

## BEST IN CONTROL READERS' CHOICE AWARDS BY PROCESS AUTOMATION DISCIPLINE

### BATCH PROCESS AUTOMATION

- Emerson 1
- Rockwell Automation 2
- Siemens 3
- ABB 4
- Honeywell 5
- Yokogawa 6
- Schneider 7

### CONTINUOUS REGULATORY CONTROL

- Emerson 1
- Honeywell 2
- Rockwell Automation 3
- ABB 4
- Yokogawa 5
- Schneider 6
- Siemens 7

### CONTINUOUS SHEET/ WEB MONITORING & CONTROL

- Honeywell 1
- Emerson 2
- Rockwell Automation 3
- ABB 4
- Siemens 5
- Yokogawa 6
- Schneider 7

### SAFETY/EMERGENCY SHUTDOWN

- Schneider 1
- Emerson 2
- Rockwell Automation 3
- Siemens 4
- ABB 5
- Yokogawa 6
- Honeywell 7

### SEQUENTIAL LOGIC CONTROL

- Rockwell Automation 1
- Siemens 2
- Emerson 3
- Schneider 4
- Honeywell 5
- Yokogawa 6
- ABB 7

### SUPERVISORY CONTROL & DATA ACQUISITION

- Emerson 1
- Rockwell Automation 2
- Honeywell 3
- AVEVA 4
- Schneider 5
- Siemens 6
- ABB 7

## 2023 READERS' CHOICE AWARDS

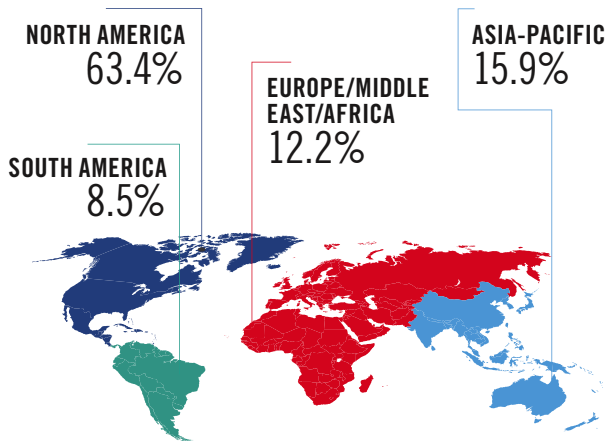
Process automation professionals vote for their favorite suppliers in more than 80 categories



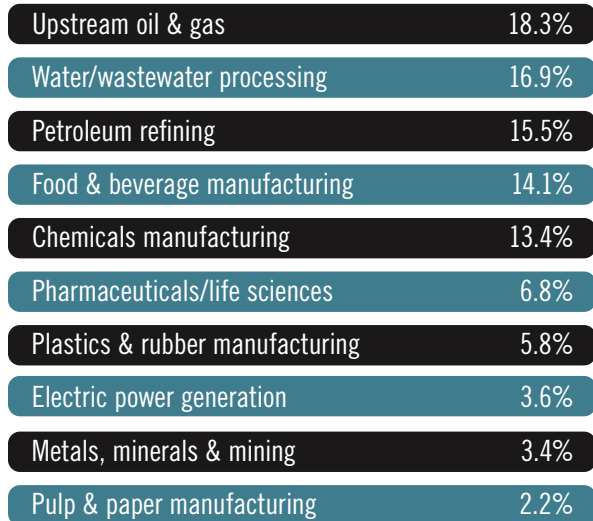
BY CONTROL STAFF

For more than three decades now, the Control Readers' Choice Awards have identified our readers' favorite suppliers across a range of instrumentation and control technologies—from annunciators and batch management to vibration sensors and weighing systems. Over the years, the awards have morphed a bit in line with the times. We no longer have a winner for expert systems software or minicomputers. The number of categories has grown from 50 to more than 80. And leadership by automation discipline was added to acknowledge the all-important application expertise that often transcends a particular product category. Plus, many of the organizations that claimed top honors in 1993 no longer exist—most having been absorbed by acquisition into today's leading solution providers.

