UCD-46 PRO

Multi-purpose ultrasonic flaw detector

PHONE/FAX

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

Ultrasonic flaw detector UCD-46 PRO

General information

The latest model of the flaw detector UCD-46 in the PRO version has acquired the latest electronic base with the possibility of upgrade to the older version of the phased array flaw detector UCD-46 PA using the license code and a frost-resistant TFT display with a resolution of 640x480 pixels.

It is the multi-purpose, portable and powerful device of ultrasonic testing adapted for future upgrades and expansion of features. In the basic version, the UCD-46 PRO flaw detector is supplied as an ultra-modern classic hand-held flaw detector for field, workshop and other working condiciones requiring mobility, simplicity and wide functionality.
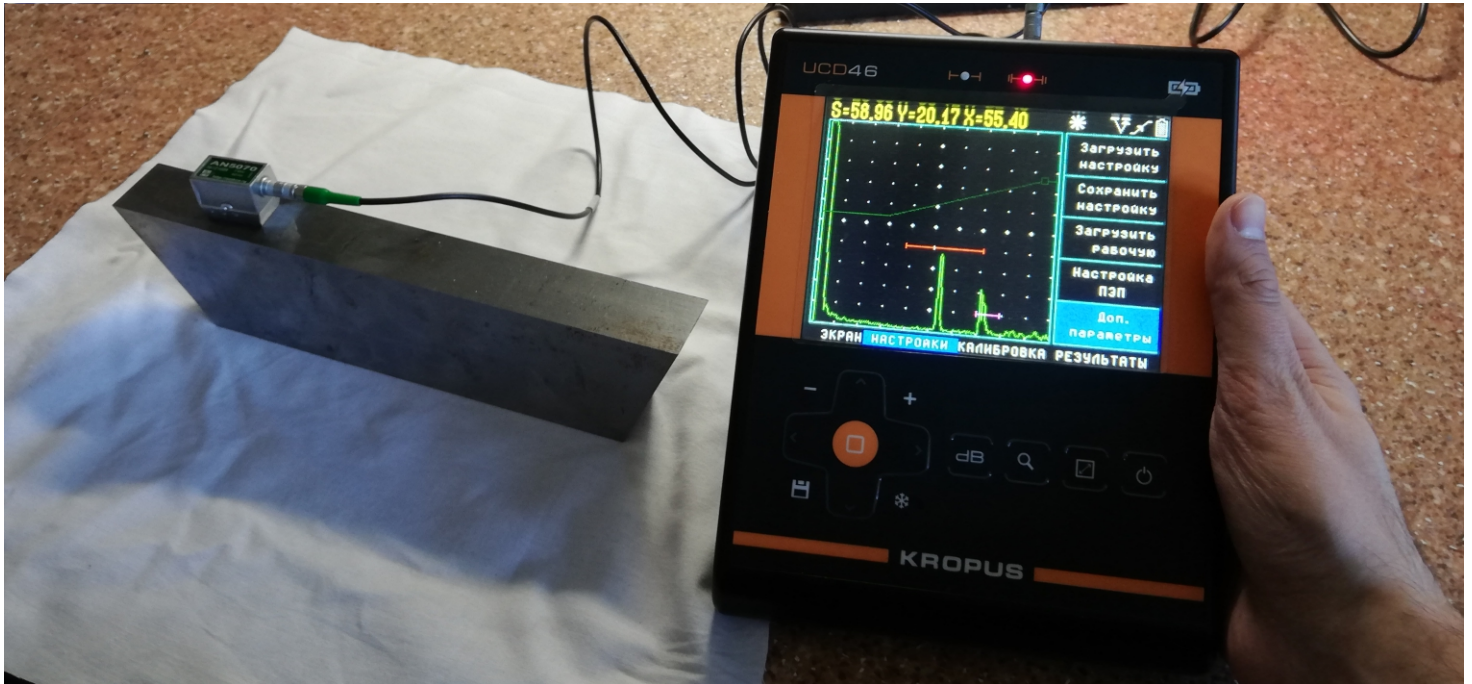
Specifications

Calibration range
min.: 0 - 2 us (0 - 5,9 mm)
max.: 0 - 1000 us (0-5950 mm, steel)
in increments 0.01, 0.1, 1, 10, 100 us
Delay
-4 - 1000 us
in increments 0.01, 0.1, 1, 10, 100 us
Probe delay
0 - 100 us
in increments 0.01, 0.1, 1 us
Sound velocity range
1000 - 10 000 m/s
in increments 1, 10, 100 m/s
Rectification
positive or negative half-wave; fullwave;
radio-frequency signal (in all calibration range)
Time Corrected Gain (TCG)
ranges up to 70 dB, 12 dB/us
20 reference points set manually or using reference reflectors
Display
high-contrast TFT 640 x 480 pixels; 130 x 100 mm;
with the feature of working in sunlight
PRF (Pulse Repetition Frequency)
50 - 500 Hz in increments 1, 5, 10, 100 Hz

