

ANNUNCIATOR

NOVEMBER 1995



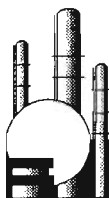
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Editor's Notes

Watch for the continuing saga...

"WRITTEN ON A ROLL CHART"

These are the collective writings of HOWARD HOBBS,
with commentary by Bob Connell.

ADVERTISERS: Please note that the deadline for the JANUARY ANNUNCIATOR is December 15, 1995. Please forward information to the editor by that date in order to have items updated.

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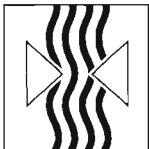
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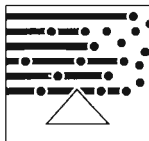
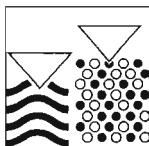
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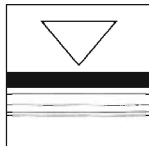


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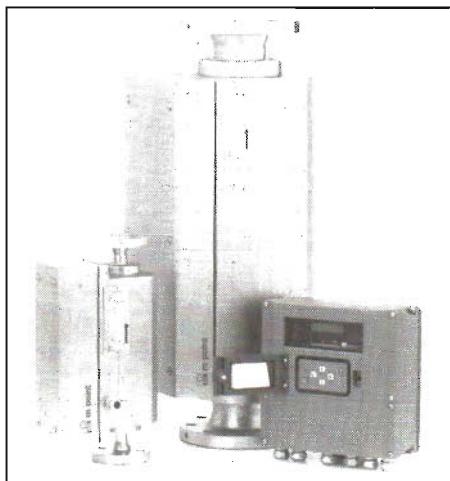
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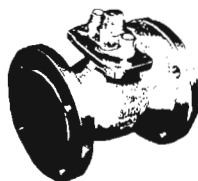
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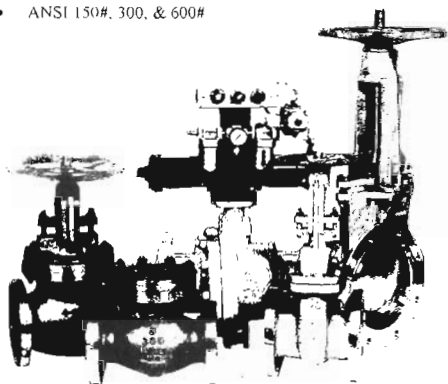
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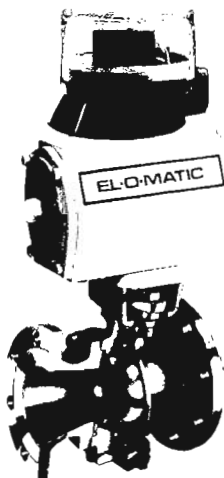
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From The President...

Major issue from the last meeting is still the cleaning up of the charter (no action yet).

How are we doing with the member get a member drive? Have you contacted anyone yet? We would like an increase in membership with a higher retention number.

I'm looking to CAPT for a representative to fill the role of the education chairman.

I'm also working n getting an ISA night or evening at CAPT. This would include a presentation by CAPT and a demonstration on internet, more to come.

What were your comments regarding our new dinner meeting location? Good or bad, let your executive know.

ISA/95 New Orleans was going along great until "Hugo" decided to visit. Vendors and visitors alike made a hasty exit Tuesday night. The show attendance was visibly down on Wednesday and Thursday.

ISA is pushing the membership drive in a big way.

Certification for the Control Systems Technicians Program is in full bloom.

Delegates Voted On:

- 1) Resolved, to approve the plan of merger of ISA International Inc. into ISA.
- 2) Resolved, to rescind any and all authority or action taken to permit the creation and existence of the ISA International subsidiary etc.
- 3) Resolved, that the bylaws of the ISA be amended by the addition of a new section to article III of said bylaws. "3. Each district may, but is not required to group one or more sections within the district into one or more geographic subdivisions to be known as regions."

Have a good day, see you at the meeting.

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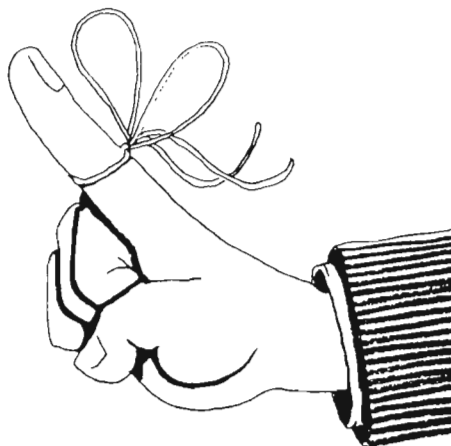
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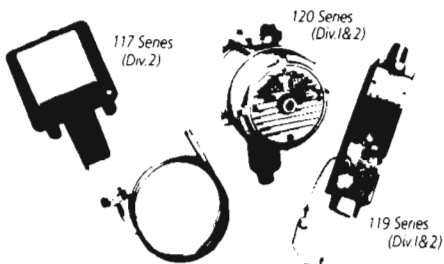
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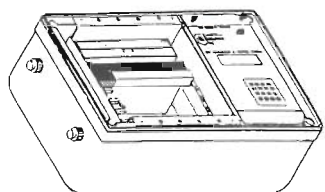
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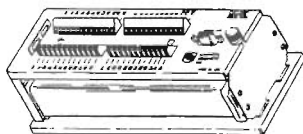


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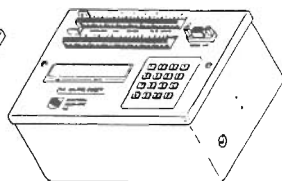
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LAMBTON COLLEGE STUDENT SECTION

This month the ISA Sarnia Student Section held the first General Membership and Executive Meetings of the new school term. At the general meeting the Student Section President, Dennis Poort addressed the new students on the benefits of being an ISA member. With the ISA '95 fast approaching, Mike Grey gave the meeting a general overview of what the Lambton College team would be participating in while in New Orleans. Two new executives were also elected at the general meeting. Kevin Hicks is now the newly appointed Secretary / Treasurer and myself the Newsletter Editor. Although attendance was not overwhelming, it does appear that there is a good base of continuing members as well as a fair number of new members.

At the executive meeting the main topic was the ISA '95 Student Competition. The topic of finances for the Team Members was the main agenda item. It was discussed that the ISA Sarnia Section was the main sponsor of the Team but that there was still a need for funds. After a brief discussion on the subject, it was brought to unanimous decision to approve the contribution of \$750 dollars from the Student Section funds.

On October 2, the Lambton College Student Competition Team traveled to New Orleans to compete in the 3rd Annual ISA International Student Competition. The team consisted of Janice Haskell, Dennis Poort, Jay Rookes, Dave Nywening and Harold Robson. Twelve teams from Canada, United States, Mexico and Russia were entered in the competition. The Lambton College Team placed 3rd in the practical portion of the competition. This placement netted the team a cool \$1400. Team member Janice Haskell was also the recipient of the Kates Award. Janice received the award for the Lambton College Student Section and was presented her award at the ISA Awards Dinner in New Orleans.

At this time, on behalf of myself, and the rest of the forthcoming graduating student members, I would like to thank the Sarnia Section for all their help and support to the Student Section. It has been a great experience for myself to be involved in the ISA association and I hope to continue as a full time member upon graduation. Once Again Thank-You.

