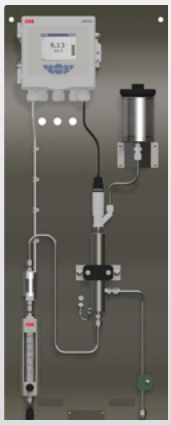
pH/ORP Panel

Ultrapure water pH measurement



Accurate measurement of pH is essential for power plant water chemistry. A small pH error can trigger incorrect chemical dosing, accelerate boiler tube corrosion, or mask an ammonia control failure before the next scheduled check.

The ultrapure water pH panel provides precise, stable pH measurement in real plant conditions, using ABB's 700 ULTRA pH/ORP analog sensor—engineered specifically for ultrapure water applications down to 0.055 µS/cm. With a refillable KCl reservoir and predictive diagnostics from the AWT424 transmitter, This turn-key solution supports the chemistry control reliability that power plant operations demand.

ABB's ultrapure water (UPW) pH panel delivers reliable monitoring of pH levels in UPW. It supports pH measurement throughout the water-steam cycle in power plants, with applications including boiler feedwater, condensate, deaerator outlet, and demineralized water. The panel can also be installed on semiconductor and pharmaceutical UPW applications. This panel helps industries achieve higher productivity and energy efficiency while supporting sustainability goals.

This robust solution is mounted on stainless steel panel, with a standardized footprint and consistent interface points that enable simplified integration into existing plant infrastructure. The modular design delivers the flexibility and scalability needed to adapt the monitoring strategy as plant requirements evolve.

Consisting of ABB's 700 ULTRA pH sensor and the latest digital transmitter AWT424, this solution provides triple ceramic junction design and refillable KCl reservoir, delivering continuous monitoring of water chemistry performance.

The AWT424 integrates ABB's Dynamic QR code system, coupling product identification with real-time system diagnostics. On-screen QR codes scanned via ABB's My Measurement Assistant instantly generate detailed diagnostic reports. This capability streamlines troubleshooting, creates audit trail records for compliance, and enables complete asset tracking across your installed base.

Easy to use

- Panels are pre-wired, pre-plumbed, and factory tested.
- Standardized footprint and consistent interface points for rapid integration into existing SWAS panel layouts.
- Integral flow regulation and flow alarm.

Accurate and reliable

- Triple ceramic junction design provides faster response and improved measurement stability in ultrapure water, down to 0.055 µS/cm.
- Close-coupled temperature sensor ensures accurate compensation for rapid process temperature changes up to 100 °C (212 °F).

Low cost of ownership

- Refillable KCl reservoir extends sensor operational life.
- Simple support through DQR and My Measurement Assistant, maximizing uptime.

Specifications – 700 ULTRA pH/ORP analog sensor*

Measurement range
High-performance (S) glass
0 to 14 pH
ORP
-2,000 to 2,000 mV
Temperature sensor
Pt100 (Class B, IEC 60751)
Recommended minimum sample conductivity
0.055 µS/cm
Isothermal point at 25 °C (77 °F)
pH 7
Reference system
Flowing KCl electrolyte with Ag/AgCl double junction
Wetted materials
Electrode body
- Glass

Reference junction system
- Ceramic

Measure system
- pH: Glass
- ORP: Platinum

Specifications – AWT424 transmitter**

Supply voltage
100 to 240 V AC ±10 %, 50/60 Hz
24 V DC (21 min. to 36 V DC max.)
Outputs available
2 × 0 to 22 mA, programmable to any value to indicate system failure with isolation (500 V DC from each other and from all other circuitry)
Relay outputs
4 × standard single-pole changeover (SPCO)
Connectivity/communications (optional)
- Ethernet (HTTP, HTTPS, Modbus TCP)
- PROFIBUS DP (DPV0, DPV1)
- Modbus (RTU RS485)
- HART (HART 7)

Data logging
Measurement value storage (programmable sample rate) on SD card or SDHC, up to 32 GB capacity