## VOTERS BY WORLD REGION



## VOTERS BY INDUSTRY



## VOTER DEMOGRAPHICS

Respondents to this year's Readers' Choice Awards survey are an industrially diverse but North America-centric mix of individuals from across the process industries. Process control and instrumentation professionals from end-user and engineering firms made their voices heard, responding to invitations emailed in late 2022. The tables above summarize their industry and geographic demographics. Those individuals who work for systems integration and engineering services firms were asked to choose the end-user industry that most closely represents their work.

But several essential aspects have remained constant. The Readers' Choice Awards is perennially among our most popular feature articles. 2022's version was no exception, ranking as the year's most visited story on ControlGlobal.com. Instrumentation and control professionals refer to the Readers' Choice Awards because they represent the collective wisdom of you, our readers, who have taken the time to share your technology and application expertise.

We sincerely thank all our readers who participated this year, an eclectic group of process automation and instrumentation profes-

sionals representing diverse process industry verticals as well as all corners of the U.S. and, increasingly, the world. (For more information on survey respondent demographics, see figures above.)

### Leaders by discipline

Our first grouping of Readers' Choice Awards isn't so much a set of product technologies as it is a set of fundamental control domain competencies—ranging from batch automation to SCADA. (See listing of "Process Automation Discipline" winners on the left.) Not unexpectedly, the readers' vote is concentrated among

the global leaders in process automation systems technology: ABB, Emerson, Honeywell, Rockwell Automation, Schneider, Siemens and Yokogawa.

Emerson got the nod in Batch Process Automation, Continuous Regulatory Control and Supervisory Control & Data Acquisi-

tion (SCADA), while Rockwell Automation took top honors in Sequential Logic Control. Honeywell took first place in Continuous Sheet Monitoring & Control, and Schneider in Safety/Emergency Shutdown on the strength of its Triconex portfolio.

AVEVA's presence in the listings resulted from Schneider Electric's spin-off of its industrial software businesses into this separate, independent entity that is still majority-owned by Schneider. GE is noticeably absent from our rankings the past few years following the sale of its industrial automation business to Emerson and disinvestment in Baker Hughes.

**Applications expertise**

Closely aligned with the process automation discipline awards are those in the category of Application Software. Here, again, a significant amount of market presence and customer preference is focused among the global discipline leaders. (See listing of "Application Software" winners on the left.)

Technology specialists that made these ranks included Beamex and Fluke in Calibration Management, Autodesk in Design/Documentation, and Mitsubishi in PLC Programming. AspenTech and AVEVA made the grade in Modeling & Simulation, each now representing a software-focused entity that's majority owned by a systems player—Emerson and Schneider, respectively. In the category of OPC Connectivity, PTC edged out Honeywell-owned Matrikon on the strength of its Kepware acquisition.

**APPLICATION SOFTWARE**

**Advanced Process Control**

- 1. Emerson
- 2. Honeywell
- 3. Rockwell Automation
- 4. Yokogawa
- 5. ABB

**Alarm Management**

- 1. Emerson
- 2. Honeywell
- 3. Yokogawa
- 4. Rockwell Automation
- 5. ABB

**Asset Performance Management**

- 1. Emerson
- 2. Rockwell Automation
- 3. Yokogawa
- 4. ABB
- 5. Honeywell

**Calibration Management**

- 1. Emerson
- 2. Beamex
- 3. Fluke
- 4. Honeywell
- 5. Yokogawa

**Design/Documentation**

- 1. Autodesk
- 2. Rockwell Automation
- 3. Honeywell
- 4. Hexagon
- 5. Emerson

**Human-Machine Interface**

- 1. Rockwell Automation
- 2. Siemens
- 3. AVEVA
- 4. Emerson
- 5. Honeywell

**Loop Tuning**

- 1. Emerson
- 2. Rockwell Automation
- 3. Yokogawa
- 4. Honeywell
- 5. Siemens

**OPC Connectivity**

- 1. PTC
- 2. Matrikon
- 3. Siemens
- 4. Emerson
- 5. Rockwell Automation

**PLC Programming**

- 1. Rockwell Automation
- 2. Siemens
- 3. Schneider
- 4. Emerson
- 5. Mitsubishi

