

# OBJECTS OF AFFECTION

Automation professionals name the companies they say offer the best technology in more than 80 product categories.

by Control staff



**LOVE** may seem too strong a word to apply to the feelings process control professionals harbor for their favorite brands—according to Plato, “Love is a serious mental disease”—but it’s more than “like.” Every day, thousands of *Control* readers interact on the job with thousands of pieces of process control equipment, software packages and the representatives of the companies that supply them. How their day goes and how they feel at the end of it depends a great deal on those interactions. From ease of specification and procurement to cost, delivery speed, quality, functionality, precision, stability, reliability and customer service, end users gain impressions about every item from every company they encounter, and over time, for better or for worse, those many impressions develop into lasting relationships. Experienced process automation professionals know which companies are best qualified to give them what they need.

For the 25th time, *Control*'s annual Readers' Choice Awards survey asked end users to name those companies. As usual, about 1,000 respondents weighed in on which suppliers provided the best technology—this year in 10 overall product categories and 84 subcategories. Each was invited to vote for up to three vendors in each category and discipline, and their first-, second- and third-place votes were weighted to yield a rank of up to five top positions in each subcategory.

### The best and the rest

Determined solely by readers' fill-in-the-blank responses, the awards you'll find on these pages name the vendors that provide the best technology in categories from software and systems to instrumentation and final control elements.

As you review this year's winners, remember that the fill-in-the-blank format of the survey means every supplier has an equal chance—the choices are not limited to a selection of entries determined by vendors, editors or other people who are not practicing process automation professionals.

On the survey, we ask end users to vote only in those categories where they have personal experience. A vote for a specific company should mean the respondent has found its products to be better than other companies' in that category. While we ask respondents to write in the name of the company, some write in the names or numbers of specific products or software packages. We do our best to recognize and translate these responses into parent company names.

Every vendor named in the accompanying tables has been designated as offering the best value by a significant number of respondents. Since more respondents have experience with companies that have higher installed bases or market shares, the results are inevitably biased toward the larger companies. Furthermore, there are certainly small companies that don't make the list, no matter how excellent their technologies, just because they are relatively unknown. If you have a favorite smaller supplier, consider yourself fortunate and don't be concerned that they aren't in our Readers' Choice Awards.

In short, the *Control* Readers' Choice Awards offer a reference list of companies that readers like you say offer the best—a veritable Who's Who of equipment, software and service providers.

### New and returning winners

The "Best in Control" category is broken down into six automation disciplines. We use industry demographic information



## BEST IN CONTROL BY PROCESS AUTOMATION DISCIPLINE

### Continuous Regulatory Control

1. Emerson Automation Solutions
2. Rockwell Automation
3. Honeywell Process Solutions
4. Siemens Industry
5. Yokogawa
6. ABB
7. Schneider Electric
8. GE Automation & Controls

### Safety/Emergency Shutdown

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

### Batch Process Automation

1. Rockwell Automation
2. Emerson Automation Solutions
3. Siemens Industry
4. ABB
5. Honeywell Process Solutions
6. Schneider Electric
7. Yokogawa
8. GE Automation & Controls

### Continuous Sheet/Web Monitoring & Control

1. Rockwell Automation
2. Honeywell Process Solutions
3. ABB
4. Siemens Industry
5. Emerson Automation Solutions
6. Schneider Electric
7. Yokogawa
8. GE Automation & Controls

### Sequential Logic Control

1. Rockwell Automation
2. Siemens Industry
3. Emerson Automation Solutions
4. Honeywell Process Solutions
5. Schneider Electric
6. ABB
7. Yokogawa
8. GE Automation & Controls

### Supervisory Control & Data Acquisition (SCADA)

1. Rockwell Automation
2. Schneider Electric
3. Honeywell Process Solutions
4. Siemens Industry
5. Emerson Automation Solutions
6. ABB
7. GE Automation & Controls
8. OSIsoft

provided by our respondents to also tabulate that information by 10 vertical industries, summarized in the table, "Best in Control by Discipline and Industry" (below). These platform categories are dominated by the largest companies in process automation, with little change in rankings from year to year.