Steve Jackson
Newsletter Editor

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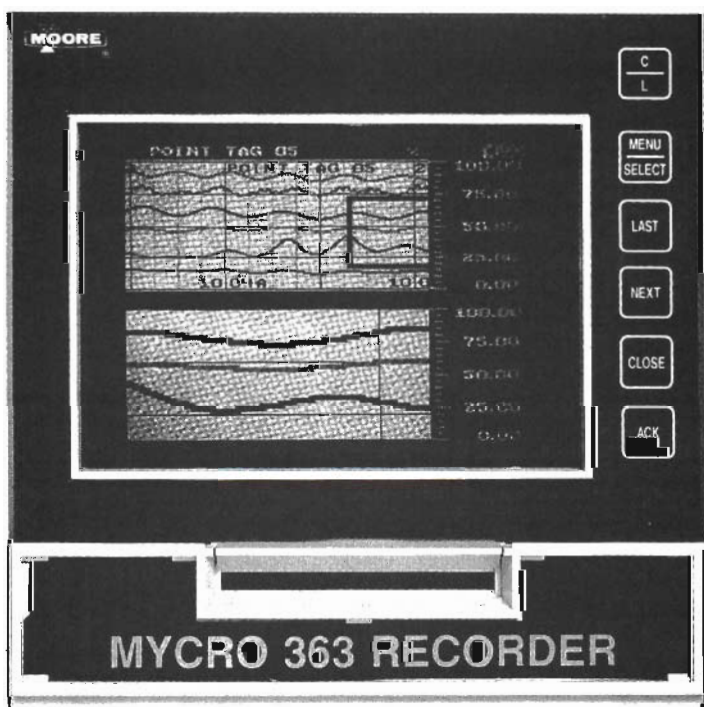
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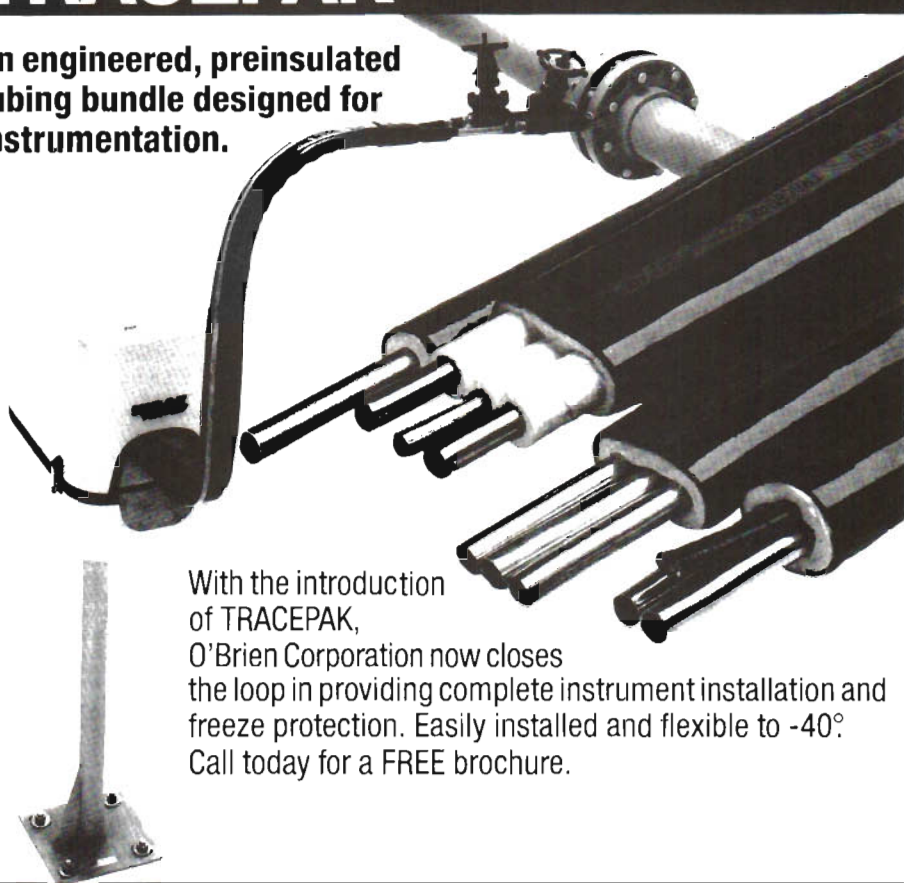


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The Legacy

Scene I

A large control room. Operators engaged in their many duties, watching the instruments, holding small conferences, entering and leaving by several doors. Enter two figures, who stand, front and center, youth, displays an eager, aggressive manner, and a generally attractive appearance. The other, much older, and rather seedy, seems to blend, in the manner of a chameleon, with every background. He gives an impression of unobtrusiveness. He speaks.

Graybeard

"How warmly doth the sun come slanting in.
His friendly beams right well illuminate
This long familiar scene. It augers well
That this first day you join our little group
Should dawn so fair. I trust this omen means
Your new career will be a pleasant one.
Your usefulness increasing day by day,
Your knowledge, like a sprouting melon seed
Must grow to compass many varied things,
And matters seeming not in any way
Connected with our fascinating trade."

"Your formal education is complete,
(And rather more extensive than my own).
Your sheepskin with its signatures and seals
Attests your academic aptitude.
I gladly give this training its full due,
As well one should if he is left awhirl
By sums more difficult than three times three.
Now harken to me yet a while,
I am the product of a different school.
Hard knocks have twisted this once manly frame,
Cruel cares have taken ghastly toll of me.
This wan and wrinkled brow, this springless step,
Are badges of long service. I've profited
From every good or bad experience,
And having sifted each and every one
Have boiled them down into a set of rules
By which I here and now conduct myself."

"I know the humble station I abide
Is but the lowest stepping stone
In your potential climb. You'll soon proceed
To grander, higher, more important things,
Where my advice may seem of little use,
But, on your way, may save you buffetings.
Take what you will, or cast it all aside
These morals I have gleaned are all well tried."



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Youth "Say on, O Graybeard, tell me your belief,
But pity show my patience, keep it brief."

Graybeard "Now supervisors are a race apart
A harassed, struggling, worried, thoughtful group.
They show concern about the instruments
And fret about their grave discrepancies
Oftimes they sally from their nearby den
Slide rule in hand and corrugated brow,
Perplexed by some grave matter. Desperate for
An answer, they will grasp at any straw.
I'm armed with goodly straws in heaps and stacks
But every one is firmly labeled facts."

Youth (aside) "To reach and end of this I do despair
Will this old windbag ever stop for air?"

Graybeard "The operators are a motley crew
In size and shape and every pedigree,
But each and every one of them is prone
To blame all upsets on the instruments.
Now we must intimately live with them
Rather more than many a married pair,
So it behooves us to conciliate
And keep a spirit of close harmony among us."

"Their evil gibes and accusations of the instruments
Distasteful though they be, must be endured.
My policy has ever been, with them,
To never argue, bicker, or dispute,
By methods more effective, if oblique,
Their loudest howls and whines, I do refute."

"I've practiced at the mirror many years,
I listen to their groans with rapt attention,
Fantastic theories I absorb with ease,
For all the while they shower me with details,
The instruments have time to smooth things out.
So Operators, much like little children
Respond unto the dignified appeal,
And calmness better far than tools or textbooks,
And patience surely beats misguided zeal."

Youth (aside) "Alas, I am snowed under with his words,
This ancient one is strictly for the birds."

Graybeard "Scarcely have I touched upon this lengthy subject,
But time does not permit us any more.
Grim duty calls, we must about our business.
Please telephone me from the topmost floor."

*Youth departs with field telephone. Graybeard approaches the panel
unreeling wire as he walks, and stands listening to the handset. The
curtain falls.*

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This form is designed to facilitate your request for changes in your member record. In order to stay in touch with you, ISA needs to know when you move or change jobs. Also, ISA would like to upgrade your member status if you qualify.

Name _____
(Last) (First) (Middle)

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Check all changes that you are requesting:

- ☐ Change my address, phone number and/or company (Complete Part 1)
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September Dinner Meeting Highlights

On Monday, September 25, 1995 the ISA Sarnia Section held its first Bi-Monthly Dinner Meeting of the 1995-1996 season. The dinner was held at the Lambton Shrine Club, which will be the host to the remainder of our dinner meetings for the season.

On the business agenda was the presentation and approval of the year's budget by Brian Smith.

On the technical side, our speaker for the evening was Mr. Geoff Ireland of Phoenix Contact, who made a presentation on surge voltage protection. The evening also offered a 50/50 draw sponsored by the Lambton College Student Members, with the proceeds going towards their travel costs to participate in the upcoming ISA Show in New Orleans. Best wishes to the team.

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The Sarnia Section Home Page can be found at: <http://www2.ebtech.net/~bsmith/isasarni.html>

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Capacitive Level Measurement and Level Indication

Practical application

The principle of this method is based on the changes in capacitance of a capacitor. A capacitor is an electrical component capable of storing or discharging an electrical charge. A simple capacitor consists of two metal plates separated by an insulator known as a dielectric, see fig. 3.1.

Principle

The capacitance of the measurement probe and the reference probe, which is usually the tank wall, will vary depending on the presence of product between the electrodes.

