

# EPOCH<sup>®</sup> 6LT Portable Flaw Detector



Elevate Your Inspections

## No Compromises



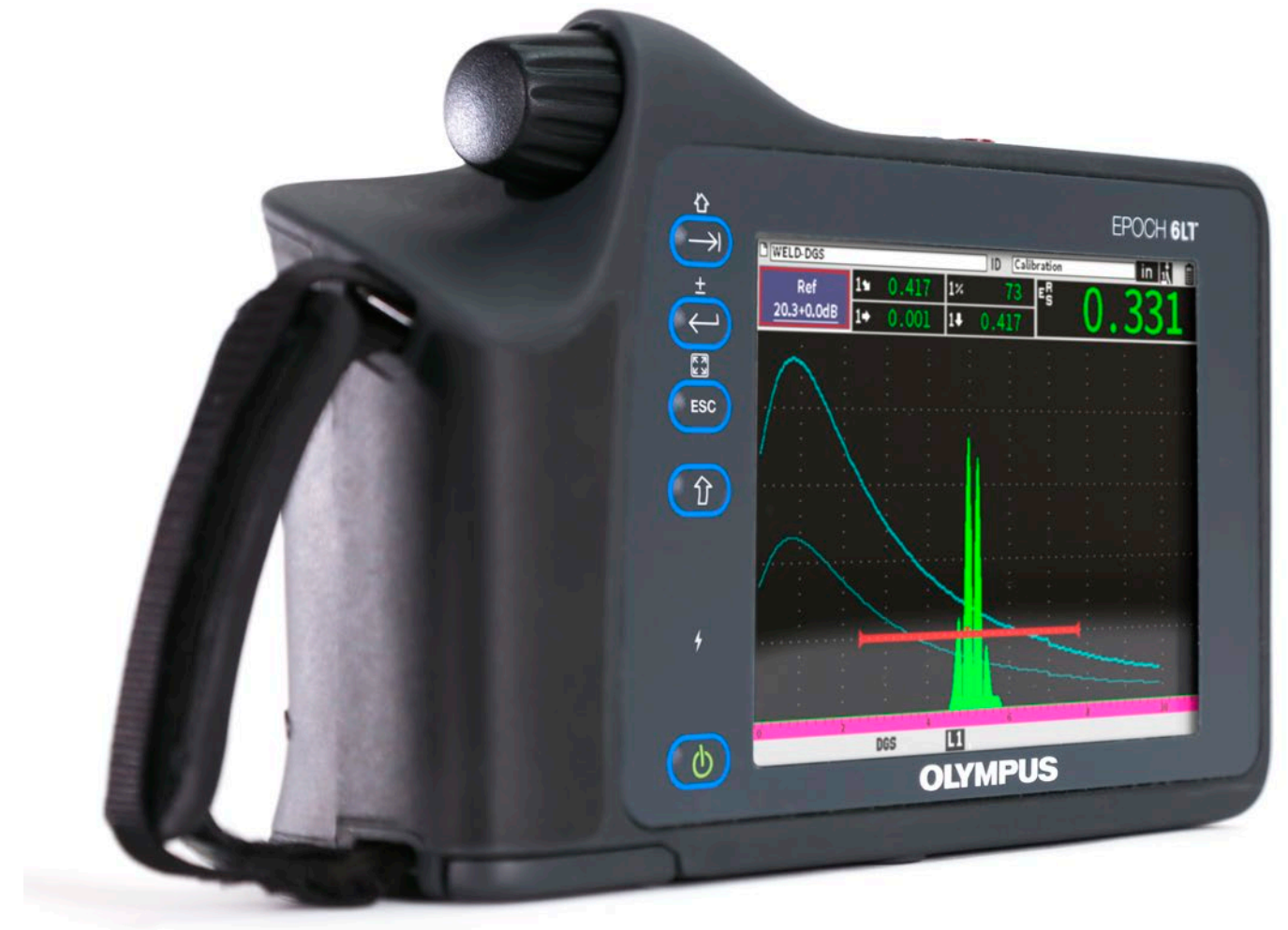
Don't compromise on the inspection capabilities of your flaw detector. Now, inspectors who work in rope access applications can take advantage of the functionality they need in an instrument that attaches to their leg or harness for hands-free operation.

