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Art. 600354

ANDROTEC
Laser Detection at its Best

Digital Laser Receiver Metor

Model: MTR-90R

Firmware: V1.46

Instruction Manual



www.androtec.com

For Your Safety



Please read this instruction manual before using the device for the first time and comply with it.

Retain this instruction manual for future reference or for subsequent owners.

This instruction manual is available online under:
www.androtec.com/manuals/meter



CAUTION

Prior to the first start-up, it is definitely necessary to carefully read the **Safety instructions!**

Failure to adhere to this instruction manual and the safety instructions may result in damage to the device and cause dangerous situations for the operator and other people.

In case of transport damage please inform your vendor immediately.

Safety Instructions



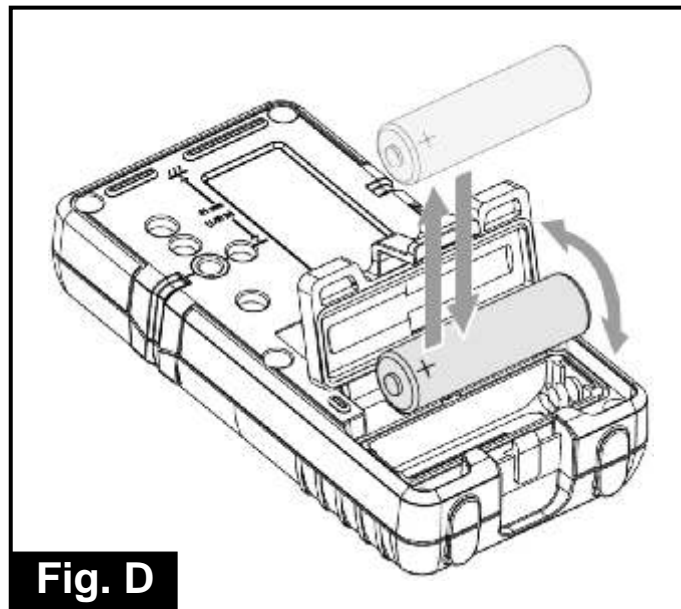
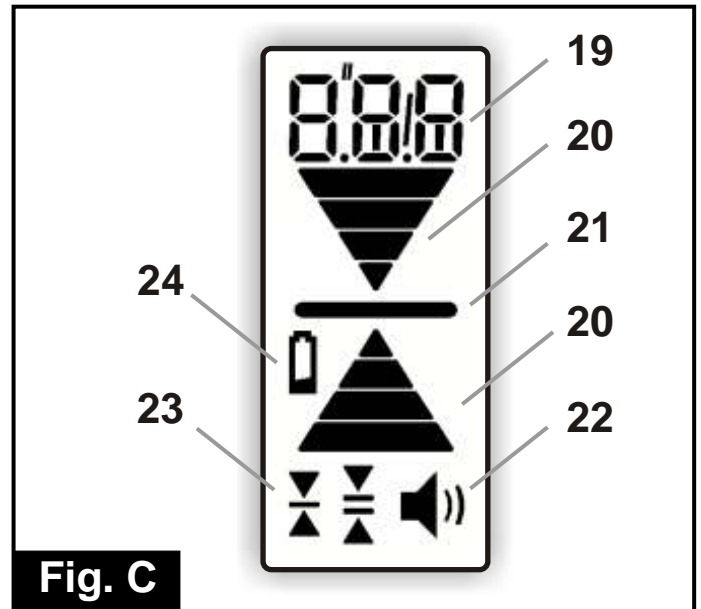
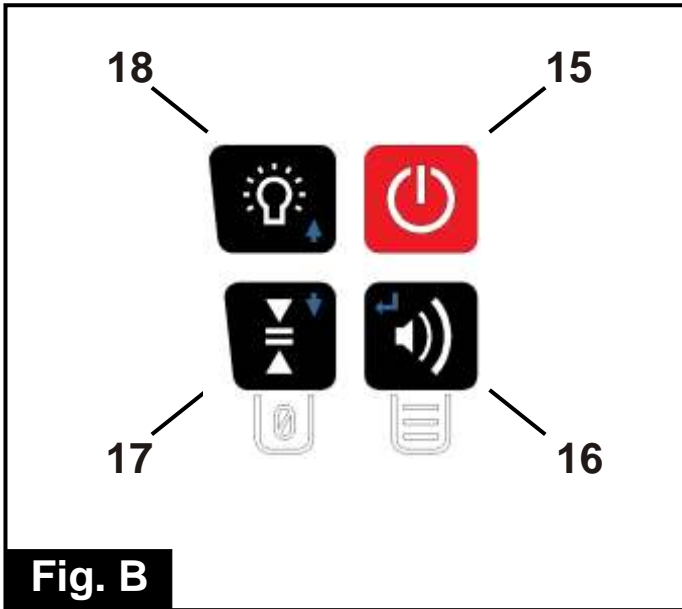
CAUTION

Do not modify the device. Modifications can cause injuries and malfunctions.