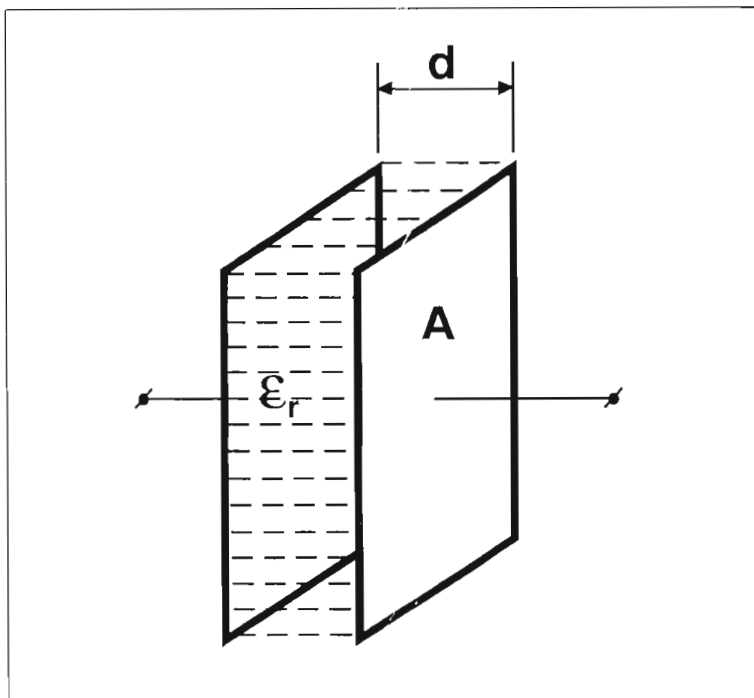


fig. 3.1

The capacitance of a parallel plate capacitor is given by the formula :

$$C = \frac{\epsilon_r \cdot 8.84 \times 10^{-2} \cdot A}{d} \quad (1)$$

(Continued On Page 34)

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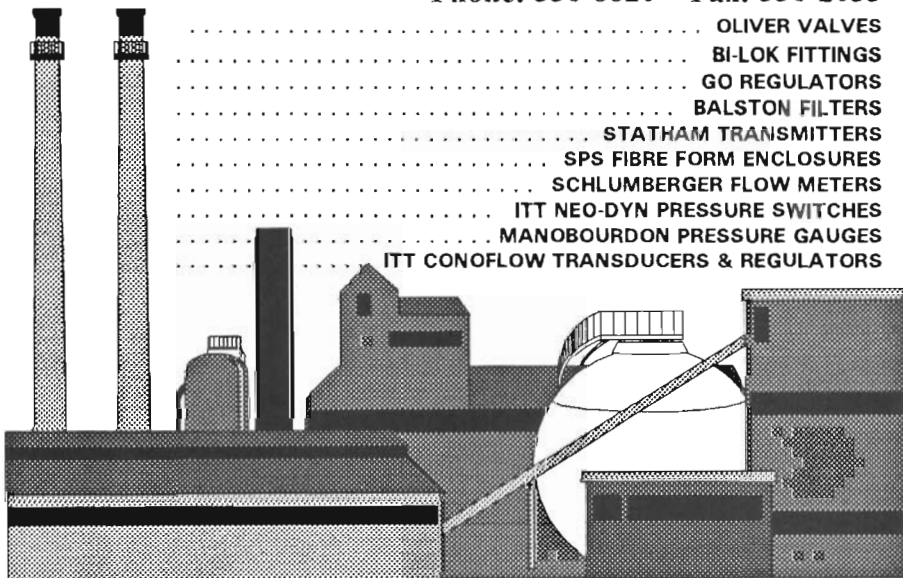
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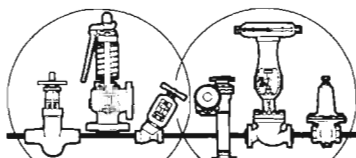
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In which

C = the capacitance of the capacitor in pF

A = surface area of the plates in cm

d = distance between plates in cm

ϵ_r = relative permittivity of the dielectric

The dielectric constant substance is an indication of the extent to which the capacitance of a capacitor will increase by the addition of a polarisable material between the plates of the capacitor given a constant potential difference across the plates. By definition the relative constant of air is 1. All other materials have a ϵ_r greater than 1, as demonstrated by the following examples :

ϵ_r	Water	81*
	Kerosine	1.8
	Sulphur dioxide	17.6
	Lime	2.5
	Crude oil	2 - 2.8
	Cement	4
	Flour	2
	Grain	2.4

Formula (1) shows that for any capacitor in which d and A are constant, the value of the capacitance C will depend only on the ϵ_r .

In practice for capacitive level measurement, the capacitor is formed by the wall of the tank or silo, etc. and an insulated probe mounted in the tank or silo wall. Non-conductive tank or silo walls present no problem. For example, in reinforced concrete sewers, the iron reinforcement is adequate to act as one plate of the capacitor. For plastic tanks, a metal pipe or a grill placed around the probe or a metal strip placed on the outside of the tank may be used.

As all products have an ϵ_r greater than that of air, the capacitance of the system will always be higher when the probe is completely covered with the product than when it is only partly covered by the product or fully exposed to the air in the tank, see fig. 3.2.

* This value of 81 was obtained theoretically. Because of the conductivity of water, a value of 31 is used in practice.

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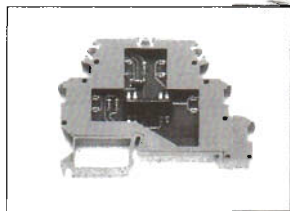
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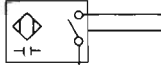


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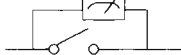
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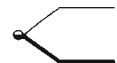
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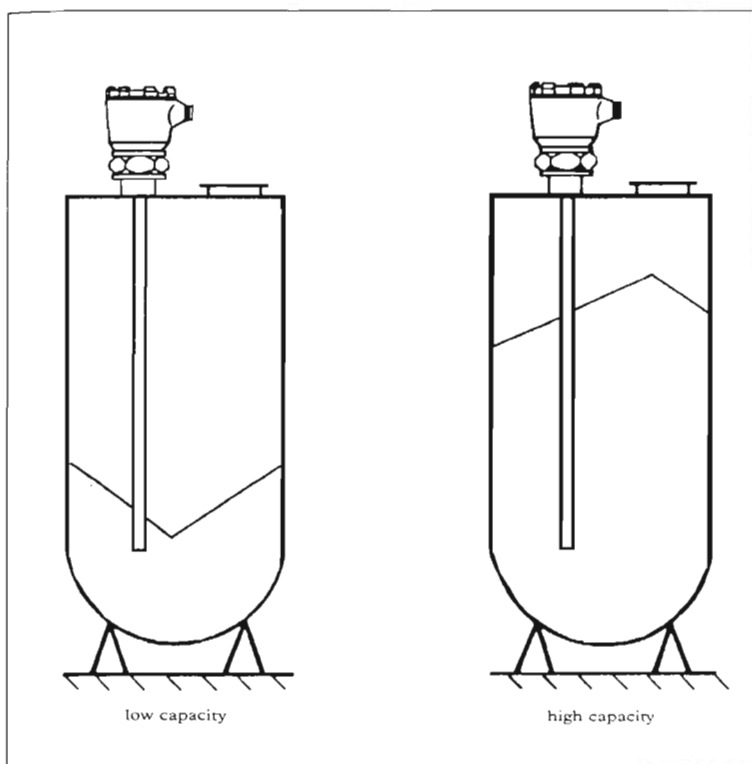


fig. 3.2

Capacitive level measurement is based on this change in capacitance (ΔC). The capacitor is placed in a high frequency alternating current circuit so that the change in capacitance ΔC which represents the change in level can be converted into an electrical signal. A capacitor in a direct current circuit will have an infinite resistance, whereas in an alternating current circuit the specific type of resistance is known as reactance,

$$R_C = \frac{1}{\omega C} \quad (2)$$

in which

R_C = capacitive reactance (type of resistance)

ω = $2\pi f$

f = frequency of the alternating current

C = capacitance

(Continued On Page 61)

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ISA Sarnia Section “Dinner Meeting”

NOVEMBER 27, 1995

Cocktails 6:00 p.m.

Dinner 7:00 p.m.

GUEST SPEAKER

Mr. Bill Omerod
Technel Engineering
Woodbridge, Ontario

TOPIC

Issues Around
Pressure Calibration
and Accuracy

LOCATION

Lambton Shrine Club
940 Confederation St.
Sarnia

MENU

Chicken Dinner
with salad, potatoes, vegetables, dessert.

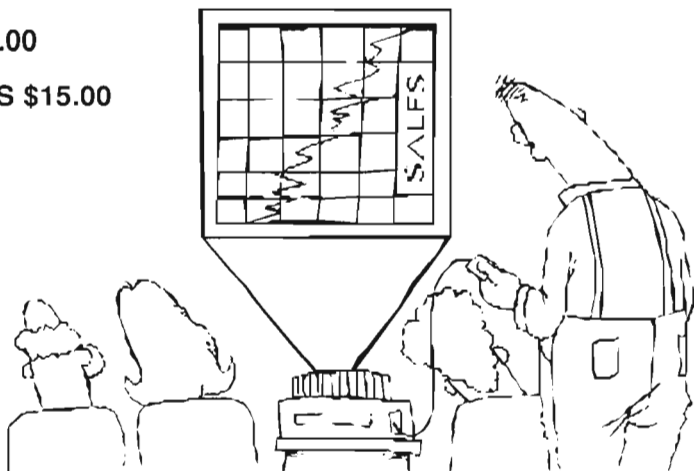
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ISA PERSPECTIVES



Janice Haskell and
Larry Corbett with
their Kates awards.



