

ULTRASOUNDS DIAGNOSTIC EQUIPMENT

ECHOSCAN T-100

OPERATOR'S MANUAL

ECHOSCAN T-100 is a portable device with a re-chargeable battery that operates by ultrasounds and developed for the veterinary practice. It is an ideal device to check animals under special conditions and in places of difficult access. The instrument can be used in animals kept in herds or are otherwise freely moving. A range of probes can be selected permitting the best-fitted application pattern in a given situation.

The battery, once charged, provides between 5 to 7 hours continuous operation, depending of the intensity of brightness that is needed.

ECHOSCAN T-100 can operate with 3,5 or 5 MHz sectorial probe, and they can be changed from 3 to 5 MHz and from 4 to 6 MHz respectively. This version, of only 1,9 Kg, has a 5 inches TFT monitor and a remarkable size reduction has been gotten. Also weight has been due to its light Lithium-Ion battery of a long operation time and without memory effect.

MAJOR FUNCTIONS

- 4 memories with data retention can be stored.
- Interpolation between lines.
- Post processing with 4 curves.
- Zoom in 5 steps.
- Gain adjustment in 16 steps.
- Freeze function.
- On screen text editing with 21 characters.
- On screen real time calendar.
- Video output for video-printer or external monitor.
- Automatic low battery indication by LED.
- Automatic switch-off at low battery.
- Scanning direction selection
- Back Fat measurement

MAJOR PARAMETERS

- Scanning method: Sector-B.
- Greyscales: 256.
- Acoustic resolution: axial = 1 mm and lateral = 2 mm at focal point.
- Scan converter: 512 x 512 x 7 + 1 overlay (x,y,z + text).
- Frame rate: máx. 17 images / seg. (at 80°).
- Memory: 4 memories with data retention.
- Active lines: Sectorial: 200 (400 on screen after interpolation).
- Focusing: Mechanical fix.
- Monitor: Built in 5 inches TFT monitor.
- Power supply: Built in Lithium-Ion battery. Continuous working time up to 7 hours.
- Size: 205 x 140 x 100 cm.
- Weight: 1,9 Kg approx., including battery.

GENERAL

First, connect the probe to the terminal located in the rear part of the equipment. Take care while positioning to prevent the contacts of damaging. To facilitate introduction let the connector rotate slightly right and left.

FUNCTION AND USE OF THE PUSH-BUTTONS

Power On, Power Off

Turn the instrument on by pressing the key POWER ON located on the front panel of the equipment. The yellow LED: battery low power above the push-button will light indicating the turned on position. The flashing of the same led signal the discharged condition of battery and the equipment remains operative for another 10-15 minutes.

Menu

Switching on the instrument, after a short heating up period, the main MENU is displayed on the screen and the following functions can be selected by an indicator frame that is directed by up and down arrows located in the white field of the front panel. Selection is activated by an ENTER.

Sep Up menu

Sep up menu offers the possibility of adjusting the AUTOEXECUTION and CALENDAR functions.

The activated AUTOEXECUTION function preserves all the previously adjusted settings while switching off and on the instrument. This function spares the power of the battery especially in the suggested cases when the equipment is repeatedly turned on and off.

The other routine is the CALENDAR SET by which the internal clock and the date can be set. Activating this function, the real time values appear on the screen in the same line, while the arrow that permit the selection is displayed in the bottom row. Right wise, left wise motion can be done by the yellow arrows. The value indicated by the pointer may be changed by the yellow arrow-buttons of up and down. The selected date and time will be stored by ENTER and the SEP UP MENU automatically returns to the screen. Remember, after December 31st the year it won't change automatically, and therefore, it should be set manually.

Store check

The contents of the memory are displayed without scanning. Sequential visualization of the four stored pictures is achieved by pushing STORE. Pressing FREEZE returns the main MENU to the screen.

Text

Twenty one characters can be selected and written after "ID:". Pressing QUIT, the MENU returns to the screen.

Sector scan

Selecting sector scan a two dimensional signal will appear and the following synchronization will be stabilized. Now, the system is ready for operation. Pressing the push-button of MENU serves to return to the main MENU. On the screen the following information can be seen:

ZM: The number of the actual Zoom (1-5).

ST: The number of the actually displayed memory is shown. Activating FREEZE push-button, the screen is frozen, scanning is stopped and a letter F is displayed on the left upper part of the screen. The four stored pictures can be sequentially displayed by repeated pushing of STORE. Re-pushing of FREEZE, scanning is restarted and the content of memory is overwritten by new pictures. Hitting MENU in FREEZE mode, the FREEZE MENU appears allowing the selection of different kind of measurements. For ENTER the FREEZE returns.

PR: Automatically identifies the type of connected probe; e.g. S5 means 5 MHz sectorial probe.

