RC AudioTimer 3.0

2009-06A

USER MANUAL

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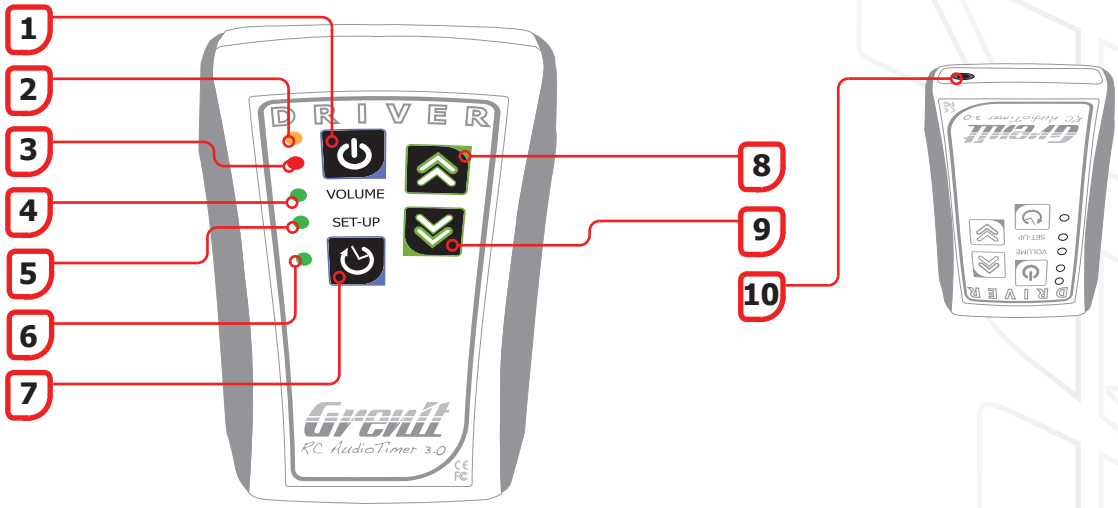

1. Main Power button
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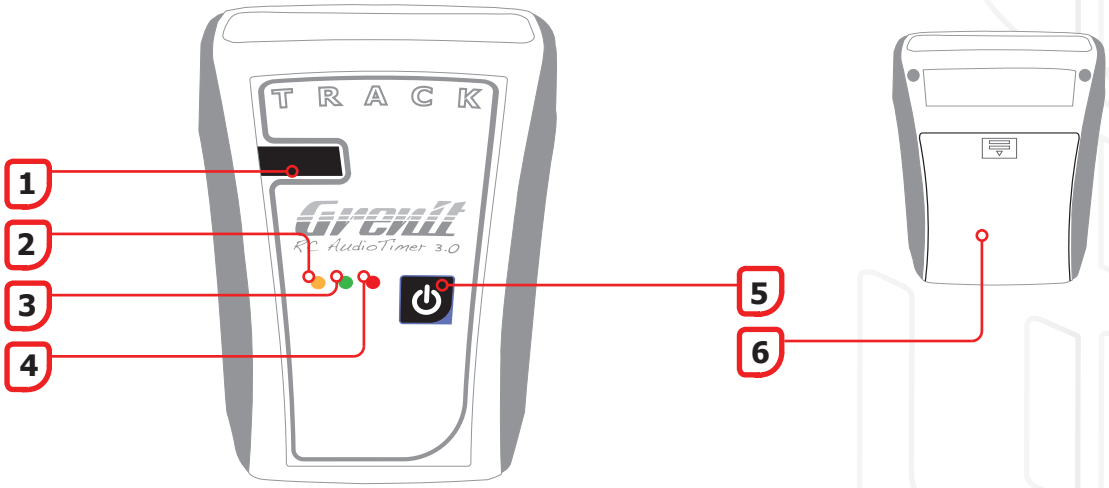
TRACK UNIT OVERVIEW



1. IR Sensor
2. Driver Unit Connection indicator
3. Transponder Connection indicator
4. Main Power indicator
5. Main Power button
6. Battery lock (identical on Driver Unit)

CAUTION

RISK OF ELECTRIC SHOCK

DO NOT OPEN

DO NOT REMOVE COVER

NO USER-SERVICEABLE PARTS INSIDE

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

WARNING: Avoid hearing damage. Do not listen to the RC AudioTimer at a too high volume.

