

# Quick Guide

# Unipro Laptimer

# 6003

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Go faster faster

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## Introduction

Thank you for trusting us to deliver the most advanced Laptimer on the market.

This Manual includes detailed information about your Unipro Laptimer. If you need a quick overview of the functions, and a guide to the daily use, you may want to look at the QuickGuide first.

The Unipro Laptimer has several unique features and will measure every piece of information with a speed and accuracy you have only dreamt about! It really enables you to use your Laptimer as a tool to go faster, faster.

We did all we could to make your investment as future proof as possible and you should be able to enjoy it in many years to come. Therefore it is possible to expand the Laptimer with new accessories as they are being developed.

If you have a special request either for new accessories or for a new feature, please let us know. We constantly try to develop our products with the most useful features so you can use the Laptimer to go faster, faster but we always appreciate good ideas from the users of our products.

If you have any problems or questions regarding your Unipro Laptimer we will make sure to give you the necessary support.

Please e-mail your questions to [support@uniprolaptimer.com](mailto:support@uniprolaptimer.com) or contact your local dealer.

Good luck on the tracks!

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## Get ready to go!

In this chapter, we will give you the most necessary information about what to do before you can start using your Laptimer. If you are an experienced user, looking for exact information, you may want to jump to the reference manual.

### ***Do you have the necessary accessories?***

If you have bought the basic package you should have following parts to your Laptimer:



**Main Box**



**Display Unit**



**Receiver – Loop, Magnet or IR**



**RPM Sensor**

You may also have bought any of these extra accessories:



**Cylinder Head Sensor**



**Water Sensor**



**T-Junction**



**Exhaust Sensor Kit**



**Speed Kit**



**USB Cable**

The Unipro Laptimer can work with three different temperature sensors at the same time.

## Installation

Your Laptimer is a precision instrument and you should take the necessary time to ensure correct installation. A basic rule is to start from the sensors and go back to the Laptimer, never the other way. If cables are too long, they should always be looped at the end near the Laptimer. Use plenty of strips to fix the cables to the frame.

### DISPLAY UNIT

The Display Unit is mounted on the steering wheel. Due to the ultra thin Display Unit, you will not have any problems with regulations.

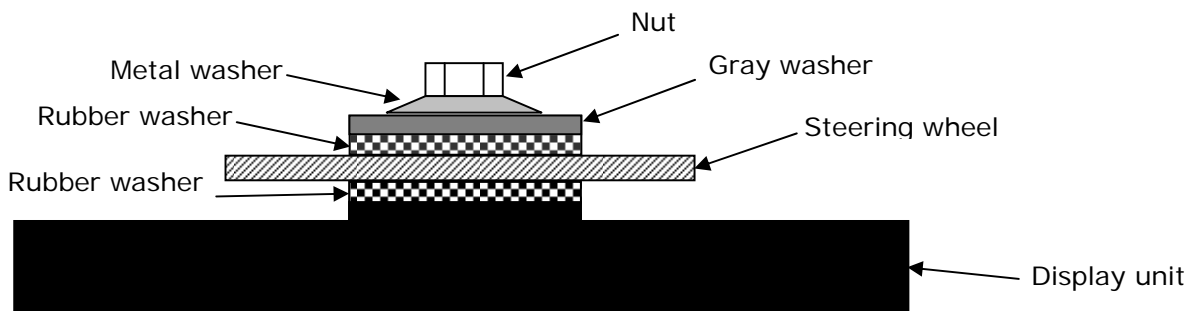


Figure 1. Display unit mounted on steering wheel



**First, the Display Unit is mounted on the steering wheel.** Choose a hole that gives a good placement at the top of the steering wheel. On some steering wheels, it is necessary to make the hole a little bigger. Remove the nut, the gray washer and *one* of the two black rubber washers. These parts are mounted on the back side of the steering wheel, as shown in figure 1.

### **It is important to keep the right order of the washers.**

Please follow this sequence:

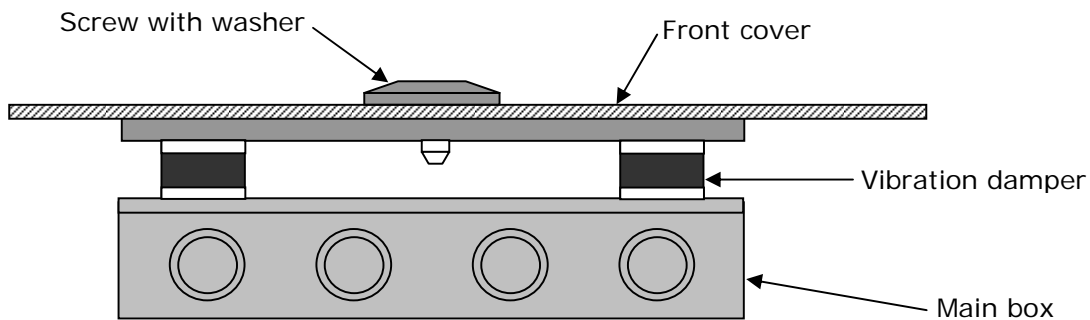
Nut – metal washer – gray plastic washer – black rubber washer – steering wheel – black rubber washer – Display Unit.

Tighten the nut when the display is strait and centered in the steering wheel. This picture shows the correct mounted Display Unit.



