CONTROL

2014 READERS' CONTROL CHOICE AWARDS

CONTROL

GOAL!

Readers Fete
Technology Leadership
in our 22nd Annual
Readers Choice Awards

by Control Staff

Each year for more than two decades now, we've asked the readers of *Control* to identify the best solution providers in a broad array of process automation disciplines and technologies--from batch control to safety systems and wireless infrastructure to terminal blocks. Thanks to the loyal participation of readers from across the process industries, this year's awards represent the expressed brand preferences of nearly 1,000 automation professionals from all corners of the process industries. Those surveyed include the print magazine's U.S.-centric readership as well as subscribers to our increasingly international digital media outlets anchored at our ControlGlobal.com website. And while the results certainly reflect a North American bias, the increasingly global nature of the process automation business, together with the increased participation of industry professionals from outside the U.S., continues to buoy the standings of more than a few European and Asian players.

As in recent years past, our Readers Choice Awards include recognition for "Best in Control" across six distinct process automation disciplines:

continuous regulatory control, batch process automation, continuous sheet/web monitoring and control, safety/emergency shutdown, supervisory control and data acquisition (SCADA), and sequential logic control (Table I). Further, we've identified the top vote-getters in each of these process automation disciplines in each of the 10 primary process industry verticals we serve (Table II). In addition to these system capabilities awards, our usual rankings in a wide range of instrumentation, control and infrastructure technologies are presented on the pages that follow. In terms of methodology, each survey respondent was allowed to vote for up to three suppliers in each technology category and discipline. Their first, second and third place votes were then weighted accordingly to yield a rank listing of up to five top suppliers in each category.

Our congratulations go out to all the solution providers that made this year's lists. To be mentioned at all, each supplier has demonstrated to a significant, loyal contingent of users that they provide the very best technology in their respective domains. And that's no small feat at all.

Continuous Regulatory Control

Emerson Process Management
2. Rockwell Automation
3. Honeywell Process Solutions
4. ABB
5. Siemens Industry
6. Invensys
7. Yokogawa
8. Schneider Electric

Safety/Emergency Shutdown

Invensys
2. Rockwell Automation
3. Emerson Process Management
4. Siemens Industry
5. Honeywell
6. ABB
7. HIMA
8. Yokogawa

Batch Process Automation

Rockwell Automation
2. Emerson Process Management
3. Siemens Industry
4. ABB
5. Invensys
6. Honeywell Process Solutions
7. Yokogawa
8. GE Intelligent Platforms

Sequential Logic Control

Rockwell Automation
2. Siemens Industry
3. Emerson Process Management
4. ABB
5. Schneider Electric
6. GE Intelligent Platforms
7. Honeywell Process Solutions
8. Invensys

Continuous Sheet/Web Monitoring & Control

ABB
2. Honeywell Process Solutions
3. Rockwell Automation
4. Emerson Process Management
5. Siemens Industry
6. Invensys
7. Yokogawa
8. Metso

Supervisory Control & Data Acquisition (SCADA)

Rockwell Automation
2. Invensys
3. Emerson Process Management
4. Honeywell Process Solutions
5. GE Intelligent Platforms
6. Siemens Industry
7. ABB
8. Schneider Electric

Table I. Best in Control
Readers Choice Awards by Process Automation Discipline

	Chemicals Manufacturing	Electric Power Generation	Food & Beverage Manufacturing	Metals, Minerals & Mining	Oil & Gas Extraction
Continuous Regulatory Control	Emerson Process Management	Emerson Process Management	Rockwell Automation	Rockwell Automation	Emerson Process Management
Batch Process Automation	Emerson Process Management	Emerson Process Management	Rockwell Automation	Rockwell Automation	Emerson Process Management
Continuous Sheet/Web Monitoring & Control	-	-	-	ABB	-
Safety/Emergency Shutdown	Invensys	Invensys	Rockwell Automation	Rockwell Automation	Invensys
Supervisory Control & Data Acquisition	Invensys	Emerson Process Management	Rockwell Automation	ABB	Invensys
Sequential Logic Control	Rockwell Automation	Rockwell Automation	Rockwell Automation	Rockwell Automation	Rockwell Automation