- **Only authorised and trained personnel are allowed to repair the device.** Only use genuine spare parts from AndroTec GmbH. This ensures continuous device safety.
- **Do not look directly into the laser beam.**
- **Laser receiver should not be used in the vicinity of pacemakers.** The magnets produce a field which can affect the function of the pacemaker.
- **Keep the laser receiver away from data media and devices that react sensitive to magnetic force.** Exposure to magnets can result in irreversible data loss.
- **Noise emission**
The a-rated sound pressure level of the acoustic signal is >80 db (A) at a distance of one meter.
- **Do not hold the laser receiver directly to your ear!**
- **Keep the laser receiver away from children.**
- **Do not use the laser receiver in explosive atmospheres or near flammable liquids, gases or dust.** The device may produce sparks that can ignite vapours or dust.
- Please remove the battery if the device is not in use for a prolonged period of time.
- **Use only genuine AndroTec accessories.** When using non-recommended accessories, you may receive incorrect measuring values.



Fig. A



Technical Specifications

Capture height	90 mm
Numeric readout height	80 mm
Reception angle	± 45°
Detectable spectrum	620nm to 800nm
Working radius	Up to 400m (depending on laser transmitter)
Accuracy (Deadband)	See table at page 5
Beeper volumes	High (> 100 dBA) / Low (> 75 dBA) / off
Automatic shutoff	After 30min without key stroke / laser reception
Filter against	Flash / Sun light / LED / Fluorescent lamps
Marking notch	41mm from top edge
Physical dimensions	135mm x 69mm x 25mm
Weight without clamp	0,19kg
Protection class	IP 67 (waterproof)
Power supply	1 x AA
Battery life	> 45h
Operating temperature	-20°C to +50°C
Storage temperature	-40°C to +70°C

Proper Use

The receiver detects the laser beams of rotating laser transmitters emitting red laser light. Any other use than the described above shall be deemed to be improper use.

The user is liable for damage resulting from improper use.

Device Elements (Fig. A)

- 1 Magnet
- 2 LED grade indicator (yellow)
- 3 LED grade indicator (green)
- 4 LED grade indicator (red)
- 5 Laser-sensitive area
- 6 Marking notch
- 7 Clamp
- 8 Keypad
- 9 Bubble vial
- 10 Display
- 11 Beeper
- 12 Battery door and latch
- 13 Type plate with serial number
- 14 Fixing thread for the clamp

Keypad (Fig. B)

- 15 On/Off
- 16 Beeper volume
- 17 Accuracy (Deadband)
- 18 Grade LEDs

Display (Fig. C)

- 19 Numeric digits / text display
- 20 Grade indication arrows
- 21 On grade indicator
- 22 Beeper volume
- 23 Accuracy (Deadband)
- 24 Low battery

Numeric digits / text display

Three digits display either the numeric elevation or simple text messages. Numeric elevation can be displayed in *mm*, *cm*, *inch* or *fractional inch*. Resolution and decimal point will be determined by the units of measure and the accuracy selected.

Grade indication arrows

Four individual levels of grade information for above and below grade. Arrow size increases, as distance from on-grade increases. Arrow bars represent steps of the selected deadband. Horizontal bar indicates on-grade.


Out-of-beam display: A sequence of arrows indicates if the receiver has moved beyond the vertical reception range and will indicate in which direction to move to get back to the laser beam.

Subsequent presses will cycle through five accuracy options Ultra fine / Fine / Medium / Coarse / Ultra coarse.

	mm	cm	inch	Fract.In.	Display
Ultra fine	0.5	0.05	0.02	-	$\frac{1}{2}$ flashing
Fine	1.0	0.1	0.05	1/8	$\frac{1}{2}$ non-flash.
Medium	2.0	0.2	0.1	1/4	$\frac{1}{2}$ non-flash.
Coarse	5.0	0.5	0.2	1/2	$\frac{1}{2}$ non-flash.
Ultra coarse	10.0	1.0	0.5	-	$\frac{1}{2}$ flashing

Battery (Fig. A/D)

Inserting / changing the battery

- Change the battery if  is displayed .
- Open the battery compartment by unlatching the battery door [12].
- Remove the battery and insert a new one (observe correct polarity!).
- Dispose of the used battery (see chapter on environmental protection).

Operation



NOTE: Make sure that the device is in vertical position and that the laser-sensitive area [5] is not partially covered during measurement. This can entail false measuring results.

Switching the device on / off

- Press the On / Off button [15]

Adjusting the volume

- Pressing the beeper volume button [16] cycles Low / High / Off
 - ▶ High: Beeper symbol permanently displayed; text "Hi" for one second
 - ▶ Low: Beeper symbol permanently displayed; text "LOW" for one second
 - ▶ Off: No Beeper symbol displayed; text "OFF" for one second

Adjusting the accuracy

- Press accuracy button [17] once to numerically display current accuracy setting on the LCD. Press again, while the accuracy is displayed (within one second), to change the current selection.

Activate / deactivate LEDs

Press the LED button [18] to change the LED display. If activated, the measurements are shown by the LEDs in addition to the display.