### MAIN BOX

The main box is mounted behind the front cover. The following picture is showing the main box and its components.



**Figure 2. Main Box with fittings**



**The main Box is mounted behind the front cover.**

First, a 6.5 mm hole is drilled in the cover. Some karts have a recess in the coat suitable for drilling the hole in. If you press hard on the sticker, you can see where to drill the hole. It is a good idea to look from the back before drilling!

**Use the enclosed umbracho screw**

The enclosed screw is screwed through the front coat to ease the mounting of the main box. Use a 5 mm umbracho.





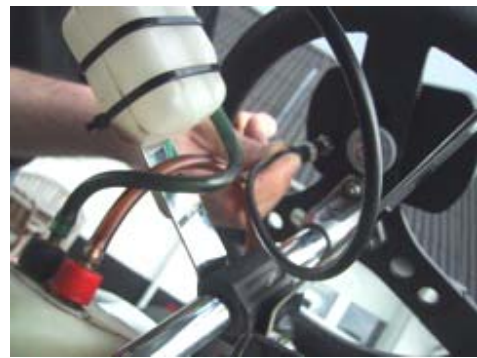
**Make sure that the cable for the Display Unit is pointing upwards.**

The Main Box is held with one hand and the umbracho screw is tightened with the other hand. The cable for the Display Unit must be pointing **upwards**. Make sure the box is placed straight before tighten the screw hard.

The picture shows the Main Box after it is correctly mounted behind the front cover. With the Display Unit and the Main Box correctly mounted, you connect the Main Box and the Display Unit, and start to install the different sensors.

**Cable from the Main Box to the Display Unit.**

The cable for the Display Unit is now routed from the Main Box, along the steering column, to the connector on the Display Unit. Tighten the connector hard, but only use your fingers.



**Make sure the cable isn't squeezed.**

It is very important that the cable cannot be squeezed, even at full swing of the steering wheel. Make a loop on the cable and strip it to the steering column. Test by turning the steering wheel all the way to both sides and feel if the cable at any points feels tight.

## RPM SENSOR

The RPM sensor comes standard with every Unipro Laptimer. We use an active sensor to ensure the best possible signal from all kind of engines. Mount the sensor with care. You do not want it to fall of during a race. If that happens, the Laptimer will turn itself off after 5 minutes and you will no longer be able to see your lap times.



### **Mount the sensor with at least two strips.**

The RPM sensor is mounted at the end of the ignition cable, near the spark plug cap, with at least two strips.

The ignition on a gokart is the worst source of electrical noise and it is therefore a good idea to keep the RPM cable away from the ignition cable.

Please do not let the RPM cable touch the cylinder or the cylinder head because it can tear the isolation and shield and cause disturbance. The most important issue is to separate the RPM cable from the ignition cable just after the sensor. This is clearly shown on the picture. Do **not** let

the two cables run together!

The cable is mounted in the connector marked **RPM** on the main box. Tighten the connector hard with your fingers.

## RECEIVERS

The Unipro Laptimer supports all kind of receivers. The different receivers are good for different things. If the track has a loop, we recommend using the Loop Receiver.

### **AMB Loop receiver**



### **Mounting the Loop receiver.**

The Loop receiver is mounted as low as possible on the left side of the seat. Drill a 6.5 mm hole from the inside of the seat. The distance from the underside of the Loop receiver to the asphalt must not exceed **100 mm**.

The Loop receiver is mounted parallel with the seat and needs to point backwards against the rear axle. Make sure, that nothing comes between the receiver and the track.

### **Use plenty of strips to secure the cable to the Main Box.**

When the receiver is mounted, the cable is fixed to the middle of the kart, all the way to the Main Box. Use plenty of strips to secure the cable.

The cable is mounted in the connector named **RECV 1** on the Laptimer. Tighten the connector hard with your fingers.

## Magnet receiver



### Mounting the magnet receiver.

The best place to mount the magnet receiver is lengthwise on the bottom plate. Measure and drill the hole from the backside. The most important issue is to minimize the vibrations to the receiver. The most common placement of the magnet receiver is at the very front of the bottom plate, with the cable facing forward.

The distance between the receiver and asphalt **must not exceed 50 mm.**

### Make sure that the cable is fixed properly.

Lead the cable up on the back side of the front cover and into the Main Box. It is important that the cable is fixed properly. We recommend that you use strips to fix the cable to the front cover.

The cable is mounted in the connector marked **RECV 1** on the Main Box. Tighten the connector hard with your fingers.



## Infrared receiver



### Mounting the Infrared receiver.

The best place to mount the infrared receiver is behind the front cover. Measure and drill the hole from the side. The most important issue is to mount the receiver horizontal.

Remember to place the infrared transmitter at the same height as the infrared receiver at least 3 meters from the track.

**Make sure that the cable is fixed properly.**

Lead the cable up on the back side of the front cover and into the Main Box. It is important that the cable is fixed properly. We recommend that you use strips to fix the cable to the front cover.

The cable is mounted in the connector marked **RECV 2** on the Main Box. Tighten the connector hard with your fingers.



TEMPERATURE SENSORS

On the 6002/7002 it is possible to use up to three temperature sensors. Two of them (Temp 1 + 2) are using a standard which is limited in the temperature range, but has a very high precision. These inputs are used for the cylinder head sensor and water sensor. The last input (Temp 3) is able to measure very high temperatures, and can therefore be used for the exhaust sensor.

