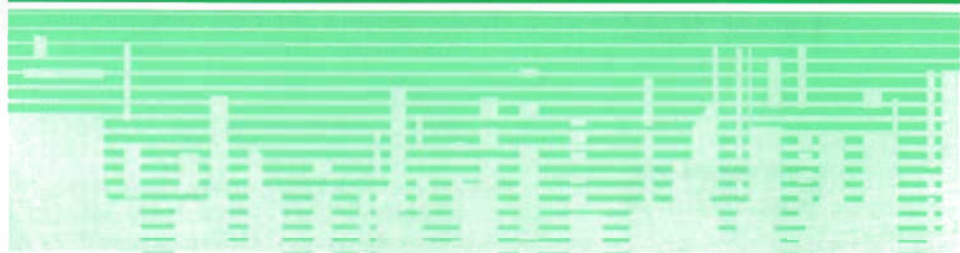


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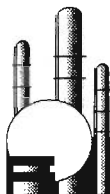
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Editor's Notes

ADVERTISERS: Please note that the deadline for the SEPTEMBER ANNUNCIATOR is August 15, 1996. Please forward information to the editor by that date in order to have items updated.

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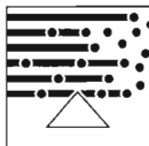
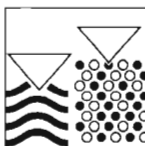
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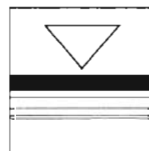


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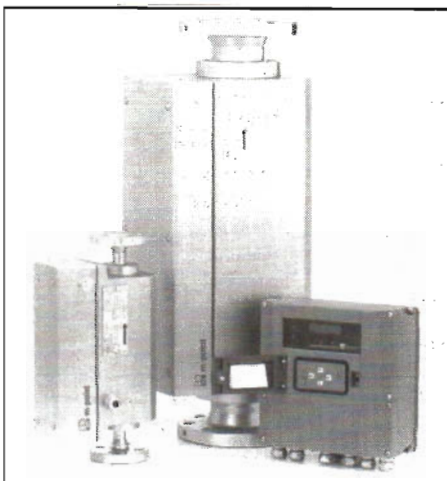
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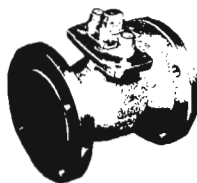
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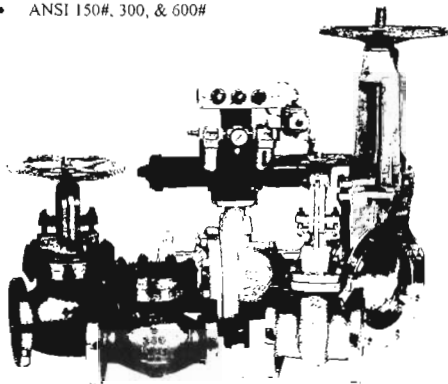
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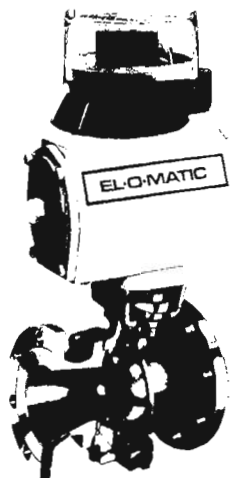
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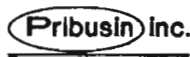


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President Elect's Message

As your incoming President I am looking forward to the coming year's challenges. I am fully aware of the responsibilities associated with this position and it is my firm commitment to represent the Sarnia Section with loyalty, integrity and what is best for the members. I am confident that with your support we will overcome any serious endeavors and can make this coming year a successful one.

One of the objectives that all members should endeavor to pursue is inviting associates and friends to join our section. I do not have to give you the reasons why to join because you already know. Use the application form in our Annunciator to sign up a new candidate, invite him or her to attend our next dinner meeting. Our goal will be to sign up a minimum of at least two members a month. Help us, we can do it. I recall when I first joined the ISA in Toronto in 1955 and attended my first meeting. There was only a handful of people and they were mostly instrument maintenance personnel. Today we are a community of diversified people, from Engineers to Instrument and Electrical / Electronic Technologists, from Instrument persons / Electricians to Apprentices, Salespersons / Purchasers to Stock Clerks, people with Doctorate degrees to Co-op students in training. We all have the same ideals and commitments, to expand our knowledge in the science of measurement and control technologies.

Beginning in September we will be holding our dinner meetings at the Sarnia Golf and Curling Club and I hope to see all of you and your prospective members at our first meeting of the new year. Also remember that this year we will be having a one day local exhibition. The committee is already at work and I am assured that it will be a good exhibition with good exhibits. You will be kept informed as the event progresses. By the time this newsletter is published and issued I would have attended the President's Summer meeting and I will have a report to you at our September meeting. May I extend to you and your family a safe and enjoyable summer.

Your Incoming President
RANDY DENNIE

ISA Sarnia Section Lambton County Science Fair

This year at the Science Fair the judges had a good variety of contestants to work with. The main thrust was a contestant who is utilizing the science of measurement in his or her project. This is a very wide scope but the focus has to be on measurement. The judges humble endorsements were as follows:

First Place:

Junior Category: Matt St. Denis and Kelly Hext "The Strength of Trusses"

Intermediate: Jeffrey Banyasz "Solar House"

Senior Category: Erin Manicom & Jody Bromanoff "Plants in a Closed Section"

Second Place:

Junior Category: A. Kyle and K. Murphy "Electrifying Fruits"

Intermediate Category: B. Thompson and M. Fisher "Coefficients of Expansion of Metals"

Senior Category: Sandra Farrell "Natural pH Indicators"

The section wishes to thank the following members who have helped in the judging:
Brian Smith, Bob Kelly, Mike Spearman, Sean Croxford and Randy Dennie.

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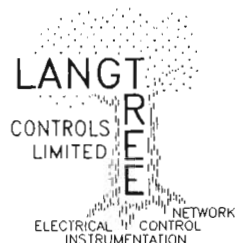
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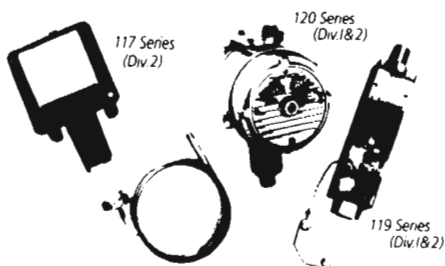
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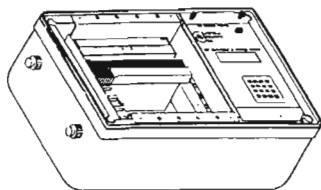
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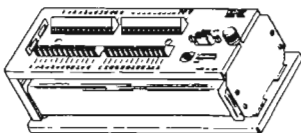


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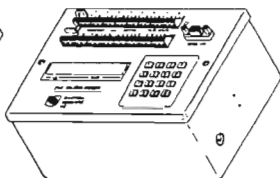
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Optimized Pressure Switches: Cost-Effective Monitoring and Control Option

By: Don Smith, Engineering Manager
United Electric Controls

With corporate policy and government regulations driving the need for more precise and reliable process monitoring and control, sophisticated distributed control systems (DCs) have become the method of choice for many companies. Working with today's *smart* process control instrumentation, these systems give the user real-time information they need as well as the flexibility to make instant adjustments in process parameters.