	Petroleum Refining	Pharmaceuticals & Life Sciences	Plastics & Rubber Manufacturing	Pulp & Paper Manufacturing	Water & Wastewater Processing
Continuous Regulatory Control	Honeywell Process Solutions	Emerson Process Management	Emerson Process Management	Emerson Process Management	Rockwell Automation
Batch Process Automation	Emerson Process Management	Emerson Process Management	Rockwell Automation	Rockwell Automation	Emerson Process Management
Continuous Sheet/Web Monitoring & Control	-	-	Rockwell Automation	ABB	-
Safety/Emergency Shutdown	Invensys	Emerson Process Management	Rockwell Automation	Rockwell Automation	Rockwell Automation
Supervisory Control & Data Acquisition	Invensys	Rockwell Automation	Rockwell Automation	Rockwell Automation	Rockwell Automation
Sequential Logic Control	Rockwell Automation	Rockwell Automation	Rockwell Automation	Rockwell Automation	Rockwell Automation

Table II. Best in Control
Readers Choice Awards by Discipline and Industry

The Software Suite

Closely complementing our Readers Choice Awards across the range of essential process automation disciplines are the Readers Choice Awards for specific software competencies. Highest honors in several of these categories go to the integrated platform players, notably Emerson Process Management and Rockwell Automation. Through a combination of in-house development and acquisition, each of these companies has developed a broad competency in the core software categories.

But in the spirit of entrepreneurship, so central to innovation in the software space, a number of smaller software publishers have maintained an independent leadership role, notably Exper-Tune in the Loop-Tuning Software category, MatrikonOPC for its competency in OPC Connectivity, and Mynah Technologies in Simulation Software. In the arena of Calibration Management Software, Fluke takes top honors in part on the strength of its industry-leading hardware offering in the category.

Advanced Process Control Software
Emerson Process Management
2. Rockwell Automation
3. Honeywell Process Solutions
4. AspenTech
5. ABB

Alarm Management Software
Emerson Process Management
2. Rockwell Automation
3. Honeywell Process Solutions
4. ABB
5. Invensys

Asset Management Software
Emerson Process Management
2. Rockwell Automation
3. ABB
4. SAP
5. Siemens Industry

Calibration Management Software
Fluke
2. Emerson Process Management
3. Beamex
4. CyberMetrics

Design/Documentation Software
Autodesk
2. Rockwell Automation
3. Intergraph
4. Emerson Process Managment
5. EPLAN

Human-Machine Interface Software
Rockwell Automation
2. Invensys Operations Management
3. Siemens Industry
4. ABB
5. Emerson Process Management

Loop-Tuning Software
ExperTune
[1]2. Rockwell Automation
3. Emerson Process Management
4. Control Station
5. Invensys

Neural Network Software
Emerson Process Management
2. Rockwell Automation
3. NeuCo

OPC Connectivity
MatrikonOPC
2. Kepware Technologies
3. Rockwell Automation
4. Software Toolbox

PLC Programming Software
Rockwell Automation
2. Siemens Industry
3. Schneider Electric
4. GE Intelligent Platforms
5. ABB

SCADA Software
Rockwell Automation
2. Invensys
3. Siemens Industry
4. GE Intelligent Platforms
5. Schneider Electric

Simulation Software
Mynah Technologies
2. Honeywell Process Solutions
3. Rockwell Automation
4. Invensys
5. ABB

Annunciator

Ametek
2. Ronan Engineering
3. Rockwell Automation
4. ABB

Industrial Computer

Rockwell Automation
2. Advantech
3. Siemens Industry
4. B&R
5. Pro-face

Operator Interface Terminal

Rockwell Automation
2. Red Lion Controls
3. Pro-face
4. Siemens Industry
5. AutomationDirect

Panel Display

Rockwell Automation
2. Red Lion Controls
3. Siemens Industry
4. Precision Digital
5. Automation Direct