Specifications – Panel

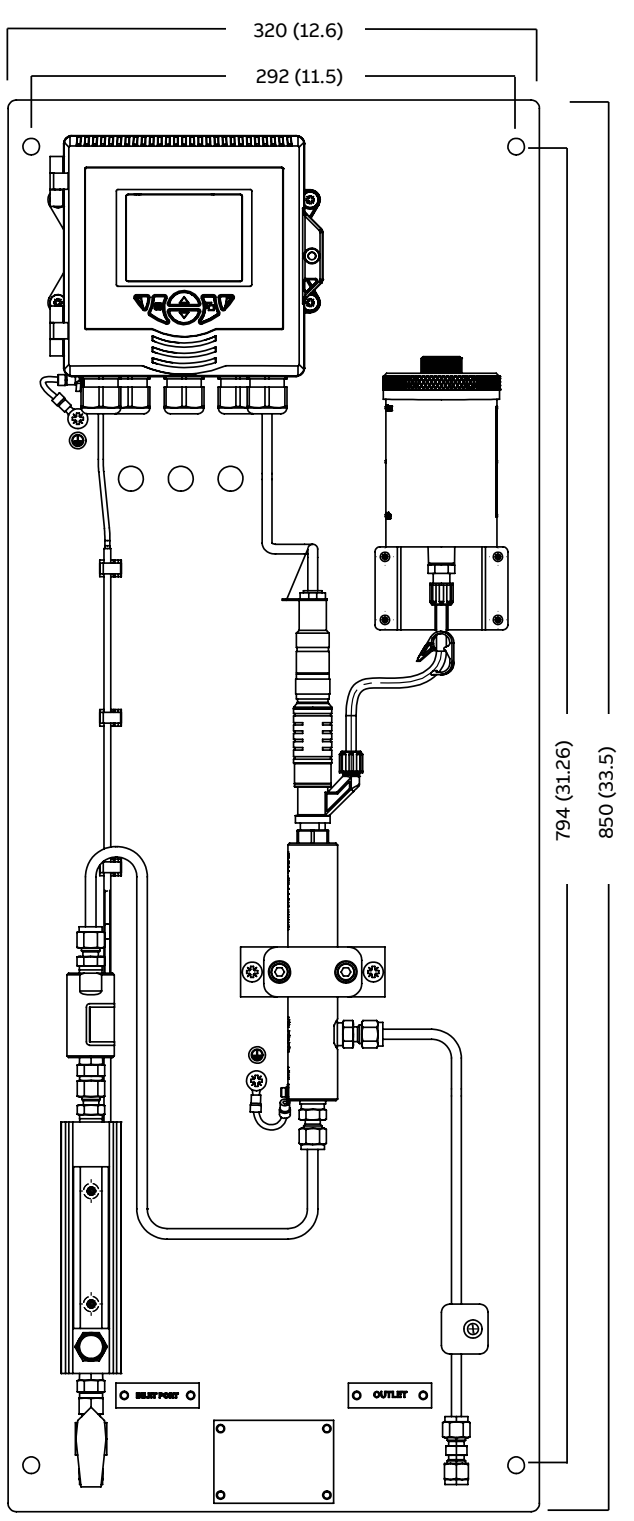
Inlet temperature
Up to 50 °C (122 °F)
Recommended temperature range
23 to 27 °C (73 to 82 °F)
Pressure range
0.1 to 2 bar (-14.5 to 174 psi)
Sensor connection
VarioPin connector with tagged leads (to transmitter)
Flow rate
100 to 150 mL/min
Process connection
¼ in OD fittings
Pipe
¼ in OD 304 stainless steel
Approvals
CE
RoHS/China RoHS compliant
Dimensions
320 × 850 mm
(12.6 × 33.5 in)
Weight (approx.)
11 kg
(24 lb)

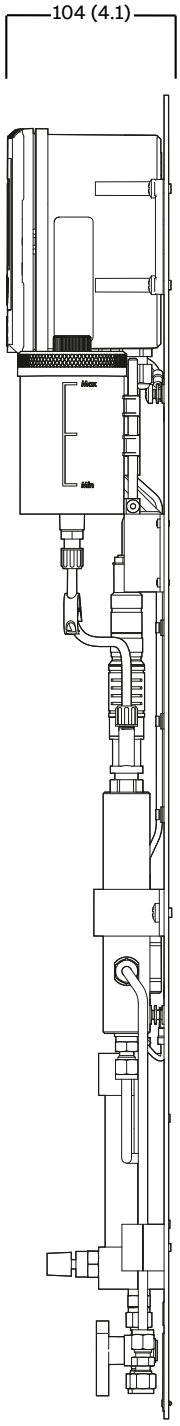
* Full specifications: DS/700ULTRA

** Full specifications: DS/AWT424

Dimensions

All dimensions in mm (in)





Ordering information

pH/ORP panel system	APL701	A	X	F1	XX	F1	XX	XX
Sensor type								
pH			1					
ORP			2					
Flow alarm								
None					Y0			
Fitted					F1			
Power supply								
90 to 265 V AC, 50/60 Hz							A1	
18 to 36 V DC							D1	
Communication								
Analog and relay outputs (2 × 0 to 22 mA, 4 × SPCO)								Y0
Ethernet (Modbus TCP, HTTP, HTTPS)								E1
HART								H1
Modbus (RS-485)								M1
PROFIBUS DPV1								D1

Trademarks

- HART is a registered trademark of FieldComm Group.
- Modbus is a registered trademark of Schneider Electric USA, Inc.
- PROFIBUS is a registered trademark of PROFIBUS Nutzerorganisation, e.V.

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