But this isn't the only popular monitoring and control solution around. Despite the power of DCS technology, demand continues for reliable threshold monitoring and detection to ensure protection of equipment and personnel. Although this function can be provided in a variety of ways, achieving it cost-effectively is another matter. The fact is, technology solutions invariably require major investments in time and money - investments that often are out of scale to the

process or project at hand.

To meet the growing industry need for more reliable control processes and costs, several mechanical instrument manufacturers have developed optimized pressure switches for threshold detection and monitoring applications.

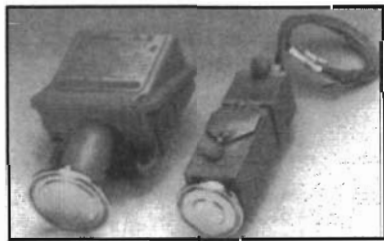
This article will examine some of the ways in which today's pressure switch instrumentation can fit varied process monitoring and control needs. In addition, it explains why this technology can provide real benefits to companies looking to implement solutions that are not only reliable, but also cost effective.

MATCHING THE INVESTMENT TO THE NEED

Pressure switches are being used today in two principal applications: threshold detection for shutdown and alarms, and discrete process control for on/off or open/close functionality. When companies examine their needs in these areas, and then look at systems, ques-

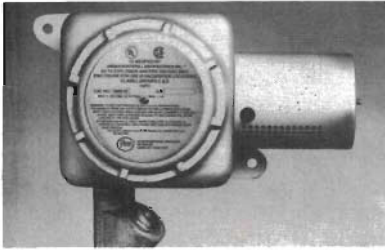


(Extreme Left) Analog pressure transmitters are an option to digital. (Left) This pressure switch has an all-welded ultra-low-pressure sensor. (Below) These pressure switches are equipped with smooth-finish, stainless steel sensors.



(Continued on Page 25)

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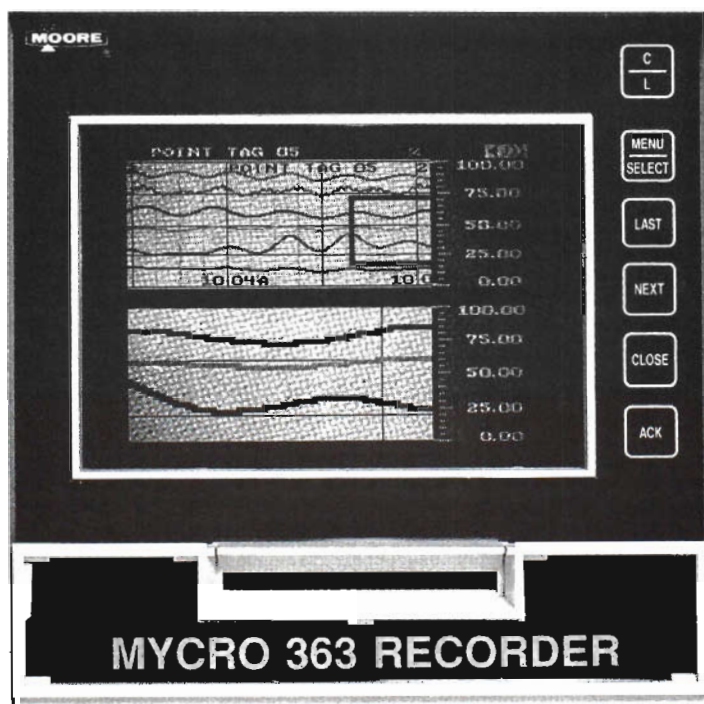
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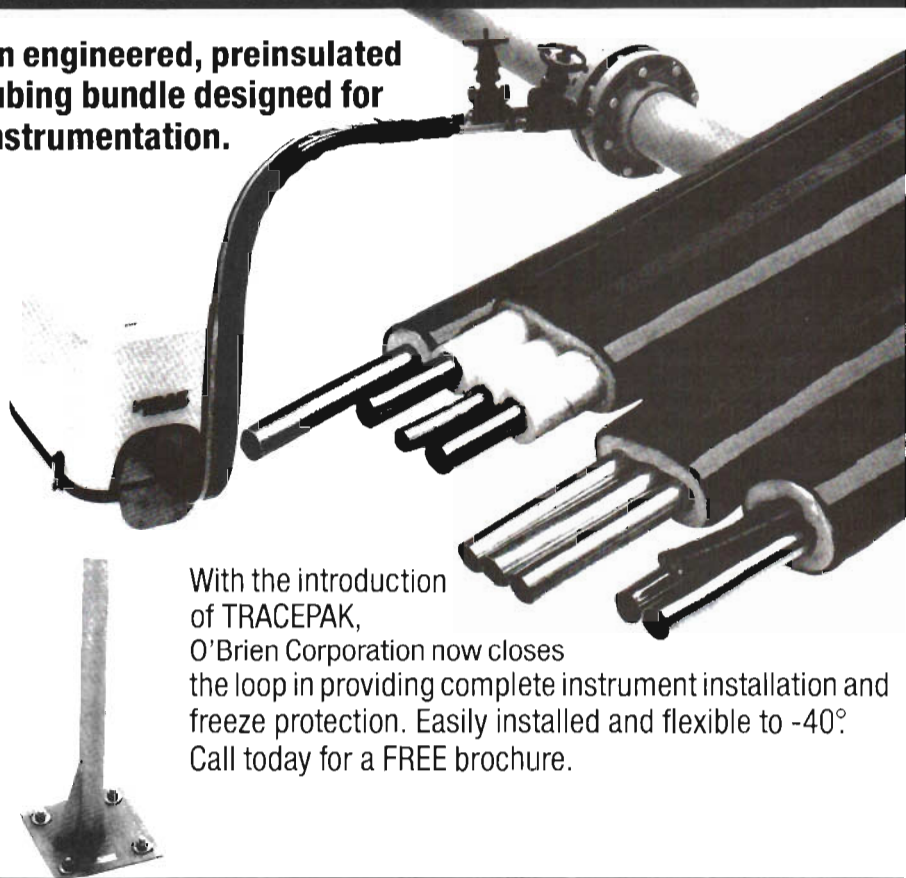


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(Continued From Page 21)

tions of scale often arise. Given the size of an operation, what level of instrumentation is really needed? What's the most cost effective way to achieve company or regulatory goals?