**Cylinder head sensor**

This is the cylinder head or plug sensor. There are different types, depending on your engine type. The cylinder head sensor must be use with the temperature 1 or 2 input.



**Remove the washer on your spark plug before mounting**

The ring for the sensor is mounted between the cylinder head and the spark plug. Use plenty of strips to secure the cable from the cylinder head to the Main Box. You may need different types if you use different engines. Ask you dealer or contact Unipro if you are in doubt.

Mount the cable in the connector marked **TEMP 1** or **TEMP 2** on the Main Box. Tighten the connector hard with your fingers.

**Exhaust sensor**

The exhaust sensor is used to measure the temperature of the exhaust gas from the engine. It is important to mount it correctly, at the right position. If you mount the sensor to far away from the piston, you will measure temperature of the flame instead of the gas! **Use only the TEMP 3 input for the exhaust sensor!**



### **Weld the bush on the exhaust pipe 12-15 cm from the piston.**

The bush is mounted on the exhaust pipe. The distance should be 12-15 cm from the backside of the piston. Do not drill a hole in the exhaust pipe before you have welded the bush on the pipe.

After the bush is welded on the exhaust pipe, drill a 4.1 mm hole in the middle of the bush through the exhaust pipe. Be careful not to damage the pipe on the other side when you drill through the pipe.



### **Mount the sensor in the bush.**

After the hole is drilled, the sensor is pushed all the way in and tightened. Fix the cable to the seat, and all the way to the Main Box, so it is well protected.

The cable is mounted in the connector named **TEMP 3** on the Main Box. Tighten the connector hard with your fingers.



## **Water sensor**

This is the sensor for measuring the water heat. Use either **TEMP 1** or **TEMP 2** for the water sensor. When you drive a kart with water cooled engine, the heat of the cooling water is of course important for the performance of the engine.



### **Mounting the water sensor.**

The water sensor is mounted on the hose that goes from the cooler to the engine. It is best to mount the sensor on the hose so the sensor sits near the seat, pointing downwards.

Cut the hose in the right place and remember to put the two hose clamps on the two ends of the hose before inserting the T-junction in the hose.



Tighten the two hose clamps to secure the T-junction in the right place.

Mount the cable on the sensor and tighten it hard with your fingers. Then fix the cable with strips to the frame and lead it all the way to the Main Box.



Mount the cable in the connector marked **TEMP 1** or **TEMP 2** on the Main Box. Tighten the connector hard with your fingers.

### WHEEL SENSOR KIT

The wheel sensor kit is used for many of the advanced features in the Laptimer. For instance speed, splits, tire wear counters, lap length and more.

#### **The sensor disc**

The sensor disc is mounted on the front wheel with pressure on in most of the corners on the track. On most tracks this will be the left front wheel. But it is always best to count the corners of the track, and then choose the appropriate wheel.



Dismount the wheel and put the centering bush in the inner ring of the bearing.



The sensor disc is placed over the centering bush and it is held firmly down. Then tighten the three small screws that fix the sensor disc to the wheel. Tighten the three screws hard, so the



sensor disc doesn't go loose when you're driving. After the sensor disc is mounted, the centering bush is removed again. The wheel is now ready for mounting again.

### The wheel sensor



The sensor fitting is mounted in a suitable hole in the stub axle. Depending on the kart model, it can be necessary to drill a hole in the stub axle.

If you mount the fitting so the edge is 35-40 mm from the sensor disc, you will be able to make some adjustment on the sensor without having to move the fitting.

Mount the sensor in the fitting so the distance between the sensor and the sensor disc is between 3 and 10 millimeters.

If you experience problems with the speed, this distance is the first thing to check!





The cable is fixed to the frame in a nice large curve so the wheel can turn without the cable being caught or tightened.

Remember to make the loop large enough to allow adjustment of the sensor when you change the front width of the kart.