G: Indicates the measurement of actual gain. It can be adjusted during scanning by up and down arrows of GAIN in a range of 1-16.

MHZ: Megahertz of probe. 3, 4 or 5 is displayed for 3,5 MHz probe, and 4, 5 or 6 for the 5 MHz probe.

PP: Post Processing in four positions (01-04).

DIR: Indicates the direction of scanning (right from left or left from right).

Arrows of UP/DOWN and LEFT/RIGHT

The belonging keys have a general selection function and also drive cursors during measurement.

Post. Proc.

Post Processing changes the ratio of gray shades in the output video signals. Depending on the actual adjustment, it will either emphasize or suppress the gray shades conforming to the small signals. The adjustment can be done and shown on the screen in four scales:

- 01: linear, no correction.
- 03: moderate small signal suppression.
- 02: considerable small signal suppression.
- 04: significant small signal emphasis.

Post Processing is operative even with frozen image.

Scan Dir.

The scanning direction set permits to reverse the direction of the actual scanning and it is indicated with an arrow in the button of the status field.

Gain

Up and Down keys serve to set general amplification. The whole range of amplification can be adjusted in 16 steps. The actual amplification is indicated in the status field by: "G: 06" from 01 to 16.

Store

The store function, during the active STORE CHECK and FREEZE routines, allows the sequential selection of contents of the memory.

MHz

MHz function permits to work at several frequencies with same probe. The 3,5 MHz probe can work at 3, 4 or 5 MHz, and the 5 MHz probe at 4, 5 or 6 MHz.

Space

SPACE function generates the blank character of the identification characters during TEXT routine.

Backsp

BACKSP function erases the characters during TEXT routine.

Quit

QUIT function ensures quitting from the TEXT and SEP UP MENU routines.

Freeze

The key is for freezing or activating the screen. Under frozen condition, an F letter is displayed in the left upper corner of the screen. During frozen screen different kind of measurements can be carried out and pushing MENU, the F MENU is activated.

Curs

CURS function activates the cursors at the beginning of the measurements. Pressing two or three times begins the measurements again. These should be carried out in the FREEZE mode. First, select by pressing ENTER the wanted kind of measurements on FREEZE MENU that appears pressing the button MENU with the frozen image. The name of selected measurement is written on the right side of the screen, for example, DISTANCE, AREA, CIRCUMFERENCE and BACK FAT respectively. The measured value will appear on the screen under the appropriate name.

The distance is measured by two cursors. To move them we will carry out it with the arrows up / down / left / right. Pressing ENTER, first cursor will keep fixed and second will appear. After moving second cursor, measurement will display on the screen automatically.

To carry out the area and circumference measurements, and after positioning the second cursor, a straight line is drawn between both cursors. For any further motion and ENTER, a new line is to the previous one. Encircling the desired area or circumference, the first cursor must be covered by the second one exactly. Measurement is terminated by pressing ENTER and the calculated value will be displayed. If we want to restart the process, press key of MENU and F MENU will appear on the screen. Select the appropriate sort of measurement by pushing ENTER.

Finally, to carry out the BACK FAT measurement, and after having frozen the image, a cursor will appear in the screen that will move vertically until locating it between fat and muscle. Once cursor is stopped the measurement of BF appears automatically in the screen.

Zoom

Set different depths and scanning fields. Arrow down of ZOOM will decrease the scanning field and increase the size of the object, while arrow up will act inversely. The equipment has 5 zoom and the actual is indicated in the status field by "ZM: XX" Values of depth are the following:

Zoom 1: 5 cm.
Zoom 2: 7 cm.
Zoom 3: 11 cm.
Zoom 4: 14 cm.
Zoom 5: 22 cm.

Contrast

Contrast only works after freezing image by pushing FREEZE and increases or it decreases with arrows up / down respectively.

Brightness

Brightness only works after freezing image by pushing FREEZE and increases or it decreases with arrows up / down respectively.

REAR PANEL

- Connector RCA to connect the equipment to a videotape, video-printer, TV set,....
- Connector to recharge battery.
- Lemo connector for plugging probe.

ACCESSORIES

- Battery charger:

It must be connected at 110V, or at 12V in the car. Requires four and a half hours to charge 70% of the whole battery and is indicated by an orange light on "charge" led; Two and a half additional hours to charge the remaining 30%, indicated by a green light also in "charge" led. Once charged, green light is switched off automatically. The equipment can operate between five to seven hours, depending on intensity of brightness that is needed.

- Leather carry case for transport.
- Metal sun protector.

CE MARKING

The company: IMPORT-VET, S.A.

The equipment:

Description: ECHOSCAN Ref. T-100

Echoscan T-100 complies with European Directives for EMC and low voltage safety.

73/23/CE Low Voltage Directive.

89/336/CE Electromagnetic compatibility

Name: Juan Morell

Position: Director

Date / Company establishment: November - 2002

Sign: