UDT-20
Portable ultrasonic thickness gauge

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- Powerful
- Light and portable
- Ergonomic design
- High reliability
- High measurement accuracy
- Usability

General information

Highly accurate ultrasonic thickness gauge with A- and B-scans. Real signals on the screen make it possible to evade typical errors in thickness measurement using ultrasonic testing and improve measurement accuracy.

This thickness gauge implements various capabilities of thickness inspection - high-precision measurement of the time for passing through the "zero" ("zero-cross") or between "echo-echo" signals, measurement of the thickness under coatings, etc. With the thickness gauge UDT-20, it is possible to use any ultrasonic transducers with frequency from 0, 5 to 15 MHz, both "single element" and "dual element" types.

Specifications

Measurement range
0,3 - 500 mm
Calibration range
min.: 0 - 7.2 mm
max.: 0 - 500 mm (steel)
Discreteness
0.001 - 0.01 - 0.1
Measurement accuracy
0,01 mm
AGC (Automatic Gain Control)
up to 30 dB
Delay
0 - 168 us
Gain
92 dB, in increments 0.5 dB
TCG
0.1 - 10 dB/us
Frequency range
0.5 - 20 MHz (-6 dB)

Display
TFT; 43 x 58 mm; 240 x 320 pixels
Memory
100 sensor settings
250 testing results with *A*-scan,
250 testing results with *B*-scan,
100 measurement files up to 50x50 values
Power supply
built-in Li-Po battery
Battery life
no less than 12 hours
External power supply
220 V AC / 5 V DC
Operation temperature range
from -25 to +55 °C
Dimensions (H x W x L)
148 mm x 64 mm x 25 mm
Weight
180 g

Delivery set

UDT-20 main unit with built-in Li-Pol battery

PC Software

Transport bag

Protective bag with blind and belts

Power supply 5 V / 220 V

1 x 2Lemo00 — 2Lemo00 cable

2 x transducers

UDT-20 menu structure

1. Move through the menu items;
2. Select a parameter;
3. Adjust the parameter value;
4. Activate the selected parameter;
5. On/Off;
6. Settings.

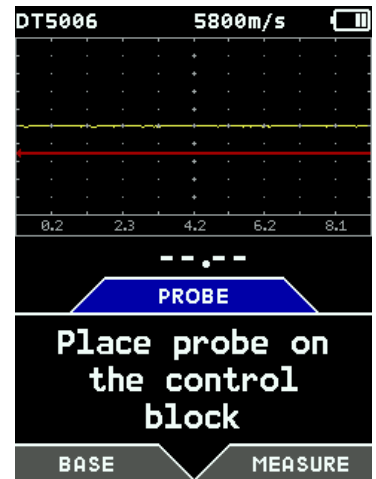## Connectors

1. USB-C connector
2. Receiver
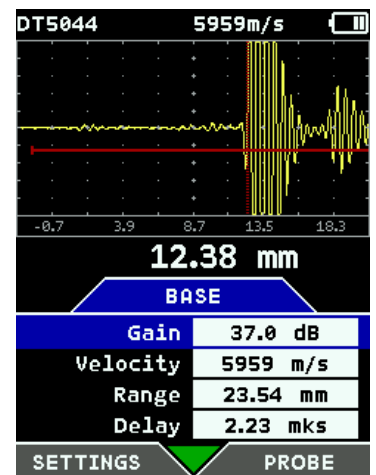3. Pulser

Ease of operation and reliability

This thickness gauge combines the latest achievements in analog and digital electronics, usability, ergonomic design and high reliability.

Specifics

- high-contrast and easy-to-read at any angle frost-resistant TFT display;

- powerful Li-Pol battery with up to 12 hours battery life;

- protective bag for field operation;

- transducer database that allows user to load all the necessary settings with a single button;

- built-in USB Type-C interface;

- two independent monitor gates;

- TCG;

- AGC;

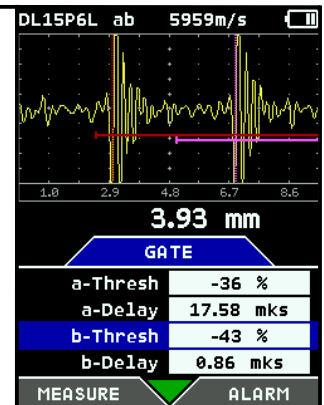- large memory of settings and testing reports.

