

# The Electrochemical Analysis Family That Enhances Your Asset Performance



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pH

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ORP

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Conductivity

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Resistivity

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Dissolved

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Oxygen

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Bring on your toughest electrochemical measurement challenges. We've got the intelligent Foxboro analyzers, transmitters, sensors, and solutions to exceed your expectations.

You get application flexibility for almost any process solution in chemicals, pharmaceuticals, food and beverage, pulp and paper, metals, semiconductors, power generation, water and waste, and many other industries.

Raylo Chemical, pharmaceutical manufacturer, on its Foxboro analytical solution:

*"Overall, yields have increased and cycle times have been shortened. When you add in the increase in quality, the improved readings by one sensor can be worth hundreds of thousands of dollars per year."*



## Your best electrochemical analysis assets

Foxboro has earned its reputation within the electrochemical area due to a rich, 35-year history of innovative solutions and industry firsts for electrochemical analysis.

### High performance

When there's an accuracy level to be achieved, an aggressive environment to overcome, or an inventory problem to simplify, turn to Foxboro.

### Innovative technological approaches

If a new design can improve performance or usability, often Foxboro is there first. We've got the awards to prove it. Recent technical innovations include our hard-working multimeasurement transmitters, amazingly long-lived DolpHin™ pH sensors, and easy-to-calibrate 871FT noninvasive conductivity sensors.

### Superior asset performance management

Our electrochemical analyzers and sensors fulfill the need for true high-performance production assets in your plant or mill. With smart diagnostics, long life, and multi-task applicability, they can help bring your asset management program to full functionality.

### Exceptional value

Foxboro electrochemical products start with a competitive price. Their return on investment can often be measured in weeks. And their cost of ownership only gets lower during their greater-than-average lifespans.

### Recognized service

We're regularly hailed in trade journal reader surveys as offering best-in-class application and technical support. We're famous for our custom manufacturing capability — and willingness — when you need a special bushing, thread, or material. We even offer shipment within 24 business hours on many standard models such as our DolpHin sensors.

Does your pH analyzer request sensor maintenance before it becomes a crisis? Should your conductivity analyzer proffer custom curves for multiple applications? Are your analyzers too complex to use with ease?

Our electrochemical analyzers/transmitters — teamed with our superior Foxboro sensors — provide all the advanced sensor diagnostics, intuitive menus, and other usability advantages you demand. And our most popular models have all the intelligence they need to fit into your most ambitious plant asset management scheme.

## Advanced analyzers

### Excellence in ease of use

The Foxboro 875 Series intelligent electrochemical analyzer delivers accurate, flexible analysis. With industry-leading ease of use, it measures variables from pH and ORP to electrodeless conductivity, contacting conductivity, and resistivity.

This award-winning, line-powered family includes the 875PH model, which simplifies your pH sensor calibration and cleaning with intelligent auto-buffer recognition and remote auto-service.

Our 875EC model eases electrodeless conductivity analysis with application switching and storage of up to three sets of application configurations — including custom curve sets. Its autoswitching feature permits single-loop control in place of multiple loops.

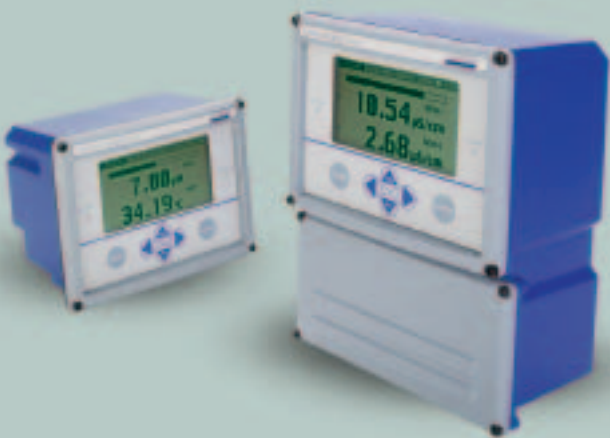
All 875 models also have features such as easy history logging. Up to 100 time- and date-stamped events make these analyzers indispensable components of your asset management effort.

The 875 analyzer is certified for Class I, Division 2 areas by ATEX, FM, CSA, and IECEx.

### Industry-standard ease and reliability

The Foxboro 870IT intelligent two-wire analyzer is also an award winner. Performance features such as advanced sensor diagnostics, plus ease-of-use standards it has in common with the Model 875 such as self-prompting menu trees and PC-based configuration, make it an even better value.

The 870IT analyzer is certified for Class I, Division 1 areas by ATEX, FM, CSA, and IECEx.



**Do you wish your pH sensors would last longer? Does sensor maintenance/ replacement take too long and cost too much? Must you stock multiple sensor styles for differing plant requirements?**

Eastman Chemical Company, Longview, Texas, on its Foxboro analytical solution:

*"With the Foxboro DolpHin pH sensors, Eastman's equipment and maintenance costs were eight times lower than with the previous sensor, and the efficiency of our scrubber operation was optimized."*

## Superior pH sensors

Often immersed in highly corrosive solutions, subjected to extremely elevated temperatures, and attacked by the most severe process environments, pH sensors form the front line in the measurement wars.

Fortunately, there's a Foxboro solution that can stand up to the challenge.

### **The DolpHin family: longest life and highest performance**

Simply put, multiple-award-winning DolpHin™ sensors have revolutionized the science of pH and ORP sensor performance.

This unique Foxboro design has delivered advantages that customers could only dream of before:

- Doubled sensor service life in the harshest applications
- Reduced need for replacements or maintenance calls
- Unmatched ease of installation, operation, maintenance, replacement
- Fast pH/ORP and temperature responses
- High stability and accuracy
- Superior adaptability and rugged construction
- Simplified inventory requirements
- Improved return on investment

### **Innovative design**

DolpHin sensors feature a number of design breakthroughs that raise their usability and performance to new heights. A unique pH glass electrode formulation adds durability. A reference electrode with high-temperature gel and Nafion™ ion barrier junction provides tremendous heat resistance. Construction with inert parts contributes even more toughness. And a thoughtful mechanical design eases installation, removal, cleaning, and calibration.