The following categories tend to be more dynamic, with positions shifting, new suppliers showing up, and others coming on

and off the lists. The wired and wireless network components in the "Infrastructure" category connect system controllers and software to field devices through signal conditioners and input/output (I/O) systems. While many process automation product categories have seen extensive consolidation through mergers and acquisitions, infrastructure remains dotted with independent, medium-sized companies. This year, in the "Infrastructure"



### BEST IN CONTROL BY DISCIPLINE AND INDUSTRY

|  | Chemicals Manufacturing      | Electric Power Generation       | Food & Beverage Manufacturing   | Metals, Minerals & Mining    | Oil & Gas Extraction          |
|--|------------------------------|---------------------------------|---------------------------------|------------------------------|-------------------------------|
| <b>Continuous Regulatory Control</b>                 | Emerson Automation Solutions | Emerson Automation Solutions    | Rockwell Automation             | Rockwell Automation          | Emerson Automation Solutions  |
| <b>Batch Process Automation</b>                      | Emerson Automation Solutions | Rockwell Automation             | Rockwell Automation             | Rockwell Automation          | Rockwell Automation           |
| <b>Continuous Sheet/Web Monitoring &amp; Control</b> |                              |                                 |                                 | Rockwell Automation          |                               |
| <b>Safety/Emergency Shutdown</b>                     | Schneider Electric           | Schneider Electric              | Rockwell Automation             | Rockwell Automation          | Rockwell Automation           |
| <b>Supervisory Control &amp; Data Acquisition</b>    | Emerson Automation Solutions | Schneider Electric              | Rockwell Automation             | Rockwell Automation          | Siemens Industry              |
| <b>Sequential Logic Control</b>                      | Rockwell Automation          | Rockwell Automation             | Rockwell Automation             | Rockwell Automation          | Rockwell Automation           |
|  | Petroleum Refining           | Pharmaceuticals & Life Sciences | Plastics & Rubber Manufacturing | Pulp & Paper Manufacturing   | Water & Wastewater Processing |
| <b>Continuous Regulatory Control</b>                 | Honeywell Process Solutions  | Emerson Automation Solutions    | Emerson Automation Solutions    | Emerson Automation Solutions | Rockwell Automation           |
| <b>Batch Process Automation</b>                      | Emerson Automation Solutions | Emerson Automation Solutions    | Rockwell Automation             | Rockwell Automation          | Rockwell Automation           |
| <b>Continuous Sheet/Web Monitoring &amp; Control</b> |                              |                                 | Siemens Industry                | ABB                          |                               |
| <b>Safety/Emergency Shutdown</b>                     | Schneider Electric           | Emerson Automation Solutions    | Rockwell Automation             | Siemens Industry             | Rockwell Automation           |
| <b>Supervisory Control &amp; Data Acquisition</b>    | Honeywell Process Solutions  | Emerson Automation Solutions    | Honeywell Process Solutions     | Honeywell Process Solutions  | Schneider Electric            |
| <b>Sequential Logic Control</b>                      | Rockwell Automation          | Rockwell Automation             | Rockwell Automation             | Rockwell Automation          | Rockwell Automation           |



### INFRASTRUCTURE

#### Input/Output System

1. Rockwell Automation
2. Siemens Industry
3. Emerson Automation Solutions
4. ABB
5. Beckhoff

#### Intrinsic Safety

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

#### Power Supply

1. Phoenix Contact
2. SolaHD
3. Rockwell Automation
4. Siemens Industry
5. TDK-Lambda

#### Signal Conditioner

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

#### Terminal Block

1. Phoenix Contact
2. Weidmuller
3. Rockwell Automation
4. Wago
5. AutomationDirect

#### Wire & Cable

1. Belden
2. Southwire
3. Anixter
4. Okonite
5. TPC

#### Wireless Infrastructure

1. Emerson Automation Solutions
2. Cisco
3. Honeywell Process Solutions
4. Rockwell Automation
5. Phoenix Contact

category, we welcome or welcome back Beckhoff for Input/Output System, Phoenix Contact for Intrinsic Safety and Wireless Infrastructure, TDK-Lambda for Power Supply, Acromag for Signal Conditioner, and Okonite and TPC for Wire & Cable.