For smaller companies or stand alone projects within larger companies, sophisticated electronic capabilities such as smart transmitters may be too expensive or simply unnecessary. Enter the pressure switch. One of the most attractive benefits of a pressure switch system is that the total investment - materials, installation and training - is significantly less than that of a typical smart transmitter-based system.

System redundancy is the other major area in which pressure switches are filling existing gaps. Certainly the larger and more complex an electronic system becomes, the greater the chance of failure in sensitive equipment and of operator error, and the greater need for secure backup. The latter is especially true when the failure could cause emissions that might result in environmental damage, fines, or even lawsuits. In most cases, pressure switches can provide the redundancy that larger systems require, and do so at a minimal cost.

TODAY'S OPTIMIZED PRESSURE SWITCHES

In the last few years, a number of improvements have been made to pressure switches. All-welded construction has replaced O rings and rubber diaphragms to provide good leak resistance. And the use of corrosion resistant materials such as 316 stainless steel, Hastelloy®, Monel®, Teflon®, and Inconel® has allowed pressure switches to take on some of the harshest and corrosive process environments. In addition, modern manufacturing methods such as electron beam welding have helped to provide leak tight designs while maintaining traditional pressure sensitivities.

Optimized pressure switches can satisfy the high-reliability demands of process monitoring/control applications, yet usually keep system costs about one-third as high as the equipment costs of a typical electronic process control system. The installation and training involved with the electronic methods could widen the disparity even further.

How these switches are meeting needs can perhaps best be explained with a look at some of the types of switches available, and how they are being used.

A WIDE RANGE OF TYPES AND APPLICATIONS

For critical applications involving very low pressure and vacuum, switches equipped with all-welded stainless steel sensors featuring diameters up to 6 in. have proved to be highly reliable. Typically, they can provide accurate low pressure switching (down to .30 in water column) with operating pressure up to 50 psi.

How this type of pressure switch is being applied is illustrated by the tank blanketing systems (*Fig. 1*) used by chemical manufacturers and others who store flammable liquids in large tanks. The problem is that as liquid is drawn out of a tank for use, a growing airspace results, which can fill with highly volatile fumes and essentially turn the tank into a bomb waiting to go off. To avert this dangerous situation, inert gases such as nitrogen are pumped in to *blanket* the remaining liquid and prevent evaporation. Ultra-low -pressure switches equipped with the types of sensors discussed above are being used to monitor for and indicate too-

(Continued on Page 30)



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high to too-low blanket pressure conditions - and thus keep everything under control.

In another application, high-performing pressure switches are helping to achieve reliable, cost-effective protection for clean processes. The switches' welded stainless steel sensors provide an alternative to the traditional switch and diaphragm seal combination, which can leak and experience calibration shifts due to ambient temperature effects. Compatibility with Tri-Clamp® fitting systems enhances the usability of these switches.

A biotechnology company that produces highly purified hemoglobin solution is using this type of clean switch to monitor pressure in its ultra-pure water filtration system (*Fig. 2*) - a system that is essential to the fermentation and separation processes. Pressure in the purification system must be monitored and controlled precisely to prevent damage to the system's expensive reverse osmosis membrane. The company installed a series of pressure switches with direct acting, sanitary sensors that signal a control panel, which, in turn sounds an alarm and shuts down the system's pump if pressure exceeds limits. These switches proved far more reliable and less expensive than previous switches that were equipped with liquid-filled diaphragm seals.

SEMICONDUCTOR MANUFACTURING

Today's pressure switches are also meeting the demands for extreme purity in semiconductor manufacturing and other industries in which single failure can result in huge

losses. Vacuum, gauge and absolute pressure switches are monitoring and controlling gas delivery systems, vacuum pumps/chambers, and process media recovery systems. Sensors with 316L stainless steel wetted surfaces, polished to 10 Ra or better, and electron beam welding are contributing to the high setpoint repeatability and superior corrosion resistance and long life necessary for these applications.

In semi-conductor manufacturing these switches are preventing wafer contamination (*Fig. 3*). Using an etching tool in the early stages of the manufacturing process, batches of wafers are prepared by etching their surfaces with gases. If even small amounts of contamination reach the wafers during etching, the result could be a batch of very expensive scrap.

To prevent contamination, high-purity pressure switches are being used to monitor vacuum levels in etching tools' load lock chambers. The switches signal when load lock reaches equilibrium with the ambient environment - that is, the point at which the operator can safely open the chamber door without contamination moving in either direction. These switches provide long-term accuracy for this demanding application.

Differential pressure switches constructed of PFA Teflon® wetted materials are being used for filtration monitoring applications, where corrosive fluids such as deionized water could pose processing problems. This type of use is illustrated in *Fig. 4*, where we see differential pressure being monitored across a filter in bulk chemical handling processes.

In-line filters are needed in this application to stop contamination, but if they clog and restrict fluid flow, a dangerous leak or rupture could occur. Differential pressure switches solve the problem by measuring upstream and downstream pressures and providing alarm and shut-down function before pressures reach critical levels. Teflon's® inert qualities enable the switch to repel chemical attack easily, and provide accurate, long-term monitoring.

Finally, in the pressure transmitter arena, analog transmitters offer a viable alternative to smart transmitters for continuous monitoring and threshold detection. If manual calibration and checking, instead of remote functionality, are acceptable, these transmitters can be a very cost-effective solution. Available in a variety of high-performance materials, they offer the same integrity as smart transmitters, accuracies of 0.15%, and ranges up to 10,000 psi capability. In addition, some have been FM approved for explosion-proof and intrinsically-safe applica-

tions.

One example of these transmitters being used successfully is in water treatment applications for continuous pressure measurement of liquids stored in open tanks (Fig. 5). The transmitter's 4-20mA signal can be used to drive digital indicators and current alarms, thereby providing continuous monitoring and threshold detection from the same sensor.

PRESSURE SWITCHES STILL A GOOD WAY TO GO

Digital technology has brought new levels of automation and precision to process control. However, it's hard to dispute the appropriateness of optimized pressure switches to drive or augment systems - particularly if you value simplicity, reliability and cost effectiveness in meeting a company's goals for threshold detection, discrete access control, and monitoring. Without question, pressure switch benefits warrant consideration.