Process Loop Controller

Honeywell Process Solutions
2. Rockwell Automation
3. Yokogawa
4. Emerson Process Management
5. ABB

Recorder

Yokogawa
2. Honeywell Process Solutions
3. ABB
4. Invensys
5. Anderson Instrument

Elsewhere in the Control Room

Core competency in process control disciplines—and their software implementation—are well and good, but other control room technologies are needed to effectively communicate process conditions with human operators, and to ensure accurate data is acquired and that control is maintained. For this group of Readers Choice Awards winners, it's an acknowledged expertise in hardware design and manufacturing that typically carries the day.

Ametek's Panalarm division specializes in Annunciators—all day long—and is once again recognized as the long-time leader in that display technology niche. Other platforms used for human-machine interface (HMI) applications include Panel Displays, Operator Interface Terminals and Industrial Computers; Rockwell Automation gets the nod in all three of these categories, although niche specialists such as Advantech, Pro-face and Red Lion also placed highly in this functional family of technologies.

In the more specialized categories of Process Loop Controller and Recorder, Honeywell Process Solutions and Yokogawa took top honors, respectively.

Input/Output System

Rockwell Automation
2. Siemens Industry
3. ABB
4. Emerson Process Management
5. Phoenix Contact

Intrinsic Safety

Pepperl+Fuchs
2. MTL Instruments
3. Rockwell Automation
4. Phoenix Contact
5. R. Stahl

Power Supply

Phoenix Contact
2. SolaHD
3. Rockwell Automation
4. Acopian
5. Siemens Industry

Signal Conditioner

Phoenix Contact
2. Moore Industries
3. Pepperl+Fuchs
4. Invensys Operations Management
5. Weidmuller

Terminal Block

Phoenix Contact
2. Weidmuller
3. Rockwell Automation
4. Wago
5. Schneider Electric

Wire & Cable

Belden
2. Anixter
3. Lapp
4. General Cable
5. Southwire

Wireless Infrastructure

Emerson Process Management
2. Cisco
3. Phoenix Contact
4. Yokogawa
5. Elpro Technologies

The Essential Infrastructure Players

While field devices and controllers perform the fundamental actions of the process control loop, an extensive communications infrastructure is needed to ensure that process data is reliably and seamlessly communicated throughout the modern process control system. This next group of Readers Choice Awards recognizes those essential infrastructure players—from wire to wireless and from terminal blocks to power supplies—who make sure measurement A gets to controller B and back to valve C.

Indeed, despite all the latest advances in wireless communication, the bulk of signal transmission in today's process plants still relies on good old-fashioned wire and cable to get messages from one place to another. And for the readers of *Control*, Belden rates as the Wire & Cable maker of choice, while Anixter and Lapp also rate highly.

That wire, of course, needs to ultimately connect with the host control system, and Phoenix Contact holds the preferred position among a predominantly European field of Terminal Block manufacturers that also includes Weidmuller, Wago, Rockwell Automation and Schneider Electric. In the burgeoning field of Wireless Infrastructure, field device and systems leader Emerson Process Management takes pole position, followed by system-independent players Cisco and Phoenix Contact.

The analog-to-digital conversion, conditioning, powering and intrinsic safety protection of instrumentation loops also are essential communication functions. For the purposes of our Readers Choice Survey, these functions are characterized by the technology arenas of I/O Systems, Signal Conditioners, Power Supplies and Intrinsic Safety. In the overall classification of Input/Output System, top honors go to the major automation platform providers, with Rockwell Automation and Siemens Industry in the lead. As with Terminal Blocks, European suppliers also carry the day in the closely related categories of Power Supplies (Phoenix Contact), Signal Conditioners (Phoenix Contact) and Intrinsic Safety (Pepperl+Fuchs). American suppliers SolaHD (a division of Emerson Industrial Automation), Moore Industries and MTL Instruments were runners up in each of these categories.