Lambton College Team from left to right: David Nywening, Jay Rookes, Janice Haskell, Dennis Poort, Harold Robson. Receiving their medals for a Third Place finish in the 3rd Annual ISA International Student Competition.

Continued on Page 45



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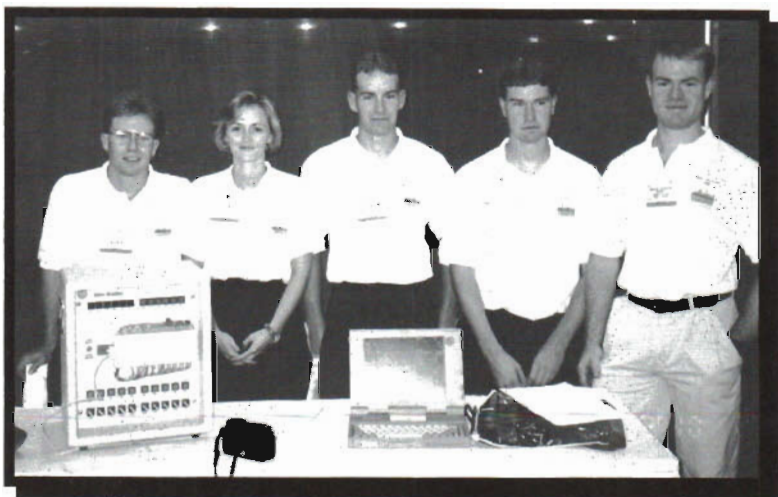
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Continued
from Page 43

ISA PERSPECTIVES



Lambton College Team from left to right: Jay Rookes, Janice Haskell, David Nywening, Dennis Poort, Harold Robson. One of the practical problems in the competitions, programming an Allen Bradley PLC.



Lambton College
Team Captain
Dennis Poort,
entertaining patrons
at a New Orleans
jazz club on
Bourbon Street.

USING THE SARNIA SECTION BBS - Part 6

We have completed about a year and a half of full time operation. Over 800 calls have been logged-in by 75 callers. There have been 335 messages in the Main Board conference. File downloads are over 630 and uploads are 24. This level of activity is good but I hope you use the BBS more in the coming year. Use it to contact others, help you find information and solve your problems.

The PCBoard BBS software has been updated five times and many features have been added. The manufacturer of this software is planning to produce a product that will interface to Windows 3.1, Windows 95, Windows NT and OS/2 clients or callers. The screens will be compatible with ANSI text (like the current BBS), Windows or OS/2 Graphics mode or HTML mode used by Internet WWW browsers. This client-server technology is very powerful and should be very user friendly.

We plan to issue a letter to all of our supporters, telling of our accomplishments which would not have been possible without their generous support.

The FIDO Network includes over 850 conferences. We currently monitor the Windows 95, MS Word, MS Excel, TechChat and Superhighway conferences. You can view the entire list from any FIDO conference by reading Bulletin #5. You may request that we carry any of the FIDO conferences listed. There are a wide variety of subjects covered. The Windows 95 conference has had over 17,000 messages since we started carrying it in September. To read this quantity of messages you should use the Select command and pick the conferences you wish to monitor. Then use the QWK command to download a compressed packet of your messages. The file you download will be called ISASARNI.QWK. QWK compression is a standard format used on many BBSs. Use an Off-line Mail Reader program to de-compress, read and manage the messages. You do not have to actually read all of the messages. A list of message titles can be scanned so you can pick the messages you wish to read. There are a couple of Off-line Mail Reader Shareware programs in file area # 12. If you need help or have questions, call me or leave a Comment to the Sysop.

A number of Windows 95 File Areas have been set up on the BBS. They are Miscellaneous, Utilities, Internet Programs, Games and Graphics. This should make it easier to find specific types of Windows 95 files. Files will be added as they become available. If you have a specific request, leave a Comment to the Sysop on the BBS or send me e-mail.

There are also Internet related files available for download, plus information files. Check the file directories or download file ISAFILES.LST in File area #1. There are recent versions of WWW browsers, Mail programs, Usenet News reader, FTP and Ping programs.

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

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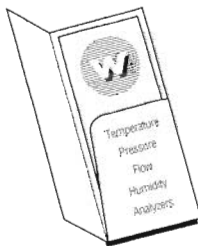
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Meeting Dates

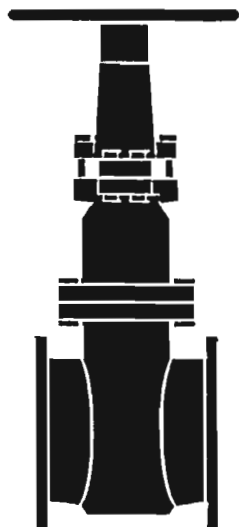
MEMBERSHIP DINNER MEETINGS

Date	Place
September 25, 1995	Lambton Shrine Club
November 27, 1995	"
January 29, 1996	"
March 25, 1996	"
May 27, 1996	"

EXECUTIVE MEETINGS

Date	Time	Place
July 17, 1995	7:00 p.m.	Fisher-Rosemount
September 11, 1995	"	"
November 6, 1995	"	"
January 8, 1996	"	"
March 4, 1996	"	"
May 6, 1996	"	"
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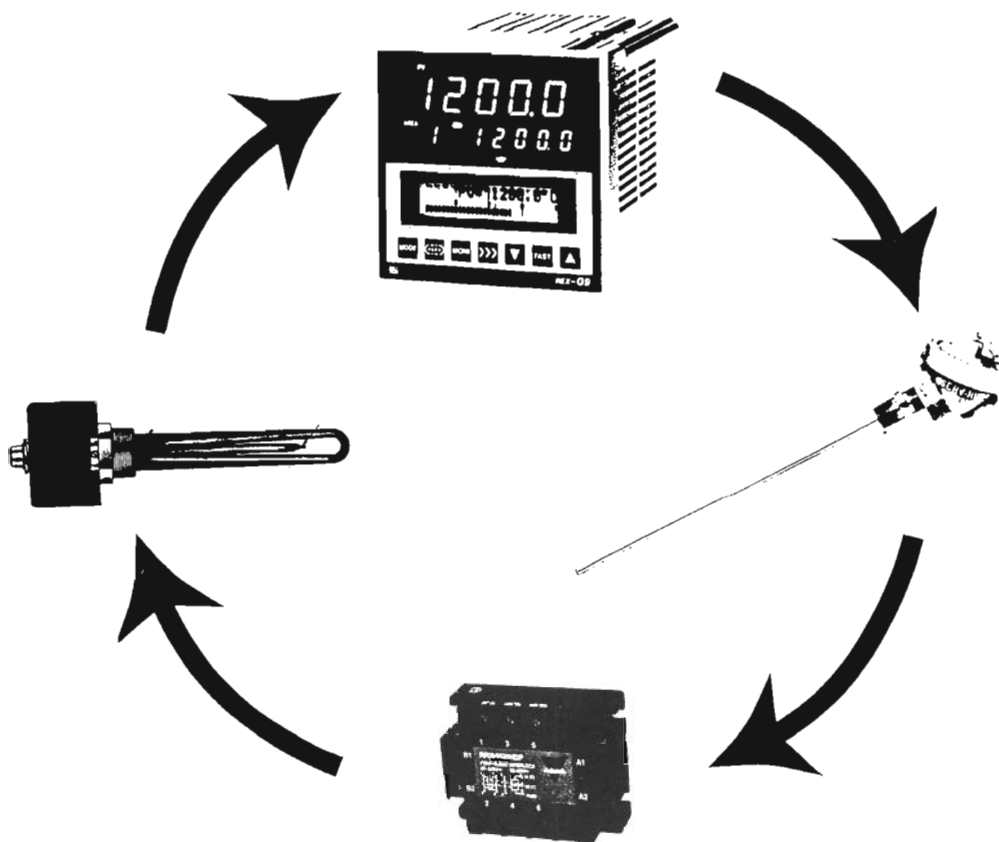
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ABB INSTRUMENTATION

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NORTHERN ABCOR - Sarnia

Northern Abcor - Sarnia will be the exclusive distributor for the complete Intertec line of instrument enclosures, cabinets, heaters and manifolds, throughout Southwestern Ontario with the exclusive addition of the Furon / Unitherm line of heat control products, including pre-insulated tubing, steam and electric traced bundle, and heated hose products. This will allow Northern Abcor to provide complete winterization and protection for all your critical instrument needs.