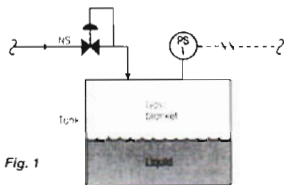


Fig. 1

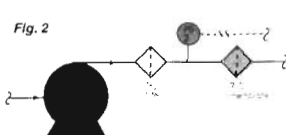


Fig. 2

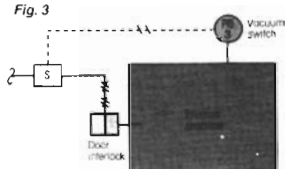


Fig. 3

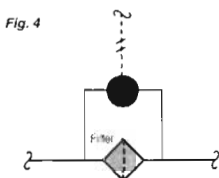


Fig. 4

Fig. 1: Shown is a chemical manufacturer's tank blanketing application using low-pressure switches.

Fig. 2: Clean switches keep watch over a biotech company's ultra-pure water filtration system.

Fig. 3: High-purity switches prevent contamination during the manufacturing of semiconductors.

Fig. 4: Differential pressure switches measure in-line pressures for a chemical manufacturer.

Fig. 5: A water treatment plant uses analog transmitters to measure open-tank pressures.

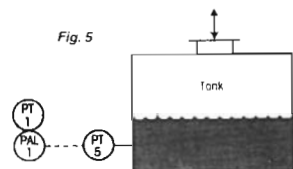


Fig. 5

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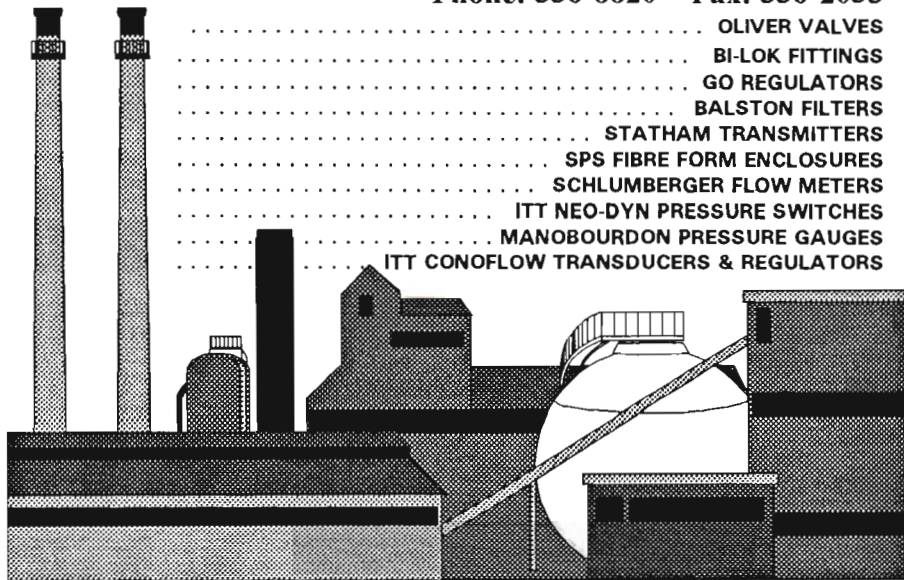
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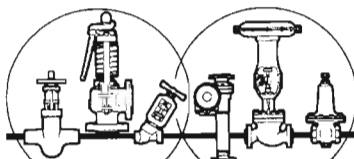
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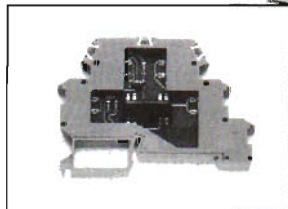
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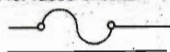
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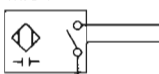


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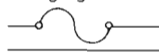
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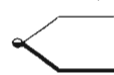
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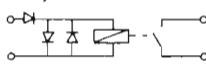
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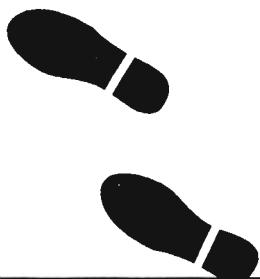


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ISA Sarnia Section

“Dinner Meetings Notice”

With the new term comes a fresh new format for our Dinner Meetings. As always, our meetings will be held on the last Monday of every second month, beginning in September. Our location has changed, however, and we will now be reverting back to the Sarnia Golf and Curling Club whose culinary efforts and refined atmosphere are highly regarded.

Program Chairman
BOB KELLY

“ISA in the NEWS”

Ducker Research Study Gives ISA High Marks

Research Triangle Park, NC – ISA recently received the results of a study which examined industry perception of ISA's image as well as measured member and customer satisfaction. The goal of the study was to find ways to assist ISA in evaluating its performance and identify ways in which it can improve. The study, which consisted of telephone interviews with ISA members, non-members and customers, followed-up on a similar study done in 1993.

Executed by Ducker Research Company, the study focused on two primary elements; Image Assessment and Member Satisfaction. While there is still room for improvement in specific areas, ISA received high marks in many categories and compares favourably to other societies, especially in the area of customer service.

Members' and customers' positive impression of ISA's customer service is on target with ISA's Quality Goal: To be the best technical society by continuously exceeding member and customer expectations.

Similar to the 1993 study, ISA's image among members is excellent, as members value ISA's products and services. The following information was also discovered in the study:

- ISA is recognized as the leading instrument and control society.
- More than 40% of member respondents report that ISA's image among measurement and control personnel and the engineering community has improved since 1993.
- Seventy-six percent of all new members would definitely recommend ISA membership.

The report concluded by giving recommendations for efforts to continuously improve ISA's image such as: marketing and promotional efforts, outreach to colleges, expanded membership services, improved customer service and more involved local Sections.



The International Society
for Measurement and Control

ISA Sarnia Section May Dinner Meeting Highlights

On May 27, 1996 we hosted the final ISA dinner meeting for the 1995-1996 season. We had an excellent turnout of around 65 people and enjoyed the theatrics of a Murder Mystery production. It was an exciting evening, with some very strange dinner guests, a number of newly announced pregnancies (**all** of which were part of the act!!!), a murder victim and lots of laughs throughout the evening. The participation from the audience was excellent and helped to promote a very entertaining evening.

Our President conducted the general election of next year's executive, with final voting by the general membership present at the meeting. Most positions are now approved, although several positions still remain to be filled.

Our thanks to everyone who participated in the dinner meetings this past season. Have a good summer and we hope to see you at the next meeting in September.