User defined on-grade level:

An arbitrary level **within -10 and +40mm** around the marking notch can be used as on-grade level. The user defined on-grade level is set by pressing the accuracy button [17] for **two seconds** while the device is in the laser beam. If successful, you will hear a confirmation beep and an asymmetric arrow symbol is shown on the display. Outside the allowed area you will hear an error beep and error code **E30** is shown.

When the accuracy button [17] is pressed for **two seconds** while out of beam, the on-grade level is reset to default. If the device is switched off, the on-grade level is automatically reset to default. If you want to save the user defined on-grade level permanently, you can choose this option in the menu (see *Menu Entries - .OFS*).

Using the menu

The menu functions can be used to edit various options. For most applications the factory defaults are best choice. We recommend to change settings only in special applications.

- Pressing the volume [16] key for more than two seconds enters the menu functions.
- Menu items (e.g. *SEn*) are shown non-flashing and may be browsed by using the ARROW keys [17] and [18].
- Menu items are selected by pressing the ENTER key [16]
- Item values (e.g. *On*) are shown flashing and may be browsed by using the ARROW keys [17] and [18].
- Exit the Menu by pressing the ESC key [15].

Menu Entries:

- **Sen - Sensitivity: Hi(gh)/Low**

Default: *High*. Set it to *Low* if you have problems with disturbing sources like fluorescent or strobe lights.

- **AvG - Averaging: Hi(gh) / Low**

Default: *Low*. Set it to *High* if you need to have more stable readings under difficult atmospheric conditions.

- **Unt - Unit: mm/cm/in(ch)/f(ract). in(ch)**

Default: *mm*. Choose desired numeric elevation display unit.

- **o.o.b - Out of beam display: On/OFF**

Default: *OFF*. Switch Out-of-beam display on and off. For a description see chapter *Display*.

- **OFS - User-defined on-grade level: OFF / tmP (temporary)/PEr(manent)**

Default: *temporary*. To deactivate the function, choose *OFF*. To save the user-defined on-grade level permanently, choose *PEr*.

- **InF - Device Information**

Find Information about Firmware Version (*Fw*), Device Code (*dc*) and Serial Number (*Sn*) here.

NOTE: All menu settings will be retained when the receiver is turned off.

Maintenance and Care

Keep the device always clean, especially the laser-sensitive area!

- Do not use aggressive cleaning solvents.
- If soiled heavily, the device can be cleaned under running water.
- Do not use high-pressure cleaner.
- Allow the device to dry completely before storing it in a closed container. Residual moisture can result in corrosion of the battery contacts. In this case our warranty expires.
- In the unlikely event of a failure or defect, have the appliance examined and repaired by AndroTec.
- In all your queries and spare part orders, always quote the 8-digit serial number (see type plate) of your device.

Environmental Protection



Do not dispose of the device with domestic waste. Have the device disposed of by an authorised waste management company or your municipal waste management organisation.

Adhere to the applicable regulations. In case of doubt contact your waste management organisation. Recycle all packaging material in an environmentally friendly manner.

Batteries:

Do not dispose of batteries with domestic waste, do not expose them to fire or water. Collect and recycle batteries or dispose of them with due care for the environment.

Warranty

AndroTec Meter and clamp are warranted to be free of defects in material and workmanship according to the statutory warranty regulations.

The user of the product is expected to follow all operating, maintenance and care instructions. Any evidence of misuse, alteration, or an attempt to repair products by unauthorized personnel, or use of parts other than those provided by AndroTec GmbH automatically voids the warranty.

AndroTec grants an extended warranty for a period of three years, if within six weeks from the date of purchase, the warranty registration card is filled out and returned to AndroTec or the product is registered via Internet at www.androtec.com. Please make sure that the registration is filled out properly and on file with AndroTec.

This warranty period is thirty-six months from the date the new product is delivered from the dealer to the purchaser or is put into service by a dealer as a demonstration unit or rental unit. Competitor purchased and tested units are excluded from this warranty.

AndroTec may choose to repair or replace, at its discretion, any Meter in the event of a failure for any reason, during the warranty period. In case of a warranty claim, return the product and a proof of purchase to AndroTec.

AndroTec's liability under this warranty is limited to repairing or replacing any product returned to its factory for that purpose. The foregoing states the entire liability of AndroTec GmbH regarding the purchase and use of its product and they shall not be held responsible for any consequential loss or damage of any kind. This warranty is in lieu of all other warranties, expressed or implied, and constitutes all of AndroTec GmbH liability with respect to merchandise sold by it.

Warranty is strictly related to repair or substitution of defective parts according to AndroTec's discretion. The warranty does not cover any other damage that may occur directly or indirectly using defective parts.

Manufacturer

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Germany
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WEEE-Reg.No.: DE37015608

CE Declaration of Conformity

We herewith declare that this product conforms with the following standards and directives:

Standards


- DIN EN 61000-6-1
- DIN EN 61000-6-3

in accordance with the regulations stipulated in the directives:

EC Directive

- 2014/30/EU
- 2014/35/EU

Technical Documentation at:
AndroTec GmbH



Mirko Eßling
General Manager

AndroTec GmbH
Waldfishbach-Burgalben, 07.01.2016

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