

ECHO POINT

By COSASCO®



Echo Point

Wireless, High Temperature, Corrosion/Erosion Monitoring

High Sensitivity Dual

Up to 3 times more sensitive than competing sensors

Ultra-High Temp Single

Maximum Temperature of 932°F (500°C)

Certifications



UK
CA 2503 CE 2776 Ex II 1 G Ex ia IIC T4 Ga, Ta = -40°C to +70°C
CML 21ATEX2802X | CML 21UKEX2934X | IECEx CML 21.0097X



Ex ia IIC T4 Ga | Class I, Div 1, Gp A-D T4
Class I Zone 0, AEx ia IIC T4 Ga | Class I, Div 1 Gp A-D T4
Ta = -40°C to +70°C
E114158 - Hazardous Location

Communication

Echo Point uses **WirelessHART** to communicate directly with compatible gateways to Cosasco Data Online. Cosasco Data Online supports back-end communication via Modbus TCP/IP or Modbus RTU to DCS and SCADA systems. Echo Point integrates with Cosasco Data Online to offer advanced analytics and seamlessly integrate with other Cosasco devices.

Non-Intrusive Transducer Choices

All transducers are designed with a minimum high temperature of 275°F (135°C) and the EP-UHT has a maximum high temperature of 932°F (500°C).

EP-HSD is ideal to monitor identified volumetric defects for maximum thin-wall sensitivity and is good for applications where coating removal is not an option. EP-UHT has specialized coupling technology to monitor the hottest processes. All models mount using stainless steel band clamps. EP-HSDs are available with magnetic bases.

Echo Point is Cosasco's newest technology that pushes the boundaries of wireless ultrasonic thickness monitoring. Sensors are available in temporary and permanent configuration choices depending on customer needs. All configurations are rigorously certified to operate in the most hazardous and high-risk environments.

Ultrasonic transducers are powered by off-the-shelf batteries and use WirelessHART to communicate. An embedded temperature sensor with a temperature correction algorithm provides high accuracy measurements.

Echo Point - Ultra High Temp Sensor

The Ultra-High Temperature Sensor is the best all-around ultrasonic wall-thickness sensor with high precision accuracy. It is suitable for ultra-high temperatures (up to 500 degrees Celsius) and ultra-low temperatures (down to -40 degrees Celsius). It can be easily repositioned and placed at alternative locations or stay at the same location for over 5-years with limited maintenance.

Ultra-High Temp - Mounting Accessories

Each Ultra-High Temp sensor is required to be mounted to the pipe using one of the mounting options below. Due to the larger size of the device, it is not suitable for magnetic mounting but is available to be mounted using welded studs for any unconventional placements.

Accessory Name	P/N	Description
UHT 2" U-Bolt Clamp	748667	2 inch U-Bolt Clamp for use with Echo Point UHT Single Element Probe (comes with base)
UHT Clamp Base	748665	Sensor base used for attaching UHT Sensor to Pipe. 3-36" pipe diameter (requires band for specific diameter - ordered separately)
UHT Mounting Bracket	748670	Mounting bracket for threaded studs which have been welded to tanks, vessels, or pipes above 36-inch diameter
Band Clamp Size "L"	748663-LL-0	301SS Nominal Pipe Size Outer Diameter in inches (2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 28, 30, 32, 36) - Custom sizes on request
Band Clamp Size "L"	748663-LL-1	316SS Nominal Pipe Size Outer Diameter in inches (2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 28, 30, 32, 36) - Custom sizes on request

*All band clamps are based on nominal pipe sizes. If pipe outside diameter is less or greater than 5% of circumference, a specialty size may need to be ordered.

** 316 stainless steel is available for band clamps upon request with longer lead times.

Ultra-High Temp - Surface Coupling & Heat Protection

Ultra-High Temperature sensors use mechanical foils paired with glycerin for coupling to surfaces. Heat shields are recommended to protect device internals for surface temperatures above 260 degrees Celsius. Anti-seize lubricant is recommended for use on any device threads when subjected to high temperatures to prevent them from seizing in the future.

Accessory Name	P/N	Description
UHT Heat Shield	748671	Heat Shield for UHT Probe. Recommended for temp's above 500 deg F (260 deg C)
UHT Couplant Kit	748676	Ultra-high temperature metal foil couplings for UHT sensors. Quantity of five (5) ea and 1 5cc tube of Glycerin
UHT Spare Foils	748677-1	Ultra-high temperature metal foil couplings for UHT sensors. Quantity of five (5) ea.
UHT Anti-Seize	748679	Anti-Seize Lubricant for use in installing UHT probes, clamps and fixtures.