Excitation pulse voltage
radio-frequency pulse, 50 V,
with adjustable frequency and
number of periods (0,5-5)
Gain
100 dB, in increments 0.5, 1, 2, 6, 10 dB
Memory
200 settings with A-signal;
1000 testing reports (signal, peak freeze, measurement result, device operation parameters, date, time and report name)
Interface
USB
Battery life
no less than 10 hours using built-in battery
Operation temperature range
from −30 to 55 °C
Dimensions (H × W × L)
205 mm x 160 mm x 43 mm
Weight
0,95 kg with built-in battery

Ultrasonic flaw detector UCD-46 PRO

Delivery set

USB cable for PC connection

PC software

Transport bag

Protective bag

UCD-46 PRO main unit with built-in Li-Pol battery

Power supply 15 V / 220 V

2 x Lemo00 — Lemo00 cables

4 x transducers

UCD-46 PRO menu structure

1. Select a menu item;
2. Select a parameter;
3. Select the step of parameter setting, confirm the action;
4. Set the value of selected parameter;
5. Memorize;
6. «Screen-freeze»;
7. Fast gain change with preset dB step;
8. «Zoom»;
9. Full-screen;
10. On/Off

Connectors

1. PA
2. USB
3. OTG
4. Pulser
5. Receiver
6. Flash disk
7. +15 V DC

Ease of operation and reliability

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

User-friendly interface

The database of transducers allows you to load all their parameters from memory in one click, including DGS/AVG.

The feature of auto-calibration of the transducer probe on standard samples CO-3 and V-2, auto-calibration of the sound velocity in the material, auto-calibration of the monitor gate for the direct and single beam, built-in geometry calculation assistant for the inspection of welded joints - all these features make the setup procedure easy and user-friendly.
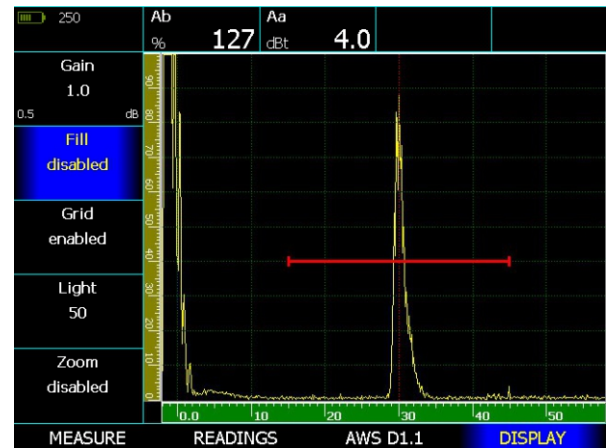
Signal display

Display

Unique frost-resistant modern display with color TFT (640x480 pix), excellent performance and wide viewing angle is the best choice for working in the field in direct sunlight, as well as at low temperatures.
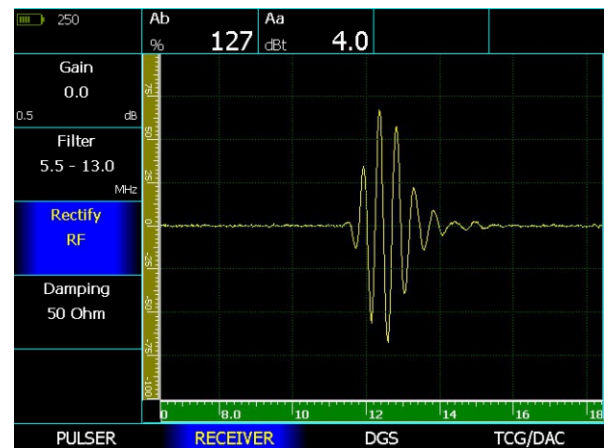
Radio-frequency signal

