



UTX350 ultrasonic flaw detector the crystallization of many years of technology of Doppler Technology Co., LTD, it is a non-destructive testing equipment specifically for steel metal structure welds, steel plates, forgings, castings, with top and advanced technology, small size, light weighted, powerful function, easy to operate and so on.

Characteristic

Wrist strap handheld structure, firm, good sealing performance, ability of strong anti-interference.

High brightness and high definition display, 100% linearity of display, independent of environment.

Stable circuit system and reliable performance.

Ultra-high speed sampling makes the echo display more fidelity and positioning more accurate.

Display of real-time full detection, positive and negative detection and RF wave.

Excellent wide band amplifier, with automatic calibration; It has good near-field resolution.

Useful navigation function, fast and convenient operation, Information and dialog prompt, practical and easy to learn.

Intuitive display of defect location, assist qualitative by showing weld groove diagram.

The whole procedure of double gates echo information display, original in the industry.

Envelope description of dynamic defect.

The amplitude curve can be drawn automatically according to the standard. It can be moved up and down correction freely.

Flexible clutter suppression regulation. It does not affect the gain and linearity.

Automatic and fast sensitivity adjustment function. Improve detection speed.

Function of peak point locus envelope graph to describe defect properties.

Function of longitudinal crack height measurement

Small near field blind area, which can be used for thin plate and small tube flaw detection.

ULTRASONIC FLAW DETECTOR **UTX 350** **DOPPLER** www.cndoppler.com



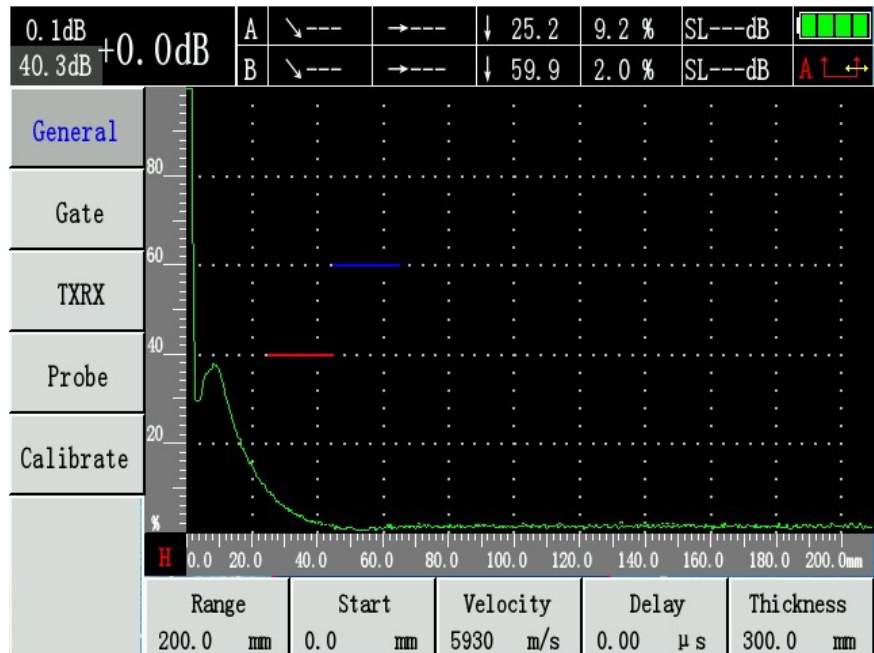
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Technical parameter:

- Working frequency: 0.5~20MHz
- Total gain: 110dB (0.1/0.5/1/2/6dB Continuous adjustment)
- Detection range: 0~25000mm steel longitudinal wave
- Velocity range: 1000~20000m/s
- Probe delay: 0~199.999us
- Dynamic range: ≥39dB
- Echo display mode: Full wave, positive/negative half wave and RF display
- Vertical linear error: ≤2.5%
- Horizontal linear error: ≤0.5%
- Longitudinal wave resolution: ≥30dB(2.5Z20N);
- Sensitivity margin: ≥63dB (deep 200mm φ2 flat bottom hole)
- Pulse voltage: 350V High voltage initial value with load
- Corrected attenuator accuracy: The cumulative error of the fine-tuned gain attenuator in any continuous 20dB span or in the 0-90dB range does not exceed ±1dB
- Digital suppression: (0~80) % , Linearity and gain are not affected
- Display screen: pixels high brightness
- Data storage: Store more than 1000 probe setup files and approximately 2 hours of dynamic echo recording
- Amplitude evaluation: Display the percentage of echo screen height and gain margin
- Power: 12V adapter or 7.4V battery supply
- Operating temperature: (-10~50) °C
- Relative humidity: 20%~95% (RH)
- Equipment dimension: 222*167*50mm (length*width*height)
- Weight: 1.2kg (battery included)
- Material inspection, defect location and echo evaluation
- Thickness measurement
- Save and record inspection result
- Universal ultrasonic flaw detection

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Explain:

Gate information ↘ indicates the signal distance from the probe incident point sound path, → indicates the horizontal distance between probe's front to signal, ↓ indicates the vertical distance between the surface of the incident point to signal.

