association) announces its formal release of CC-Link Safety Specification, which describes technological details of this open field network conforming to the international safety standards IEC61508 SIL3 and EN954-1 Category 4.

The FDT Group is now ready to check DTMs for their conformance with the Style Guide and to issue according certificates. The check is optional in addition to the functional tests of the DTMs and will be performed by the established test sites. In order to facilitate the development of Style Guide conformant DTMs the FDT Group has released a detailed check list in addition to the Style Guide specification. The Style Guide defines the look and feel of the user interfaces of a DTM and is an important step to unify the user interactions with field devices such as configuration, calibration, and device management.

<http://www.fdt-jig.org/en/home-en.html>

The FDT Group has also formed a new technical Project Group called "Device Information Model for OPC UA". The scope of the project is the specification of a device information model for OPC UA. This shall allow OPC UA client applications to access device data and its description through the respective DTM in a common way. *Editor Note: Will UA be the common ground on which EDDL and FDT/DTM will be able to communicate in the future?* <http://www.fdt-jig.org/en/home-en.html>

ARC has prepared a white paper on the ProfiSAFE for Network safety. The document can be downloaded at http://www.profibus.com/celumdb/doc/RPA_GERMANY/News/arc_white_paper_profisafe.pdf

ICEed

The Foundation Fieldbus End User Council Australia has announced Essentials and Configuration Course dates for 2007, for full details see <http://www.fieldbus.org.au/training/>

ICEfacts

Even though it is nearing the end of the year, 2006 is the centenary celebration of the formation of the IEC. Consequently as part of the celebrations they have made available "IEC centenary cool stuff" Just click on the following link and you're set to go: <http://www.iec.ch/100years/coolstuff/>

ICEfolks

MTL Instruments Group plc have announced that Ian Verhappen has joined the group as Director of Industrial Networking Technologies. Congratulations to our long term editor!
http://www.mtl-inst.com/newsroom/press_releases/pr454.htm *Editor note: - this is part of the reason for the tardiness of the newsletter –getting up to speed with the new position. My apologies.*

On a similar note, well known fieldbus expert Bill Tatum has moved to the Fieldbus Foundation.

ABB has made several announcements relative to their organization. Firstly that Robert N. (Bob) Hausler has been appointed Vice-President Marketing and Strategic Planning for Instrumentation in its Automation Products Division. Bob will be based in Warminster, PA. A second appointment is that Daniel Beaudet has been named vice president, Quality Systems, for ABB Automation Products, Low Voltage Drives. Daniel will reside in New Berlin, WI

ICEletters

Subscribe to this newsletter by registering your e-mail address at <http://www.ICEweb.com/au/icenews/register.htm> or sending a note with the subject 'subscribe ICEnews' to <mailto:jimrussell@iceweb.com.au> or <mailto:ian.verhappen@iceweb.com.au>

Elsevier <<http://www.elsevier.com/>> will publish ISA Transactions <<http://www.isa.org/isatrans>> on behalf of ISA starting in January 2007. ISA Transactions aims to be the respected journal of advances and state-of-the-art in the science and engineering of measurement and automation, of value to leading-edge industrial practitioners and applied researchers

If you are interested in learning more about FDT, you can subscribe to their quarterly newsletter at http://www.fdtgroup.org/en/01e_news/ne-03_letter.php

ICEmerge

K-TEK LLC, level instrumentation manufacturer has acquired BETA B.V a company that focuses on manufacturing pressure and temperature switches.

Subject to regulatory approvals Schneider Electric is to acquire Invensys Building Systems operations in North America.

Rockwell Automation has agreed to acquire GEPA GmbH, a supplier of industrial automation, process control and industrial IT change management software.

At their 2006 annual meeting in Hannover Germany, the members of Interests Group SERCOS interface e.V. changed the name of the association to SERCOS International to reflect the world-wide use and acceptance of the SERCOS interface technology, as well as the internationality of its members. The names of SERCOS International's subsidiaries, SERCOS North America and SERCOS Japan, remain unchanged.

