

Lomcovak's Logger-Digital Altimeter

*Dear Customer, thank you for buying **LOLO (Lomcovak's Logger) Digital altimeter**. Altimeter has been designed for use in model aircrafts and rockets. You will never be in doubt or have another disagreement with your friends about your altitude again! Instructions below will show you how to maximize features incorporated into the **LOLO** for your specific application.*

Where to use it?

The **LOLO** has been developed for real-time altitude measurement and recording of model airplanes, helicopters, or rockets. Of course other applications are also possible such as balloon models, biking, hiking etc. Altimeter enables you to store and retrieve an altitude profile of your model or activity. Current altitude is stored in memory at a user-selectable sampling rate (see Usual sampling rates). The maximum memory capacity is 9 hours when the 4 second sampling rate has been selected. Device memory area can be separated into a maximum of 10 individual data recording sessions which are created automatically each time device is switched ON. Each session is independent in length, storage period and altitude data. As an example: You can have one session of your trip to the flying field, then several sessions of flights, and another session of your return trip home. Once at home (or if you have a notebook PC) you can download **LOLO** sessions to your PC for processing and analysis.

Technical Specifications

Dimensions	40x22x17	mm
Weight	10g	
Sampling rate	1 or 3	sec. (See note below)
Total memory capacity	up to 9 hours	(at 4 sec. sampling rate)
Number of sessions (ON/OFF)	max. 10	
Power supply	4.4-9.6	Volts
Current consumption	15mA	
Resolution	1m	(3.281 ft)
Maximum altitude	2000m	(6 562 ft)

*(Note: **LOLO's** sampling rate is user-selectable via a jumper on the altimeter module. If this does not meet your requirements, please feel free to contact us. Sampling rates are possible as frequently as 100ms! The **LOLO** for rocket models also incorporates a magnetic switch for automated data storage at launch.*

Usual sampling rates

- 0.2/0.5 F3F, F3B, F3J and F3K (HLG)
- 0.2/1.0 F3F, F3B, F3J and F3K (HLG) and the others aircrafts with long log possibility
1.0=160min=more than 2.5 hours
- 0.5/2.0 all aircrafts with very long log possibility 2.0=320min=nearly 5.5 hours

It's also possible to make custom (extra costs) made **LOLO** with any combination of two from: 0,1; 0,2; 0,3; 0,5; 1; 2; 1.5; 3; 5; 8 sec.

What did you get?

You should have received following items:

1 - *LOLO* altimeter Module

1 - PC interface (RS-232 standard)

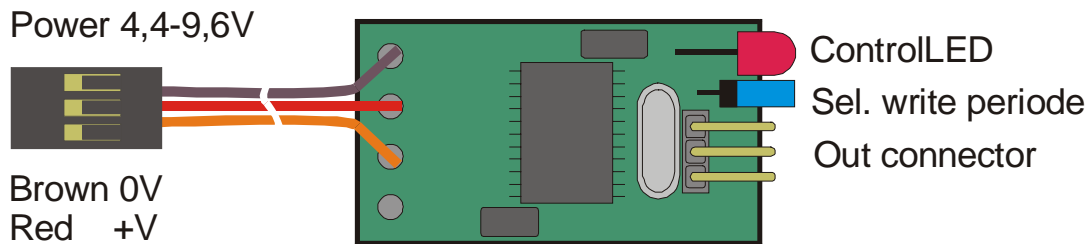
1 - 3.5" Floppy Disk containing the macro for Windows 98 (XP, 2000, NT) & MS Excel to process data.

Starting 15-th November 2002 Floppy Disk will be supplied only on request (extra costs)



Altimeter Installation and Operation

Installation:



LOLO may be installed anywhere that it is physically convenient however care should be taken to ensure that it is not installed close to high-current power cables. Similar to installing a common servo, connect the power lead of the altimeter to your receiver. Device will automatically be powered-up at the same time as your receiver. In the case of model rockets or any other non R/C application, simply connect altimeter to an appropriate power source and it will be automatically activated as soon as power is applied. It is recommended to use switch to turn the power on/off rather than disconnecting device.