Jennifer Southcombe
1995-1996 Program Chairman

Upcoming Meetings:

September 30, 1996

Next General Meeting

New Location:

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ISA SARNIA SECTION GOLF '96

On June 14th, the Sarnia Section held its Second Annual Golf Tournament and everyone enjoyed themselves and there were some good scores. To all who participated, the committee wishes to express their gratitude for your support. I would be amiss if I did not acknowledge the committee members who spent many hours in preparing for this tournament. Ron Thurier, Larry Cunningham and Roman Norejko for getting the prizes. Gerry McKone and Gary Coles for obtaining sponsors, Jeff Talbot for advertising, John Baker and Dave Lyon for registration and Mike Spearman for keeping the Tally score. The winners are L. Zerkol, Low Gross: J. Galloway, Low Net: B. Finn, Closest to the pin front nine: A. Kreeft, Closest to the pin back nine: S. James, Longest Drive. The main draw winner is J. Sebbin.



Again a hearty thank you to all who have supported us and looking forward to see you next year, Friday, June 20th, 1997 at 8:00 a.m.

Golf Tournament '96 Chairman
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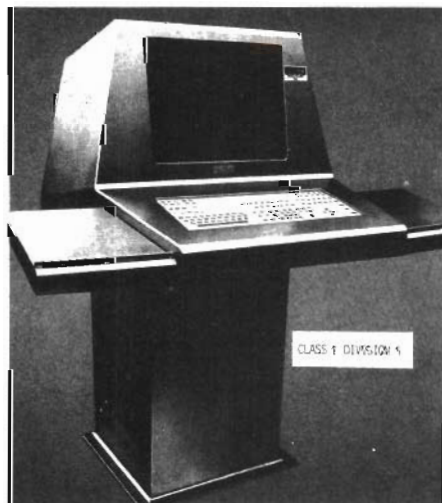
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INTERNET UPDATE

There are a number of ways for ISA members to obtain up to date information about ISA and their chosen field, Measurement and Control, on the Internet. I have access at work and at home to the World Wide Web which makes it possible to use every day. Point your web browser to my home page at <<http://www.ebtech.net/~bsmith>>, for links to the web sites mentioned below. Do not include the <brackets> when you type in these internet addresses.

Technical Information on the WEB

Each day brings new problems to solve. The solutions may only be found after much investigation, discussion, calculations and possibly trial and error. You may ask, is there a better and faster way? Is there another tool I can use in parallel with my current methods? Yes there is! Many people are using the Internet to share information, research and investigate problems and have fun at the same time! Anyone can do it, with access, a little help and some time.

Here are some examples:

Internet e-mail can be used to communicate with another person you know that also has an e-mail address. This method is limited to people you know. To communicate with people you do not know requires methods that utilize common message newsgroups, listservers and forums. Let me explain what these are.

Internet Usenet newsgroups are like bulletin board conferences. Each one is organised by topic. There are over twenty thousand newsgroups, but not all are available on each server. The Internet server or provider can select any or none of these to make available to users. Check with your provider for detailed information. Your newsreader program lists all the newsgroups available on your server. There is a News reader built into Netscape that will perform the basic functions. You can use a separate newsreader program like Agent which organises the newsgroups and provides additional functions. I would recommend Agent or it's free version called Free Agent, to anyone who reads newsgroups regularly. There is a copy on the ISA BBS for downloading. You select which newsgroups to monitor. All of the active messages are listed. You select which ones to read. All messages must be addressed to "All". There are no private messages allowed in the newsgroup. Replies to the newsgroup would be addressed to All. Private replies can be addressed to the persons e-mail address.

Newsgroups that may be of interest are:

alt.cad.autocad	Autocad discussions.
sci.eng.control	Control engineering discussions.
sci.engr.chem	Chemical engineering discussions.
sci.engr.heat-vent-ac	Heating, ventilating & Air Conditioning discussions.

A listserver is an automatic e-mail mailing list. All subscribers to the list will receive every incoming message. Only subscribers can send messages to the list. I subscribe to a number of listservers that send anywhere from one message a month to twenty messages a day. I have unsubscribed myself from listservers that sent me more than 20 messages a day because it took too much time to read the messages.

(Continued on Page 55)

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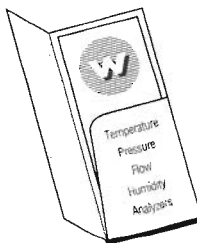
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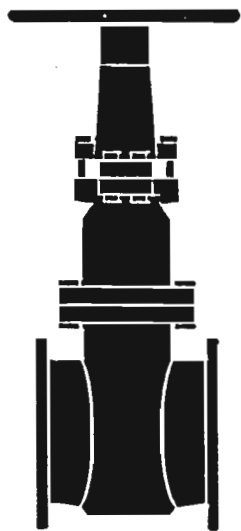
Meeting Dates

MEMBERSHIP DINNER MEETINGS

Date	Time	Place
September 30, 1996	8:00 p.m.	Sarnia Golf and Curling Club
November 25, 1996	"	"
January 27, 1997	"	"
March 31, 1997	"	"
May 26, 1997	AWARDS / RECOGNITION NIGHT	

EXECUTIVE MEETINGS

Date	Time	Place
July 29, 1996 (<i>Special Meeting</i>)	7:00 p.m.	Fisher-Rosemount Training Room
August 26, 1996	"	"
October 28, 1996	"	"
January 6, 1997	"	"
February 24, 1997	"	"
April 28, 1997	"	"
June 23, 1996	TURNOVER MEETING	



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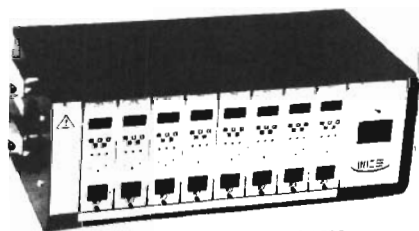
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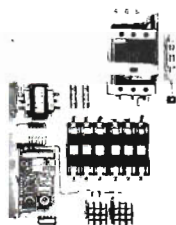
1 x 1 7/8" 32nd DIN
MINIATURE CONTROLLER



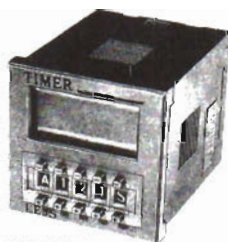
MULTIZONE CONTROLLERS



CUSTOM CONTROL PANELS



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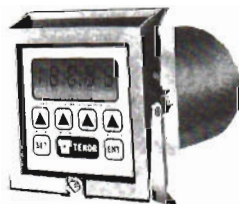
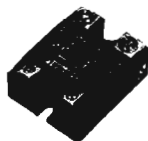
MOTOR CONTROLS



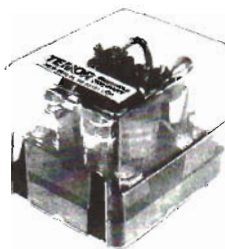
SOFT START/SHORT STOP
(5 TO 850 HP 600 VOLTS)



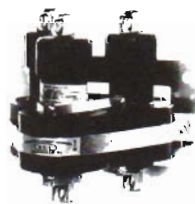
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NEWS RELEASE

CAPT

The ISA Training Materials Distribution Centre located at the Centre for Advanced Process Technology at Lambton College has recently received many of ISA's newest publications which are all available to preview at the Centre as well as ISA's videotapes and software products. Also, if you purchase the print version of the 12th Edition Standards Library, you will receive the CD-ROM version at no extra charge with free upgrades for one year! If you are interested in ordering or if you have any questions regarding any of ISA's training products please call (519)542-5033, fax (519) 542-1017 or e-mail sandra@lambton.on.ca.