Applied Analytics, Inc. has moved their new contact information is as follows: 4 Clock Tower Place, Suite 420, Maynard, MA 01754. Tel: (978) 461-0080 Ext. 250, Fax: (978) 461-5999, E-mail: sales@a-a-inc.com, Web: www.a-a-inc.com

Pepperl+Fuchs acquired the Intrinsic Safety Instrumentation (ISB) business from Cooper Crouse-Hinds, a division of Cooper Industries. ISB is located in Buehl, Germany.

ABB has acquired the assets of the manufacturing and industrial contracting units of Raffin Electric Company Ltd., in Canada. Based in Calgary, Raffin Electric assembles custom pre-manufactured Power Distribution Centers and other electrical distribution equipment used primarily in harsh outdoor environments.

Schneider Electric and American Power Conversion (APC) have entered into a definitive merger agreement under which Schneider Electric will acquire all outstanding shares of APC.

Rockwell Automation, Inc. announced that it has signed a definitive agreement to sell the company's Dodge mechanical and Reliance Electric motors and motor repair services businesses to Baldor Electric Company. The transaction is expected to be completed in the first quarter of 2007 and is subject to customary closing conditions and necessary regulatory approvals. The combined company will be one of the leading North American manufacturers of industrial electric motors and power transmission products. The Power Systems business, which markets its products under the Reliance Electric and Dodge brand names, complements Baldor's business in industrial electric motors, drives and generators.

ICEnet

IEEE has published specification IEEE 802.15.4-2006 called 15.4b in IEEE jargon, represents the technical underpinnings of ZigBee and also underlies the wireless sensor development that defines the physical layer (PHY) and medium access control (MAC) sub-layer specifications for low-data-rate wireless connectivity with fixed, portable, and moving devices with no battery, or very limited battery and energy consumption requirements, typically operating in the personal operating space (POS) of 10 m. Depending on the application, a longer range at a lower data rate may be an acceptable tradeoff. It is the intent of this revision to work toward a level of coexistence with other wireless devices in conjunction with IEEE and other Coexistence Task Groups, such as IEEE 802.15.2 and IEEE 802.11/ETSI-BRAN/MMAC 5GSG. The next revision, due in 2007, will add a new radio physical layer that will enable further performance improvements as well as precise real-time location services in these small devices. According to ARC, The worldwide market for wireless technology in manufacturing is expected to grow at a compounded annual growth rate of 26% over the next five years.

<http://ieeexplore.ieee.org/xpl/standardstoc.jsp?isnumber=35824&isYear=2006>

NIST is pleased to announce the public comment release of draft Special Publication (SP) 800-82, *Guide to Supervisory Control and Data Acquisition (SCADA) and Industrial Control Systems Security*. SP 800-82 provides guidance for establishing secure industrial control systems (ICS), including supervisory control and data acquisition (SCADA) systems, distributed control systems (DCS), and other smaller control system configurations such as skid-mounted Programmable Logic Controllers (PLC). The document provides an overview of Industrial Control Systems (ICS) and typical system topologies, identifies typical threats and vulnerabilities to these systems, and provides recommended security countermeasures to mitigate the associated risks.

NIST SP 800-82 and other NIST SP 800 documents are available from the NIST Computer Security Division: Computer Security Resource Center <http://csrc.nist.gov/publications/drafts.html>

NIST SP 800-82 (Adobe PDF 2273KB) can be directly downloaded at:
<http://csrc.nist.gov/publications/drafts/800-82/Draft-SP800-82.pdf>

A Zip file (1726 KB) containing NIST SP 800-82 is also available at:
<http://csrc.nist.gov/publications/drafts/800-82/Draft-SP800-82.zip>

NIST requests comments on SP 800-82 by December 22, 2006. Please submit comments to 800-82comments@nist.gov with "Comments SP800-82" in the subject line.

ICEnew

This is a section that highlights those useful technical links that are new to ICEweb.