MOORE PRODUCTS CO.

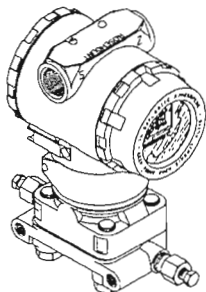
New Krohne DWM 1000 / 2000 compact insertion magnetic flow monitor provides either digital or 4-20 ma output. The DWM 1000 / 2000 flow monitor sensor and converter electronics are packaged in a single unit configuration for direct pipe mounting and easy wiring. OEMs and end users can quickly benefit from the rugged construction and versatility of the DWM series with applications in HVAC systems, cooling towers, irrigation, raw water service, and treated plant effluent.

(Continued on Page 55.)

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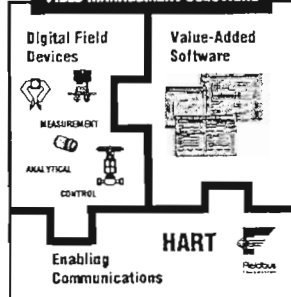
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"Did You Know?"

by David Gooch

Dinner Meetings:

Our next dinner meeting will be held on Monday, November 27, at the Lambton Shrine Club. I apologize to those people who arrived and expected to use their credit cards at the bar. I had intended to warn everyone that it was strictly a cash bar, with the last faxed meeting notice. Sorry about that.

Our last speaker was obviously very enthusiastic about his subject. We promise to curb the enthusiasm of our speakers in the future.

Seriously Geoff, it was an interesting presentation. I wish that we had the time available to watch the entire video. If you are able to get an extra copy, I know of several members who would like the opportunity to borrow it for an evening.

It has come to our attention that several of our members may have special dietary requirements, for reasons of religion or health, that make it difficult for them to attend our regular meetings because of the menu. Jennifer Southcombe assures me that these needs can be accommodated by giving her a call several days before the meeting. The Shrine Club is willing to make alternatives available, to try to accommodate special needs.

Dinner Meeting Notices:

You will have seen by now that we are trying to send out dinner meeting notices by fax. If you would like to receive these faxes, please give me a call and I will add your name to my list. And, once again, if you would prefer not to get these notices, give me a call and I will remove your name from the list.

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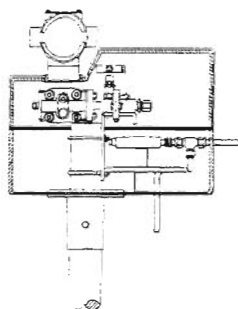
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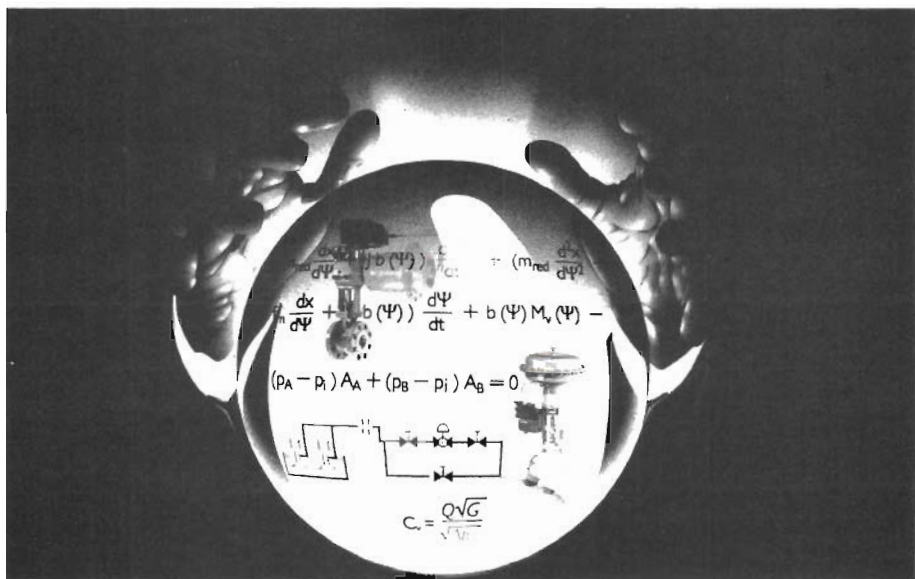


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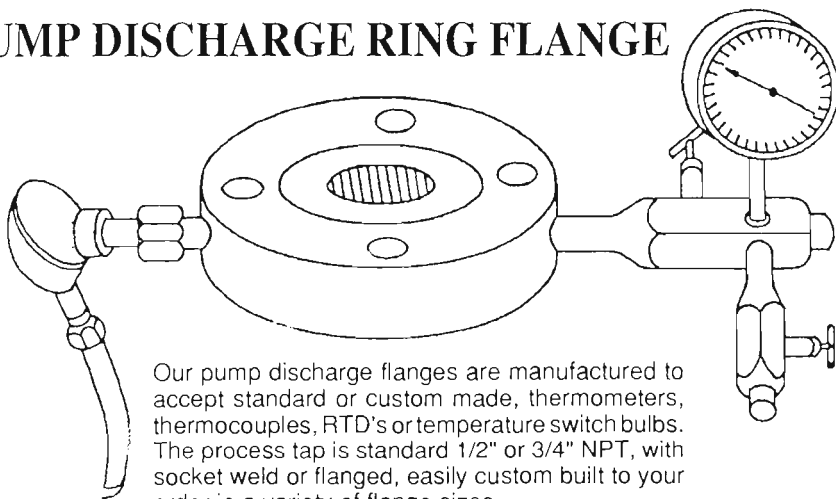
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(Continued From Page 38)

Fig. 3.3 illustrates a capacitor connected to a source of alternating current, known as a high frequency oscillator. The current flowing through the circuit will be directly proportional to the value of the capacitance C .

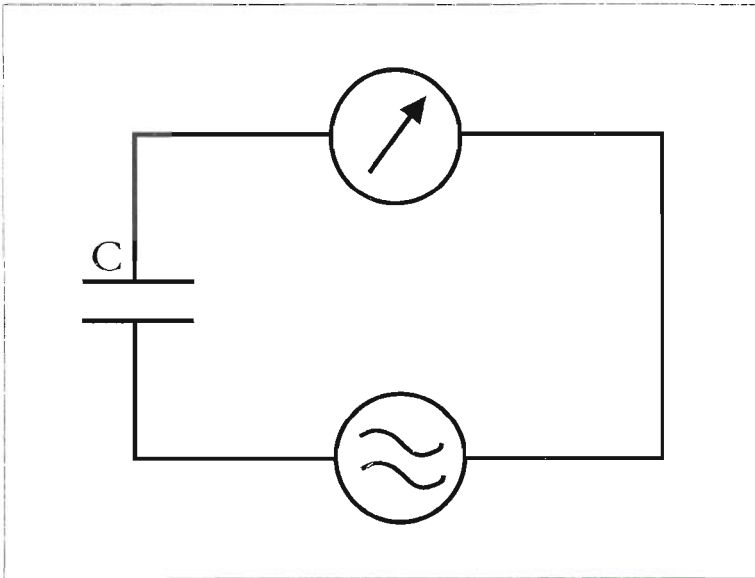


fig. 3.3

In order to keep the high frequency circuit as short as possible and to avoid the need for coaxial cable, the changes in capacitance are converted into a voltage variation by an oscillator unit placed directly in the head of the probe. This voltage variation of approximately 3-12 V can easily be transmitted via standard cable to a remote amplifier as far away as one kilometre. There the voltage variation (ΔU) is converted into a relay operation in a capacitive switch or a standard 0-20 or 4-20 mA signal in capacitive level measurement.

However, in practical situations impedance rather than purely capacitive reactance is measured. This will be determined by the resistance of the product, see fig. 3.18.

NOTE: This article supplied by Endress & Hauser from the book "The Theory and Practice of Level Measurement" by Wim Van De Kamp.