MOORE PRODUCTS CO.

Moore Products Co. has begun to deliver a new addition to it's XTC™ family of smart pressure transmitters. The Model 341P is a smart gauge pressure transmitter, that is directly interchangeable with a flush mounted diaphragm pneumatic and electronic pressure transmitters commonly found in the pulp & paper and chemical industries.

ROMATEC

TN Technologies (formerly Texas Nuclear) is pleased to announce that we have joined forces with Romatec Sarnia to provide local representation of our products in Southwestern Ontario.

Romatec has been providing instrumentation, analyzers, valves and pumps to industrial accounts in this area since 1966. We are pleased to be associated with such an established and respected company. This new association will allow us to improve our presence in this market place.

Should you require any additional information, please contact Bill Reid, Bill Arundell, Len Young or Paul Moosdorff of Romatec, or call us directly.

TUBETECH LTD.

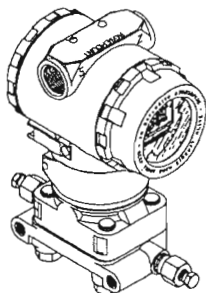
Tubetech is pleased to announce the addition of Chuck Douglas to the staff. Chuck's reputation and experience in the instrumentation field will definitely be an asset to Tubetech's continually growing presence in the marketplace.

Tubetech has been assigned the exclusive representative for the Barksdale product line of pressure and temperature controls for South-west Ontario. This product will add to Tubetech's long term goal of supplying our customers "*The Complete Package*".

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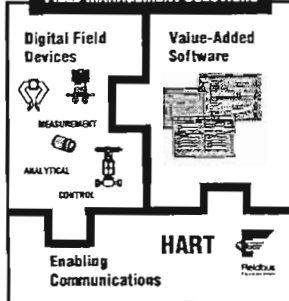
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Here are some examples of listservers:

The EBTech user-group includes announcements from EBTech, user questions and answers and general information about the Internet. WinNews is an electronic newsletter from Microsoft that includes Windows 95 hints, updates and general information.

ISA Online has a listserver that announces functional changes and updates to the website. There is an Intech Chat Forum at <http://www.isa.org/journals/IT_chat.html>. The ISA Analyser Division has a newsgroup described at <<http://www.isa.org/divisions/analysis.html>>. The Automation news group is a non-commercial forum for discussions about automation topics, PLC's, plant networks and general automation concerns at <<http://www.control.com/alist/alist.html>>.

Industry Net has discussion groups for Computer Software, Control Systems, Measurement and Sensors and Electrical & Mechanical Manufacturing & Consulting at <<http://www.industry.net/>>. Go to the Online Marketplace Forum page. Access is free once you have registered for a login and password.

Brian Smith Internet: bsmith@ebtech.net smithb@novacor.com

ISA GROUP INTERNET RATES

All Sarnia Section and Student Section members, are eligible for reduced rates with Sarnias full service Internet provider: Electro-Byte Technologies, 559B Exmouth St., Sarnia, 332-8235.

If you go there to sign up, just mention that you are an ISA member. They have a member list to verify your membership. You can also show your member card if you are not on the list.

EBTech has revised their rates effective June 1, 1996. The regular three month contract renewal now costs \$64.20 for 50 hours plus \$0.50/hour plus GST for additional hours. ISA Members ONLY pay \$10/month minimum for 10 hours plus one time \$10 connect fee, for a total of \$43.20 including GST. Additional 3 months cost \$32.10 including GST. Note: Additional hours still cost \$0.50. There was some confusion and EBTech had told some members that the overcharge rate was \$1.00 per hour.

EBTech is in the process of joining other Internet Service Providers in offering standard rates. If this happens we would most likely loose our group rates. I will be following this through the summer and will let you know what is happening. You may find out sooner when you go to renew if the group rate ends.

The Sarnia Section Home Page can be found at:

<http://www2.ebtech.net/~bsmith/isasarni.html>

SARNIA SECTION BBS UPDATE

As of June 16th the BBS has received over 1340 calls. There have been 481 messages in the Main Board conference, 1147 downloads and 31 uploads. Three new callers have registered since the last issue. The BBS software has been upgraded to version 15.3 which is a minor upgrade.

The BBS phone number is (519)541-0427.

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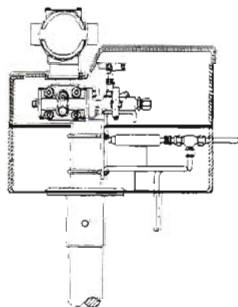
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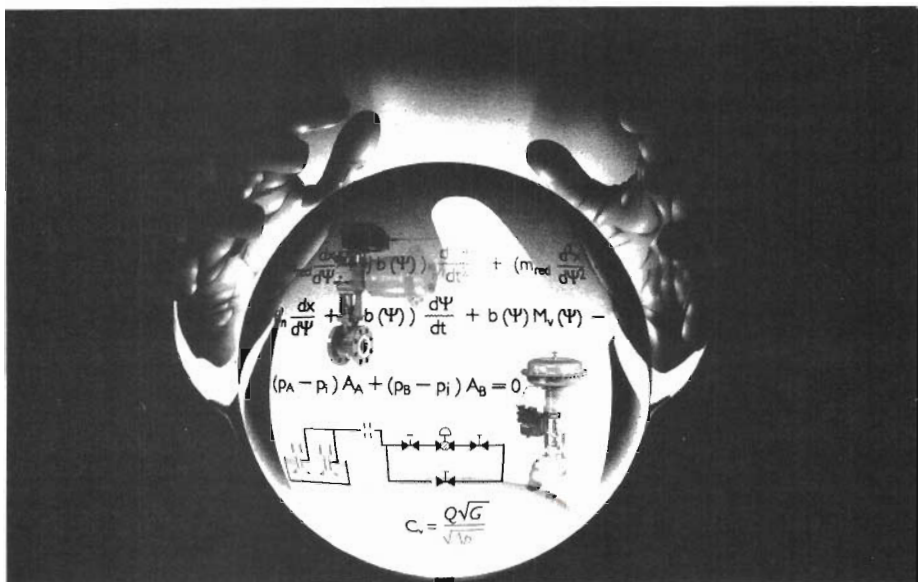