Thank you for purchasing the RC AudioTimer 3.0! Upon purchase, the RC AudioTimer 3.0 box should contain the following items:

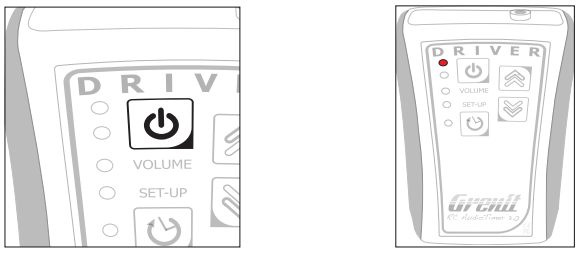
- 1 Transponder
- 1 Track Unit
- 1 Driver Unit
- 1 Foam Track Unit Holder

1 FIRST OF ALL

Pairing the Track and Driver Units

Out of the box, the Track Unit and Driver Unit are not paired. They are designed to pair with the first unit they come in contact with upon turning on, indicated by the yellow LEDs on both units blinking in unison. In case this automatic pairing does not happen, please perform the following steps:

1. Turn on the Driver Unit by pressing and holding the Main Power Button. The red LED will light, and the yellow LED will blink 3 times per second, indicating that the unit is searching for a Track Unit to pair with. The green LEDs will cycle continuously.



Driver Unit Main Power button and LED on Driver unit

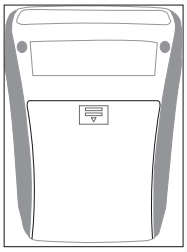
2. Turn on the Track Unit by pressing and holding the Main Power Button.
3. Place both units no further than 50 cm apart from each other, and make sure no other AudioTimer Units are near.
4. The yellow LEDs on both units will now start blinking in unison once a second.

Unpairing the units

If for any reason you need to unpair the two units, please perform the following steps:

1. Turn off the Track Unit (to avoid it pairs again after unpairing), and out the batteries from the Driver Unit.

2. Press and hold the Set-Up Button while putting back the batteries.



Battery lock accessible on the back of the unit

The units have now been unpaired.

Transponder pairing

* Every Transponder has its own specific signature. The Track Unit will pair with the first Transponder it comes into contact with after the batteries have been inserted. It is advisable to perform this Transponder pairing before you start racing to ensure a successful connection between Transponder and Track Unit. To pair the Transponder with a Track Unit, please perform the following steps:

1. Turn on the Track Unit by pressing the Main Power Button.

2. Press the Main Power Button once; the green LED will blink three times per second.

3. Move the car with the Transponder mounted close to the Track Unit. When the Track Unit detects the Transponder the green LED will light continuously. Hold the Transponder and Track Unit close to each other for about half a second to ensure a good pairing.

Transponder unpairing

To unpair the Transponder (e.g. in order to use another Transponder with the same Track Unit) unpair by pressing the Main Power Button on the Track Unit once short.

2 THE TRANSPONDER

Mounting the Transponder

The Transponder should be mounted in the car in such a way that the IR diode shines horizontally on the side the Track Unit will be placed on (beside the track). The IR diode must have an unobstructed line of sight, although it will be able to shine through most clear body materials (light strength is dependent on body material).

The power cord should be attached to channel 3 on the radio receiver. In case there is no channel 3 available to attach the cord to, it can be attached directly to the battery.

The Transponder is able to handle voltages between 4.8 and 12V.

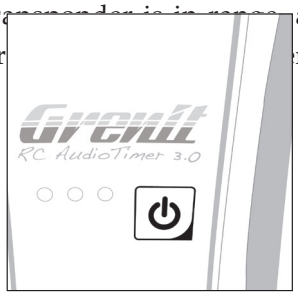
WARNING: Black wire is neutral (-), red wire is live (+). Do not attach it to the wrong pole, since the Transponder will not work when connected wrong.

3 THE TRACK UNIT

After inserting the batteries in the Track Unit, and having paired it with its relevant Driver Unit (see page 4), turn on the Track Unit by pressing and holding the Main Power Button, and place it at a convenient spot beside the track. Use the supplied Foam Track Unit Holder (part of the packaging) to hold the unit upright. It is advisable to place the unit beside a section of track without curves, so as to improve contact between Transponder and Track Unit.

Turning on the Track Unit

1. Press and hold the Main Power Button for one (1) second. All LEDs light up. The green LED turns off if no tr[illegible] and the yellow LED starts blinking if the Driver [illegible]n the unit is turned on.
2. Release the Main Power Button.



Track Unit Main Power button

Turning off the Track Unit

1. Press and hold the Main Power Button for one (1) second. All LEDs will light up, and will turn off after one second.

The unit is now turned off.

Communication with Driver Unit

* The yellow LED lights up: the unit is turned on, but is not in contact with the Driver Unit.