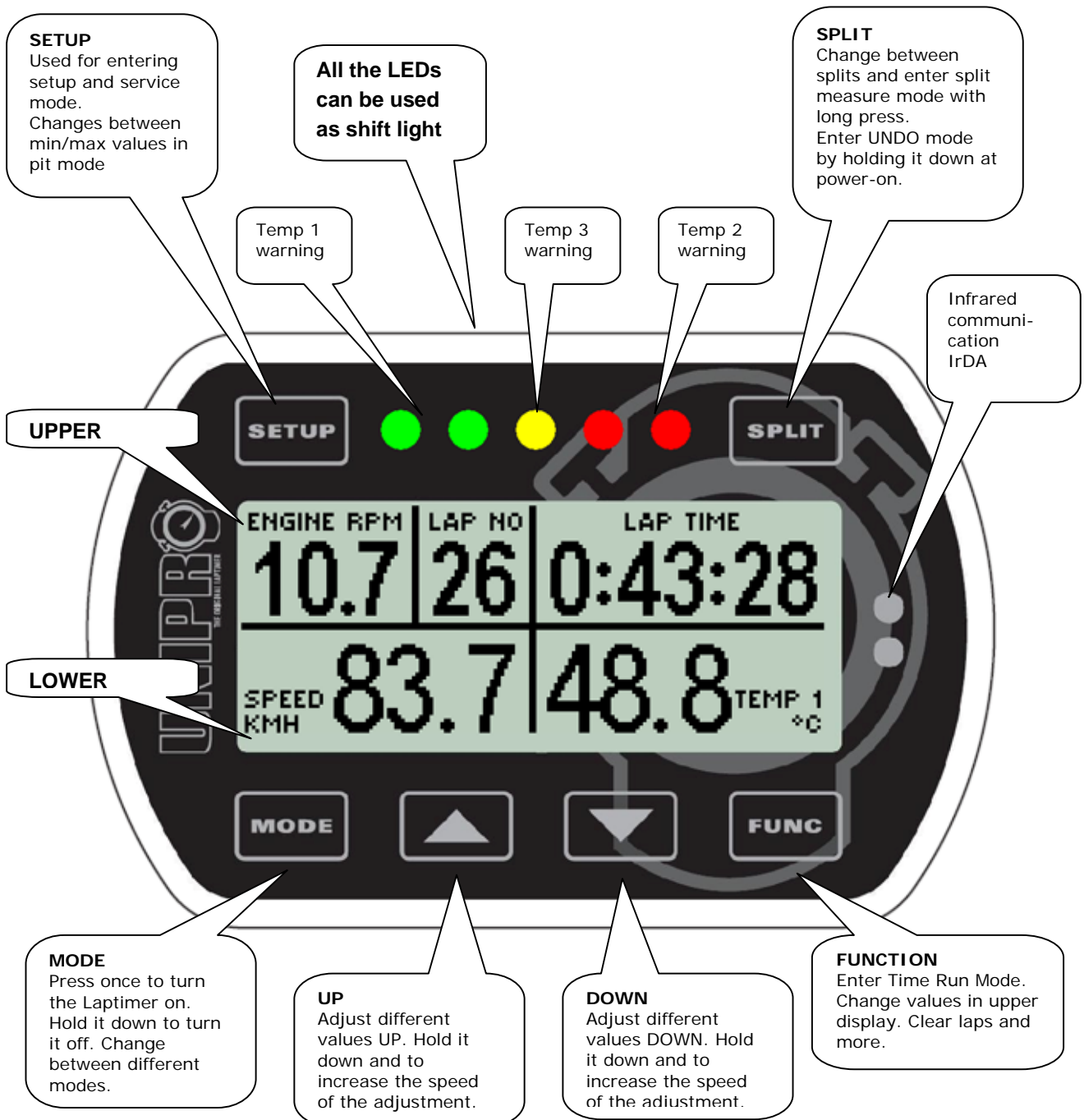
Fix the cable to the frame with strips all the way to the Main Box. The cable is mounted in the connector named **WHEEL** on the Main Box. Tighten the connector hard

with your fingers.

## Basic functions and setup

We have put a lot of experience and effort into making the Display Unit very easy to operate on the track and in the pit. The feedback we get from drivers and teams using the Unipro Laptimer tells us that we have succeeded. Here you can get an overview over the functions on the Display Unit.

### DISPLAY BUTTONS



## BASIC SETUP

Go to setup mode, and make sure that the basic settings match your actual setup. You enter setup mode this way:



1. Press MODE to turn on the Laptimer
2. Press SETUP to enter setup mode
3. Press SETUP again to browse through the different setup screens

You can read about all the setup screens in the reference manual. Here we will introduce you to the ones you need to know to get started.

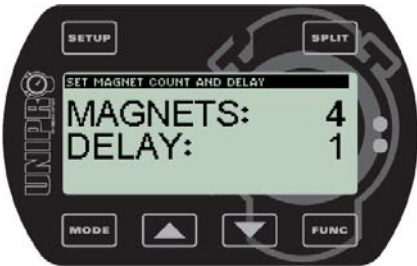
## RECEIVER TYPE



The Unipro Laptimer can use all types of receivers. You can choose between IR (infrared), Loop (AMB active loop) and magnet (magnet stripe in the track).

Use the  and  buttons to choose the receiver type connected to the Laptimer.

## MAGNET SETUP






If the receiver type is set to Magnet this is the next step. It is the most important setup before you start driving on a new track. You need to set two values. The number of magnets from the pit to the finish line (1 in this example) and the total number of magnets on the track (4 in this example). See how to set the values in the next to screens.


## MAGNET COUNT



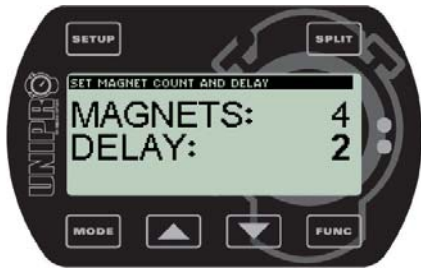
### **Set the total number of magnets on the track.**

When you press  from the Magnet setup screen, you can edit the total number of magnets on the track. You can choose between 1 and 8 magnets. If you don't know the number of magnets, you can set the Laptimer to use only one magnet and then drive one lap. Then you can see how many times the Laptimer triggers.

Use the  and  buttons to adjust the total number of magnets.

When the correct number of magnets are entered, press  to edit the number of magnets from the pit to the finish line (See the next screen).

## MAGNET DELAY




### **Set the number of magnets from the pit to the finish line.**

This is the number of magnets you need to delay when going from the Pit to the finish line. In this example, you need to pass two magnets when going out from the Pit. This means, that on the out lap (or first lap) the Laptimer ignores the first two magnets and then start the Laptimer when passing the

third one.