Prior to power-on you should set the sampling rate via the jumper located on the *LOLO* (see picture). No jumper installed will be the shorter of two sampling rates. With the jumper installed the sampling rate will be longer of the two rates. The sampling rate is initialized only upon power-up therefore you must disconnect power if you wish to change the sampling rate.

Operation for *LOLO* Standard produced prior July 2002:

Upon power-up LED on your altimeter will flash shortly signaling that the Power-On-Self-Test (POST), initialization of sampling rate, and data block mapping has been completed.

After POST phase, if internal memory IS empty, LED is flashing. It is also a visual indication of the sampling rate. The LED will flash continuously as data is captured and stored in memory e.g. it is measuring current altitude.

After POST phase, if internal memory is NOT empty, you will see LED steady lit. This is phase when *LOLO* is sending data to output (regardless if PC cable is connected or not). Duration of this phase is size of already stored data dependent and can be aprox. 60sec long. You can't skip this phase.

Powering off the *LOLO* terminates the current data recording session. Please note that a maximum of 10 sessions may be stored. Each session represents altitudes recorded between a power-on/power-off event. A new data recording session is started each time the altimeter is powered-on.

If the LED is OFF it is an indication that the maximum session capacity of 10 stored sessions has been reached or that the total amount of data stored for the number of sessions recorded has reached the maximum memory capacity. You should then use the PC interface to download the data to a PC for processing and analysis.

Operation for LOLO Standard produced in July 2002 and thereafter :

Upon power-up LED on your altimeter will flash shortly signaling that the Power-On-Self-Test (POST), initialization of sampling rate, and data block mapping has been completed.

After POST phase the LED will flash continuously in interval 1sec ON/ 1sec OFF. This is initialising phase which allows LOLO to adapt outside environment (temperature, pressure, etc.). Duration of this phase is fixed to 120sec. You can't skip this phase. Please take it in account for ex. during races to switch LOLO at least 2 minutes prior launch!

After above mentioned 120 sec phase LED is flashing. It is also a visual indication of the sampling rate. The LED will flash continuously as data is captured and stored in memory e.g. it is measuring current altitude. Powering off the *LOLO* terminates the current data recording session. Please note that a maximum of 10 sessions may be stored. Each session represents altitudes recorded between a power-on/power-off event. A new data recording session is started each time the altimeter is powered-on.

If the LED is OFF it is an indication that the maximum session capacity of 10 stored sessions has been reached or that the total amount of data stored for the number of sessions recorded has reached the maximum memory capacity. You should then use the PC interface to download the data to a PC for processing and analysis.

Operation for LOLO Race:

LOLO Race you can run in two modes:

Transmitter controlled-using your transmitter you can start logging altitude anytime on request from your transmitter (using any channel or switch)

Transmitter independent-LOLO Race is working as Lolo Standard i.e. after 120s initialization phase starts automatic altitude logging.

Transmitter controlled mode.

In this mode is the logger connected to any receiver output (channel). After switching receiver ON, LED on LOLO is indicating channel status; LED is FLASHING-channel is in MIN position, LED is ON-channel is in MAX position.

For altitude logging start you need to switch over channel status (MIN-MAX-MIN or MAX-MIN) using any controller on your transmitter (stick, switch, potentiometer). Allow at least 1sec interval between position MIN-MAX-MIN (keeping stick, switch on transmitter in position MAX 1sec).

When LOLO is logging altitude you will see flashing LED in interval of choosen (using jumper) sampling rate. You can NOT stop logging using transmitter. If you want to stop altitude recording you have to switch OFF LOLO.

Transmitter independent mode.

In this mode is the logger working as LOLO Standard (you will need this mode maybe on your trekking trip). There is one NECESSARY condition allowing LOLO Race working in this mode. You need to disconnect ORANGE pin in black LOLO housing from receiver output! You can use needle to release pin from black housing and insulate it using tape it or heat shring tube. If you are not going to use Transmitter controlled mode at all you can also cut off orange pin from LOLO cable.