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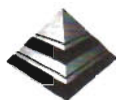
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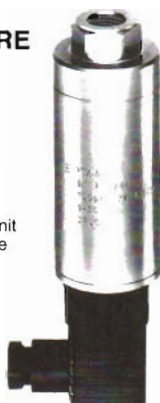


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Controlotron
Controls International Inc.
Cooper Instruments
Cox
Crowcon
CSI - Microloggers
Custom Control Sensors
Cybex
D.E.P. Industries
Dahl
Danfoss
Danfoss Mfg. Co. Ltd. - Denmark
Daniel Industries
Data Industrial Corporation
Data Precision
Datel
Davis Controls Ltd.
Davis Instruments
Defelsko
Delavan
Delphian
Delta-M
Deltabar
Deltapilot
Detector Electronics (Dettronics)
Devar
DewPro
Dewrance
DeZurik
DGH
Dianachart
Dickson
Digitec
Dillon
Dopak
Dover Gas Technologies
Dow Plastic Lined Piping Products
Drager
Drainall

Local Sales Representative

Spec Sarnia Limited
Cantech Controls
Westburne Lytle
Provincial Controls
Cambridge Controls
SSCAN Technologies
Armatek Controls
Spec Sarnia Limited
Cantrols
Cantech Controls
Sarnia Piping Specialties
Brian Controls
Endress + Hauser
SSCAN Technologies
Transcat
Heaters Controls & Sensors Ltd.
Cantech Controls
Brian Controls
Floval Equipment Ltd.
U & I Supply
Willer Engineering
Westburne Lytle
Davis Controls
CB Engineering
Lakeside Process Controls
Provincial Controls
Transcat
Contro Valve Inc.
Transcat
Conval Equipment
Willer Engineering
Brian Controls
Cambridge Controls
Westech Industrial Ltd.
Northern Abcor
Transcat
Brian Controls
Regional Process Equipment
Campbell Scientific (Canada) Corp.
Willer Engineering
CB Engineering
Summit Controls Ltd.
Armatek Controls
Davis Controls
Lisle-Metrix Ltd.
Cantrols
Cambridge Controls
Transcat
Transcat
Spec Sarnia Limited
Transcat
Transcat
Armatek Controls
Romatec
Brian Controls
Endress + Hauser
Endress + Hauser
CB Engineering
Cantech Controls
Endress + Hauser
Contro Valve Inc.
Floval Equipment Ltd.
Alpha Controls & Instrumentation
Alpha Controls & Instrumentation
Transcat
Brian Controls
Brian Controls
Westburne Lytle
Veronics
Sarnia Piping Specialties
SSCAN Technologies
Mentec Sarnia Ltd.

Manufacturer / Tradename

Druck
Druck Incorporated
DSP Technology
Durakool
Duro
Duro-Sense
Dwyer
Dwyer
Dwyer
Dwyer
Dylon
Dynapar
Dynapar
Dynasonics
Dynatech Nevada
E-T-A Control Instruments
Eagle Signal
Eaton IDT
ECD
ECD
Echotel
ECS Control Techniques
EG & G Flow Technology Inc.
EG&G Moisture & Humidity
EIT Inc.
El-O-Matic
Elcon Instruments Inc.
Electromatic
Electromatic
Elremco Timers - England
EMCO
Emission S.A.
Encoder
Encon Safety Products
Endress + Hauser
Enertrol Shocks
Enertrols
Engineered Valves International (E.V.I.)
Enraf Inc.
Environics
Environmental Products
Environmental Technologies Group Inc.
Environnement S.A.
Epic Samplers
Erdco
Erhard Valves - Germany
ETC
Euchner
Eurotherm
Exergen
Exotherm
Expo Safety Systems
F.B. Leopold - USA
F.W. Bell
F.W. Murphy
Fabco Air
Fairchild
Farris
FCI
Fieldview
Fike
Fike Canada Inc.
Fischer & Porter
Fischer & Porter
Fisher Controls
Fisher Research
Fisher Service
Fisher-Rosemount Systems
Fisons Instruments
Flow Meter Co. - England
Flow-Lin Corporation
Flowline

Local Sales Representative

Transcat
SRP Controls Systems Ltd.
SRP Controls Systems Ltd.
Davis Controls
Brian Controls
Transcat
Baker Instruments Ltd.
Cantech Controls
Davis Controls
Transcat
Mentec Sarnia Ltd.
Davis Controls
J & M Engineering & Sales Ltd.
Brian Controls
SSCAN Technologies
SSCAN Technologies
Davis Controls
Cantech Controls
Novatech
Transcat
Provincial Controls
Vermeer Engineering
CB Engineering
Vermeer Engineering
Vermeer Engineering
Westburne Lytle
SRP Controls Systems Ltd.
Davis Controls
Heaters Controls & Sensors Ltd.
Lisle-Matrix Ltd.
Davis Controls
SSCAN Technologies
Axiom Technologies Ltd.
SSCAN Technologies
Regional Process Equipment
Provincial Controls
Axiom Technologies Ltd.
Westburne Lytle
Willer Engineering
Brian Controls
Spec Sarnia Limited
Novatech
SSCAN Technologies
Spec Sarnia Limited
Bestobell Canada
Lisle-Matrix Ltd.
Transcat
Davis Controls
Heaters Controls & Sensors Ltd.
Heaters Controls & Sensors Ltd.
Heaters Controls & Sensors Ltd.
Syber Systems Inc.
Lisle-Matrix Ltd.
Transcat
Cantech Controls
Davis Controls
Regional Process Equipment
Floval Equipment Ltd.
Willer Engineering
Lakeside Process Controls
Sharp Valve & Instrumentation
Brian Controls
Elsag Bailey
TubeTech
Lakeside Process Control
Transcat
Lakeside Process Controls
Lakeside Process Controls
Westech Industrial Ltd.
Lisle-Matrix Ltd.
G.L. Stebbins
Brian Controls

Manufacturer / Tradename

Flowmetrics Inc.
Fluid Data/Amcor
Fluidic
Fluke
Foxboro
Foxboro - Measurement, Instruments, Parts
Foxboro Analytical Group
FUJI
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
H.D. Baumann Control Valves
Hammel Dahl
Hancock
Hanna Instruments
Hansen Quik Connects
Hartman-Technica
Hartmann & Braun
Hathaway
Hathaway-Wodex
Haws
Haz-Stor
Hedland
Heise
Herasus Sensors
Hermion
Hewlett Packard
Hex Valve
Hiltap Couplers
Hiltcraft
Hitachi
Hitachi - Oscilloscopes
Hoffer Flow Controls - USA
Holaday Industries
Honeywell
Honeywell - Controllers & Recorders
Honeywell - Recorders
Honeywell - Recorders
Horiba
Huntron

Local Sales Representative

SRP Controls Systems Ltd.
Armatek Controls
Brian Controls
Transcat
Ovantium Sales
Provincial Controls
Vermeer Engineering
Heaters Controls & Sensors Ltd.
Ovantium Sales
Syber Systems Inc.
Brian Controls
Cantech Controls
Armatek Controls
Romatec
Endress + Hauser
SRP Controls Systems Ltd.
Summit Controls Ltd.
Willer Engineering
SSCAN Technologies
Transcat
G.L. Stebbins
Campbell Scientific (Canada) Corp.
Provincial Controls
Westburne Lytle
Hardie Industrial Services Inc.
Ovantium Sales
SRP Controls Systems Ltd.
Transcat
SSCAN Technologies
Sarnia Piping Specialties
Lakeside Process Control
SRP Controls Systems Ltd.
Sharp Valve & Instrumentation
Lakeside Process Controls
Transcat
Endress + Hauser
Endress + Hauser
Endress + Hauser
CB Engineering
Armatek Controls
Controls
SSCAN Technologies
Lakeside Process Controls
Conval Equipment
Summit Controls Ltd.
Contro Valve Inc.
SSCAN Technologies
Provincial Controls
Transcat
Westech Industrial Ltd.
Armatek Controls
Alpha Controls & Instrumentation
Mentec Sarnia Ltd.
SSCAN Technologies
Brian Controls
Transcat
SRP Controls Systems Ltd.
Spec Sarnia Limited
Transcat
Sharp Valve & Instrumentation
U & I Supply
Syber Systems Inc.
Davis Controls
Transcat
Lisle-Matrix Ltd.
SSCAN Technologies
Davis Controls
Brian Controls
Provincial Controls
Transcat
Alpha Controls & Instrumentation
Transcat

Manufacturer / Tradename

Hy-Cal
HydroGuard
I.S.T.
IBM Industrial Computers
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
Interface
Interlink
Interscan
Interscan Corp.
Intertec
Intertec
Ion Track Instrumentation (ITI)
Ionics Instrument Division
Iotron
Ircon
ISI
Isothermal Technology Ltd.
IST
ITT Barton Instruments
ITT Conoflow Regulators & Seals
ITT Engineered Valves
ITT Neo-Dyn Switches
ITT Standards (Engineered Products only)
IVO Industries - USA
J.M. Canty, Inc.
Jacoby Tarbox
Jamesbury
JB Engineering
Jensen
Jerguson Level Gauges
Jofra
Jofra
Johnson Yokogawa
Jordan Controls, Inc.
Joucomatic International
Julius Bauser - Germany
K & M Valve Co.
K-Tek
Kammer Control Valves
Kammer Control Valves
Kane-May
Kates
Kavlico Corp.
Kay Ray/Sensall
Kaye
Kaye Instruments
KDG Mobrey
Keddco Mfg Ltd.
Keller
Kent Meters Inc.
Kenwood USA
Kessler Ellis
Ketema - McCrometer
Ketema - Schutte & Koerting
KF Industries
Kinetrol
Kinetrol Actuators

