

APT2000 Toroidal Conductivity Two-Wire Transmitter

Advanced features in a reliable, economical transmitter

APT 2000 Series

ADVANCED FEATURES

- Large display with easy-to-read 0.75 inch measured value
- Simple operator interface with basic pictographs
- Six preprogrammed concentration curves
- HART bi-directional communications protocol
- Continuous diagnostics for monitoring calibration, cell health, and transmitter self-test
- Manual loopback check for integrity of 4 mA to 20 mA output
- Robust, corrosion-resistant plastic enclosure with IP65 rating
- Wall, pipe or panel mounting
- Easy installation with pre-assembled empty enclosure and plug-in terminals
- Optical error signaling by blinking red LED
- Integrated current source for simple checking of peripheral devices
- Quick Response Time (less than five seconds per step change)



The Honeywell Analytical Process Transmitter (APT) 2000 Series is a two-wire loop-powered transmitter that continuously measures conductivity, chemical concentration and salinity in industrial processes within the chemical, food and dairy, pulp and paper, refinery, and metals industries.

The APT2000's water and corrosion-resistant, IP65-rated enclosure is specifically designed to meet the measurement needs of non-incendive and general-purpose areas. Honeywell toroidal conductivity cells or electrically compatible sensors can be used with the transmitter. For bi-directional remote monitoring/control of the process, the HART communications protocol is available as an option.

RELIABILITY FIRST

The advanced features of the APT2000 transmitter assure complete reliability. The APT2000 continuously monitors sensor/transmitter electronics and immediately displays diagnostic information at the onset of a problem. If an error or diagnostic is found, the transmitter will indicate the appropriate error code or pictograph, blink a red LED, and adjust the error current to 22 mA if desired. A manual loop-back check is available to test the integrity of the 4-20 mA output.

QUICK ASSESSMENT OF PROBLEMS

The APT2000 has a large front display for quick recognition of process parameters and diagnostics even at a distance. Only the APT2000 employs *visual feedback* to quicken setup and maintenance times and to minimize errors made during calibrations. Visual feedback refers to pictograph type characters that appear on the display both to prompt and respond to operator and process changes.

Pictograph type characters also appear during problem conditions to report diagnostics for easy trouble-shooting. There is even a Sensoface® pictograph that provides constant feedback to the operator on whether or not there is a problem with the cell. These easily learned and recognized symbols make the APT2000 an easy-to-use instrument in any language.

WORKS WITH A VARIETY OF CELLS

The inputs to the APT2000 Series include the Honeywell 5000TC toroidal conductivity cells, which feature a 1000 ohm Platinum RTD. The Honeywell Series 5000TC cells are available in a variety of cell materials and mounting types, including PEEK, PFA Teflon®, polypropylene and PVDF. In addition, a wide variety of other manufacturers' toroidal conductivity cells are compatible.

@Teflon is a registered trademark of DuPont.

FULLY CERTIFIED

The area certification for the APT2000 TC is FM Class I, Div. 2, Groups A-D (non-incendive).

EASILY INTEGRATED

The APT2000 Series transmitters can be continuously remote controlled via HART communications from a handheld terminal or the control room. This option enables additional visibility and control of the process.

CONDENSED SPECIFICATIONS

Conductivity Input																									
Conductivity Range	00.00 to 99.99 mS/cm, 000.0 to 999.9 mS/cm, 0000 to 1999 mS/cm																								
Concentration Range	<table border="0"> <tr> <td>NaCl</td> <td>0-26.3% by wt (0°C)</td> <td>H₂SO₄</td> <td>0-25% by wt (-17°C)</td> </tr> <tr> <td></td> <td>0-28.1 % by wt (100°C)</td> <td></td> <td>0-35 % by wt (110°C)</td> </tr> <tr> <td>HCl</td> <td>0-17% by wt (-20°C)</td> <td>H₂SO₄</td> <td>95-99 % by wt (-10°C)</td> </tr> <tr> <td></td> <td>0-17 % by wt (50°C)</td> <td></td> <td>95-99 % by wt (110°C)</td> </tr> <tr> <td>NaOH</td> <td>0-12% by wt (0°C)</td> <td>HNO₃</td> <td>0-28 % by wt (-20°C)</td> </tr> <tr> <td></td> <td>0-22 % by wt (100°C)</td> <td></td> <td>0-28 % by wt (50°C)</td> </tr> </table>	NaCl	0-26.3% by wt (0°C)	H ₂ SO ₄	0-25% by wt (-17°C)		0-28.1 % by wt (100°C)		0-35 % by wt (110°C)	HCl	0-17% by wt (-20°C)	H ₂ SO ₄	95-99 % by wt (-10°C)		0-17 % by wt (50°C)		95-99 % by wt (110°C)	NaOH	0-12% by wt (0°C)	HNO ₃	0-28 % by wt (-20°C)		0-22 % by wt (100°C)		0-28 % by wt (50°C)
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Salinity Range	0 to 45% (0 to 35°C)																								
Accuracy	(1% of measured value) ± (0.02 mS/cm) ± (1 of least significant digit)																								
Step Change Response Time	Less than 5 seconds																								
Temperature Input																									
Range	Pt100/1000 Ω RTD, 100K Ω Thermistor: -20°C to +150°C / +4°F to +302°F																								
Resolution	Pt100/1000 Ω RTD, 100K Ω Thermistor: 0.1°C or 1°F																								
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Temperature Compensation	Automatic Compensation using Pt 100Ω/1000Ω RTD or 100 KΩ Thermistor, or manual adjust																								
Display	LCD display 76 mm x 48 mm dimensions (3" x 1 7/8"), 7-segment																								
Supply/Output																									
Output current	4 mA to 20 mA (22 mA for error notification) current loop, floating (3.8 mA to 20.5 mA)																								
Supply voltage	14 to 42 V; I _{max} = 100 mA; P _{max} = 0.8 W																								
Communications																									
HART Protocol	Digital communication via FSK modulation of the loop current																								
Physical																									
Enclosure	Plastic enclosure made of PBT (polybutylene terephthalate) bluish-gray RAL 7031																								
Mounting	Wall, Pipe, or Panel Mount																								
Dimensions	H 144 mm, W 144 mm, D 105 mm (H 5.67", W 5.67", D 4.13")																								
Protection	– IP 65: Dust-tight, protection from powerful water jets (USA, Canada: indoor use only) – Corrosion-proof housing																								
Weight	Approx. 1 kg (2.2 lbs.)																								
Area Certifications / Compliances																									
Approvals	FM Class 1, Div. 2, Groups A - D																								

For more information on the APT2000 TC Series transmitter, as well as Honeywell's toroidal conductivity cells and other analytical products, contact your local Honeywell

representative, or call 1-800-343-0228. Visit our website at: www.honeywell.com/sensing.

Honeywell

Sensing and Control

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