Echo Point - High Sensitivity Dual

High Sensitivity Duals are best for focusing on thickness measurements for identified internal pitting, thinner wall materials, thick-wall materials or surfaces with coating that is unable to be removed. This is due to the additional power obtained from utilizing two transducers in the same sensor. One transducer acts a dedicated transmitter and the other is a dedicated receiver that only listens for signals from its partner.

High Sensitivity Dual - Mounting Accessories

Each High Sensitivity Dual is required to be mounted to the pipe using one of the mounting options below. High Sensitivity Duals are low-profile and in addition to standard band clamps, are able use magnetic mounts or be mounted using a multi-point mount that allows for additional sensors to mounted around the same line of circumference on a pipe. This could be used to monitor specific points identified by computer flow modeling.

Accessory Name	P/N	Description
STD 2" U-Bolt Clamp	748668	2 inch U-Bolt Clamp for use with Echo Point Dual Element Probe (comes with base)
STD Clamp Base	748666	Sensor base used for attaching Dual Sensors to Pipe. 3-36" pipe diameter (requires band for specific diameter - ordered separately)
STD Magnetic Mount	748669	Ferromagnetic Sensor Base for temporary or permanent mounting with or without epoxy bonding
Band Clamp Size "L"	748663-LL-0	301SS Nominal Pipe Size Outer Diameter in inches (2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 28, 30, 32, 36) - Custom sizes on request
Band Clamp Size "L"	748663-LL-1	316SS Nominal Pipe Size Outer Diameter in inches (2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 28, 30, 32, 36) - Custom sizes on request
STD Multi-Point Mount	Contact Us	Mounting bracket for multiple Echo Point sensors around the circumference of a pipe

*All band clamps are based on nominal pipe sizes. If pipe outside diameter is less or greater than 5% of circumference, a specialty size may need to be ordered.

** 316 stainless steel is available for band clamps upon request with longer lead times.

High Sensitivity Dual - Surface Coupling

High Sensitivity Duals have several different options for temporary or permanent coupling. Permanent couplings are PERMANENT and are not intended to be reusable once installed. It is important to note both the operating temperature of the surface and design temperature as the temperature may exceed normal operating temperatures during maintenance. Temporary install lifetime duration is dependent upon on the quality of install and the temperature of the surface they are installed on. Temporary sealant has lasted days at high temperatures and over a year at lower tempeartures. Temporary grease is recommended to be checked annually but has lasted with excellent signal fidelity for 2-3 years without reapplication. Please note curing and operating temperatures for the various couplants. Temperature limitations are applicable by device (EP-HSD -20 to 275°F (-28 to 135°C)

Please contact your local Cosasco representative for additional information.

Accessory Name	P/N	Description
Temporary Grease (all)	1037210-x1	Removable Couplant. Temperature -40°F to 204°F (-40°C to 400°C) ~16 installs.
Temporary Sealant (LT)	748705	Low temperature removable couplant. Temperature -20°F to 200°F (-28°C to 93°C). ~16 installs.
Permanent Epoxy (LT)	748673	Permanent couplant. Temperature -20°F to 150°F (-28°C to 65°C). Cures <100°F (38°C). 8 installs. Requires 748680 & 748682.
Permanent Epoxy (MT)	748674	Permanent couplant. Temperature -20°F to 300°F (-28°C to 150°C). Cures 77°F to 200°F (25-93°C). 8 installs. Requires 748680 and 748681.
Dispensing Gun	748680	Required dispensing gun for (LT) and (MT) permanent epoxies.
Mixing Nozzle	748682	Required mixing nozzle for dispensing gun when using permanent epoxy (LT) for 1.69 oz cartridges.
4:1 Plunger	748681	Required mixing plunger for dispensing gun when using Permanent Epoxy (MT).

Echo Point - Commissioning Kit

All Echo Point orders should be sold with an EP-COMM-KIT as it contains the bare minimum required to install a system. If additional base band install kits or commissioning cables are required (for spares or separate sites) they can be ordered using the part numbers listed below.

Accessory Name	P/N	Description
Commissioning Kit*	EP-COMM-KIT	Commissioning Kit with all tools required to install and commission Echo Point accessories.
Base Band Install Kit	748676	Additional or spare base band kits.
Commissioning Cable	748683	Additional or spare commissioning cables.