Coriolis Flowmeter
Emerson Process Management
2. Endress+Hauser
3. Krohne
4. Yokogawa
5. Siemens Industry

Magnetic Flowmeter
Emerson Process Management
2. Endress+Hauser
3. Yokogawa
4. Krohne
5. ABB

Open Channel Flowmeter
Emerson Process Management
2. Endress+Hauser
3. Siemens Industry
4. ABB
5. Yokogawa

Positive Displacement Flowmeter
FMC Technologies
2. Brooks Instrument
3. Emerson Process Management
4. Badger Meter
5. Brodie International

Thermal Mass Flowmeter
FCI
2. Endress+Hauser
3. Sierra Instrument
4. Kurz Instrument
5. ABB

Turbine Flowmeter
Emerson Process Management
2. Cameron
3. FMC Technologies
4. Brooks Instrument
5. Hoffer Flow Controls

Ultrasonic Flowmeter (Closed Pipe)
Emerson Process Management
2. Endress+Hauser
3. GE Measurement & Control
4. Krohne
5. Siemens Industry

Variable Area Flowmeter
Brooks Instrument
2. ABB
3. Emerson Process Management
4. Krohne
5. Yokogawa

Vortex Flowmeter
Emerson Process Management
2. Yokogawa
3. Endress+Hauser
4. ABB
5. Invensys

Flow Switch
FCI
2. Endress+Hauser
3. Emerson Process Management
4. ifm efector
5. Magnetrol

Going with the Flow

Accurately measuring process flows is difficult—and perhaps that's why so many flow measurement companies have sprung up over the years, each exploiting a new physical phenomena to tame this historically problematic process measurement. Indeed, many novel flow measurement technologies have been co-opted (or their creators acquired) by the major instrumentation companies, although a few notable niche players remain independent.

Emerson Process Management remains the dominant flow measurement player in this year's Readers Choice Awards, complementing its win in Pressure Transmitters (used with orifice plates and other primary elements to measure flow) with top awards in six out of our 10 other categories, including Coriolis, Magnetic, Open Channel, Turbine, Ultrasonic (Closed Pipe) and Vortex flowmeter technologies. These competencies are represented in the marketplace through its Rosemount, Daniel and Micro Motion brands. Process measurement specialists Endress+Hauser and Krohne also fare well in a range of flow measurement technologies, as do the other broad-based process automation platform providers including Yokogawa, ABB and Siemens.

In other flow measurement niches, top honors in Positive Displacement Flowmeters go to FMC Technologies, in Variable Area Flowmeters to Brooks Instrument, and in Thermal Mass Flowmeters and Flow Switches to FCI.

Our Level Best

Similar to the rich landscape of providers in the flow instrumentation field, the level measurement marketplace is home to a broad variety of technologies and suppliers. Here, Emerson Process Management once again assembles a critical mass of competence, faring well in most of the mainstream technologies and winning outright in Float/Displacer and Radar technologies. With the combined forces of its Rosemount and Saab TankRadar brands it also claims top spot in the arena of Inventory-Grade Tank Gauges.

But level measurement excellence also belongs to a number of independent specialists. Notable among them in this year's Readers Choice Awards are Endress+Hauser for its wins in the categories of Ultrasonic and Capacitance/Admittance/Conductance Level Gauges, and for Vibration Level Switches. Magnetrol took top honors in Electrical Property-based Level Switches, together with subsidiary Orion Instruments' wins in Magnetic Level Indicators and Magnetostrictive technologies. Vega Americas took the top spot in Radiometric (Nuclear) Level Gauges and ABB for its Laser Level Gauges.

