

RC T1000 VOICE

Telemetry system for RC Altimeter #2 PRO with
variometer function and voice announcements



Manual version: 1.3

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Introduction

The RC T1000 VOICE was designed especially for use with the RC Altimeter #2 PRO. It is a telemetry system to track current altitude, climb/sink speed, maximum altitude achieved in flight and battery voltage of radio controlled (R/C) aircraft in real time. All flight data is displayed on high contrast LCD display. Voice announcements are possible when needed.

How it works

The RC T1000 VOICE system uses a 433MHz two way link to transfer data from your R/C plane via RC Altimeter #2 PRO module to the ground unit. Data transfer is digital so there won't be any noise or wrong data reception.

Vario works on principle that the RC Altimeter #2 PRO logger detects small changes in altitude and transmits them to the RC T1000 VOICE which converts them into a variable audio tone. Changes small as 10 cm/s will be indicated by change in tone. Sinking produces a continuous tone which becomes deeper with increasing sink rate. Climbing gives a pulsed rising sound. The pulse frequency rises as the rate of climb increases.

If the RC T1000 VOICE detects that the battery in your R/C plane is low, it alerts you with low battery announcement. If there is no reception, "----" is displayed and audio is on mute.

Key features

- Voice announcements for altitude, battery and flight time.
- Variometer with audio tone for lift or sink.
- Mute function – train your eye for weak thermals.
- Alarm signal for low battery of yours R/C plane.
- Download flight data from RC Altimeter via RF link.
- Onboard 350mAh LiPo battery for up to 8 hours working time.
- Two way digital data transition at 10 channels.
- Set RC Altimeter #2 PRO to zero, set all settings and download flight data via RF link.
- Strong and durable casing.
- Long range - more than 1 km.

Specifications

Board Dimensions	59 mm x 42 mm x 17 mm 2.32" x 1.65" x 0.67"
Weight	63 grams
Temperature Range ¹	-10°C ~ +60°C
Onboard Battery	1 cell Kokam LiPo 3.7 V 350 mAh
Duration	8 hours
Displayed Altitude Resolution	0.1 meter.
Displayed Battery Resolution	0.1 volts.
Displayed Vario Resolution	0.1 m/s.

¹ Specifications are taken from component ratings and system limits and may not have been tested to the full extent of the specified ranges.

NOTE:

For charging the RC T1000 VOICE, set your charger for:
1 LiPo cell 3.7V, charging current max. 350 mA.

Physical overview

Figure 1 shows the RC T1000 VOICE module. To turn the module ON, press and hold the Left/ON button for 2 s. To turn it OFF, press and hold the Right/OFF button for 4 s.

The module consists of LCD display, three pushbuttons, 3 pin connector that is used for charging, 4 pin connector used for PC interface (download altitude data) and 3.5 jack phone connector for audio tone.

For charging you will get 3 pin cable with red wire soldered to middle pin and black wire soldered to side pins, so it doesn't matter how you turn it when you charge the RC T1000 VOICE.

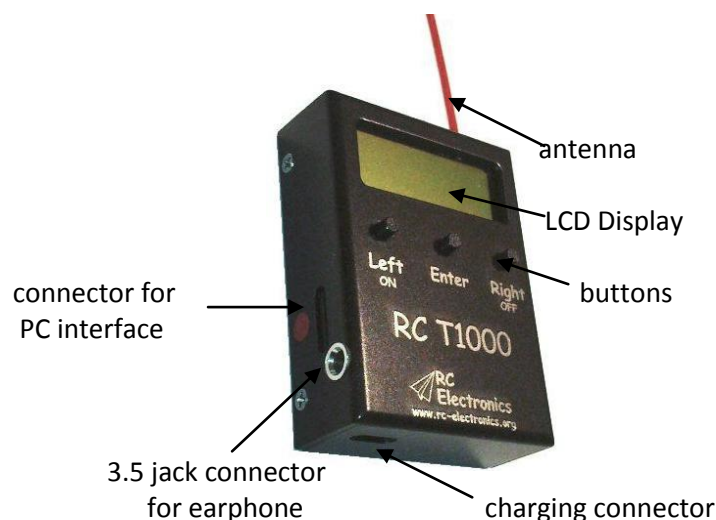
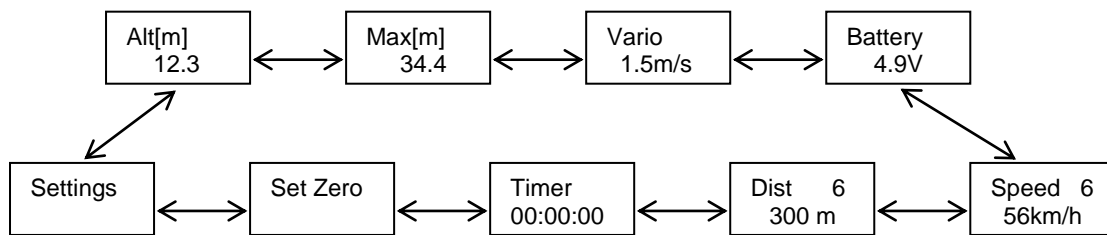


Figure 1: The RC T1000 VOICE module.