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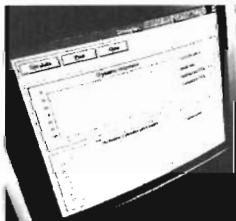
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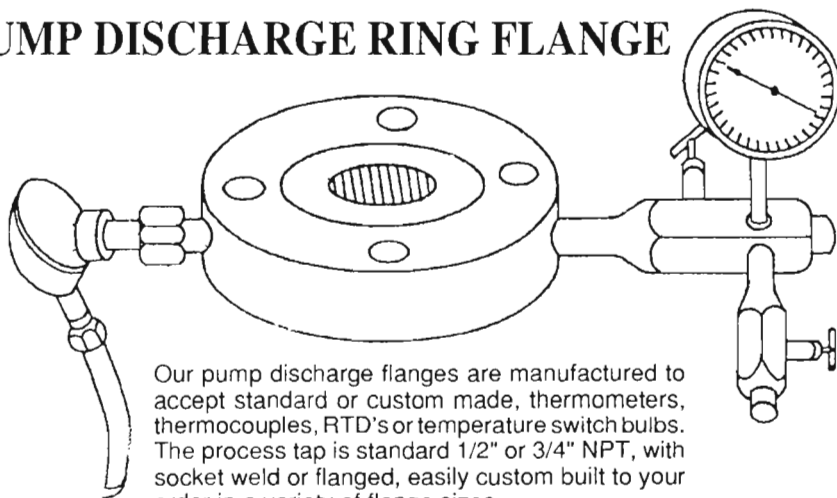
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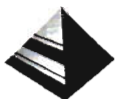
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☐ Industrial Computing Society Membership (reg. \$55) \$30 \$ _____

— must be an ISA member. Total Amount Due \$ _____

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☐ American Express ☐ Eurocard ☐ MasterCard ☐ Visa

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Special Note Regarding Transfer of International Funds

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PO Box 3561
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USA

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Division Enrollment — Also enroll me at \$5.00 each in the Divisions checked below. To join Divisions, you must also enroll as a regular or student member.

4 Automation & Technology Divisions

☐ (A) Analysis* ☐ (J) Test Measurement*

☐ (C) Robotics & Expert Systems ☐ (M) Automatic Control Systems*

☐ (D) Computer Technology* ☐ (N) Telemetry & Communications

☐ (E) Open Systems Interconnection ☐ (P) Electro-optics

☐ (H) Process Measurement & Control* ☐ (W) Management*

☐ (I) Maintenance

Industries & Sciences Divisions

☐ (B) Aerospace Industries* ☐ (R) Food & Pharmaceutical Industries*

☐ (F) Mining & Metals ☐ (T) Textile Industry

☐ (G) Chemical & Petroleum Industries* ☐ (U) Automotive & Vehicular

☐ (K) Construction and Design* ☐ (X) Water & Wastewater Industries

☐ (L) Pulp & Paper Industry* ☐ (Y) Glass & Ceramics Industries

☐ (O) Power Industry* ☐ (Z) Marketing & Sales*

* Students are entitled to one free membership each in the Automation & Technology and Industries & Sciences Divisions. Please choose and mark from the asterisked selections.

USERS DIRECTORY

This index lists manufacturers and trade-names alphabetically and enables users to determine the local representative for a particular manufacturer or product.

Manufacturer / Tradename

3 P
3-D
3M Circuit Tracer Kit
A. Kruss Optronics
A.H. Emery
A.S.I.
A.W. Sperry
Accutech
Accutron Heat Tracing
Acme Flo
ACR Systems
Acromag
Acrotech
Action Instruments
Action Instruments
Action Instruments
Advance Products Spray Shields
AEMC
AFE
AGI
AGM Electronics Inc.
All O2 Sensors
Air Flow
Air Monitor Corp.
Aircan Environment Technologies
Al-kon
Alltemp Sensors
Alnor
Alnor Instruments
Altek
Altek
American
Ametek
Ametek
Ametek
Ametek - Analyzers
Ametek - Mansfield & Green
Ametek - PMT
Ametek - U.S. Gauge
Ametek Gauges
Amot
Amprobe
AMS Analytical Systems
Analogic
Anarad
Anderson Greenwood
Annubar/DSC
APACS
API Meters
Apollo
Appalachian Controls
Applied Automation
Ari
Arjay
Armatek
Armtec Industries
ARO
ASCO
ASCO
ASCO
ASCO
ASCO
Asco/Joucomatic
Ascoelectric
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TubeTech
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Northern Abcor
Floval Equipment Ltd.
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Manufacturer / Tradename

Ashcroft
Ashcroft-Dresser
Ashford Valve
Astro International
Atkins
Atomac Ball & Check Valves
Auma Electric Actuators
Aurora
Automatic Systems Laboratories
Autotech
Azonix
B & K
B.N.W.
B/W Controls
Babbitt International Inc.
Bacharach
Bacharach - Hand Held Instruments
Backos
Badger Fire Protection
Badger Meter
Bailey
Bailey - Fischer & Porter
Baldwin Environmental Inc.
Balluff
Balston Filters
Barber Engineering
Barber-Colman
Barnant
Barnant
Barton
Baumann
Beamex
Bebco Industries
Beckman Industrial
BEHA
BEI
Bellofram
Bellofram
Berthold
Bestobell Steam, Div. of Richards Ind.
Bestobell Valves
Beta
Beta
Bi-Lok Fittings
Biccotest
Biddle
Bin-Master
Bio-Tek
Bios International
Bios International
BJ Software
BLH Electronics
Blue White
BOILER-GARD
Bourdon-Sedeme (Manobourdon) Gauges
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Brandt Instruments Inc.
Branson
Brian
Bristol Babcock
Brooklyn Thermometer
Brooks-Meter
BS & B
BTG Inc.
Burkert Contromatic
Burling Instruments
C.E.A. Instruments
Cajon Pipe Fittings
Cal
Canadian Meter
Cancoppas Limited
Cantech Systems

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Provincial Controls
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Fluidic
Fluke
Foxboro
Foxboro - Measurement, Instruments, Parts
Foxboro Analytical Group
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Fujikin of America Inc.
Fulier
G.C. Industries
G.H. Flow
G.W. Dahl
Galtek
Gamma Silometer
Gefran s.p.a.
General Controls
General Eastern
General Metal Works
General Resistance
General Resource (Isomatic Corp.)
Geokon
GGOSCO Engineering
GGOSCO Needle Valves
GGOSCO Valves
GH Flow Automation
GLA Elettronica
Global
GMD Systems
GO Regulators
GO Switch (Proximity)
GP:50 New York Ltd.
GPE
Graham Manufacturing
Gralab
Granucor
Granuflow
Granumet
Graseby / STI
Great Plains Industries
Greyline Instruments
Guardimark International
H.D. Baumann
Hammel Dahl
Hancock
Hanna Instruments
Hansen Quik Connects
Hartman-Technica
Hartmann & Braun
Hathaway
Hathaway-Wodex
Haws
Haz-Stor
Hedland
Heise
Herasus Sensors
Hermon
Hewlett Packard
Hex Valve
Hiltap Couplers
Hiltcroft
Hitachi
Hitachi - Oscilloscopes
Hoffer Flow Controls - USA
Holaday Industries
Honeywell
Honeywell - Controllers & Recorders
Honeywell - Recorders
Honeywell - Recorders
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Huntron
Hy-Cal
HydroGuard