Use the  and  buttons to adjust the magnets delay.

Press  to save and return to the magnet setup screen.

### **More settings**

If you want to get the full benefit of your Laptimer, we recommend that you use some of the more advanced features and accessories. The most used accessories are:

- Temperature sensors for cylinder head, exhaust and / or water
- Speed kit, which enables you to use split times and speed
- Data Analyser and PC Analyser to view and analyse your data

We will get back to this later in the Quick Guide, and you can read all about it in the Reference Manual. With the settings mentioned above, you can start to use your Laptimer, getting precise lap times and RPM values.

## Practice and race using the basic functions

Now you can start using your Laptimer. The Laptimer have some different operating modes. We have already told you about the setup mode. To use the basic functions of the Laptimer, you need to know these three modes:

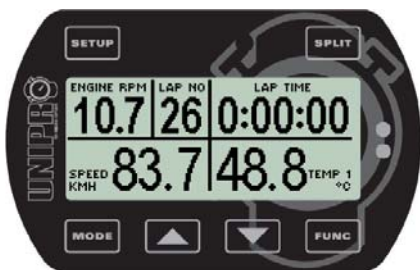
- First lap mode – the Laptimer always starts in this mode
- Running mode – the Laptimer shifts to running mode when passing the finish line
- Pit mode – Enter pit mode by pressing MODE from First lap or Running mode

After reading the information about the three modes, you can use the basic functions of your Laptimer in practice and race. When you are familiar with these functions we recommend that you start to take advantage of the more advanced functions – these will really help you to improve your lap times.

### Operating modes

#### FIRST LAP MODE

This is the mode when the Laptimer is turned on. It is from the pit to the finish line for the first lap.



When the Laptimer is turned on with the **MODE** button, it starts up in firstlap mode. This is the part of the race going from the pit to the finish line for the first time.

It will always start from the last lap shown in the Laptimer, so you will never “overwrite” anything when turning the Laptimer on. However, If you have looked at the lap times in pit mode, you must be careful to show the last lap before going onto the track again, since the Laptimer will start from the last shown lap when you come from Pit mode. You can also shut the Laptimer down (press Mode for 3 seconds) and the turn it on again before going to the track.

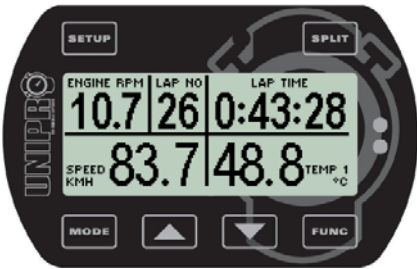
If you are not in firstlap mode when the engine is started, the Laptimer will automatically change to firstlap mode when it detects a signal from the RPM sensor. This way, you cannot drive around in pit mode, and think you are getting lap times. It is however possible to change back to pit mode when the engine is running!

The “-2-” is telling how many magnets you need to pass before the finish line. This is the so-called stripe delay. It is possible to manual adjust this delay in firstlap mode. If driving with Loop or IR receiver, this part of the display is blank.

When passing the finish line for the first time, the Laptimer change to running mode.

## RUNNING MODE

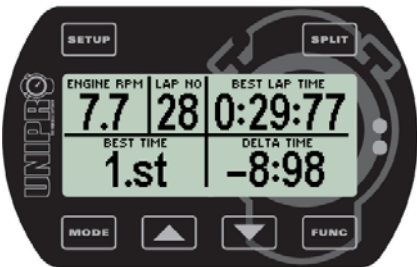
The Laptimer will automatically turn to running mode when you pass the finish line.



When the finish line is passed for the first time, the display shows 0:00:00 to indicate that the timer is started.

All data are updated in the display every 0.5 seconds. In the display set-up you can define which values you want to show in the lower part during the race. You can choose which data to show in the lower display with the **FUNC** button.

The upper part of the display will always show RPM, Lap number and lap time. Small icons will help you identify the value shown. Indication of the best lap is done with the **BEST** icon above the lap time.

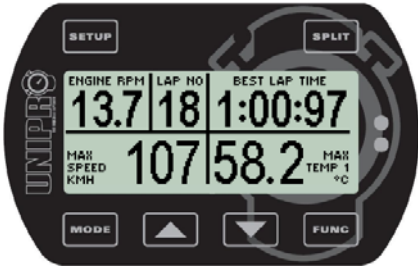


When the Laptimer is passing the finish line, it is showing the difference between the current lap and the best lap and its position. In the shown example, the current lap is 8.98 seconds better than the previous best lap and the current lap is the best lap (in position 1) This information is shown for 5 seconds before changing back to data display. Only times between +/- 9.99 seconds and positions from the 1st to 10th are shown

## PIT MODE

After the race, you can view all the stored data in pit mode.

## NORMAL DATA VIEW

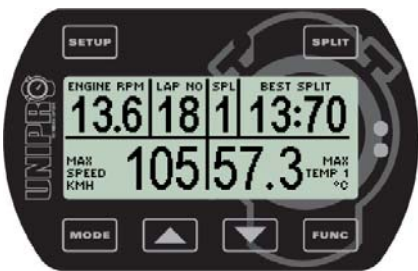


Pit mode is for analysing the data stored in the Laptimer. If **MODE** is pressed from either firstlap mode or running mode, you will enter pit mode.