* The yellow LED blinks once (1) per second: the unit is turned on and is in contact with the Driver Unit.

Communication with Transponder

* The green LED blinks 4 times per second: the Track Unit is not paired with a Transponder

* The green LED lights up continuously: the Track Unit has detected a Transponder. If the Track Unit was not paired with a Transponder before, it will be paired with the Transponder in range. Note that the green LED will only light up as long as the transponder is within range of the Track Unit.

Low battery

As an indication of low battery status, the red LED starts blinking.

4 THE DRIVER UNIT

After inserting the batteries in the Drive Unit, and having paired it with the Track Unit (see page 4), the Driver Unit is ready for use by turning it on and inserting the headphone plug into the appropriate headphone jack. Lap times will now be reported through your headphones when you start racing (provided both the Track Unit and Transponder are in place as well, see pages 6 and 7).

Turning on the Driver Unit

1 Press and hold the Main Power Button for one (1) second; all LEDs light up. The green Volume LED starts blinking when the unit is turned on.

2 Release the Main Power Button.

! **WARNING: The Main Power Button is also used to switch between Volume and Set-up modes. In order to do this, just press the button once. Press multiple times to cycle through the various modes. See also the sections on Volume and Set-up for more information. When in Set-up mode, the Driver Unit will revert to Volume mode automatically after 5 seconds of inactivity.**

Adjusting the volume

The volume control has 16 levels. Press the up button once to increase the volume by one step, and the down button to decrease the volume by one step. At each press of either the up or down button, the audio feedback will respond with a spoken “one” at the level you just selected.

Set-up

The last 200 lap times will be stored in the Driver unit’s memory and can be transferred to a computer after finishing training, using an optional USB cable (available for purchase at www.grenit.com). The lap times stored in the memory will be assigned a Set-up number. If the Set-up number is not changed by the user, all lap times will automatically be assigned Set-up number one (1). By pressing the Up and Down buttons when in Set-up mode, the Set-up number can be changed, and every lap thereafter will then be assigned the new Set-up number, until the number is changed again.

Using different Set-up numbers to record your lap times will allow you to better keep track of different car set-ups. In one and the same training session you could assign different numbers to different set-ups, which you can then compare afterwards. In total, there are nine (9) separate Set-up numbers. At each press up or down, the audio feedback will respond by speaking the number you have just assigned.

Changing the Set-up number

1. Change to Set-up mode (when in Volume mode), by pressing the Main Power Button once.
2. Use the Up and Down buttons to select your desired Set-up number.
3. The Driver Unit will automatically revert back to Volume mode after five (5) seconds.

Deleting stored lap times

There are two ways to delete all lap times stored in the unit's memory:

METHOD 1. Take out the batteries form the Driver Unit. When the batteries are re-inserted, the stored lap times will have been erased.

METHOD 2. In Set-up mode, press and hold the Up and Down buttons simultaneously for two (2) seconds.

! **NOTE: there is no way to erase individual lap times or specific Set-up numbers. In case you do not want to use the stored lap-times under a particular Set-up number but do not wish to erase other stored lap times, we recommend changing the Set-up number to another number and continuing your training. You can erase the undesired lap times once transferred to the computer.**

Race Time

With Race Time activated, every passing minute since activation will be reported in order to monitor how long you have been racing. This will aide you with keeping tabs on your fuel or battery consumption.

Turning on/off Race Time

1. Press and hold down the Set-Up Button for at least two (2) seconds.

2 When Race Time is activated, the Set-Up LED on the Driver Unit will start blinking, and you will hear an audio feedback of “Zero minutes.”

3 When Race Time is turned off, the Set-Up LED turns off, and you will hear an audio feedback of “Minutes.”

Resetting Race Time

1 To reset Race Time, press the Set-Up Button once. You will hear an audio feedback of “Zero minutes”, and Race Time will start from zero again.

Low battery

As an indication of low battery status, the red LED starts blinking.

5 BATTERIES

Both the Track Unit and Driver Unit are designed for continuous use over an entire day on a fully charged battery. It is possible to use rechargeable batteries in both units.

6 DATA TRANSFER TO THE COMPUTER

Note that in order to be able to transfer data from the Driver Unit to the computer, the optional USB data cable (available at the Grenit Webshop) is required. To transfer the lap times stored in the Driver Unit to the computer for the first time, please perform the following steps:

1 Download the software from the Grenit website (go to http://www.grenit.com and click on the Downloads section, or go straight to http://www.grenit.com/downloads.html).

2 Once downloaded, install the software by extracting the zip-file, and copying the included .exe file to an appropriate place on your computer. Then double-click on the software icon, and follow the instructions on screen.