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IC Controls
IDEC
IET
Illinois Instruments
Imi-Cash Valve Inc.
Imperial Eastman
Imperial Eastman
Imperial Eastman Fittings
IMS
Industrial Scientific Corp.
Industrial Sensors
Ingold
Inor
Intelligent Controls Inc.
Intellution
Intempco
Interlink
Interscan
Interscan Corp.
Intertec
Ion Track Instrumentation (ITI)
Ionics Instrument Division
Iotron
Ircon
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ITT Conoflow Regulators & Seals
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ITT Neo-Dyn Switches
ITT Standards (Engineered Products only)
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Jamesbury
JB Engineering
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Jerguson Level Gauges
Jofra
Jofra
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Julius Bauser - Germany
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Kammer Control Valves
Kammer Control Valves
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Kay Ray/Sensall
Kaye
Kaye Instruments
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Kent Meters Inc.
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Kinetrol Actuators
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Manufacturer / Tradename

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Partlow
Paul Mueller
Pelican
Penberthy
Penberthy Instruments
Penny & Giles
Pepperl + Fuchs - USA
Permacal Gauges
Phipps & Bird
Phoenix Contact
Pick Heaters
PMV
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Polytronics
Porter Instrument Co. - USA
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Powers Process Control
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Precision Digital
Precision Digital Corp.
Precision Digital Corporation
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Pribusin Inc.
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Promac
Promag
Promag
Promass
Proquip
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Protimeter
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Provox
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Proximity Controls
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PTC
Pulsafeeder
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Pyromation Inc.
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QSDM
Quad Tech
Qualimetrics
Quality Control Equipment Company
Quantum
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R.P. Adams
Ralston
Ralston
Ramsey Canada
Ray
Raytek
Raytek
Raytek
Raytek/UE
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REK RKC
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REXA Corp.
Rexcon
Rexroth
Rezplast

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Mentec Sarnia Ltd.

Manufacturer / Tradename

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RIS
Roberts Mfg. Inc.
Robertshaw
Rochester Instrument Systems
Rohrbach Cosasco Systems
Roper Pump
Rosemount
Rosemount Analytical
Rosemount Analytical
Rosemount Combustion Control
Rosemount RS3 Systems
Rotomation
Rotronic
Royce Instruments
Ruffneck
Ruskin (Control Dampers)
Rustrak
S.P.S. Instrument Services
Samson
Sarasota Instrumentation
Schlumberger/Neptune Flow Meters
Schrader Bellows
Scientific Linings & Coatings
Scully Electronic Systems Inc.
Seacor
Sealed Unit Parts
Seametrics Inc.
Senior Flexonics
Sensall
Sensidyne
Sensidyne Gas Monitors
Sensortech Systems Inc.
Serge-Baril
Servomex
Setra
Sfere
Shan Rod Inc.
Shand & Jurs
Shimpo
Sieger
Siemens
Siemens Process Analyzers
Sierra Monitor
Sierra Monitor
Signet Scientific
Signet Scientific
Sigrist-Photometer Co. - Switzerland
Silometer
Simpson
Sinkel
Skinner
Smar International
Smartline
Smartline
Sno-Trik
Solartron
Soliphant
Solomat
South-West Meters
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SPS Fibre Form Enclosures
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Alpha Controls & Instrumentation
Sarnia Piping Specialties
Axiom Technologies Ltd.
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Cantech Controls
Axiom Technologies Ltd.
Huron Valve & Fittings

Manufacturer / Tradename

Syscon
Systematix
T.B. Woods
TA Instruments
Tapecoat Canada
Tate-Andale
Taylor Hand Actuated Pressure Calibrator
TBI-Bailey
TBV
TDC-3000
Techmation
Techne
Technipower
Tegam
Tegam
Tektronix
Tel-Tru
Tel-Tru
Tel-Tru Thermometers
Teledyne Analytical
Teledyne Combustion Efficiency Analyzer
Telegan
Tempco
Tenor Industrial Control
Testo Inc.
Tess-Com Inc.
Testoterm
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Texas Sampling Inc.
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Theben
Thermax
Thermo Electric
Thermo Electric - Calibrators
Thermo Environmental Instruments
Thermo Kinetics
Thermon
Thermox
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Tomoe Valves
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United Sciences Inc.
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Vaisala - RH, Barometric Pressure

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Northern Abcor
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Alpha Controls & Instrumentation
Willer Engineering
Transcat
Transcat
SRP Controls Systems Ltd.
Provincial Controls
Transcat
Campbell Scientific (Canada) Corp.

Manufacturer / Tradename

Valhalla
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Valvtech
Varec
Vector-Vid
Veeder-Root
Veeder-Root
Velan
Veriflo
Veris
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Versatile Measuring Instruments Inc.
Viatran
Vista Scientific
Vitec
Viz
Vortisand
Wabco
Wahl
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Walker Scientific
Wallace & Tiernan
Wallace & Tiernan - Pressure Calibrators
Warren Jones Engineering - England
Warrick
Waterman Industries - USA
Watson McDaniel
Watts
Watts
Weed
Weed Instrument
Weksler Instruments
Westech
Westinghouse Enotec
Westlock Controls
Wey Valve
Whesso Varec
Whipps Inc. - USA
Whitey Valves
Whitman
Whittaker Electronics
Wika
Wika Instruments
Wilkerson
Wilkerson Instrument Co. Ltd.
Williams Instrument Co.
Williamson
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Wood's
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Yarway
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Young Environmental
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Mentec Sarnia Ltd.
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Westech Industrial Ltd.
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1954/55	Jack Heatley	1979/80	Dave Braedley
1955/56	Larry Hall	1980/81	John Stassen
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1962/63	Robert Brayne	1987/88	Joe Lobo
1963/64	Robert Newman	1988/89	Irvin Hawkes
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1965/66	Ted Stock	1990/91	Ken Blair
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1967/68	Bill Rion	1992/93	Bob Kelly
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- Maintenance and shut-down management
- Diagnostics for pneumatically operated valves
- Start-up assistance

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SERVICE:

- Engineering and project management
- Installation and start-up assistance
- System life management

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