Local Sales Representative

Davis Controls
Endress + Hauser
SSCAN Technologies
CB Engineering
J & M Engineering & Sales Ltd.
Axiom Technologies Ltd.
Transcat
Veronics
G.L. Stebbins
Axiom Technologies Ltd.
U & I Supply
Provincial Controls
Mentec Sarnia Ltd.
SSCAN Technologies
Heaters Controls & Sensors Ltd.
Westech Industrial Ltd.
Alpha Controls & Instrumentation
SRP Controls Systems Ltd.
CB Engineering
Cantech Controls
Willer Engineering
Vermeer Engineering
Brian Controls
SSCAN Technologies
Northern Abcor
TubeTech
Bestobell Canada
Veronics
Northern Abcor
Willer Engineering
Heaters Controls & Sensors Ltd.
SRP Controls Systems Ltd.
SSCAN Technologies
Armatek Controls
Sarnia Piping Specialties
Romatec
Sarnia Piping Specialties
Northern Abcor
Lisle-Matrix Ltd.
Cambridge Controls
Romatec
Summit Controls Ltd.
Transcat
Transcat
Romatec
Brian Controls
Transcat
CB Engineering
Cambridge Controls
Conval Equipment
Lisle-Matrix Ltd.
Floval Equipment Ltd.
CB Engineering
Controls
Westburne Lytle
Transcat
Westech Industrial Ltd.
SRP Controls Systems Ltd.
Rosemount Instruments
Transcat
CB Engineering
Bestobell Canada
U & I Supply
Campbell Scientific (Canada) Corp.
G.L. Stebbins
Transcat
Brian Controls
Brian Controls
Brian Controls
Mentec Sarnia Ltd.
Provincial Controls
Hardie Industrial Services Inc.

Manufacturer / Tradename

Kip
Kistler-Morse
Klinger
KNF Neuberger
Kobold
Koch
Komax
Kotron
Krebs Engineer
Kreyenborg
Krohne
Kruss Optronic
KTM
KTM
Kurz
Kurz
L & J Technologies
LAGCO Flumes - USA
Land
Land - Analyzers
Larad
Laurence
LCI-Luwa
Leader
Leaderline
Leaderline
Lee-Dickens Ltd. - England
Legris
LEOPOLD
Leslie
Lewis
LFE Instruments - USA
LI-COR
Limitorque
Liquid-O-Ring
Liquiphant
LMI
LMI
London Mat Industries
Love
Lucas Nova Sensor
Lumenite Electronic Company
M and Y Valve Services
M point
M-Systems Co. Ltd.
M-Tek
MacWeld
MacWeld Products
Madison
Madison Company
Madur Electronics
Magnetrol
Magnetrol
Major
Mamac
Manobourdon
Marsh
Marsh Instruments
Martel
Masoneilan
Max
MCS
MDI
Mead
Meeco Inc.
Mercoid
Meriam Instruments
Mesa Laboratories
Met One
Metrix
Metrix Timers
Metrosonics

Local Sales Representative

Brian Controls
Ovantum Sales
Davis Controls
Transcat
Regional Process Equipment
Romatec
Floval Equipment Ltd.
Provincial Controls
Floval Equipment Ltd.
Mentec Sarnia Ltd.
Moore Products Co. (Canada) Inc.
SSCAN Technologies
Associated Valve
Regional Process Equipment
Brian Controls
Transcat
Sharp Valve & Instrumentation
Lisle-Metrix Ltd.
Transcat
Westech Industrial Ltd.
Syber Systems Inc.
Mentec Sarnia Ltd.
Mentec Sarnia Ltd.
Transcat
Brian Controls
Honeywell
Lisle-Metrix Ltd.
Axiom Technologies Ltd.
Lisle-Metrix Ltd.
Mentec Sarnia Ltd.
Transcat
Lisle-Metrix Ltd.
Campbell Scientific (Canada) Corp.
Sharp Valve & Instrumentation
Mentec Sarnia Ltd.
Endress + Hauser
Novatech
U & I Supply
SSCAN Technologies
Davis Controls
SRP Controls Systems Ltd.
J & M Engineering & Sales Ltd.
Ovantum Sales
Endress + Hauser
SRP Controls Systems Ltd.
Transcat
Heaters Controls & Sensors Ltd.
Northern Abcor
Bestobell Canada
Ovantum Sales
Novatech
Davis Controls
Provincial Controls
Alpha Controls & Instrumentation
Floval Equipment Ltd.
Sarnia Piping Specialties
TubeTech
Ovantum Sales
Transcat
Contro Valve Inc.
Willer Engineering
Heaters Controls & Sensors Ltd.
Heaters Controls & Sensors Ltd.
Transcat
Novatech
Davis Controls
Transcat
Armatek Controls
Campbell Scientific (Canada) Corp.
Transcat
Lisle-Metrix Ltd.
Brian Controls

Manufacturer / Tradename

Micon
Micro Motion
Micronics Ltd.
Micropilot
Mid-West Instrument
Mid-West Instrument
Mikron
Milton Roy - Liquid Metronics Division
Milwaukee
Mini-X Purge Systems
Mini-Z Purge Systems
Mitsubishi
MKS
Mobrey
Modulevel
Monarch
Monitek
Monitor Labs
Monitor Labs
Moore
Moore Industries
Moore Products Pressure Regulators
MST
MTL
MTL IS Barriers
Mueller
Multi-Amp
Multi-Volt
Multicap
Mycro
Myron L
Nassau Instrument
NBS
Neles
Neles-Jamesbury
Neotronics
Neotronics
Neotronics
NGI
Nil-Cor
Nivocompact
Nivosonic
Norac
Norriseal
Norriseal Butterfly Valves
Norstat
Northern Vibrator
Novalynx
Novatech Systems Group
NRC Industries
Numatic Cylinders
Numatic Fittings
Numatics
Numatics Solenoid Valves
Nupro Valves
Nusonics
O'Brien Corporation
Oakton
Ogden
Ogontz
Ohio Semitronics Inc.
Oilgear
Oldham
Oliver Valves
OMNI
Omron
Opsis
Orange Research
Orion
Pacer Industries
Pacific Instrument Inc.
Pacific Scientific

Local Sales Representative

Cantech Controls
Rosemount Instruments
Veronics
Endress + Hauser
Brian Controls
Hardie Industrial Services Inc.
Transcat
U & I Supply
Floval Equipment Ltd.
Syber Systems Inc.
Syber Systems Inc.
Davis Controls
Transcat
Bestobell Canada
Provincial Controls
Transcat
Willer Engineering
Brian Controls
Romatec
Moore Products Co. (Canada) Inc.
Armatek Controls
Transcat
Brian Controls
Syber Systems Inc.
Provincial Controls
Mentec Sarnia Ltd.
Transcat
Transcat
Endress + Hauser
Moore Products Co. (Canada) Inc.
Transcat
Transcat
Transcat
Summit Controls Ltd.
Summit Controls Ltd.
Cantech Controls
Transcat
Westech Industrial Ltd.
Transcat
Contro Valve Inc.
Endress + Hauser
Endress + Hauser
Ovantum Sales
Conval Equipment
Sarnia Piping Specialties
Davis Controls
Floval Equipment Ltd.
Brian Controls
Novatech
SSCAN Technologies
Provincial Controls
Provincial Controls
Axiom Technologies Ltd.
Provincial Controls
Huron Valve & Fittings
Armatek Controls
CB Engineering
Transcat
Heaters Controls & Sensors Ltd.
Cantech Controls
Ovantum Sales
Bestobell Canada
Cantech Controls
Sarnia Piping Specialties
Westech Industrial Ltd.
Axiom Technologies Ltd.
SSCAN Technologies
Provincial Controls
Transcat
Transcat
SRP Controls Systems Ltd.
G.L. Stebbins