When entering pit mode, the Laptimer jumps to the best lap. In this example, the best lap is lap #18. From this point, you can go two ways: If you press **▲** you will go to the next

lap (19 in this example). If you press the **▼** button, the Laptimer jumps to lap # 1.

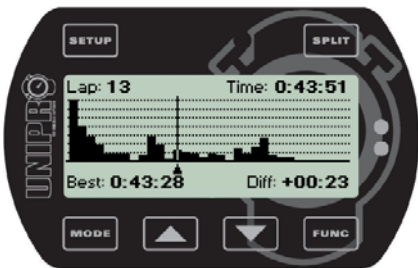
The BEST LAPTIME icon at the top indicates the best lap time. The **FUNC** button changes the data shown in the upper display. **SETUP** changes between the high (maximum) and the low (minimum) data values stored.



When driving with splits, everything is stored on splits as well as laps. Use the **SPLIT** button to toggle between all the splits stored in the Laptimer. This example shows the maximum data and the split time for split number 1.

The segment from the last split point to the finish line is called split last. This split is marked L instead of a number.

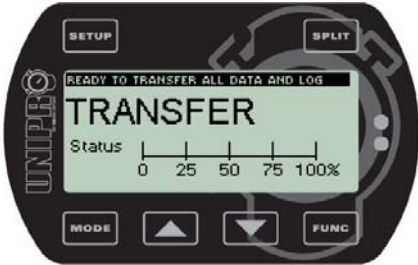
## GRAPHICAL DATA VIEW



On this screen you can scroll through the laps and see the current lap time, best lap time and the difference between the current and the best lap time well as laps. Together with the numbers there is a graphical view of the difference between current lap time and best lap time. Use **▼** and **▲** to scroll through the laps.

## PC MODE

PC mode is for transferring the data from the Laptimer to the Data Analyser, a PC or something else.



If the Laptimer is set to use USB, you will see this screen when the USB cable is connected. This shows the status of the USB link (PC icon on when USB cable is in) and after this you will choose Receive from the PC Analyser program to start the transmission. When the display shows “Finished” the transmission is finished.

If the Laptimer is set to use IrDA or Analyser (infrared), the screen will be shown when pressing **MODE** in pit mode.

Press **FUNC** to enable the IrDA communication. The display will then change to the PC 0% SENT. Now you only need to point the Data Analyser to the display unit, and it will start to transfer the data wireless.

Please notice, that the logged data is **not** transferred to the Data Analyser using IrDA. If you want to analyse the logged data, you need to transfer them with the USB cable.

## SPLIT MEASURE MODE

The split measure mode is used when you have the wheel sensor kit, and you want to set the split points while driving a round on the track. Draw the track on a piece of paper, mark the split points and then set them when driving a round on the track in split measure mode.

### DEFINING THE SPLIT POINTS WITH THE USE OF THE WHEEL SENSOR

When you define split points for a track the first time, the easiest way is to do as follows:

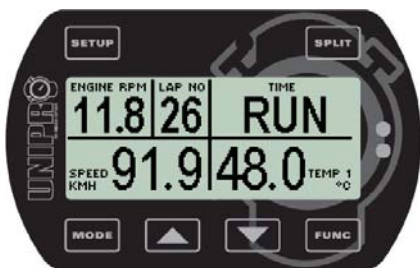
1. Make sure that you have downloaded all data from the Laptimer. All laps will be erased when you set new split points.
2. Decide where on the track you want to have the split points. It can be a good idea to start with just two or three split points, and then set more points when you have become familiar with analyzing the data.
3. Get the kart and driver ready for driving a first lap where the split points are set.
4. Turn the Laptimer on by pressing **MODE**
5. Press and hold down **SPLIT** until the message “Clear Splts” is shown in the display.
6. Now all laps and split points in the Laptimer are erased and you are ready to drive out and set the new split points.
7. Every time you come to a split point, press **FUNC** to set the split point. When the first lap is driven, the Laptimer will automatically change to running mode.

The split points can then be duplicated on other Laptimers. The split points can also be entered manually in the Laptimer or can be transferred from the Data Analyser or the PC Analyser program. In the PC Analyser software there is a Split Point Wizard you can use to set the split points. This is a graphical way of setting the split points at the right places.

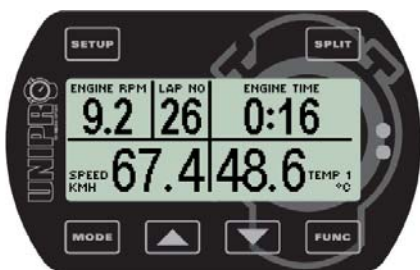
### TIME RUN MODE

Time run mode is for breaking in new engines. This combines two functions:

1. Hiding the lap times from the driver
2. Start a stopwatch, showing the time driven with the engine



Time run mode is entered by pressing and holding **FUNC** while turning the Laptimer on with a short press on **MODE**. The display will show "RUN" in the display to indicate time run mode. This will be shown all the time in firstlap mode.



When the finish line is passed for the first time, the display change to show the engine stopwatch. This stopwatch is running all the time the engine is started. **No** lap times or delta times will be shown during the practice. However all data is stored as usual, and can be viewed in pit mode. The engine stopwatch will start from zero when the Laptimer is changed to pit mode and back again.