**SCADA**

- 1. Rockwell Automation
- 2. AVEVA
- 3. Emerson
- 4. Siemens
- 5. ABB

**Simulation & Modeling**

- 1. Emerson
- 2. Rockwell Automation
- 3. AspenTech
- 4. Honeywell
- 5. AVEVA

**VISUALIZATION/CONTROL HARDWARE**

**Annunciator**

- 1. Ametek
- 2. Rockwell Automation
- 3. ABB
- 4. Ronan Engineering
- 5. Federal Signal

**Industrial Computer**

- 1. Dell
- 2. Rockwell Automation
- 3. Advantech
- 4. Siemens
- 5. Emerson

**Operator Interface Terminal**

- 1. Rockwell Automation
- 2. Siemens
- 3. Schneider
- 4. Omega Engineering
- 5. AutomationDirect

**Panel Display**

- 1. Rockwell Automation
- 2. Siemens
- 3. Precision Digital
- 4. Hope Industrial Systems
- 5. Red Lion

**Process Loop Controller**

- 1. Yokogawa
- 2. Siemens
- 3. ABB
- 4. Emerson
- 5. Honeywell

**Recorder**

- 1. Yokogawa
- 2. ABB
- 3. Honeywell
- 4. Siemens
- 5. Eurotherm

**Visualization hardware**

A further step adjacent to the core process automation disciplines are the hardware devices that provide a local platform for control, compute and visualization—notably annunciators, panel displays, loop controllers, recorders and industrial PCs. (See listing of “Visualization & Control Hardware” winners on the left.)

As with application software, the global process automation majors earn their share of allegiance in this arena. Notable exceptions include Ametek, whose Panalarm annunciators have long set the standard in the category. Federal Signal and Ronan Engineering also made the list in the Annunciator category.

**FLOW INSTRUMENTATION**

**Coriolis Mass**

- 1. Emerson
- 2. Endress+Hauser
- 3. Krohne
- 4. Yokogawa
- 5. ABB

**Magnetic**

- 1. Emerson
- 2. Endress+Hauser
- 3. Krohne
- 4. ABB
- 5. Yokogawa

**Open Channel**

- 1. Endress+Hauser
- 2. Emerson
- 3. Siemens
- 4. Krohne
- 5. Yokogawa

**Positive Displacement**

- 1. Badger Meter
- 2. Endress+Hauser
- 3. TechnipFMC
- 4. Krohne
- 5. ABB

**Thermal Mass**

- 1. FCI**
- 2. Endress+Hauser
- 3. ABB
- 4. Sierra Instruments
- 5. Kurz Instruments



**Turbine**

- 1. Emerson
- 2. TechnipFMC
- 3. Badger Meter
- 4. AW-Lake
- 5. Hoffer Flow Controls

**Ultrasonic (closed pipe)**

- 1. Krohne
- 2. Emerson
- 3. Endress+Hauser
- 4. Baker Hughes
- 5. Siemens

**Variable Area (rotameter)**

- 1. Krohne
- 2. Brooks Instrument
- 3. Yokogawa
- 4. Dwyer Instruments
- 5. Siemens