One thing to note, It displays data of sound path ↘, vertical distance → and depth ↓ when angular probe in use, whereas only depth ↓ shown on screen when straight probe in use.

Working with adapter

The device can be working by connecting to AC power through an adapter. It must be switched over using a power adapter while device is charging.

Note: If the device power is cut off by force, the device may be abnormal. When the device crashes unexpectedly and cannot shut down normally, press 'power' button for 9 seconds to shut down.

Working with battery

It is powered by a set of 7.2V/7.2Ah lithium batteries. The built-in battery can be recharged with an adapter. The internal battery will be charged once the device is connected to the adapter; Please plug the charger out when you are ready to power on the device.

Charging base

The device battery can be charged by using a charging base, the power adapter cable must be disconnected while it is connected to the charging base. Red light goes on represents low power, while green light goes on when battery full of power.

Battery indicator

In the upper right corner is the battery level marker symbol, When there is only one bar left, the battery is about to run out of power, the battery should be replaced or charged in time. It takes about 4 hours to fully charge the battery. Please refer to Part 6 of the manual about adapter use.

Note: Device would turn off automatically when battery is low power.

Basic parameters

Basic	range	Set the screen horizontal coordinate display range, it is adjustable, step values can be selected in 0.1, 1, 10 and 100.
	start	Horizontal displacement, step values can be selected in 0.1, 1, 10 and 100. Left and right translation waveform display, it doesn't affect range.
	velocity	Display the value of ultrasonic sound velocity in the workpiece to be measured, the corresponding sound velocity value is displayed according to the different probes before calibration.
	delay	Probe delay adjustment;
	thickness	Set the thickness value of the workpiece to be measured, step values can be selected in 0.1, 1 and 10, it is used for calculation of defected position, plate and curved surface is optional;

Gate setting

Gate	Switch Gate	Gate A, Gate B could work together or separate.
	A/B Start	Adjust gate's starting position. When switch to double gate display mode, press once to adjust gate A, press twice to adjust gate B.
	A/B Width	Adjust gate width, When switch to double gate display mode, press once to adjust gate A, press twice to adjust gate B.
	A/B Height	Adjust gate height, When switch to double gate display mode, press once to adjust gate A, press twice to adjust gate B;
	Alarm Trigger	Set the threshold above or below the gate alarm.

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Transmission & reception

TX/RX	Damping match	Low damp/high damp selection.
	Method	There are two modes: single-chip transceiver and double-chip transceiver, Press the button to switch between the two modes.
	Intensity	Control the transmitting voltage without providing specific voltage numerical regulation, Only strong/weak options are available, press the button to switch between the two modes.
	Freqb	Digital filtering, press the button to switch between the five modes: Auto 1M/2.5M/5M/10M/Wide band.
	Restrain	Set the percentage of suppressed echo height, fixed step value is 1%;

Probe setting

Probe setting	Probe type	It has straight and angle probe options, switch between two modes (Different probe instruments are automatically associated with different calibration modes) .
	Probe info	Wafer size(Angle probe is length×width, straight probe is the diameter of wafer Φ), press the button to bring up a dialog box to adjust each value.
	Angle/tan	Display probe's Angle/tan, Automatically correlate with calibration values when calibrating instruments (The straight probe automatically sets the Angle to 0) .
	Probe front	The measured values must be entered manually during the procedure of device calibration.
	No.	Input box enter manually.

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Angle probe Probe calibration

Auto Calibration on 1	Calibration item	It has velocity/delay calibration (Calibrate material sound velocity and probe delay) and angle/tan calibration (calibrate probe angle or k value) . Press the button to switch between the two modes;
	Radius1	Set acoustic range value of the first echo.
	Radius2	Set acoustic range value of the second echo.
	Calibration	Calibration Validation, Press the button to complete the calibration calculation and parameter association automatically, Calibrated sound velocity values and delays are associated with sound velocity and delay in the basic menu automatically.
	Re-inspection	Used for device calibration and sensitivity retest after the test or after a certain period.