Main menu



Alt

Displays current altitude of your R/C plane. Displayed units are in brackets. Maximum displayed altitude: ± 3100.0 (meters, yards, feet). If you press Enter, altitude, vario and battery will be announced.

Max

Displays maximum reached altitude in current flight. Displayed units are in brackets. Maximum displayed altitude: ± 3100.0 (meters, yards, feet). If you press Enter, maximum altitude will be announced.

Vario

Displays current lift or sink. Maximum displayed vario: ± 999.9 (m/s, y/s, f/s). If you press Enter and you select MUTE function, M will appear in right upper angle. To deselect MUTE function press Enter again in this screen and letter M will disappear.

Battery

Displays voltage of the onboard battery. Maximum displayed battery is 18.8 V. If you press Enter, battery voltage will be announced.

Speed

Displays current ground speed. You must have RC GPS module in order to see this parameter. If you press Enter, speed will be announced.

Dist

Displays current distance of your plane to your position. You must have the RC GPS module installed on your plane. Wait until you get first distance reading in order to make calculation correct. If you press Enter, distance will be announced.

Timer

To start/stop the stopwatch, press Enter. To clear it, press and hold Enter until it shows 00:00:00 (or time set in "TimCount" menu). Every time you turn module ON, stopwatch will reset to 00:00:00 (or to time set in "TimCount" menu). Stopwatch has precision of 1 s. If timer is started every minute, time announcement will be announced. If time is set in "TimCount" menu, time will count down and last 15 s will be voice counted. This function is used for F5J, F3K or F3J training.

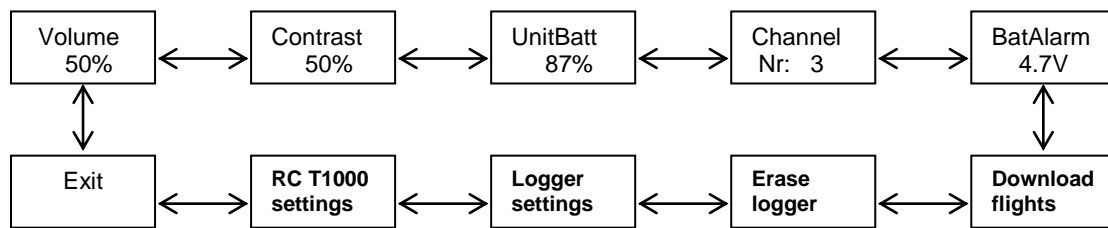
Set Zero

Press Enter button and RC Altimeter #2 PRO will set altitude to zero, create a new flight in logger and reset maximum altitude reached in last flight. If Error! appears on screen, please try it again. After setting RC Altimeter #2 PRO to zero you will get max menu on screen to check if it is set to 0.0.

Settings

Press Enter button to enter the Settings menu.

Settings menu



Volume

Displays vario beep volume. To change it press Enter and > < markers will appear. Change value with the left/right button. To confirm it press Enter button again and > < markers will disappear.

Contrast

Displays contrast of LCD. To change it press Enter and > < markers will appear. Change value with the left/right button. To confirm it press Enter button again and > < markers will disappear.

UnitBatt

Displays percentages of the RC T1000 VOICE unit battery left.

Channel Nr

Displays on which of 10 available channels is telemetry operating on. To change channel number you can connect the RC T1000 VOICE to PC and use PC_RC_Altimeter_Logger v1.3.x software to change it. You can also press Enter, select new channel, press Enter again and enter RC Altimeter #2 PRO serial number. RC Altimeter #2 PRO must be ON if you wish to change channel number that way.

BatAlarm

Displays the voltage threshold to activate low battery alarm. To change the voltage press Enter and > < markers will appear. Change value with the left/right button. To confirm it press Enter button again and > < markers will disappear. Voice alarm will turn ON when battery voltage in your R/C plane will reach the threshold voltage and will stay there for more than 15 seconds. Voice announcements will generate every minute. In battery screen, LOW! text appears.