Level Gauge, Capacitance/Admittance/Conductance
Endress+Hauser
2. Ametek Drexelbrook
3. Emerson Process Management
4. Magnetrol
5. Vega Americas

Level Gauge, Float/Displacer
Emerson Process Management
2. Magnetrol
3. GE Energy
4. Endress+Hauser
5. Krohne

Level Gauge, Contacting Radar
Emerson Process Management
2. Vega Americas
3. Endress + Hauser
4. Magnetrol
5. Siemens Industry

Level Gauge, Non-Contacting Radar
Emerson Process Management
2. Vega Americas
3. Endress+Hauser
4. Magnetrol
5. Siemens Industry

Level Gauge, Inventory Grade
Emerson Process Management
2. Endress+Hauser
3. Honeywell Enraf
4. Varec

Level Gauge, Laser
ABB
2. Sick
3. Keyence
4. ifm

Level Gauge, Magnetostrictive
Orion Instruments
2. ABB
3. MTS
4. Emerson Process Management
5. Vega Americas

Level Gauge, Radiometric (Nuclear)
Vega Americas
2. Thermo Scientific
3. Endress+Hauser
4. Berthold Technologies
5. Ronan Engineering

Level Gauge, Ultrasonic
Endress+Hauser
2. Emerson Process Management
3. Siemens Industry
4. Vega Americas
5. Magnetrol

Level Switch, Electrical Property-based
Magnetrol
2. Endress+Hauser
3. Emerson Process Management
4. Vega Americas
5. SOR

Level Switch, Vibration
Endress+Hauser
2. Emerson Process Management
3. Vega Americas
4. Siemens Industry
5. Magnetrol

Magnetic Level Indicator
Orion Instruments
2. Emerson Process Management
3. ABB
4. Krohne
5. KSR Kuebler

Pressure Transmitter

Emerson Process Management
2. Yokogawa
3. Endress+Hauser
4. Honeywell Process Solutions
5. ABB

Resistance Temperature Detector

Emerson Process Management
2. Endress+Hauser
3. Pyromation
4. ABB
5. Omega Engineering

Thermocouple

Emerson Process Management
2. Pyromation
3. Omega Engineering
4. ABB
5. Moore Industries

Temperature Transmitter

Emerson Process Management
2. Endress+Hauser
3. Yokogawa
4. ABB
5. Moore Industries

Infrared Temperature Sensor

Fluke
2. LumaSense
3. ABB
4. Omega Engineering

Infrared Imaging/Thermography

Fluke
2. Flir Systems
3. Omega Engineering

The Heat (and Pressure) Is On

Back to the days of the original Rosemount 1151, the industrial pressure transmitter is in many ways the foundation from which Emerson Process Management built or assembled its market leadership position in a broad range of measurement technologies. Temperature sensors and transmitters are no exception, and only the arena of infrared has remained beyond their scope, where Fluke carries the day in the categories of both Infrared Temperature Sensing and Infrared Imaging/Thermography.

A Process Analysis Primer

Typically a step in complexity beyond the measurement of primary physical variables such as temperature, pressure, flow or level, is the realm of process analysis. These devices, once confined primarily to the laboratory, have increasingly moved into the field, gone on line, and are helping to improve control and boost quality throughout the process industries.

Here, as in other field instrument categories, the process instrumentation majors lead the industry with Emerson Process Management and ABB taking top spots in four and two categories, respectively. The other process majors including Siemens, Yokogawa, Invensys and Endress+Hauser also place well in these categories. In the yet-more specialized category of Humidity and Moisture analysis, GE Measurement & Control rolls on the strength of its Panametrics brand.

Ambient Gas Detector

Emerson Process Management
2. MSA
3. Draeger Safety
4. Siemens Industry

Density/Concentration Analyzer

Emerson Process Management
2. Yokogawa
3. Endress+Hauser
4. Anton Paar
5. ABB

Humidity/Moisture Analyzer

GE Measurement & Control
2. Vaisala
3. Emerson Process Management
4. Ametek

pH/ORP/Conductivity Analyzer

Emerson Process Management
2. Endress+Hauser
3. ABB
4. Yokogawa
5. Invensys

Process Spectrometer

ABB
2. Yokogawa
3. Horiba Instruments
4. Siemens Industry
5. Emerson Process Management

Process Chromatograph

ABB
2. Emerson Process Management
3. Yokogawa
4. Siemens Industry

Stack Gas/Emissions Analyzer

Emerson Process Management
2. ABB
3. Yokogawa
4. Siemens Industry
5. Ametek

Control Valve

Emerson Process Management
2. Flowserve
3. Samson Controls
4. GE Energy
5. Metso

Electric Valve Actuator

Rotork Controls
2. Flowserve
3. Emerson Process Management
4. Auma Actuators
5. Metso