## Harness the Power of Portability

Combine the EPOCH® 6LT flaw detector with the rope access accessory kit for added functionality that helps keep rope access technicians safe during challenging inspections. The instrument fits snugly in a protective soft case that can be securely attached to a user's leg with the included strap or fastened to the user's harness connection points with adjustable safety leads. However you attach it, the kit keeps the instrument in a comfortable, secure viewing position.

With the unit secured, it's easy to make parameter adjustments with one hand, leaving the other hand free to manipulate the transducer or maintain balance and personal safety. The display rotates to portrait or landscape mode for optimal A-scan viewing while the knob and buttons remain readily accessible for quick adjustments. If you're working in a hazardous environment, add an optional screen cover for additional protection.

## Designed for Rope Access Technicians



The EPOCH® 6LT flaw detector combines ruggedness and ease of use in an instrument designed to be operated using only one hand, enabling fast, efficient rope access inspections and maximum uptime.

- **Free Up Your Hands:** Attach the instrument to your leg or harness and keep your hands free to scan for flaws and maintain balance
- **Comfortable:** Weighs just 1.95 pounds (890 g) with a grip-oriented weight distribution for one-handed operation with minimal wrist fatigue
- **Easy to Use:** Rotary knob and simple button design make it easy for users to navigate the menu and adjust parameters using just their thumb, even while wearing gloves
- **Clear, Bright Screen:** Transflective 640 × 480 pixel display with outdoor mode helps make A-scans clear in difficult lighting conditions
- **Tough and Reliable:** Engineered to IP65/67 for dust and water resistance and drop tested to protect against the hazards found in rope access inspection environments

## More Functionality on the Go



The workflow of the EPOCH® 6LT flaw detector is simple and straightforward. The primary screen is a large, optimized A-scan display that contains links to commonly used features and functions. Combined with an improved scanning workflow, users can complete their inspections with minimal button presses and adjustments. When you do need to navigate the menu, prominent icons make it easy to find the feature you're looking for.

Despite its small size, the EPOCH 6LT flaw detector meets the requirements of nearly any conventional ultrasonic inspection application and includes additional functionality for expanded connectivity.

- **Intuitive Navigation:** Two-screen, icon-based interface
- **Optimized for One-Handed Operation:** Hardware and software maximize efficient one-handed operation
- **Advanced Flaw Detection Capabilities:** All the core functionality of the EPOCH 650 flaw detector and meets the requirements of EN12668-1:2010
- **Fast Corrosion Defect Scanning:** Optional corrosion software combines the ease of a thickness gage with the flexibility of a flaw detector and includes center-pin transducer ID for faster set up
- **Stay Connected:** Optional wireless LAN (Wi-Fi) connectivity for on-the-go data backups, setup downloads, efficient fleet management, and powerful applications through the Olympus Scientific Cloud

# Rope Access Inspection Applications



## Offshore Platform Inspections

With an innovative corrosion software option and a comprehensive set of weld-related support features, corrosion scanning is fast and efficient, even while suspended above the ocean from a rope.

### Corrosion Module Features

- Automatic probe recognition and configuration with center pin ID
- Dynamic toggle between flaw scanning and high precision spot measurement modes
- Automatic Gain Control (AGC)
- Thickness gage high precision measurement algorithm
- Automatic zero function ('do zero')
- Grid view for data visualization

### Weld Flaw Detection and Sizing Features

- DAC/TCG
- DGS/AVG
- AWS D1.1/1.5 weld rating calculator

## In-Service Wind Turbine Inspection

Whether you're inspecting the welded joints of a wind tower or composite turbine blades, the EPOCH® 6LT flaw detector is up to the challenge.

- PerfectSquare™ tunable square wave pulser
- Digital high dynamic range receiver
- Eight 100% digital filter sets, including low frequency bandwidth support
- Pulser voltage up to 400 V
- DAC/TCG and DGS/AVG software functionality included

## Bridge and Structural Steel Inspections

The EPOCH 6LT flaw detector offers all of the necessary features for bridge and structural steel inspections, including an optional AWS D1.1/1.5 weld rating calculator. Other feature requirements, such as DAC/TCG and DGS/AVG, are included with every EPOCH 6LT flaw detector.