Angle/tan calibration

Auto calibration on 2	Calibration item	It has velocity/delay calibration (Calibrate material sound velocity and probe delay) and angle/tan calibration (calibrate probe angle or k value) . Press the button to switch between the two modes;
	Aperture	Set the artificial reflector aperture value on the test block
	Depth	Set the hole depth of the artificial reflector on the test block
	Calibration	Calibration Validation, Press the button to complete the calibration calculation and parameter association automatically, Calibrated sound velocity values and delays are associated with sound velocity and delay in the basic menu automatically.
	Re-inspection	Used for device calibration and sensitivity retest after the test or after a certain period.

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Straight calibration

Auto calibration 3	Calibration item	Velocity/delay calibration.
	Echo Wave 1	Set the distance of the initial calibration, usually set to the plate thickness.
	Echo Wave 2	Set the range of sound path termination. It is recommended to set the range to an integer multiple of the plate thickness.
	calibration	Calibration Validation, Press the button to complete the calibration calculation and parameter association
		automatically, Calibrated sound velocity values and delays are associated with sound velocity and delay in the basic menu automatically.
	Re-inspection	Used for device calibration and sensitivity retest after the test or after a certain period.

DAC

DAC	Start/End	Start to make DAC curve by pressing the button for the first time, press twice to end the procedure.
	Check point/Next point 1	Find out the highest wave point by point to make DAC curve, Press OK to the next point of crafting. (The number of the point currently being made is displayed during production)
	Calibration/ Modification/ Revocation	After the DAC curve completed, it can be corrected on the test block if the effect is not satisfactory. Press this key to correct different points, Exit after a loop. Press 'OK' to switch points, rotate adjustment knob to change point's height;
	Delete	Delete DAC curve.(Prompt up dialog, press 3 times to confirm delete operation)
	Curve set	EL, SL and RL.(Prompt up dialog)

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AVG curve

It is similar to make DAC curve, but it works with straight probe, the measuring object becomes a flat bottom hole. The method of larger or equal to 3N shows below:

AVG	Start/End	Start to make AVG curve by pressing the button for the first time, press twice to end the procedure.
	Reference aperture	Enter the diameter of the flat bottom hole used in the test block when making the curve. Measured flat bottom hole aperture.
	Object aperture	Set the Φ value of the target aperture. Target curve aperture.
	Delete	Delete current AVG curve.
	Detection distance	Select the detection distance (greater than or less than 3N) to make the curve.

Inspection setting

Inspection setting	Automatic wave height	Automatically gain the echo to the height set here, the fixed step value is 1%;
	Curve correction	Initial value is 0, it is flat. If input surface outside diameter, if input a value, it is curve detection. Step value could be 1/10/100, system automatically displays the corrected defect location information (horizontal position and depth) ;
	Detect in/out of plane	curved surface inside/outside, curved surface scans the contact surface of the probe.
	Surface compensation	Surface compensation value. Step value is 0.1dB, maximum compensation value is 10dB;
	Double gate difference	The comparison shows the difference of wave height and position information of gate A and gate B.

File setting

File setting	Open	Switch the current channel file.
	New	Create a new setting file.
	Rename	Modify file name.
	Save as	Copy the current channel and rename the save.
	Delete	Delete setting file.

Display

Display	Detection method	There are 4 different waves: Positive detection, negative detection, full detection and RF, press the button to switch between four modes. The default mode is full detection,
	Distance coordinate	Selection of horizontal coordinate (baseline) display on device's panel, it provides 3 modes: sound range, height and level, press the button to switch between 3 modes (S sound range H height L level) (Straight probe only has H height, whereas angle probe has 3 modes) .
	Screen color	A variety of background, mesh and echo color schemes are available, press the button to switch between different modes.
	Partition display	Primary wave, secondary wave, multiple wave, Automatically distinguish different echo times according to plate thickness, it has On and Off two modes.
	Filling	On and off, display below echo wave, hollow mode is displayed below echo when off, and fill mode is displayed below echo when on.

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Preset

Preset	Measuring Point	two measurement methods: peak/front, the default is peak measurement;
	Zoom in/ Recovery	Enlarge Gate A's range to full screen, switch between normal display and enlarged display by clicking continuously;
	Spectrum	Turn on the center frequency of the display probe and the -6dB bandwidth in RF mode;
	Save Sensitivity	Lock sensitivity;
	FPGA version	Show FPGA version information;



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