### **Longer life**

According to user reports, DolpHin sensors' lifespan and reliability are unbeatable. They can last at least twice as long as any competitive model in the most challenging process environments. These include higher-temperature and temperature cycling applications up to 121° C (250° F).





### **Faster response**

Amazing DolpHin sensors are also capable of providing temperature response up to twice as fast as with conventional sensors. This improvement alone gives you tighter process control, better quality for your finished product, and considerable cost savings.

### **Less maintenance**

DolpHin sensors offers a cascading series of benefits for your maintenance efforts. You make fewer stops to maintain or replace them. And when necessary, these tasks are noticeably quicker and more effortless. For instance, an optional Variopin fitting makes connection quick and easy. While a universal mounting option allows mounting on virtually any process connection, without cable windup.

Most DolpHin models are disposable, to keep your maintenance down. But our 871PH model is easily rebuildable, featuring small, inexpensive plug-in electrodes, and a patented Nafion replaceable ion barrier junction.

Result: customer reports of eightfold reductions in maintenance costs are not uncommon.

### **Simplified inventory**

A single sensor style fits all your process connections for pH/ORP measurement. Standardize on DolpHin and you can instantly reduce how many types of sensors you must keep in stores.

### **Excellent value**

All the DolpHin advantages of long life, maintenance savings, and higher performance add up to a great sensor value. Our customers estimate their ROI is achieved as quickly as 1 month in a harsh process application, perhaps 6 to 12 months in a standard setting.

### **And more**

With the broadest selection of sensor technologies, materials, sizes, and geometries in the industry, chances are we can handle your process solution. For instance, specialized products include our EP462A sensor, designed for precise measurement of pure water in the power industry.

Nor does Foxboro water measurement wizardry stop at pH. We offer dissolved oxygen sensors, conductivity, and much more.

Do you have conductivity/resistivity applications (water, acids, salts, etc.) that resist adequate measurement? Are aggressive process materials chewing up your sensors? Do you spend too much time on sensor maintenance? Are any of your applications non-standard?

Calzin, Inc., rubber coatings company on its Foxboro analytical solution:

*"It measures and maintains a predetermined percent solids ratio based on conductivity, which assures accurate batch composition every time ... The Foxboro-based system enables us to better serve our customers and gives us a competitive edge in the marketplace."*

## Unique conductivity sensors

Perhaps the most variable of process variables, conductivity can be used to measure everything from the most refined water purity to the strength of the most aggressive industrial acid or base.

That's why Foxboro offers a wide array of excellent analytical sensors for contacting conductivity, electrodeless conductivity (EC), and resistivity. These popular sensors offer advantages like these:

- Accurate measurement from concentrated acids to ultrapure water, and everything in between
- Widest range of electrodeless conductivity sensors in the industry
- Broadest selection of materials and sizes
- Lowest required maintenance
- High accuracy
- Recognized reliability
- Superior value

### Best-kept secret in the industry

The unique, award-winning 871FT flow-through sensor provides accurate, trouble-free measurement, from sanitary solutions and rinse water to the most aggressive chemicals.

Nothing else on the market can match the 871FT sanitary sensor's workability. The secret is its innovative — and exclusive — noninvasive measurement technology. With other sensors, the process line must be opened to the environment to permit sensor calibration. But the 871FT sensor becomes an integral part of the process line, so this unique Foxboro design permits in-line calibration, in less than 10 minutes, without opening the line or stopping the process.

The sanitary flow-through also provides an FDA-compliant and 3A-approved virgin PEEK bore piece in a 3A-approved design.

Industrial versions of the flow-through sensor, offered with a selection of wetted materials, have the additional attraction of the lowest flow-through conductivity range available.





### Pure performance

For pure and ultrapure water measurement, the Foxboro 871CR contacting conductivity/resistivity sensor furnishes the highest possible accuracy, with cell factors of  $0.1 \text{ cm}^{-1}$  or  $10 \text{ cm}^{-1}$ . It shares the advantage with other contacting sensors of offering lower detection limits than electrodeless sensors.

Customers report this model is an asset for pure water applications, for measuring condensate in power plants, and in ultrapure water applications in the pharmaceutical and semiconductor industries.

Its companion 871CC contacting conductivity sensors are low-cost, economical probes used for measurements ranging from ultrapure water through pure water.

### Widest usage and lowest maintenance

Foxboro conductivity customers know that our 871EC sensors come in the widest range of materials, sizes, and mounting accessories in the industry. They're the EC sensors of choice for most conductivity and concentration measurements.

These sensors also offer the paramount EC advantage of requiring infrequent maintenance: often just twice a year or less.

### Innovative materials and more

Meeting customer application needs for specialized materials, our Model 871EC PEEK sensors are molded and welded as a single piece, to guard against the process leakage common to competitors' overmolded products.

Our Foxboro EC lines offer a variety of standard materials, including PEEK, virgin polypropylene, Teflon/316 ss, and Carp 20. We also provide specials including PVDF (polyvinylidenedifluoride), PCTFE (polychlorotrifluoro-ethylene), borosilicate glass, and glass-filled Teflon [EP307B and EP307G series], for the process world's most aggressive process fluids.

Foxboro also offers a unique precision resistance calibration tool for both our flow-through and invasive sensors. This tool is extremely portable, saves time and effort, eliminates decade boxes, and avoids on-the-spot resistance calculations.





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Bulletin K109 5/06 0609004