Pneumatic Valve Actuator

Emerson Process Management
2. Flowserve
3. Metso
4. Samson Controls
5. GE Energy

On/Off Valve

Emerson Electric*
2. Metso
3. Flowserve
4. Burkert Fluid Control Systems

* Includes Emerson Industrial Automation (ASCO) and Emerson Process Management brands

Electric Motor Drive

Rockwell Automation
2. ABB
3. Siemens Industry
4. Schneider Electric
5. Danfoss

Electric Motor

Baldor Electric
2. Siemens Industry
3. ABB
4. GE
5. Rockwell Automation

The Final Element

The last crucial link in any automated process control loop is of course the final control element. Measurements can be taken and control decisions made—but all unravels if those decisions aren't effectively and reliably translated into final action. Primary among the process industries means of affecting process control are the position of a valve or the direction and speed of an electric motor.

For the Control Valve itself, top spot in this year's Readers Choice Awards goes to Emerson Process Management, primarily on the strength of its Fisher Controls brand. Runners up Flowserve, Samson Controls, GE Energy and Metso Automation were often mentioned as well. In the category of Pneumatic Actuator, Emerson also prevails, but cedes Electric Actuator to Rotork Controls. The nod for On/Off Valves also went to Emerson, represented primarily by the company's ASCO brand, a division of Emerson Industrial Automation.

In the category of Variable-Speed Motor Drive, Rockwell Automation is ranked most highly in this year's Readers Choice Awards polling. And as for the Electric Motors themselves, Baldor Electric takes top honors. ABB and Siemens also placed highly in both motors and drives technology categories.

Elsewhere in the Field

Last but certainly not least, this final group of Readers Choice Awards includes a supporting cast of essential field instrumentation technologies that play a critical role in process automation, but don't belong to another logical group discussed thus far.

First off, the words "Data Acquisition" means many things to many people, but in this year's poll the DAQ System award goes to Rockwell Automation—maker of both data acquisition hardware, as well as the popular RSView visualization environment. Fluke wins in the category of Portable Calibrator. The Enclosure award goes to perennial favorite Pentair Technical Products, while the preferred enclosure Purge System award goes to Pepperl+Fuchs. (Although each of these winners are more likely known for their acquired Hoffman and Bebco brands, respectively.) And what to to put into those boxes? The nod for Remote Terminal Unit goes to Rockwell Automation.

Leak-proof fittings are, of course, critical to any process instrumentation installation, and honors for the category of Instrument Fittings go to Swagelok, followed by Parker Hannifin.

Finally, our Readers Choice Awards for two important process measurements: vibration and weight. The nod for Vibration Instrumentation goes to GE Energy on the strength of its Bently Nevada brand. Excellence in the category of Weighing System/Load Cell goes to Mettler Toledo. ■

Data Acquisition System

Rockwell Automation
2. National Instruments
3. Invensys
4. OSIsoft
5. Canary Labs

Enclosure

Pentair Technical Products
2. Rittal
3. Hubbel Wiegmann
4. Saginaw Control & Engineering
5. Hammond Manufacturing

Purge System

Pepperl + Fuchs
2. Expo Technologies

Portable Calibrator

Fluke
2. Beamex
3. Ametek
4. GE Druck
5. Emerson Process Management

Remote Terminal Unit

Rockwell Automation
2. Emerson Process Management
3. Schneider Electric
4. ABB
5. Siemens Industry

Instrument Fittings

Swagelok
2. Parker Hannifin
3. Hoke
4. Hy-Lok

Vibration Instrumentation

GE Energy
2. ifm
3. Emerson Process Management
4. Metrix Instrument
5. SKF

Weighing System/Load Cell

Mettler Toledo
2. Rice Lake Weighing Systems
3. Avery Weigh-Tronix
4. Hardy Process Solutions
5. Vishay Precision Group