

NDT

ULTRASONIC FLAW DETECTORS

OLYMPUS EPOCH 600 FLAW DETECTOR

OVERVIEW

The large, full VGA transfective display combined with our patented digital high dynamic range receiver provides a stable, striking A-scan representation in any lighting condition. The EPOCH 650 flaw detector is designed to meet the requirements of EN12668-1 and allows a full range of standard and optional flaw detection features. Multiple onboard reporting tools and a comprehensive data filing system enable you to easily collect and report high-quality inspection data. The rugged, ergonomic design enables use in nearly any inspection environment, while the flexible PerfectSquare™ pulser and highest number of digital filters in its class can tackle nearly any application.

The EPOCH 650 digital ultrasonic flaw detector combines Olympus' industry-leading conventional flaw detection capabilities with the efficiency of a highly portable, intuitive instrument. The EPOCH 650 flaw detector's blend of efficient menus and direct access keys enables you to take advantage of the highest quality flaw detection platform with exceptional ease of use. Designed for All Inspection Environments The EPOCH 650 flaw detector is designed for use in nearly any inspection environment, from benchtop testing in a laboratory to extreme outdoor and hazardous conditions. Designed for IP rating in either knob (IP66) or navigation pad (IP67) configurations and tested to very high environmental and reliability standards, the EPOCH 650 flaw detector enables users in any inspection environment to feel confident in both the performance and durability of the instrument.

Key Features

Designed to meet the requirements of EN12668-1

- PerfectSquare™ tunable square wave pulser
- Full screen A-scan mode
- Digital high dynamic range receiver
- Thirty digital filters for enhanced signal-to-noise ratio
- 2 kHz PRF for rapid scanning
- Knob or navigation pad adjustment configurations
- Large, full VGA sunlight readable display
- 15+ hours of battery life
- Standard dynamic DAC/TCG and onboard DGS/AVG
- Multiple onboard report formats
- microSD™ memory card for data transfers
- Optional Corrosion Module software with encoded B-scan
- USB on-the-go (OTG) for PC communication
- Alarm and VGA outputs
- Optional analog output