Standard software features

Wide functionality, including TCG and DAC features, various degrees of signal damping and peak freeze, as well as two independent monitor gates with individual logic of detection, allows the user to implement any modern testing methods.
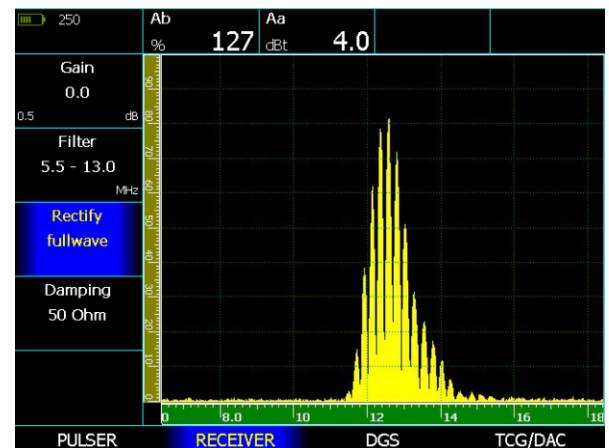
The zoomable software structure of the new version of this flaw detector allows the user to increase the capabilities of the device to the basic version with phased arrays operating on the basis of TFM/FMC digital focusing algorithms with 16-channel phased array transducers.
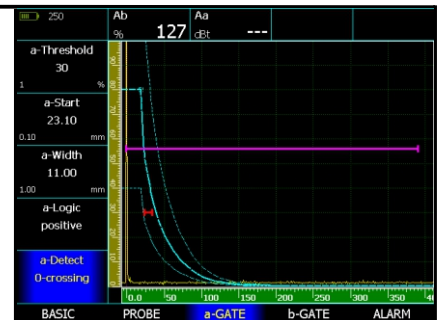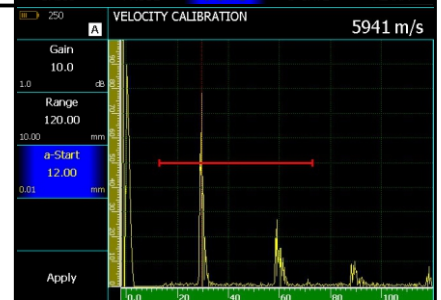
Full detection
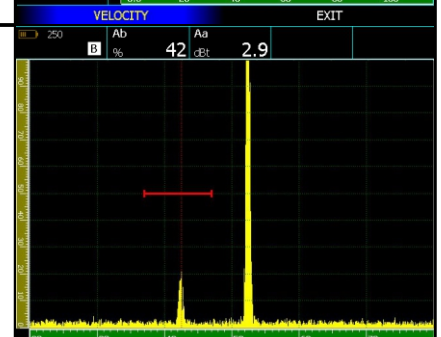
UCD-46 PRO specifics

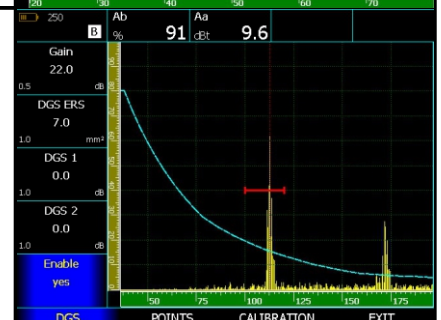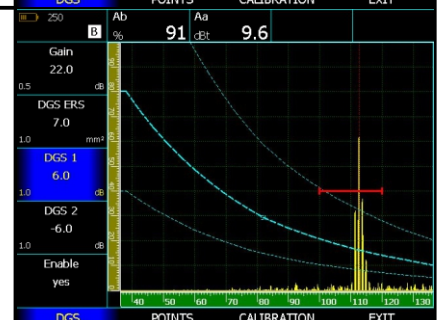|	
In RF mode (without detection) - a-threshold and b-threshold can be set both above and below the central axis, to measure both positive and negative signal components.	
Features of the device allow the operator to automatically calibrate the speed of spread of ultrasonic calibrations in the material.	
Reconstruction of the image to full screen without loss of performance allows you to maximize the detail of the signals.	
The UCD-46 PRO flaw detector make it possible to evaluate equivalent dimensions using DGS/AVG.	
Two additional DGS/AVG curves can be placed on the screen, at a distance of up to 24dB from the base one.	
The builder of the welded joint and the mode of its real geometry allows the user to make the inspection convenient and clear.	

UCD-46 PRO specifics

Flaw detector settings can be saved in memory and loaded from there.
Any setting or folder can be renamed or deleted.
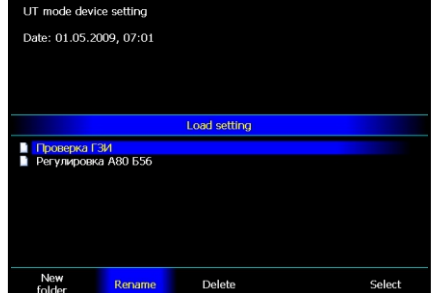
Standard transducers can also be already saved in the device's memory,
or transferred using a PC, and then simply loaded from the memory.
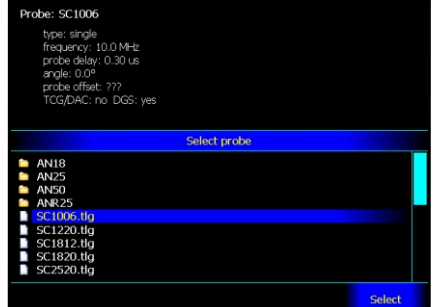
The TCG features allows the user to compensate for the effect of attenuation and display signals from reflectors at different depths as signals of the same height.