Turn the Laptimer off when you want to leave time run mode.

### CLEAR ALL LAPS



Clearing all data in the Laptimer is easy!

Turn the Laptimer on and press the **FUNC** button for three seconds to clear all the data stored in the Laptimer. If this is done by accident, you can use UNDO mode to undo it again!

After doing clear laps, the Laptimer starts in firstlap mode ready to drive again.

No settings are cleared, only the laps and the logged data! We recommend clearing the Laptimer after each run. If you have too many laps in the Laptimer, it will get harder to analyse your data. Transfer the data to the Data Analyser or a PC before you clear the laps. Please remember, that the logged data can only be transferred to a PC, and not to the Data Analyser.

## **Take advantage of the advanced features**

When you are familiar with the basic functions of your Laptimer, it's time to really use the Laptimer to improve your lap times.

The most important of the advanced features are:

- Split times / Split points
- Temperature sensors
- Data Analyser and PC Analyser

### **Split points**

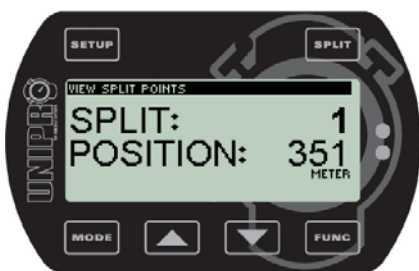
Dividing the track into smaller sections is one of the most important features of the Laptimer. It will enable you to see all data in the laptimer for each section of the track. There are two ways of using splits with your Unipro Laptimer:

1. Splits with magnet stripes
2. Splits with wheel sensor

#### SPLITS WITH MAGNET STRIPES

If the track has more than one magnet stripe, it is possible to use the rest as split points. When you have made a correct stripe setup, as mentioned above, you just need to set the Laptimer to use the stripes as split points. The only problems are that you may not have enough split points, or you may want to have the split points in different places. You can solve these problems by using the wheel sensor to set the split points.

**Make sure, that you have downloaded all data from the Laptimer before changing the split points.** All laps will be cleared when you change the split points.



Press **SETUP** until you get to the split point viewing screen.

Then press **FUNC** to go to the split point editing screen.

Press **SPLIT** until you get to the split magnet screen. Then

press **FUNC** to leave the editing screen, and save the setup.

#### SPLITS WITH WHEEL SENSOR

Using the high precision wheel sensor, you can define up to 8 points on the track as split points. This will divide the track in up to 9 segments giving you the possibility to optimize your kart setup and driving style for each segment of the track individually. You can set the splits in setup mode, during the first lap, wireless from the Data Analyser or using the USB cable from the PC Analyser program.

#### **Defining the split points with the use of the wheel sensor**

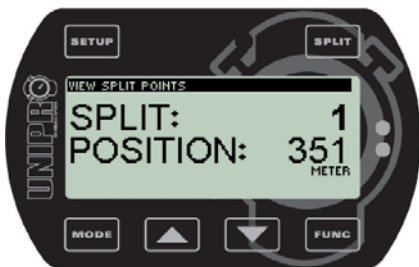
When you define split points for a track the first time, the easiest way is to do as follows:

1. Make sure that you have downloaded all data from the Laptimer. All laps will be erased when you set new split points.
2. Decide where on the track you want to have the split points. It can be a good idea to start with just two or three split points, and then set more points when you have become familiar with analyzing the data.
3. Get the kart and driver ready for driving a first lap where the split points are set.
4. Turn the Laptimer on by pressing **MODE**.
5. Press and hold down **SPLIT** until the message "Clear Splts" is shown in the display.
6. Now all laps and split points in the Laptimer are erased and you are ready to drive out and set the new split points.
7. Every time you come to a split point, press **FUNC** to set the split point. When the first lap is driven, the Laptimer will automatically change to running mode.

Each split point is measured in distance from the finish line, and stored in the Laptimer. You can use the stored data in different ways:

- a. You can write down the placement of the split points, so you can use the exact same split points next time you are driving on the same track.
- b. You can use the split point information to set the same split points on other Laptimers in the team.
- c. You can change the split points manually, if you are not satisfied with the placement.

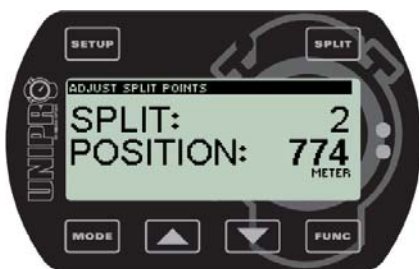
#### VIEWING THE SPLIT POINTS



Press **SETUP** until you come to the split point viewing screen. Then press **SPLIT** to see the different split points.

In this example you can see that split point no. 1 is set at 351 meters from the finish line. Press **FUNC** if you want to adjust the split points manually.