**Vortex**

- 1. Emerson
- 2. Endress+Hauser
- 3. Yokogawa
- 4. Krohne
- 5. Siemens

**Flow Switch**

- 1. FCI**
- 2. Endress+Hauser
- 3. Ametek
- 4. Keyence
- 5. Dwyer Instruments



**LEVEL INSTRUMENTATION**

**Admittance/Conductance (continuous)**

- 1. Endress+Hauser
- 2. Ametek
- 3. VEGA

**Float/Displacer**

- 1. Emerson
- 2. Ametek
- 3. Omega Engineering
- 4. Baker Hughes
- 5. WIKA

**Guided-Wave Radar**

- 1. Emerson
- 2. Endress+Hauser
- 3. Krohne
- 4. VEGA
- 5. Ametek

**Radar, Non-contact**

- 1. Emerson
- 2. Endress+Hauser
- 3. VEGA
- 4. Krohne
- 5. Ametek

**Tank Gauge, Inventory-grade**

- 1. Emerson
- 2. Endress+Hauser
- 3. Honeywell Enraf
- 4. Siemens
- 5. VEGA

**Magnetostrictive**

- 1. ABB
- 2. Emerson
- 3. Ametek
- 4. Endress+Hauser
- 5. WIKA

**Radiometric**

- 1. VEGA
- 2. Endress+Hauser
- 3. Berthold
- 4. Tracerco

**Ultrasonic**

- 1. Endress+Hauser
- 2. Krohne
- 3. Siemens
- 4. VEGA
- 5. Ametek

**Level Switch, Electrical Property-based**

- 1. Ametek
- 2. Endress+Hauser
- 3. Emerson
- 4. Krohne
- 5. Siemens

**Level Switch, Mechanical**

- 1. Ametek
- 2. Emerson
- 3. ABB
- 4. Endress+Hauser
- 5. Omega Engineering

**Level Switch, Ultrasonic**

- 1. Endress+Hauser
- 2. Emerson
- 3. Ametek
- 4. ABB
- 5. VEGA

**Level Switch, Vibratory**

- 1. Endress+Hauser
- 2. Emerson
- 3. Krohne
- 4. VEGA
- 5. Ametek

**Magnetic Level Indicator**

- 1. ABB
- 2. Emerson
- 3. Ametek
- 4. Krohne
- 5. WIKA

**Laser**

- 1. ABB
- 2. Keyence
- 3. Banner Engineering

## READERS' CHOICE AWARDS

And in a manifestation of IT/OT convergence, Dell topped our Industrial PC rankings for the first time. In the category of Operator Interface Terminal, Rockwell Automation took top honors, while

Yokogawa receives top honors for both its Process Loop Controllers and Recorders. Meanwhile, Advantech, Hope Industrial Systems and Precision Digital earn mentions in the visualization grouping.

### Process measurements

Process analyzers, together with devices for measuring the primary process variables of flow, level, pressure and temperature are the workhorse instruments of the process industries. Indeed, the accompanying four award groupings include nearly 40 different technologies for sussing out these important variables in a broad variety of challenging conditions. (See listings of "Flow Instrumentation," "Level Instrumentation," "Pressure & Temperature Instrumentation" and "Process Analyzer" winners on the previous and following pages.)

The leaders here include instrumentation heavyweights Emerson and Endress+Hauser, which win or rank highly in the most categories. But ABB, Krohne, Schneider, Siemens and Yokogawa also show a following in multiple instrumentation categories. Again, a range of specialists have managed to hold out against the majors in this realm, including Badger Meter for its Positive Displacement flowmeters and Fluid Components International (FCI) for its Thermal Mass flowmeters and Flow Switches.

In the level realm, ABB carries the day in Magnetostrictive and Laser technologies as well as Magnetic Level Indicators, while VEGA is top of the charts when it comes to Radiometric (nuclear) gauges. Ametek is tops in Level Switch technologies based on electrical and mechanical principles. Finally, in the realms of pressure and temperature sensing, Emerson ranks highest in most categories, with Endress+Hauser often playing second fiddle. In infrared technologies, however, Fluke reigns supreme.