- PerfectSquare tunable square wave pulser
- Digital high dynamic range pulser/receiver
- Eight 100% digital filter sets
- Pulser voltage from 100 V to 400 V
- Five customizable digital measurements

### Standard Flaw Sizing Software

- DAC/TCG
- DGS/AVG

# Powerful Corrosion and Flaw Inspection Software

## Corrosion Module

With the optional corrosion module, get the best of thickness measurement and UT corrosion scanning in one instrument. Get accurate measurements from the software's thickness measurement algorithm, true V-path correction that accounts for the angle of dual element transducers, and 'do zero' that compensates for wear on the transducer's contact plate.

For speed and efficiency, the software enables the use of thickness gage transducers, making it easy to add a flaw detector to your fleet of instruments. With automatic probe recognition, the software recognizes and automatically configures the instrument for that probe. Likewise, when the AGC feature detects the probe's signal, it optimizes the gain for optimal thickness measurements. Once the user begins their corrosion scanning, the grid view feature makes it easy to save thickness measurements onboard the instrument rather than having to manually record readings.



## Efficient Data Management

- Compatible with GageView® Pro PC interface program
- Export files via Wi-Fi or transfer to a removable USB memory stick
- Supports bitmap (BMP), comma-separated value (CSV), and PDF file formats

## Connected and Cloud Enabled

The EPOCH® 6LT flaw detector features cloud connectivity. Connect your flaw detector to the Olympus Scientific Cloud for powerful cloud-based tools, including:

- Wireless firmware upgrade
- File backup and archiving
- Remote file access and management

Cloud file management includes all EPOCH 6LT file types, as well as exported report formats and image files. This remote data sharing capability makes it easier than ever to report and communicate your inspection results.

## Standard Software Features

- **Dynamic DAC/TCG:** compares echo signals to a DAC curve or reference echo
- **DGS/AVG:** compares echo signals to a DGS/AVG diagram

## Added Versatility: Optional Software Features

- **AWS D1.1 and D1.5:** Provides a dynamic indication rating for AWS inspection applications
- **Back Wall Echo Attenuator:** Attenuates the back wall of an inspected part using the screen region defined by Gate 2

# EPOCH® 6LT Specifications

General	
User Interface Languages	English, Spanish, French, German, Japanese, Chinese, Portuguese, Russian, Italian
Transducer connections	LEMO 00
Data storage	100,000 IDs onboard
Battery type and life	Single lithium-ion rechargeable standard; 6 h life
Power requirements	AC Mains: 100 VAC to 120 VAC, 200 VAC to 240 VAC, 50 Hz to 60 Hz
Display type	Full VGA (640 × 480 pixels) transreflective color LCD, 60 Hz update rate
Display dimensions (W × H, Diag.)	117 mm × 89 mm, 146 mm (4.62 in. × 3.49 in., 5.76 in.)
Overall Dimensions (W × H × D)	209 mm × 128 mm × 36 mm, 58 mm at the hand grip (8.2 in. × 5 in. × 1.4 in., 2.3 in. at the hand grip)
Weight	890 g (1.95 lb.), including lithium-ion battery
Instrument Inputs/Outputs	
USB ports	(1) USB 1.1 Full Speed Host (Type A) (1) USB 2.0 Full Speed Client (Type Mini B)
Video output	1 digital video output
Environmental Ratings	
IP rating	Ingress Protection (IP) engineered to IP67 (dust tight and water submersion) and IP65 (dust tight and water jets) per IEC 60529-2004 (Degrees of Protection provided by enclosures—IP Code).
Explosive atmosphere	MIL-STD-810F, Method 511.4, Procedure 1.
Shock tested	MIL-STD-810F, Method 516.5, Procedure I, 6 cycles each axis, 15 g, 11 ms half sine.
Vibration tested	MIL-STD-810F, Method 514.5, Procedure I, Annex C, Figure 6, general exposure: 1 hour each axis.
Operating temperature	-10 °C to 50 °C (14 °F to 122 °F)
Battery storage temperature	0 °C to 50 °C (32 °F to 122 °F)
Pulsar	
Pulsar	Tunable square wave
PRF	10 Hz to 2000 Hz in 10 Hz increments
Energy settings	100 V, 200 V, 300 V, or 400 V
Pulse width	Adjustable from 25 nsec to 5,000 nsec (0.1 MHz) with PerfectSquare™ technology
Damping	50, 400 Ω
Receiver	
Gain	0 to 110 dB
Maximum input signal	20 Vp
Receiver input impedance	400 Ω ± 5%