Transducer probe calibration

Gain adjustment
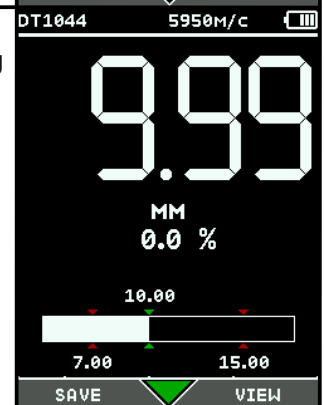
UDT-20 specifics

Highly accurate "zero-cross" measurement, two independent gates and the latest low-noise receiver enable precision measurements with combined transducers in "echo-echo" mode, including under various coatings.

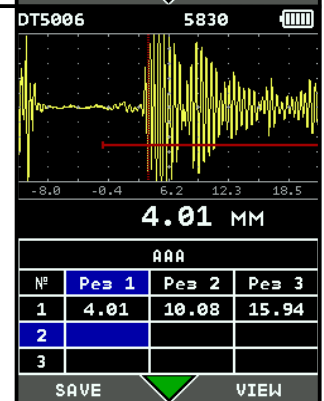| DL15P6L ab	5959m/s	
	3.93 mm	
	GATE	
a-Thresh	-36 %	
a-Delay	17.58 mks	
b-Thresh	-43 %	
b-Delay	0.86 mks	
MEASURE		ALARM

In the setting mode, the whole range of capabilities is available for adjusting the gain of the receiving path, AGC, TCG, pulser and receiver parameters, probe delay calibration and sound velocity.

DT5006   5800m/s

Set
5068 m/s

Yes   **No**

Place probe on thickness
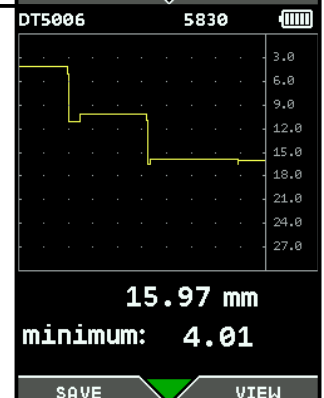4.00 mm

PROBE   GATE

The "DIGIT" mode allows the user to remove unnecessary information from the screen, turning a technically advanced device into an easy-to-use control tool.

DT1044   5950M/c

9.99

MM
0.0 %

10.00

7.00   15.00

SAVE   VIEW

In the "TABLE" mode, the user can create any tabular matrix for the inspection of large-sized standard products by layout control points.

DT5006   5830

4.01 MM

AAA

№	Рез 1	Рез 2	Рез 3
1	4.01	10.08	15.94
2			
3			

SAVE   VIEW

The B-scan protocol displays the real profile of the product with the locking of the minimum signal for the entire time of high power.

DT5006   5830

3.0
6.0
9.0
12.0
15.0
18.0
21.0
24.0
27.0

15.97 mm
minimum: 4.01

SAVE   VIEW

General technical specifications

Measurement range
0,3 - 500 mm
Display range
min.: 0 - 7.2 mm
max.: 0 - 500 mm (steel)
Data display resolution
0.001 - 0.01 - 0.1
Allowed coating thickness between the probe surface and the test object
up to 10 mm in "echo-echo" mode
UT speed range
1000 - 9999 m/s
AGC (Automatic Gain Control)
up to 30 dB
Display delay
0 - 168 us
Gain
92 dB, in increments 0.5 dB
TCG (Time Corrected Gain)
0.1 - 10 dB/us
Frequency range
0.5 - 20 MHz (-6 dB)
Visualization
A-scan, *B*-scan, digital values
Monitor gate
two independent gates
Alarm System
luminous and sonorous
Time interval measurement
0 - echo;
echo - echo
Max. number of measurements per sec.
200
Transducers
single element transducer;
dual element probe/transducer
Probe calibration
by built-in sample or by any sample specified by the operator
Sound velocity calibration
according to the thickness specified by the operator
Measurement modes
scan mode, "freeze" mode
Non-original transducers usage
any ultrasonic transducers can be used if their parameters were previously saved by PC software
Measurement at an unknown sound velocity
calibration according to several samples (2 - 10)

Display
TFT with adjustable brightness and color set
43 x 58 mm; 240 x 320 pixels
Color sets
standard color, luminescent, monochrome
(for working in bright sunlight)
Brightness
5 - 100%, in increments 1%
Display lights auto-off
30 sec., 60 sec., 120 sec., off
Auto-off
3 min., 5 min., 10 min., off
Date/time setting
yes
Memory
100 probe settings
250 testing results with *A*-scan;
250 testing results with *B*-scan;
100 measurement files up to 50x50 values
Interface
USB Type-C
Language
Russian, English
Transducer connectors
2 x Lemo 00
Power supply
built-in Li-Po battery
Battery life
not less than 12 hours
External power supply
220 V AC / 5 V DC
Operation temperature range
from -25 to +55 °C
Dimensions (H x W x L)
148 mm x 64 mm x 25 mm
Weight
180 g