Download flights

When pressing Enter in this menu, the RC T1000 VOICE will start downloading flights data from the RC Altimeter #2 PRO. All functions are disabled at that time until download reaches 100%. Download can last up to 3 minutes if RC Altimeter #2 PRO logger is full. After the RC T1000 VOICE has finished downloading flight data it will indicate with the text "finished". If there is an error when downloading, "error!" will appear. In either case you must confirm that you have seen message with

Enter button. After that you can connect USB interface to the RC T1000 VOICE as shown on figure 2 and download data from the module to PC.

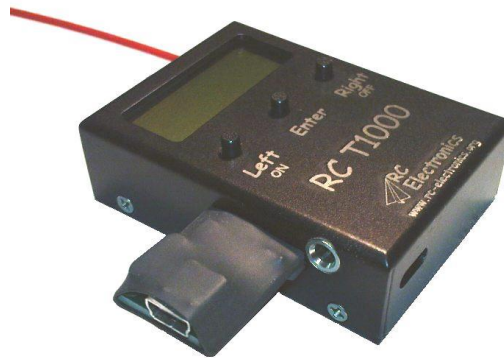


Figure 2: The RC T1000 VOICE with USB interface.

Erase Logger

Press Enter button and you will erase RC Altimeter #2 PRO logger. If error message appears, please try it again.

Logger Settings

Press Enter button and you will enter logger settings menu. At this time all settings are read from the RC Altimeter #2 PRO. If error message appears, exit logger settings menu and please try it again.

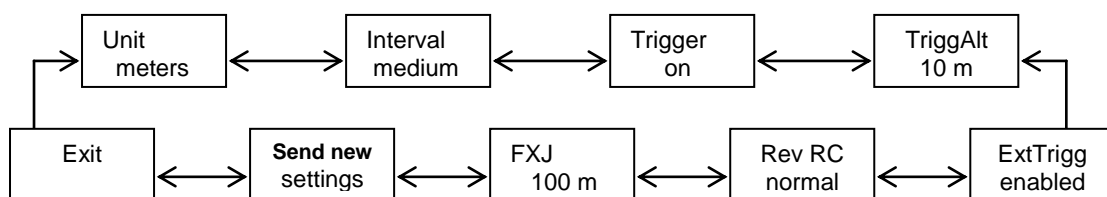
RC T1000 Settings

Press Enter button to enter the RC T1000 settings menu.

Exit

Press Enter button to return to the main menu.

Logger settings menu



Unit

Displays altitude unit. To change it press Enter and > < markers will appear. Change unit with the left/right button. You can choose between meters, yards and feet. To confirm selected unit press Enter button again and > < markers will disappear.

Interval

Displays saving interval of the RC Altimeter #2 PRO. To change it press Enter and > < markers will appear. Change interval with left/right button. You can choose between high, medium and low.

High – altitude will be saved three times per second.

Medium – will save altitude once per second-

Low – will save data once every ten seconds.

To confirm selected interval press Enter button again and > < markers will disappear.

Trigger

Displays the RC Altimeter #2 PRO logger trigger. To change it press Enter and > < markers will appear. Change trigger option with the left/right button. You can choose between on, off, alti and RC.

On – logging option is on and data is logging every time RC Altimeter #2 PRO is ON.

Off – logging option is OFF and no flight data will be recorded.

Alti – the RC Altimeter #2 PRO will start recording flight data when your R/C plane is above altitude entered in the TriggerAlt2 menu. If your plane is lower flight data won't be recorded.

To confirm selected trigger option press Enter button again and > < markers will disappear.

TriggAlt

Displays the RC Altimeter #2 PRO triggers altitude. To change it press Enter and > < markers will appear. Change trigger altitude with the left/right button. Trigger must be set to alti if you wish this function to work. To confirm selected trigger altitude press Enter button again and > < markers will disappear.

ExtTrigg

With Enter you can change between enabled/disabled. If enabled RC Altimeter #2 PRO will record external triggers.

Rev RC

With Enter you can change between normal/reverse. This will have effect when RC trigger is selected. With this option you can chose if you want recording to start on max or min position of yours transmitter stick/switch.

FXJ

Displays the RC Altimeter #2 PRO FXJ altitude/status. To change it press Enter and > < markers will appear. Change FXJ altitude/status with the left/right button. Minimum FXJ switch altitude is 30 m/ft/yrd. To confirm selected FXJ altitude press Enter button again and > < markers will disappear.