Manufacturer / Tradename

Pamark Manifolds
Panalarm
Panalarm
Panametrics PCI Division
Papailias
Parker
Partlow
Paul Mueller
Pelican
Penberthy
Penberthy Instruments
Penny & Giles
Pepperl + Fuchs - USA
Permacal Gauges
Phipps & Bird
Phoenix Contact
Pick Heaters
PMV
Polysonics Inc.
Polytronics
Porter Instrument Co. - USA
Positive Safety
Powers Process Control
Powers Process Control
Precision Digital
Precision Digital
Precision Digital Corp.
Precision Digital Corporation
Preso
Preso Flow Meters
Pribusin
Pribusin Inc.
Prolevel
Promac
Promac
Promag
Promag
Promag
Proquip
Prosonic
Protimeter
Provincial Instrument Housings
Provovox
Prowirl
Proximity Control
Proximity Controls
PTC
PTC
Pulsafeeder
Pyrene Fire Security
Pyromation Inc.
QSDM
QSDM
Quad Tech
Qualimetrics
Quality Control Equipment Company
Quantum
R.M. Young
R.P. Adams
Ralston
Ralston
Ramsey Canada
Ray
Raytek
Raytek
Raytek
Raytek/UE
RdF
REBS
REK RKC
Research Control Valves
Resistoflex

Local Sales Representative

Provincial Controls
Cambridge Controls
Willer Engineering
Veronics
Mentec Sarnia Ltd.
TubeTech
Northern Abcor
Mentec Sarnia Ltd.
Transcat
Brian Controls
Hardie Industrial Services Inc.
Cantech Controls
Lisle-Metrix Ltd.
Provincial Controls
Transcat
Axiom Technologies Ltd.
Sharp Valve & Instrumentation
Regional Process Equipment
SRP Controls Systems Ltd.
Transcat
Lisle-Metrix Ltd.
SSCAN Technologies
Conval Equipment
Heaters Controls & Sensors Ltd.
Alpha Controls & Instrumentation
Armatek Controls
Ovantum Sales
Cambridge Controls
Willer Engineering
J & M Engineering & Sales Ltd.
Provincial Controls
Novatech
Endress + Hauser
Armatek Controls
Transcat
Endress + Hauser
Westburne Lytle
Endress + Hauser
Spec Sarnia Limited
Endress + Hauser
Alpha Controls & Instrumentation
Provincial Controls
Lakeside Process Control
Endress + Hauser
Provincial Controls
Bestobell Canada
Brian Controls
Transcat
Romatec
SSCAN Technologies
Northern Abcor
Alpha Controls & Instrumentation
Willer Engineering
Transcat
Transcat
Ovantum Sales
Transcat
Campbell Scientific (Canada) Corp.
Mentec Sarnia Ltd.
Axiom Technologies Ltd.
Transcat
Ovantum Sales
Brian Controls
Heaters Controls & Sensors Ltd.
Northern Abcor
Transcat
Mentec Sarnia Ltd.
Willer Engineering
Campbell Scientific (Canada) Corp.
Heaters Controls & Sensors Ltd.
Lakeside Process Control
Sharp Valve & Instrumentation

Manufacturer / Tradename

REXA Corp.
Rexcon
Rexroth
Rezplast
RGS
RIMCO - Raingauges
RIS
Roberts Mfg. Inc.
Robertshaw
Rochester Instrument Systems
Rohrback 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
Scalewatcher Products
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.
Sensycon
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
Sparling
SPM
SPS Fibre Form Enclosures
SSI Equipment
Stahl

Local Sales Representative

Controls
Axiom Technologies Ltd.
Mentec Sarnia Ltd.
Mentec Sarnia Ltd.
Syber Systems Inc.
Campbell Scientific (Canada) Corp.
Transcat
G.L. Stebbins
Spec Sarnia Limited
Sharp Valve & Instrumentation
Armatek Controls
U & I Supply
Rosemount Instruments
Rosemount Instruments
Transcat
Romatec
Lakeside Process Control
Axiom Technologies Ltd.
Alpha Controls & Instrumentation
Spec Sarnia Limited
Mentec Sarnia Ltd.
G.L. Stebbins
Transcat
Sarnia Piping Specialties
Ovantium Sales
SRP Controls Systems Ltd.
Northern Abcor
Sarnia Piping Specialties
TubeTech
Cantech Controls
SRP Controls Systems Ltd.
Transcat
Transcat
Veronics
Regional Process Equipment
Alpha Controls & Instrumentation
Novatech
Transcat
Novatech
Northern Abcor
Mentec Sarnia Ltd.
Novatech
Alpha Controls & Instrumentation
Regional Process Equipment
Floval Equipment Ltd.
Sharp Valve & Instrumentation
Transcat
Westech Industrial Ltd.
Alpha Controls & Instrumentation
Willer Engineering
Controls
Transcat
Brian Controls
Hardie Industrial Services Inc.
Lisle-Matrix Ltd.
Endress + Hauser
Transcat
SSCAN Technologies
Cantech Controls
G.L. Stebbins
Brian Controls
Honeywell
Huron Valve & Fittings
Westech Industrial Ltd.
Endress + Hauser
Transcat
Sarnia Piping Specialties
Brian Controls
Transcat
Sarnia Piping Specialties
Floval Equipment Ltd.
Alpha Controls & Instrumentation

Manufacturer / Tradename

Statham
STI
Stonel
Strahman
Sugino
Swagelok Tube Fittings
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
Telematic
Tempco
Tenor Industrial Control
Testo Inc.
Testoterm
Texas Electronics - Raingauges
Texas Sampling Inc.
The Optikron Corp.
Theben
Thermax
Thermo Electric
Thermo Electric - Calibrators
Thermo Environmental Instruments
Thermo Kinetics
Thermon
Thermox
Thunder
TIF
Time Electronics
TLV
Tomoe Valves
Tour & Anderson
Tower-Gard
Trademark Manufacturing Inc.
Transmation
Transmation
Transtector Systems
Trerice
Tricentric
Tripp-Lite
Triton
TSI
Turbo Instruments
Turbo Instruments
Tytronics Inc.
U.S. Gauge
U.S. Gauge
Unimeasure Inc.
United Electric
United Electric Controls (Canada) Ltd.
United Sciences Inc.
Unitherm
Unival
Universal

Local Sales Representative

Sarnia Piping Specialties
Axiom Technologies Ltd.
Regional Process Equipment
Cantech Controls
Axiom Technologies Ltd.
Huron Valve & Fittings
Heaters Controls & Sensors Ltd.
Willer Engineering
Axiom Technologies Ltd.
Westech Industrial Ltd.
Sarnia Piping Specialties
Mentec Sarnia Ltd.
Transcat
Elsag Bailey
Romatec
Honeywell
Lakeside Process Control
Transcat
Transcat
Brian Controls
Transcat
Transcat
Brian Controls
Transcat
Hardie Industrial Services Inc.
Armatek Controls
Transcat
Bestobell Canada
Willer Engineering
Heaters Controls & Sensors Ltd.
Heaters Controls & Sensors Ltd.
Baker Instruments Ltd.
Transcat
Campbell Scientific (Canada) Corp.
Bestobell Canada
SSCAN Technologies
Davis Controls
Brian Controls
Armatek Controls
Transcat
SSCAN Technologies
Provincial Controls
Spec Sarnia Limited
Willer Engineering
Scientific Corp. SSCAN Technologies
Transcat
Transcat
TubeTech
Bestobell Canada
Floval Equipment Ltd.
Lisle-Metrix Ltd.
G.L. Stebbins
Cantrols
Transcat
Cantech Controls
Mentec Sarnia Ltd.
Westburne Lytle
Transcat
Mentec Sarnia Ltd.
Willer Engineering
J & M Engineering & Sales Ltd.
Northern Abcor
Novatech
Brian Controls
Transcat
SRP Controls Systems Ltd.
Brian Controls
Cambridge Controls
Willer Engineering
Northern Abcor
Floval Equipment Ltd.
Alpha Controls & Instrumentation

Manufacturer / Tradename

Universal Analyzers
Universal Enterprises
Unomat
Unomat Inc.
Vaccon Vacuum
Vaisala
Vaisala - RH, Barometric Pressure
Valhalla
Valtek Controls
Valvtech
Varec
Vector-Vid
Veeder-Root
Velan
Veriflo
Veris
Versa
Versatile Instruments
Versatile Measuring Instruments Inc.
Viatran
Vista Scientific
Vitec
Viz
Vortisand
Wabco
Wahl
Walchem Corp.
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
Winters
Winters Gauges
Wood's
Woodhead
Worcester
Worcester Controls
WSA
Xebec
Xomox
Y-Z Industries
Yarway
Yokogawa
Young Environmental
Zook
Zullig

Local Sales Representative

Willer Engineering
Transcat
Transcat
SRP Controls Systems Ltd.
Provincial Controls
Transcat
Campbell Scientific (Canada) Corp.
Transcat
Cantrols
Regional Process Equipment
Westech Industrial Ltd.
Transcat
Davis Controls
Westburne Lytle
Armatek Controls
Alpha Controls & Instrumentation
Summit Controls Ltd.
Sharp Valve & Instrumentation
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