See the paper Improving Refinery Performance: Process and Control Information from Step Testing on our Control page. <http://www.iceweb.com.au/Control/Control%20Web.htm>

The following SIS links have been added to the SIS page http://www.iceweb.com.au/sis/sis_index.html thanks to our sponsor HIMA

- Sharing Control & Safety Instruments-Are your layers overlapping?
- Risk Prevention and Mitigation-Where does gas detection fit in?
- Legal Implications in Australia for Companies and Individuals under "Industrial Manslaughter"
- Safety standard IEC 61508 - Consequences for automation technology and implementation at HIMA
- SIL Assessments -Identification of Safety Instrumented Functions

- Programmable electronic safety system technical specification- You have to register to download this specification which is suited to an Emergency Shutdown System application. The specification is generic in nature so you can use it with any safety system vendor.

If you go to the following **SIS** link thanks to our sponsor Emerson Process Management you can register and download the following very useful documents which cover; Basic safety concepts Building your SIS, Using your SIS, The intelligent advantage - Smart SIS

<http://plantweb.emersonprocess.com/University/schools.asp?school=eng#sis>

Looking for a job, or seeing what is available see our employment page on

<http://www.iceweb.com.au/Employment/Employment.htm> . Companies can advertise on these pages at a very reasonable rate.

Check out ICEweb's new Motion Control page.

<http://www.iceweb.com.au/MotionControl/MotionControl.htm>

Some excellent Burner Management technical papers can be found on ICEweb's Burner Management page.

<http://www.iceweb.com.au/BurnerManagement/burnermanagement.htm>

ICEtools

French Company Automsim Premium has released a circuit design and simulation software tool for electric, pneumatic, hydraulic and digital electronic circuits. http://www.ிரai.com/produit3_e.html

Mate - online symbolic calculator by Tusanga - This free online symbolic calculator enables you to define variables and functions as well as to evaluate expressions containing numbers in any number system from 2 (binary) over 8 (octal), 10 (decimal) and 16 (hexadecimal) to 35, roman numerals, complex numbers, intervals, variables, matrices, function calls, Boolean values (true and false) and operators (and, or, not ...), relations (e.g. greater than) and the if-then-else control structure. Comments are C-style /* */.

<http://www.tusanga.com>

MTL has a series of on-line Safety Seminars at

<http://www.mtlmost.com/Events/WebSeminars/tabid/265/Default.aspx>

Pepperl+Fuchs introduces a new web-based "Build Your Purge System" configuration tool that empowers users to build a complete purge and pressurization system based on specific application needs in just ten easy steps. This configuration tool is available at <http://bebcoeps.com>

Matrikon <http://www.matrikon.com/> have a number of webinars on the OPC protocol available for viewing on their web site. This is a good way to get an introduction to this technology.

If you would like a copy of the Modbus-IDA protocol, it can be downloaded from the Technical Resources page at <http://www.modbus.org/tech.php> .

ICEtime

If you would like to have your event listed in ICEtime, please send a note or press release to the editor at

<mailto:ian.verhappen@iceweb.com.au>

2006

November

ISA SHOW SOUTH AMERICA 2006 http://www.isadistrito4.org.br/n_site/isashow/index.php

29 – 30 Safety Control Systems Conference 2006, Brisbane, Australia. Register at <http://scs.idc-online.com>

29 – Dec 1 Yokogawa User Group Meeting-Houston, Texas -

<http://www.yokogawa.com/us/is/usergroup/us-ykgw-conference.htm>

December

12 – 13 Multaqa 2007, Bahrain <http://www.ffeucme.org>

2007

January

27-31 LabAutomation2007 - Palm Springs Convention Center - Palm Springs, CA United States - <http://www.labautomation.org/LA/LA07/index.php>

28-31 The International Forum on Process Analytical Technology- Baltimore, Maryland U.S.A. <http://www.ifpac07.org>

March

8 – 11 Automation Technology Egypt 2007, Cairo – Egypt <http://www.smbegypt.com/automation.htm>