As the name implies, "Interfaces" allow engineers, technicians and operators to take information from and give instructions to the

control system with hardware such as panel displays, standalone loop controllers and recorders. The definition of the ever-evolving Industrial Computer subcategory is in the eye of the beholder, and according to the voting, may include PC-based industrial computers, process automation controllers (PACs) and programmable logic controllers (PLCs).

This year's fresh faces in "Interfaces" are Red Lion and Siemens for Annunciator, and GE Automation & Controls and Schneider Electric for Operator Interface Terminal.

### INTERFACES

#### Annunciator

1. Ametek
2. Rockwell Automation
3. Ronan Engineering
4. Red Lion Controls
5. Siemens Industry

#### Industrial Computer

1. Rockwell Automation
2. Advantech
3. Siemens Industry

#### Operator Interface Terminal

1. Rockwell Automation
2. Siemens Industry
3. GE Automation & Controls
4. Schneider Electric
5. Red Lion Controls

#### Panel Display

1. Rockwell Automation
2. Siemens Industry
3. Red Lion Controls
4. Advantech
5. Schneider Electric

#### Process Loop Controller

1. Honeywell Process Solutions
2. Emerson Automation Solutions
3. Rockwell Automation
4. Yokogawa
5. Siemens Industry

#### Recorder

1. Yokogawa
2. Honeywell Process Solutions
3. ABB
4. Schneider Electric
5. Rockwell Automation

#### Software runs the gamut

Software powers the control system's brains and communications, so it's no surprise that many software category winners are the same companies we saw at the top of the equivalent platform categories. But software also includes specialized subcategories, such as Calibration, Design & Documentation, and Simulation, where specialized players have an edge over the big guns. The definition of assets has now expanded enough beyond the control system to cement enterprise giant SAP into the Asset Management subcategory. With the rise of the Industrial Internet of Things (IIoT), integration takes on even greater importance, and the competition in OPC Connectivity is heating up.

This year, the "Software" category sees ABB among the winners for Alarm Management, Rockwell Automation and Schneider Electric for Asset Management, Rockwell Automation for Calibration Management, Bentley and Rockwell Automation for Design/Documentation, Software Toolbox for OPC Connectivity, Honeywell for SCADA, and Schneider Electric for Simulation.

### SOFTWARE TO OPC CONNECTIVITY

#### Advanced Process Control Software

1. Emerson Automation Solutions
2. Rockwell Automation
3. Honeywell Process Solutions
4. AspenTech
5. ABB

#### Alarm Management Software

1. Emerson Automation Solutions
2. Honeywell Process Solutions
3. Rockwell Automation
4. Schneider Electric
5. ABB

#### Asset Management Software

1. Emerson Automation Solutions
2. Rockwell Automation
3. SAP
4. Yokogawa
5. Honeywell

#### Calibration Management Software

1. Fluke
2. Emerson Automation Solutions
3. Beamex
4. Rockwell Automation

#### Design/Documentation Software

1. Autodesk
2. Rockwell Automation
3. Bentley
4. EPLAN

#### Human-Machine Interface Software

1. Rockwell Automation
2. Schneider Electric
3. GE Automation & Controls
4. Emerson Automation Solutions
5. Siemens Industry

#### Loop-Tuning Software

1. Emerson Automation Solutions
2. ExperTune
3. Control Station
4. Rockwell Automation
5. Honeywell Process Solutions

#### Neural Network Software

1. Emerson Automation Solutions
2. Rockwell Automation

#### OPC Connectivity

1. Kepware Technologies
2. Matrikon OPC
3. Rockwell Automation
4. (tie) Emerson Automation Solutions
4. (tie) Software Toolbox

#### PLC Programming Software

1. Rockwell Automation
2. Siemens Industry
3. Schneider Electric
4. GE Automation & Controls
5. Emerson Automation Solutions

#### SCADA Software

1. Rockwell Automation
2. Schneider Electric
3. GE Automation & Controls
4. Emerson Automation Solutions
5. Honeywell

#### Simulation Software

1. Mynah Technologies
2. Rockwell Automation
3. Honeywell Process Solutions
4. Emerson Automation Solutions
5. Schneider Electric



**Level, pressure, temperature and flow**

Just when you think we have all the technologies we need and the opportunity for innovation must be tapped out, we see more respondents able to name favorites in newer categories such as Laser Level Gauge: where last year had only enough votes to declare two positions, this year we have four.