It is possible due to different gain adjustments at different points of the A-scan, depending on the depth and attenuation of the signals in the material.
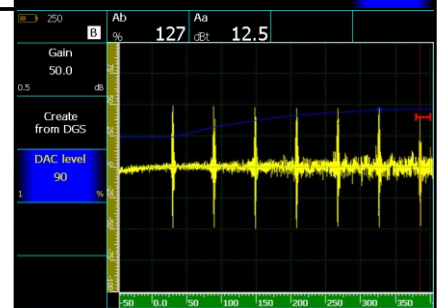
The "zoom" mode allows the operator to zoom in the signals in the a- or b-gates.

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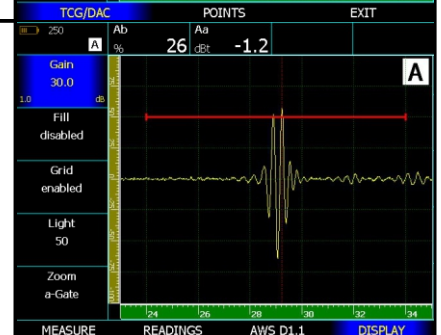
General technical specifications

Calibration range
min.: 0 - 2 us (0 - 5,9 mm)
max.: 0 - 1000 us (0-5950 mm, steel)
in increments 0.01, 0.1, 1, 10, 100
Delay
-4 - 1000 us
in increments 0.01, 0.1, 1, 10, 100 us
Probe delay
0 - 100 us
in increments 0.01, 0.1, 1 us
Max. length of the material (steel)
up to 3000 mm (echo mode), 6000 mm (shadow mode)
Sound velocity range
100 - 10 000 m/s
in increments 1, 10, 100 m/s
Excitation pulse voltage
radio-frequency pulse, 50 V,
with adjustable frequency and number of periods (0,5-5)
PRF (Pulse Repetition Frequency)
50 - 500 Hz
in increments 1, 5, 10, 100 Hz
Damping
25 Ohm / 50 Ohm / 1000 Ohm
Input impedance
50 Ohm / 600 Ohm
Gain
100 dB, in increments 0.1, 0.5, 1, 2, 6, 10 dB
Bandwidth (amplifier bandpass)
wide-band: 0.5-20 MHz (-6 dB),
with narrow-band option
Additional key +dB
programmed
Rectification
positive or negative halfwave, fullwave,
radio-frequency signal (in all calibration range)
Reject (suppression)
linear, 0 - 90% screen height
Probe delay auto-calibration
using SO-3, V-2 samples with reflectors
Automatic calibration of control range at specified weld thickness
included
UT speed auto-calibration
included
B-scan
no
Scanner
no
TOFD
no
Flaw size estimation in classic flaw detector mode
built-in DGS/AVG
Comparison with saved reference signal
Automatic in all gain range
AWS D1.1 welds inspection standards support
with automatic calculation D1.1 Ratio
Screen image processing after screen-freeze
Full-functional processing and analysis
Display
high-contrast TFT 640 x 480 pixels, 130 x 100 mm;
with the feature of working in sunlight
Display color set changing according to the vision peculiarities and lighting
included

Alarm System
luminous for each zone separately and sonorous
Alarm system operation modes
flaw in the first gate,
flaw in the second gate,
flaw in both gates,
flaw in either gate,
comparison of the first gate signal with DAC curve
Time interval measurement
between pulse start and the first echo signal, or between signals (echo-echo), by signal front, peak or zero-cross
Display of amplitude
as a percentage of the screen height,
in dB reference to gate threshold level,
in dB reference to test echo,
in dB reference to DAC
amplitude comparison by AWS D1.1
Time Corrected Gain (TCG)
ranges up to 70 dB, 12 dB/us
20 reference points set manually or using reference reflectors
Distance-Amplitude Correction (DAC)
using 20 reference points, height adjustable
DGS/AVG
using 20 reference points, height adjustable
with auto-binding to the gain and two additional curves
Digital signal filtering
included
Analog signal filtering
included
Visualization
A-scan
Monitor gates
two independent gates, start and width change in all calibration range, threshold levels set from 0 to 95% of the screen height during detection and from -95% to +95% with radio signal in increments of 1%, individual logic of flaw detection
Memory
200 settings with A-signal
1000 testing reports (signal, peak freeze, measurement result, device operation parameters, date, time and report name)
Menu language
Russian, English
Interface
USB
Transducer connectors
2 Lemo00
Battery
Li-Pol 11.1 V, 5000 mA/h
Battery life
no less than 20 hours using built-in battery
External power supply
220 V AC
Power supply voltage
15 V / 2,5A DC
Operation temperature range
from -30 to +55 C
Dimensions (H x W x L)
205 mm x 160 mm x 43 mm
Weight
0,95 kg with built-in battery