| SPECIFICATIONS | | |
|-----------------------------------|---|---|
| GENERAL | | Standard Package |
| Overall dimensions (W x H x D) | 236 mm x 167 mm x 70 mm (9.3 in. x 6.57 in. x 2.76 in.) | <ul style="list-style-type: none"> • EPOCH® 650 digital ultrasonic flaw detector, AC or battery operation • Charger/AC adaptor (100 VAC, 115 VAC, 230 VAC, 50 Hz or 60 Hz) • Rechargeable lithium-ion battery • Transport case • USB cable • Quick reference card • Comprehensive operation manual (CD) |
| Weight | 1.6 kg (3.5 lb), including lithium-ion battery | |
| Keypad | English, International, Japanese, Chinese | |
| Languages | English, Spanish, French, German, Japanese, Chinese, Portuguese, Russian | |
| Transducer connections | BNC or Number 1 LEMO® | |
| Data storage | 100,000 IDs onboard, removable 2 GB microSD™ card (standard) | |
| Battery type | Single lithium-ion rechargeable standard | |
| Battery life | 15 h to 16 h (lithium-ion) | |
| Power requirements | AC mains: 100 VAC to 120 VAC, 200 VAC to 240 VAC, 50 Hz to 60 Hz | |
| Display type | Full VGA (640 x 480 pixels) transfective color LCD, 60 Hz update rate | |
| Display dimensions (W x H, Diag.) | 117 mm x 89 mm, 146 mm (4.62 in. x 3.49 in., 5.76 in.) | |
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| PULSER | | |
| Pulser | | <ul style="list-style-type: none"> • EP650-TEMPLATE (Q1400002): Template Storage • EP650-API5UE (Q1400003): API 5UE Flaw Sizing • EP650-AVERAGE (Q1400004): Waveform Averaging • EP650-IG (Q1400005): Interface Gate • EP650-BEA (Q1400006): Backwall Echo Attenuator (BEA) • EP650-CORRSN (Q1400001): Corrosion Module (includes encoded B-scan) |
| 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 ns to 5,000 ns (0.1 MHz) with PerfectSquare™ technology | |
| Damping | 50, 100, 200, 400 Ω | |
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| RECEIVER | | |
| Gain | 0 to 110 dB | |
| Maximum input signal | 20 V p-p | |
| Receiver input impedance | 400 Ω ± 5% | |
| Receiver bandwidth | 0.2 MHz to 26.5 MHz at -3 dB | |
| Digital filter settings | Thirty digital filter sets standard Seven EN12668-1:2010 compliant filters (0.2-10 MHz, 2.0-21.5 MHz, 8.026.5 MHz, 0.5-4 MHz, 0.2-1.2 MHz, 1.5-8.5 MHz, 5-15 MHz) | |
| Rectification | Full-wave, Positive half-wave, negative half-wave, RF | |
| System linearity | Horizontal: ± 0.5% FSW | |
| Resolution | 0.25% FSH, amplifier accuracy ± 1dB | |
| Reject | 0 to 80% FSH with visual warning | |
| Amplitude measurement | 0 to 110% full screen height with 0.25% resolution | |
| Measurement rate | Equivalent to PRF in all modes | |
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| CALIBRATION | | |
| Automated calibration | Velocity, Zero Offset Straight Beam (First Backwall or Echo-to-Echo) Angle Beam (Soundpath or Depth) | |
| Test modes | Pulse Echo, Dual, or Through Transmission | |
| Units | Millimeters, inches, or microseconds | |
| Range | 3.36 mm to 13,388 mm (0.132 in. to 527.10 in.) 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 | -59 mm to 13,401 mm (-2.320 in. to 526.97 in.) @ longitudinal velocity in steel | |
| Refracted angle | 0° to 90° in 0.1° increments | |
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| GATES | | <ul style="list-style-type: none"> • 600-BAT-L-2 (U8760058): Rechargeable lithium-ion battery • EP4/CH (U8140055): Chest harness • 600-TC (U8780294): Transport case • CBAS-10668-0060 (Q7790012): RS232 communication cable • DSUB-HD15-6 (U8780333): Digital output cable • 600-C-VGA-5 (U8780298): VGA output cable • MICROSD-ADP-2GB (U8779307): 2 GB microSD memory card • 600-SC-K (U8780334): Soft carrying case with pouch (knob version) • 600-SC-N (U8779879): Soft carrying case with pouch (navigation pad version) • N600-EXTALM (U8780332): External alarm beeper |
| Measurement gates | 2 fully independent gates for amplitude and TOF measurements | |
| Gate start | Variable over entire displayed range | |
| Gate width | Variable from Gate Start to end of displayed range | |
| Gate height | Variable from 2 to 95% full screen height | |
| Alarms | Positive and Negative Threshold, Minimum Depth (Gate 1 and Gate 2) | |
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| MEASUREMENTS | | |
| Measurement display locations | 5 locations available (manual or auto selection) | |
| Gate (1, 2) | Thickness, Soundpath, Projection, Depth, Amplitude, Time-of-Flight, Min./Max. Depth, Min./Max. Amplitude | |
| Echo-to-Echo | Standard Gate 2-Gate 1, Optional IF Gate Tracking | |
| Other measurements | Overshoot (dB) value for DGS/AVG, ERS (equivalent reflector size) for DGS/AVG, AWS D1.1/D1.5 A, B, C and D values, Reject Value, Echo to RefdB values | |

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|---------------------------|---|---|
| DAC/TCG | Standard | • CBAS-10669-0010 (Q7790008): Encoder cable for B-scan buggy (10 feet, other lengths available) |
| DAC points | Up to 50 points, 110 dB dynamic 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 | |
| Corrosion | Zero-cross measurement algorithm, V-path correction, Single or Echo-to-Echo, Encoded B-scan | |