In "Level Instrumentation," we now see Schneider Electric for Float/Displacer; ifm efector and Keyence for Laser; VEGA

Americas for Ultrasonic; Ametek Drexelbrook for Level Switch, Electrical Property-Based, Level Switch, Ultrasonic and Level Switch, Vibration; and Jogler and Endress+Hauser for Magnetic Level Indicator.

"Temperature & Pressure" new and returning companies are GE Energy and Schneider Electric for Pressure Transmitter, SOR and Rockwell Automation for Pressure Switch, JMS Southeast for Resistance Temperature Detector (RTD) and for Ther-



**LEVEL INSTRUMENTATION**

**Level Gauge, Capacitance Admittance/Conductance**

1. Endress+Hauser
2. Emerson Automation Solutions
3. Ametek Drexelbrook
4. VEGA Americas
5. Magnetrol

**Level Gauge, Float/Displacer**

1. Emerson Automation Solutions
2. Magnetrol
3. Danaher
4. Endress+Hauser
5. Schneider Electric

**Level Gauge, Guided Wave**

1. Emerson Automation Solutions
2. Endress+Hauser
3. VEGA Americas
4. Magnetrol
5. Siemens Industry

**Level Gauge, Non-Contacting Radar**

1. Emerson Automation Solutions
2. Endress+Hauser
3. VEGA Americas
4. Siemens Industry
5. Magnetrol

**Level Gauge, Inventory Grade**

1. Emerson Automation Solutions
2. Endress+Hauser
3. Honeywell Enraf
4. Varec

**Level Gauge, Laser**

1. ABB
2. Emerson Automation Solutions
3. ifm efector
4. Keyence

**Level Gauge, Magnetostrictive**

1. Emerson Automation Solutions
2. Orion Instruments
3. ABB
4. Ametek Drexelbrook
5. MTS

**Level Gauge, Radiometric (Nuclear)**

1. VEGA Americas
2. Endress+Hauser
3. Thermo Scientific
4. Emerson Automation Solutions
5. Berthold Technologies

**Level Gauge, Ultrasonic**

1. Endress+Hauser
2. Emerson Automation Solutions
3. Siemens Industry
4. VEGA Americas
5. ABB

**Level Switch, Electrical Property-based**

1. Endress+Hauser
2. Emerson Automation Solutions
3. VEGA Americas
4. Magnetrol
5. ABB
5. Ametek Drexelbrook

**Level Switch, Mechanical**

1. Emerson Automation Solutions
2. Endress+Hauser
3. Magnetrol
4. ABB
5. SOR

**Level Switch, Ultrasonic**

1. Emerson Automation Solutions
2. Endress+Hauser
3. Magnetrol
4. Siemens Industry
5. Ametek Drexelbrook

**Level Switch, Vibration**

1. Endress+Hauser
2. Emerson Automation Solutions
3. VEGA Americas
4. Magnetrol
5. Ametek Drexelbrook

**Magnetic Level Indicator**

1. Emerson Automation Solutions
2. Orion Instruments
3. ABB
4. Jogler
5. Endress+Hauser



**TEMPERATURE & PRESSURE**

**Pressure Transmitter**

1. Emerson Automation Solutions
2. Yokogawa
3. GE Energy
4. Endress+Hauser
5. Schneider Electric

**Pressure Switch**

1. Endress+Hauser
2. Emerson Automation Solutions
3. Ashcroft
4. SOR
5. Rockwell Automation

**Resistance Temperature Detector**

1. Emerson Automation Solutions
2. Endress+Hauser
3. Omega Engineering
4. Pyromation
5. JMS Southeast

**Thermocouple**

1. Emerson Automation Solutions
2. Omega Engineering
3. Endress+Hauser
4. Pyromation
5. JMS Southeast

**Temperature Transmitter**

1. Emerson Automation Solutions
2. Endress+Hauser
3. Yokogawa
4. Honeywell Process Solutions
5. (tie) Omega Engineering
5. (tie) Schneider Electric