#### EDITING THE SPLIT POINTS

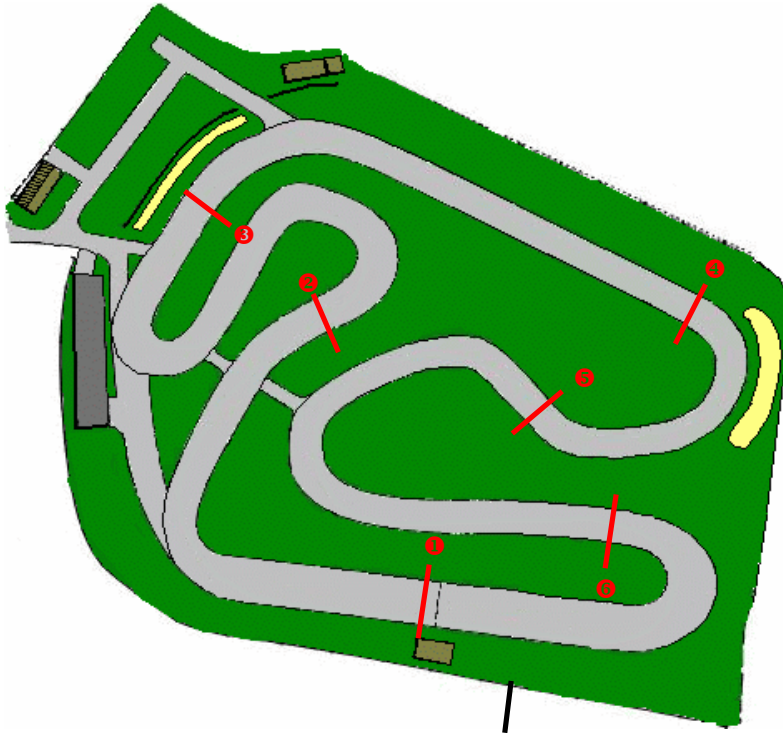


Press **FUNC** from the split point viewing screen to edit the split points manually.

Use **SPLIT** to change the split number. Use **▼** and **▲** to change the distance from the finish line to the actual split point. Leave the split point editing screen again by pressing **FUNC**.

**Make sure that you leave the split point editing screen from the last split point you want to use.** The split number shown in the display when you press **FUNC** is going to be the total number of splits saved in the setup. You can set up to 8 split points.

## Typical track with 6 split points



Please be aware though, that the split function with the wheel sensor will **not** work well on a kart with four-wheel brakes because the sensor needs to be on a free running wheel! In that case, you must use a magnet receiver and the magnet stripes as split points.

## **Temperature sensors**

The Unipro Laptimer can work with up to three temperature sensors. You can choose between the following sensors:

- Cylinder head temperature
- Exhaust gas temperature
- Water temperature (on water cooled engines)
- Tire temperature sensor will be available in the near future

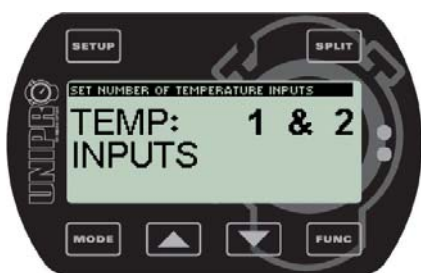
Besides the three temperature sensors the Unipro Laptimer has a built in thermometer measuring the environment temperature. This temperature is stored with the lap times and other data. This can be a good help when analysing your results.

The temperature sensors can give you important information about the performance of you engine, enabling to see the effect on both engine performance and lap times.



### SETUP THE TEMPERATURE INPUTS

When you have installed temperature sensors you need to setup the Laptimer. Turn on the Laptimer and press SETUP until you see the temperature input screen.

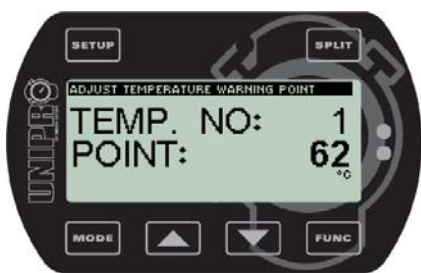
## TEMPERATURE INPUTS






It is here you define how many temperature inputs you are using. Choose the right combination of the 3 temperature inputs. The reason to turn the inputs on or off is to save battery power and to adjust the user interface to the real setup.

Use the  and  buttons to select the combination of temperature inputs you are currently using. You will only have to do this again if you add or remove temperature sensors.

## TEMPERATURE WARNING POINTS



Here you can define a warning point for each active temperature sensor. The picture shows the setting of temperature point 1. Use the  and  buttons to adjust the temperature point. Temperatures are shown in either degrees centigrade or Fahrenheit. If you have activated more than one temperature sensor, you will go to the next warning point by pressing .

Temperature **point 1 is the left green LED**, temperature **point 2 is the right red LED** and temperature **point 3 is the middle yellow LED**. They start to blink when the temperature rises above the warning point set.

## ***Analyse your data***

You can learn a lot about your performance on the track just from viewing the data on the display of the Laptimer. However if you want the full benefit of the Laptimer you should export the data from the Laptimer to a Data Analyser or to a PC. This will give you the possibility to print or store all data electronically, and to make advanced analysis of the data.

### DATA ANALYSER

The Unipro Data Analyser is the perfect companion for your Laptimer. It is the fastest way to getting data out of the Laptimer, with the possibility to print the data, or view them while the driver is on the track.

You can read more about using the Data Analyser in the manual for the Data Analyser.

### PC ANALYSER

Unipro supplies a free software program called PC Analyser. This is a common platform to Analyse and manage data and sessions from a Laptimer and the Data Analyser.

You can read more about using the PC Analyser in the manual for the PC Analyser.