JUMP ABOARD 2007 “Up and Running – Foundation Fieldbus End Users - Their Experiences”

21 - Melbourne Australia

23 - Perth, Western Australia

20 – 22 ABB Automation World, Caribe Royale resort, Orlando, Florida www.abb.com/automationworld

28 – 30 FLOWEXPO 2007 10th International Trade Fair for Valves, Pipelines, Fluid Engineering's and Process Industries, Guangzhou Gymnasium (No.783, BaiYundadao, BaiYun Area, Guangzhou, China)

April

30 – May 3 53rd Instrumentation Symposium, Tulsa Oklahoma. www.isa.org

May

1 – 3 WBF 2007 North American “Meeting of the Minds” Conference, Tremont Suites Hotel Baltimore, Maryland. www.wbf.org

29 – 31 International Chemicals, Pharmaceuticals & Cosmetics Exhibition and Conference, Chemtech Cairo & Pharma <http://www.smbegypt.com/chempharm.htm>

June

10 – 14 Honeywell User Group Americas, Arizona Biltmore Resort & Spa, Phoenix, Arizona

Relcom Inc, CIRCOR International Inc, Zellweger and Grimwood Heating sponsor this issue of ICEnews, which is a joint publication of ICEweb and ICE-Pros, Inc.



Well recognized by such brand names as Circle Seal Controls, Hoke/Gyrolok fittings, and Go Regulators, CIRCOR International Inc. is a leading supplier of valves and related products and services to a wide range of users who require precise, efficient, and safe fluid-control systems. For over 125 years they have been

providing a complete array of fluid-control products and technologies to a highly fragmented industry.

For more information go to <http://www.circle-seal.com>



Relcom Inc. specializes in the design and manufacture of wiring components and test equipment for the physical layer of Foundation Fieldbus and Carrier-band industrial local area networks (LAN).

From our headquarters near Portland, Oregon, USA, we have provided taps, repeaters, network monitors, and test equipment to demanding users and leading control system manufacturers since 1985.

For more information go to <http://www.relcominc.com>



The **Zellweger Analytics group** of companies provides gas detection solutions in industries where potentially hazardous chemicals and gases exist. A full range of fixed gas, portable gas and flame detection

equipment is available for the measurement of flammable gases, toxic gases and oxygen concentrations. The company provides design, development and manufacture of electrochemical, catalytic and infrared sensors, along with Chemcassette technology, placing the company at the forefront of innovation. The company offers solutions to increasingly difficult gas detection and monitoring applications. They also offer project management for specialized fire and gas systems, a global network of service centers and 24-hour on-line technical support.

For more information go to http://www.iceweb.com.au/Suppliers/zellweger_analytics.html

The **Grimwood** range of flanged immersion heaters can now be manufactured to provide hazardous area protection for users in the Asia Pacific region. Depending on the location and operating environment, units can be made in either carbon steel or stainless steel. The benefits of using locally designed and manufactured product fully complying with hazardous area requirements are shorter supply chains and lead times and quicker, clearer communication.



<http://www.grimwoodheating.com.au/flangeheaters.php>

Controlotron is a leading worldwide supplier of ultrasonic flowmeters for liquid and gas applications. With over 40 years' experience, Controlotron innovations have resulted in numerous patents.



Controlotron flow measurement systems are supplied to many different industries. Installations include petroleum pipelines, petrochemical and chemical processing, water and wastewater treatment facilities, heating and cooling systems, fossil fuel and nuclear power facilities, aircraft hydraulics, food processing, semiconductor and automotive applications. Systems include leak and interface detection, as well as portable and dedicated mass, volumetric and energy flowmeters.

Controlotron non-intrusive ultrasonic flowmeters can be installed outside the pipe, without process shutdown, eliminating the need to cut into the pipe. In addition to superior performance, Controlotron ultrasonic flowmeters provide great savings in installation, operation, maintenance and calibration.

For further details see <http://www.controlotron.com>

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