And in the category of analytical instrumentation (see "Process Analyzers" listing on page 42), Emerson again takes top honors in all but one category, with ABB taking the top spot in Process Spectrometers. Notable second places include MSA in Ambient Gas Detection, Vaisala in Humidity/Moisture and Thermo Fisher in Process Spectrometers. ABB ranks in six of seven analyzer technologies and Yokogawa in five of seven.



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**PRESSURE & TEMPERATURE INSTRUMENTATION**

**Pressure Transmitter**

1. Emerson
2. Endress+Hauser
3. Yokogawa
4. Honeywell
5. Siemens

**Pressure Switch**

1. Emerson
2. Endress+Hauser
3. WIKA
4. United Electric Controls
5. Honeywell

**Resistance Temperature Detector**

1. Emerson
2. Endress+Hauser
3. Omega Engineering
4. JMS Southeast
5. ABB

**Thermocouple**

1. Emerson
2. Omega Engineering
3. Endress+Hauser
4. ABB
5. JMS Southeast

**Temperature Transmitter**

1. Emerson
2. Endress+Hauser
3. Honeywell
4. Yokogawa
5. ABB

**Temperature Switch**

1. Emerson
2. WIKA
3. Endress+Hauser
4. ITT Neo-Dyn
5. ABB

**Infrared Temperature Sensor**

1. Fluke
2. Omega Engineering
3. Teledyne FLIR
4. Ametek Land
5. Williamson

**Infrared Imaging/ Thermography**

1. Fluke
2. Teledyne FLIR

**PROCESS ANALYZERS**

**Ambient Gas Detector**

1. Emerson
2. MSA
3. Draeger
4. ABB
5. Thermo Fisher

**Density/Concentration**

1. Emerson
2. Endress+Hauser
3. Yokogawa
4. ABB
5. Krohne

**Humidity/Moisture**

1. Emerson
2. Vaisala
3. Baker Hughes
4. Endress+Hauser
5. ABB

**pH/ORP/Conductivity**

1. Emerson
2. Endress+Hauser
3. ABB
4. Yokogawa
5. Mettler Toledo

**Process Chromatograph**

1. Emerson
2. ABB
3. Siemens
4. Yokogawa
5. Thermo Fisher

**Process Spectrometer**

1. ABB
2. Thermo Fisher
3. Emerson
4. Siemens
5. Yokogawa

**Stack Gas/Emissions**

1. Emerson
2. ABB
3. Siemens
4. Ametek
5. Yokogawa

**FINAL CONTROL**

**Control Valve**

1. Emerson
2. Baker Hughes
3. Flowserve
4. Samson
5. Neles

**Control Valve Actuator, Pneumatic**

1. Emerson
2. Baker Hughes
3. Flowserve
4. Samson
5. Rotork

**Control Valve Actuator, Electric**

1. Emerson
2. Rotork
3. Flowserve
4. Auma
5. Samson

**Valve, On/Off**

1. Emerson
2. Flowserve
3. Neles
4. Bray
5. Crane

**Electric Motor**

1. ABB
2. Siemens
3. Wolong
4. WEG
5. Nidec

**Electric Motor Drive**

1. Rockwell Automation
2. ABB
3. Siemens
4. Yaskawa
5. Schneider

**Final control elements**

When it comes to final control elements, Emerson takes top honors in control valves, on/off valves plus pneumatic and electric actuators. Other high-ranking valve-makers include Baker Hughes (Masonellan), Flowserve, Samson Control and Neles.

In addition to control valves, electric motors and drives increasingly act together as final control elements across the process industries. Here, ABB retains top honors for its Electric Motor technology, while Rockwell Automation ranked highest in the category of Electric Motor Drive.

**Infrastructure and essentials**

Our final two groups of Readers' Choice Award winners include foundational contributors to the wired and wireless automation infrastructure, as well as role players that serve important process automation functions but frankly just don't fit cleanly in any of the other award groupings. (See "Automation Infrastructure" and "Elsewhere in the Field" listings on the following pages.)