After POST phase the LED will flash continuously in interval 1sec ON/ 1sec OFF. This is initialising phase which allows LOLO to adapt outside environment (temperature, pressure, etc.). Duration of this phase is fixed to 120sec. You can't skip this phase. Please take it in account for ex. during races to switch LOLO at least 2 minutes prior launch!

When LOLO is logging altitude you will see flashing LED in interval of choosen (using jumper) sampling rate.

Installing Software for MS-Excel

(NOTE: MS-Excel is not included with LOLO and must be purchased separately in order to chart/view LOLO sessions)



Insert the 3.5" Floppy Disk into your PC

Run the file InstAlti.exe to install the necessary files to your computer.

Once completed you will find a new file, "Altimeter (.xls)", in the installation directory you chose during software installation process. This file is used to download, store, chart, and view your altitude sessions using MS-Excel software. To run it go: START – Programs – Altimeter – Altimeter Excel sheet or simply double-click the shortcut on your desktop.

Downloading data to your PC

Altimeter sessions can be downloaded to a PC using the PC interface cable.

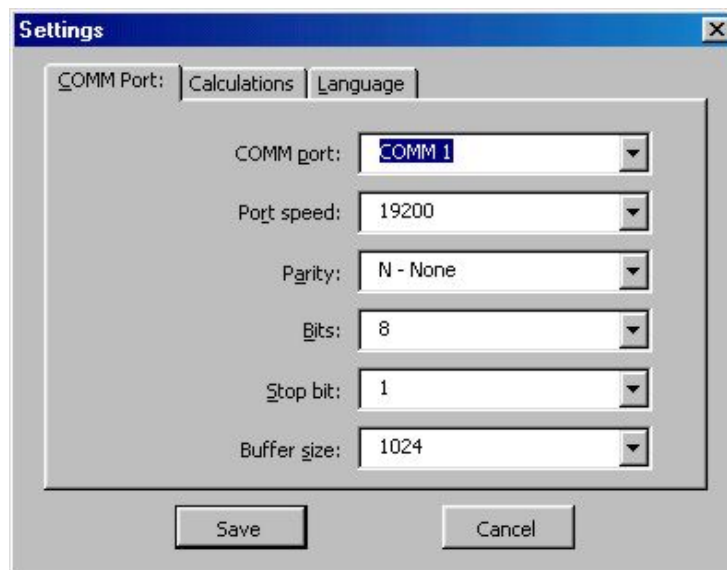
Double click on the file Altimeter in the installation directory to open it in MS-Excel

You will be warned that the spreadsheet contains macros and asked to enable the macros contained in the spreadsheet

Click ENABLE and you will see a standard Excel sheet and a small toolbar with icons (see picture). Note also new menu (top right) called Altimeter in Excel. You can call same functions from this menu as from toolbar.



The first icon enables you to check/set all program settings (see below)

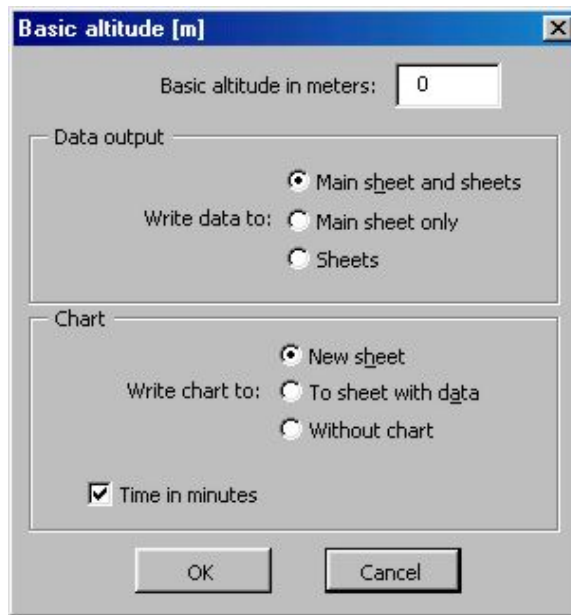


Set program's display language to the appropriate language

Set Serial Port number – usually COM1 or COM2

Set Comm parameters to 19,200 baud and 8-N-1 data bits (these values are predefined, don't change them, communication will not work)