**Infrared Temperature Sensor**

1. Fluke
2. ifm efector
3. Omega Engineering

**Infrared Imaging/Thermography**

1. Fluke
2. FLIR Systems

**Temperature Switch**

1. Emerson Automation Solutions
2. Omega Engineering
3. Endress+Hauser
4. Ashcroft
5. (tie) Dwyer
5. (tie) Honeywell



**FINAL CONTROL ELEMENTS**

**Control Valve**

1. Emerson Automation Solutions
2. GE Energy
3. Flowserve
4. Samson Controls
5. Metso

**Electric Valve Actuator**

1. Emerson Automation Solutions
2. Rotork Controls
3. Flowserve
4. Auma Actuators
5. Metso

**Pneumatic Valve Actuator**

1. Emerson Automation Solutions
2. Flowserve
3. Metso
4. Rotork
5. Samson

**On/Off Valve**

1. Emerson Electric\*
2. Metso
3. Flowserve
4. Bray
5. Apollo

\* Includes Emerson Industrial Automation (ASCO) and Emerson Automation Solutions brands

**Electric Motor Drive**

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

**Electric Motor**

1. Baldor Electric
2. Siemens Industry
3. WEG
4. GE Power Conversion
5. ABB

mocouple, Schneider Electric for Temperature Transmitter, ifm efector for Infrared Temperature Sensor, and Dwyer and Honeywell for Temperature Switch.

“Flow Instrumentation” welcomes Schneider Electric for Magnetic Flowmeter, Ametek and Schneider Electric for Open Channel, Kurz Instruments for Thermal Mass, Badger for Vortex, and Great Plains Industries, Hoffer Flow Controls and Omega Engineering for Turbine Flowmeter.

**Final, analysis and elsewhere**

Once the sensor signals have been transduced, the networks have transmitted, and the processors have run the software, the resulting outputs arrive at a surprisingly small variety of final elements charged with implementing the changes that keep our processes under control.

This year in “Final Control Elements,” we now have Samson for Pneumatic Valve Actuator, Bray for On/Off valve, and Baldor Electric for Motor Drive.

Perhaps a little out of order both in real life and on these pages, process analysis has become a highly evolved art. As the ability to make sensitive composition measurements has largely moved from the laboratory to the plant floor, few and highly specialized manufacturers are able to combine



**FLOW INSTRUMENTATION**

**Coriolis Flowmeter**

1. Emerson Automation Solutions
2. Endress+Hauser
3. Yokogawa
4. Krohne
5. Siemens Industry

**Magnetic Flowmeter**

1. Emerson Automation Solutions
2. Endress+Hauser
3. Yokogawa
4. ABB
5. Schneider Electric

**Open Channel Flowmeter**

1. Endress+Hauser
2. Siemens Industry
3. Emerson Automation Solutions
4. Ametek
5. Schneider Electric

**Positive Displacement Flowmeter**

1. Brooks Instrument
2. Emerson Automation Solutions
3. Badger Meter
4. FMC Technologies
5. Endress+Hauser

**Thermal Mass Flowmeter**

1. FCI
2. Endress+Hauser
3. Emerson Automation Solutions
4. Brooks Instrument
5. Kurz Instruments

**Turbine Flowmeter**

1. Emerson Automation Solutions
2. Badger Meter
3. Great Plains Industries
4. Hoffer Flow Controls
5. Omega Engineering

**Ultrasonic Flowmeter (Closed Pipe)**

1. Emerson Automation Solutions
2. Endress+Hauser
3. Siemens Industry
4. Krohne
5. GE

**Variable Area Flowmeter**

1. Brooks Instrument
2. Krohne
3. ABB
4. Emerson Automation Solutions
5. Yokogawa

**Vortex Flowmeter**

1. Emerson Automation Solutions
2. Endress+Hauser
3. Yokogawa
4. Schneider Electric
5. Badger Meter

**Flow Switch**

1. FCI
2. Endress+Hauser
3. Emerson Automation Solutions
4. Magnetrol
5. Dwyer