Receiver bandwidth	DC to 26.5 MHz at -3 dB (standard version) 0.2 to 26.5 MHz at -3 dB (EN12668 compliant version)
Digital filter settings	8 digital filter sets (standard version) 7 digital filter sets (EN12668 compliant version)
Rectification	Full-Wave, Positive Half-Wave, Negative Half-Wave, RF
System linearity	Horizontal: ± 0.5% FSW
Resolution	0.25% FSH, amplifier accuracy ± 1 dB
Reject	0 to 85% FSH in 1% increment positions
Amplitude measurement	1.25% to 110% full screen height
Measurement rate	Equivalent to PRF in all modes (single shot)
Calibration	
Automated calibration	Velocity, zero offset Straight beam (first back wall or echo-to-echo) Angle beam (sound path or depth)
Test modes	Pulse echo, dual, or through transmission
Units	Millimeters, inches, or microseconds
Range	4.31 mm to 6,700 mm at 5,900 m/s (0.2320 in./μs)
Velocity	635 m/s to 15240 m/s (0.0250 in./μs to 0.6000 in./μs)
Zero offset	0 to 750 μs
Display delay	-10 microseconds to 2203 microseconds
Refracted angle	0° to 85° in 0.1° increments, then jump to 90°
Gates	
Measurement gates	2 fully independent flaw gates
Gate start	Variable over entire displayed range
Gate width	Variable from 0.040 microseconds to end of displayed range
Gate height	Variable from 2 to 95% full screen height in 1% increments
Alarms	Positive and negative threshold/curve, minimum depth (gate 1 and gate 2)
Measurements	
Measurement display locations	5 locations available (manual or auto selection)
Gate (1, 2)	Thickness, sound path, projection, depth, amplitude, time-of-flight, min./max. depth, min./max. amplitude, sizing measurements based on mode
Echo-to-echo	Standard gate 2 – gate 1
DAC/TCG	Standard, up to 50 points, 110 dB dynamic TCG range
Special DAC modes	Custom DAC (up to 6 curves), 20–80% view
Curved surface correction	Standard OD or bar correction for angle beam measurements

## Software Options

**EP6LT-AWS (Q1400007):**  
AWS D1.1/D1.5 weld rating calculator

**EP6LT-CORRSN (Q1400008):**  
Corrosion module

**EP6LT-BEA (Q1400009):**  
Back wall echo attenuation gate

## Optional Accessories

**BATT-10025-0024 (Q7600001):**  
Lithium-ion rechargeable battery

**EP-MCA-X:**  
EPOCH series charger / adaptor with power cord

**HNDL-10018-0001 (Q7790068):**  
EPOCH 6LT wrist strap

**EPLTC-C-USB-A-6 (U8840031):**  
USB cable, mini A to mini B

**CASE-10042-0001 (Q7640003):**  
EPOCH 6LT transport case

**600-DP (U8780297):**  
Display protectors (10 pack)

**EP6LT-KIT-ROPE (Q7790069):**  
EPOCH 6LT rope access accessory kit

**EP4/CH (U8140055):**  
EPOCH series chest harness

**EP6LT-STAND (Q7790070):**  
EPOCH 6LT desktop stand

**EPXT-EC-x:**  
EPOCH series external charging base with power cord



[www.olympus-ims.com](http://www.olympus-ims.com)

**OLYMPUS**

**OLYMPUS CORPORATION OF THE AMERICAS**  
48 Woerd Avenue, Waltham, MA 02453, USA, Tel.: (1) 781-419-3900  
110 Magellan Circle, Webster TX, 77598, USA, Tel.: (1) 281-922-9300

For inquiries - contact  
[www.olympus-ims.com/contact-us](http://www.olympus-ims.com/contact-us)

**OLYMPUS SCIENTIFIC SOLUTIONS AMERICAS CORP.**  
is certified to ISO 9001, ISO 14001, and OHSAS 18001.

\*All specifications are subject to change without notice.  
All brands are trademarks or registered trademarks of their respective owners and third party entities.  
PerfectSquare is a trademark and EPOCH and GageView are registered trademarks of Olympus Corporation.  
Copyright © 2017 by Olympus.



EO440105EN