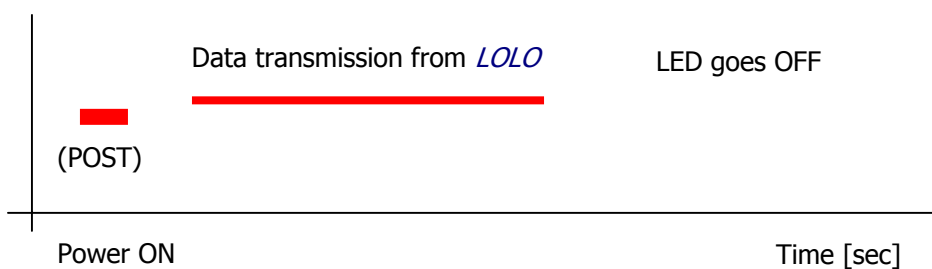
The remaining communication parameters should not require modification



With the *LOLO* powered OFF, connect the interface cable to PC serial port. Plug is reverse-polarity protected and will only connect one way
 Click on the second icon, the yellow lightning bolt and the program will begin waiting for a transmission from device
 You can define basic (offset) altitude. This offset will be just added to every altitude record
 You may also choose to store the data to a different spreadsheet
 You may choose where to store new charts
 You can select time in minutes or sec at X-axis

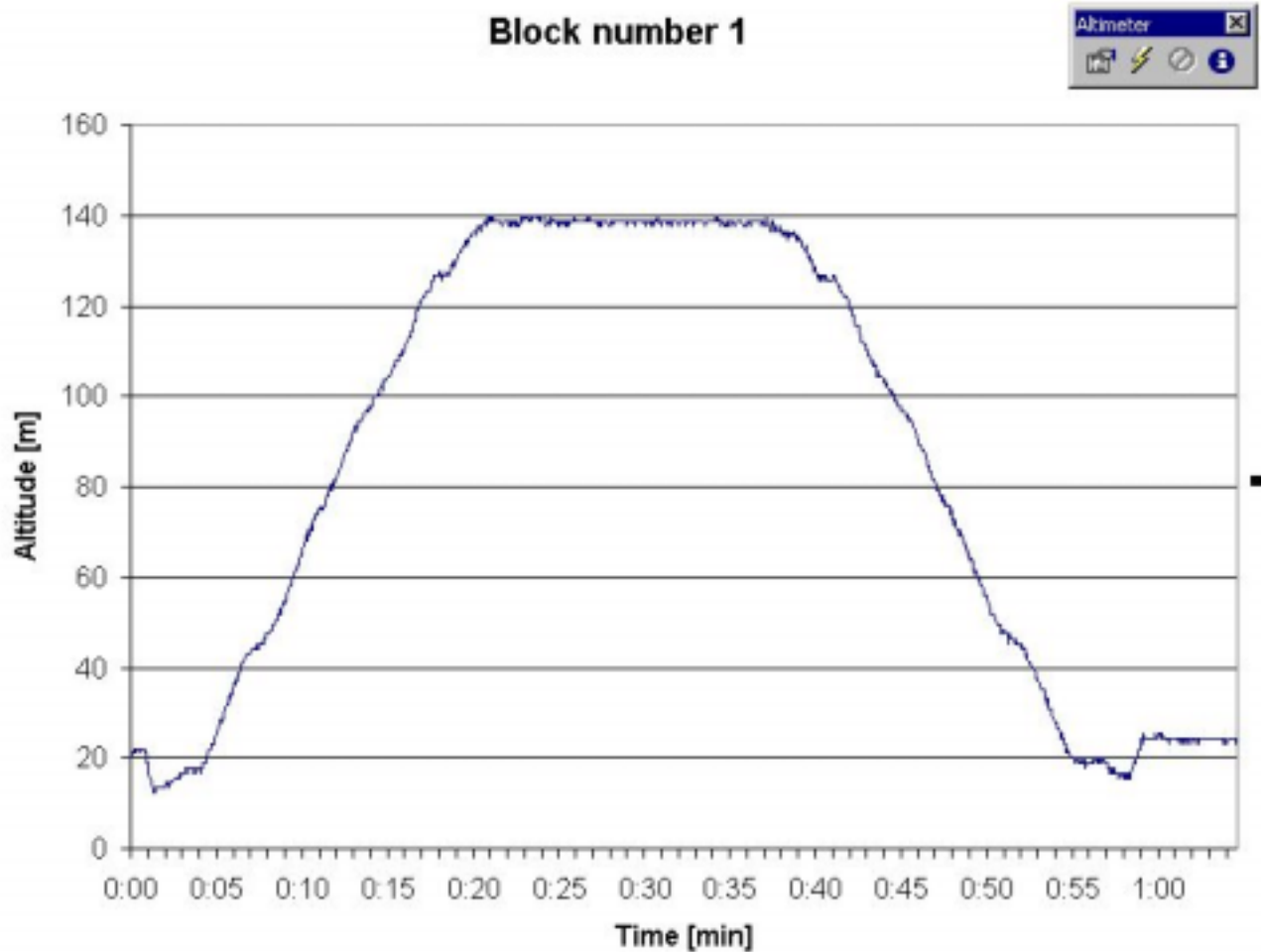
Turn the power ON. Recorded data will be automatically transferred to the Excel spreadsheet. The LED on your *LOLO* will remain lit while data is being transferred. Data transfer time will vary depending of stored data. When LED goes OFF, transfer is completed and you can switch off device.