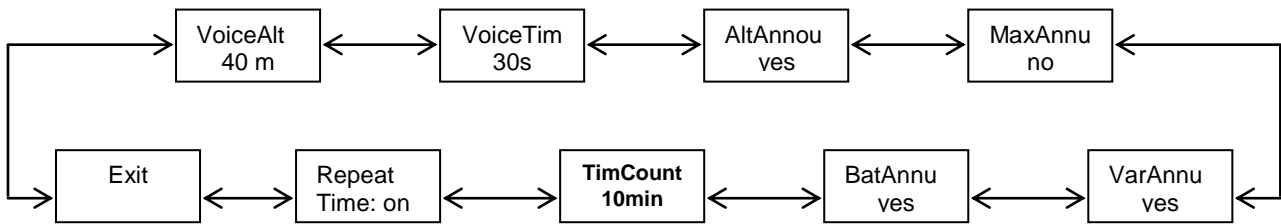
Send new settings

With Enter you will send new settings to RC Altimeter #2 PRO. If error message appears, please try it again.

Exit

Press Enter button and you will return to the settings menu.

RC T1000 settings menu



VoiceAlt

Altitude difference between voice announcements. To change it press Enter and > < markers will appear. Change altitude with the left/right button. You can choose between 10 and 100 m/f/yrd. To confirm selected unit press Enter button again and > < markers will disappear.

VoiceTim

Time difference between voice announcements. To change it press Enter and > < markers will appear. Change time with the left/right button. You can choose between 20 and 600 s. To confirm selected unit press Enter button again and > < markers will disappear.

AltAnnou

With Enter you can select between yes or no. If yes is selected, altitude announcement will be generated.

MaxAnnu

With Enter you can select between yes or no. If yes is selected, maximum altitude announcement will be generated.

VarAnnu

With Enter you can select between yes or no. If yes is selected, vario announcement will be generated.

BatAnnu

With Enter you can select between yes or no. If yes is selected, battery announcement will be generated.

TimCount

Displays timer countdown time in minutes. To change it press Enter and > < markers will appear. Change timer countdown time with the left/right button. To confirm selected countdown time press Enter button again and > < markers will disappear. This function has affect on Timer menu and it is used for F5J, F3K or F3J training. Here you can set task flying time.

Repeat time

If repeat time is ON, then after time countdown is finished, it will automatically start to count down again. This function is used for F3K training (5x2 min and other tasks)

Exit

Press Enter button to return to settings menu. The RC T1000 settings will be stored.

Firmware upgrade

The RC T1000 VOICE module supports the ability to upload new firmware to the module. No installation is required for the Firmware Upgrade software. You can download it from www.rc-electronics.org . After download, run Firmware Upgrade.exe file. Select correct COM port and specify the new firmware file (RC_T1000_v2.xx.hex). After you have selected firmware file, click the "Upload" button. After pressing "Upload" button, **quickly connect USB interface to RC T1000**. Upload of the new firmware will start. You should only use a firmware update file specially provided for the RC T1000 VOICE module. Using an incorrect update file will render the RC T1000 VOICE module inoperable.

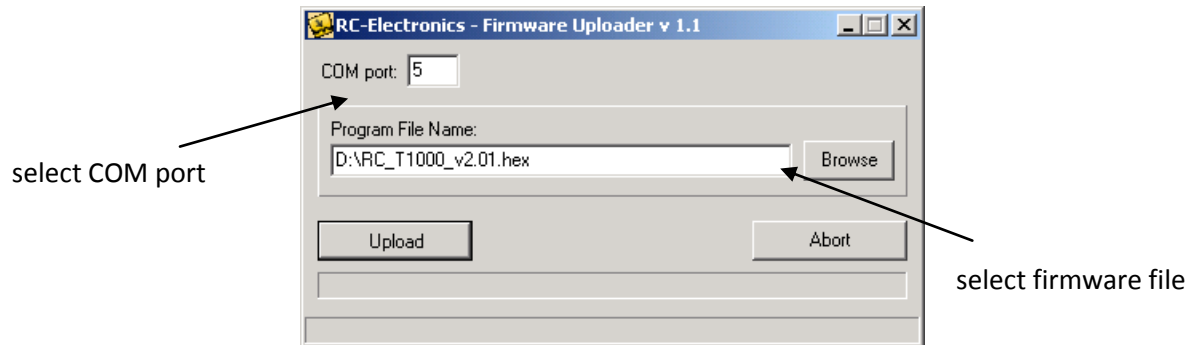


Figure 3: Firmware uploader.