3. With the program running, connect the Driver Unit to the computer by connecting it with the optional USB cable.

4. Put the Driver Unit in Transfer mode by pressing and holding the Set-Up and then the Up button. Both Volume and Set-up LEDs will blink simultaneously.

5. To exit Transfer mode, press the Down button.

! **WARNING: Do not put the Driver Unit in Transfer mode when the headphones are attached! The resulting sound emitted from the Driver Unit could potentially damage your hearing**

* Data can only be transferred to the computer by using the optional USB cable, which can be purchased at the Grenit website (www.grenit.com/webshop).

* The Grenit software can only be installed on a computer running Windows (or a Macintosh computer with a version of Windows installed under Bootcamp or Parallels/VMWare Fusion).

7 FUNCTION OVERVIEW

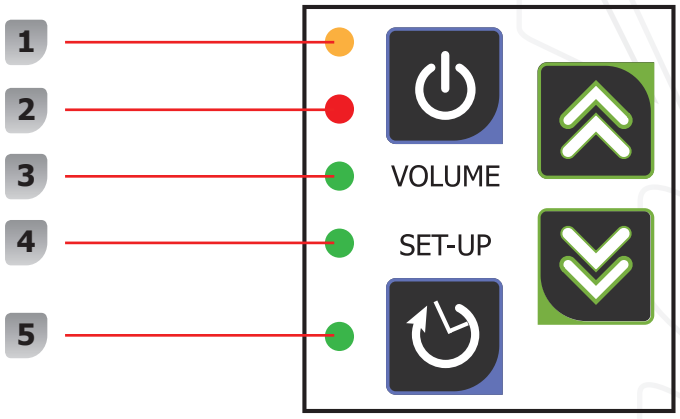
Track Unit

Action	Button	Duration	Response
On		1 Second	All LEDs light up. The green LED turns off if no Transponder is in range, and the yellow LED starts blinking if the Driver Unit is connected when the unit is turned on
Off		1 Second	All three LEDs light up upon press, then turn off
Pairing with new Transponder (only when unit is turned on)		Short	Green LED starts blinking

Driver Unit

Action	Button	Duration	Response
On		1 Second	All LEDs light up. The green Volume LED starts blinking when the unit is turned on
Off		1 Second	All five LEDs light up upon press, then turn off
Switch between Volume and Set-up mode (reverts to Volume mode after 5 sec.)		Short	Green LED indicates which mode is active
Volume up (only in Volume mode)		1 Press = 1 step	Voice response (“One” at selected volume)
Volume down (Only in Volume mode)		1 Press = 1 step	Voice response (“One” at selected volume
Increase Set-up number (only in Set-up mode)		1 Press = 1 step	Voice response (number of the selected Set-up)
Decrease Set-up number (only in Set-up mode)		1 Press = 1 step	Voice response (number of the selected Set-up)
Race Time on		1 second	Green LED at Set-Up button lights; Voice response (“Zero minutes”)
Race Time off		1 second	Green LED at Set-Up button turns off, voice response (“Minutes”)
Race Time reset		short	Voice response (“Zero Minutes”)
Transfer stored lap times to computer		Hold down Set-Up, press up once	Volume and Set-up LEDs blink in unison
Stop transfer to computer		Press once	The three green LEDs return to their original state
Unpair from Track Unit	 while putting back batteries	1 second	The three green LEDs blink in sequence

Indicators (LED)



LED	Pattern	Meaning
1 (yellow)	blinks 3 times per second	No contact with Track Unit
	blinks once per second	Contact with Track Unit
2 (red)	On continuously	Unit is on
	Blinks	Battery is low
3 (green)	Blinks once per second	Unit is in Volume mode
4 (green)	Blinks once per second	Unit is in Set-up mode
5 (green)	On continuously	Race Time is on

8 TECHNICAL SPECIFICATIONS

Driver Unit	
Width	62 mm
Height	94 mm
Depth	28 mm
Supply Voltage	2 AA Batteries

Track Unit	
Width	62 mm
Height	94 mm
Depth	28 mm
Supply Voltage	2 AA Batteries

Transponder	
Width	20 mm
Height	30 mm
Depth	9 mm
Weight	8 grams
Supply Voltage	4.8 - 9 V
Power Cons.	50 mA

User Parameters	
Communication range Transponder - Track Unit	> 5 m (dependent on light conditions)
Communication range Driver Unit - Track Unit	up to 70 m line of sight
Operational temperature	0 - 50° C
Storage temperature	0 - 70° C
Environmental conditions	Moisture (rain, damp) should be avoided