LED indication – Data transfer



Upon completion of the data transfer macro will begin process data which may take several minutes depending on the speed of your PC

All charts or data can be simply modified using standard Excel features.



Clearing Memory

To clear all data from the *LOLO* memory perform the following steps:

Ensure that power is *OFF*

Connect interface cable to altimeter

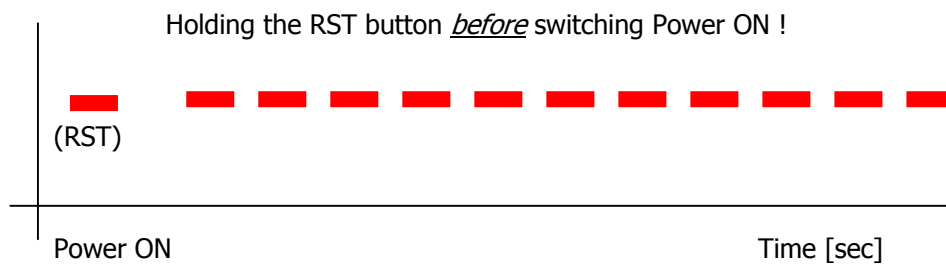
While depressing and holding the RST button on the interface cable switch *ON* the power for the altimeter

Once the *LOLO* LED begins to blink rapidly, the memory area has been cleared successfully

Switch the power to the *OFF* and disconnect the cable

Altimeter is now ready for operation again when next powered-on

LED indication – CLEAR Memory



Notes and Warranty Informations

Install altimeter as far as possible from high current wires

Power spikes may affect altitude readings and proper operation of the altimeter is guaranteed only when supplied with power free from any interference

If the power source of your model is not appropriate for the altimeter please use a separate power source. A good choice is a 4.8V 110mah capacity pack, which should be sufficient for 5 hours of continuous operation. The *LOLO* is warranted to be free from manufacturing and material defects for a period of 24 months from the original date of purchase.

Improper installation or damage to the external plastic cover will void your warranty

Unauthorized repairs or modifications will void your warranty

Sales and service

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