Input/output (I/O) modules, along with terminal blocks, signal conditioners, intrinsic safety barriers and power supplies,

work seamlessly together to reliably gather, digitize and distribute the many electronic signals required to run a modern process facility. In this arena, Rockwell Automation ranks highest for its I/O Module offering, while Pepperl+Fuchs receives top votes for its Intrinsic Safety capabilities. Meanwhile, triple threat Phoenix Contact places first in the Terminal Block, Signal Conditioner and Power Supply rankings. Belden is our readers' favorite when it came to Wire & Cable, as is Emerson when it comes to Wireless Infrastructure.

Winners in our last grouping of other essential product technologies (see "Elsewhere in the Field" listings), are primarily specialists in their respective domains. One notable exception is Rockwell Automation, which carries the day in both Data Acquisition Systems and Remote Terminal Units. Leadership in Instrument Fittings goes to Swagelok, Portable Calibrators to Fluke, Weighing Systems/Load Cells to Mettler Toledo and Vibration Instrumentation to Baker Hughes (Bentley Nevada). In the arena of field enclosures, nVent Hoffman edged Rittal, and Pepperl+Fuchs tops the charts in enclosure Purge Systems. ∞

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**AUTOMATION INFRASTRUCTURE**

**Input/Output System**

1. Rockwell Automation
2. Emerson
3. Siemens
4. Schneider
5. ABB

**Intrinsic Safety**

1. Pepperl+Fuchs
2. Eaton MTL
3. Rockwell Automation
4. Phoenix Contact
5. ABB

**Power Supply**

1. Phoenix Contact
2. Emerson
3. Rockwell Automation
4. PULS
5. Acopian

**Signal Conditioner**

1. Phoenix Contact
2. Pepperl+Fuchs
3. Moore Industries
4. Weidmuller
5. Acromag

**Terminal Block**

1. Phoenix Contact
2. Weidmuller
3. Rockwell Automation
4. Wago
5. Pepperl+Fuchs

**Wire & Cable**

1. Belden
2. Prysmian Group
3. Southwire
4. Leoni Kerpen
5. Lapp

**Wireless Infrastructure**

1. Emerson
2. Cisco
3. Honeywell
4. Moxa
5. Phoenix Contact

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**ELSEWHERE IN THE FIELD**

**Data Acquisition System**

1. Rockwell Automation
2. Yokogawa
3. Emerson
4. Honeywell
5. Schneider

**Enclosure**

1. nVent
2. Rittal
3. Saginaw Control & Engineering
4. Hammond Manufacturing
5. ABB

**Portable Calibrator**

1. Fluke
2. Emerson
3. Beamex
4. PIE
5. Honeywell

**Remote Terminal Unit**

1. Rockwell Automation
2. Emerson
3. ABB
4. Honeywell
5. Siemens

**Vibration Instrumentation**

1. Baker Hughes
2. Emerson
3. Metrix
4. Rockwell Automation
5. SKF

**Weighing System/Load Cell**

1. Mettler Toledo
2. Rice Lake
3. Hardy Instruments
4. Siemens
5. Avery Weigh-Tronix

**Instrument Fittings**

1. Swagelok
2. Parker Hannifin
3. Hy-Lok
4. Emerson
5. Hoke

**Purge System**

1. Pepperl+Fuchs
2. Rockwell Automation
3. nVent Hoffman



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The advertisement features two WAGO Touch Panel 600 units. The top unit is shown from a front-three-quarter view, displaying a large screen and a Linux penguin icon. The bottom unit is shown from a rear-three-quarter view, highlighting its modular design with various ports and components. To the right of the units, a list of supported protocols is displayed with their respective logos: MQTT, Modbus, EtherNet/IP, EtherCAT, and CANopen. Below the units, logos for Sparkplug (MQTT Topic & Payload Definition) and RS 232/485 are shown.