*Includes USB with Echo point Installation & Operation Manuals, Echo Data Manual, Safety Instructions, Commissioning Cable and Base band intallation tools.

Echo Point - Communications & Software

Echo Points require the use of Cosasco's software housed on a local server to process advanced temperature compensation, signal waveform analytics and diagnostic capabilities. Servers containing this software are able to be purchased in a variety of configurations that support Modbus TCP/IP or RTU in wall or rack mount configuration. Wireless gateways and extenders can be purchased at the same time to match Echo Point configuration requirements. Site licenses or clients to be able to locally configure devices after install are available with training from Cosasco trained personnel.

Accessory Name	P/N	Description
Echo Point Batteries	095826	2 batteries required per unit of the same type (Tadiran TL-5930/s, Tadiran SL-2780/s and Xeno XL-205F)
Gateway	1410S-xx-xx-xx	WirelessHART Gateway - Refer to wirelessHART configuration datasheet
Gateway Antenna	781S-xx-xx-xx	Required for each WirelessHART Gateway - Refer to wirelessHART configuration datasheet
Wireless Extender	MWT-3905-WE	WirelessHART Extender
IIU - Echo - Rackmount	748302-51-XXX	Rackmount - Modbus TCP/IP or Modbus RTU (Replace xxx = 110/240 VAC)
IIU - Echo - Wallmount	748302-5x-XXX	Wallmount - Modbus TCP/IP or Modbus RTU (Replace xxx = 24/110/240 VAC)
Site License EchoData	EP-USB-1	USB with Echo Data Comissioning Software - License for Single Site

*Wireless site surveys are recommended to be performed to determine the most efficient wireless layout for gateway and extender placement on site.

**Conservative coverage estimates are also available if a site survey isn't optimal.

Echo Point - Calibration Equipment

All Echo Point devices come calibrated from the factory for carbon steel with a thickness range of 0.100" to 1.000". Different materials and thicknesses require an adjusted calibration that should be verified in the field. Recommended best practice is to field validate the material that the device is being placed using a third-party ultrasonic device and adjust calibration if a variation is found.

Accessory Name	P/N	Description
Calibration Block (CS)	748690-2-5-5	Carbon Steel Calibration Block for 0.1" to 0.5" range. Device calibration should always be checked (material and thickness range).
Calibration Block (Other)	Contact Us	Other calibration block materials and thicknesses are available, please contact Cosasco for additional information.

High Temperature & Ultra High Temperature Transducer Specifications

	EP-HSD (High Sensitivity Dual)*	EP-UHT (Ultra-High Temp)
Probe surface temperature	-20 to 275°F (-20 to 135°C)	-40 to 932°F (-40 to 500°C)
Transmitter temperature	-40 to 158°F (-40 to 70 °C)	-40 to 158°F (-40 to 70 °C)
Measurement range	0.040" to 6" (1-150mm)	0.125" to 1.00" (3-25mm)
Measurement resolution	0.001" (0.025mm)	0.001" (0.025mm)
Min. pipe diameter	2" NPS	2" NPS
Resolution	0.001" (0.025mm)	0.001" (0.025mm)
Element(s)	Dual	Single (delay-line)
Element Diameter	0.375"(9.53mm)	0.375"(9.53mm)
Element Frequency	5 MHz	7 MHz

Entire Device Specifications

	EP-UHT	EP-HSD
Size (height x width x depth)	14.90 x 4.41 x 2.09 in (379 x 112 x 53 mm)	8.80 X 4.41 X 2.09 in (22 x 112 x 53 mm)
Weight	~2.25 lbs. (1.02 kg)	
Battery life (typical) †	5 years @ 2 readings/day	
IP Rating	IP 67	
Mounting	Band clamp, magnetic base, or welded studs	
Data	Temperature Corrected Thickness, Raw Thickness, Surface Temperature, RF waveform, time/date stamp	
Data access	Cosasco Data Online, DCS or SCADA	
Protocols	WirelessHART	
Measurement Frequency	Default is every 12 hours (user configurable to every hour)	
Node count	Up to 200 Echo Point units per gateway	
Certified As	02-030010 (UHT), 02-030020 (Dual), 02-030030 (Thru-Coating Single)	

* External FBE and homogenous PU/PE/PP coatings.

† Typical Values. Results may vary based on range, RF noise, and temperature.

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