

# **POLE STAR PRO**

## **Installation and instruction manual.**

**POLE STAR PRO** is an automatic chrono and rev counter with a LED bar and Shift light which can be set, an indispensable instrument for drivers of:  
Go Karts - Cars - Motorbikes and Scooters.

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## Functions

***POLE STAR*** carries out the following functions:

- Analogical indication of the engine rev speed (RPM) with LED Bar and digital LCD.
- Backlight of the display.
- Indication of the lap time.
- Storage and analysis of the lap times and of the practice sessions.
- Speedometer.
- Temperature and termocouple K gauge.
- Indication of the Lambda value.
- Engine time counter.
- Water-resistant.

## Installation of ***POLE STAR***

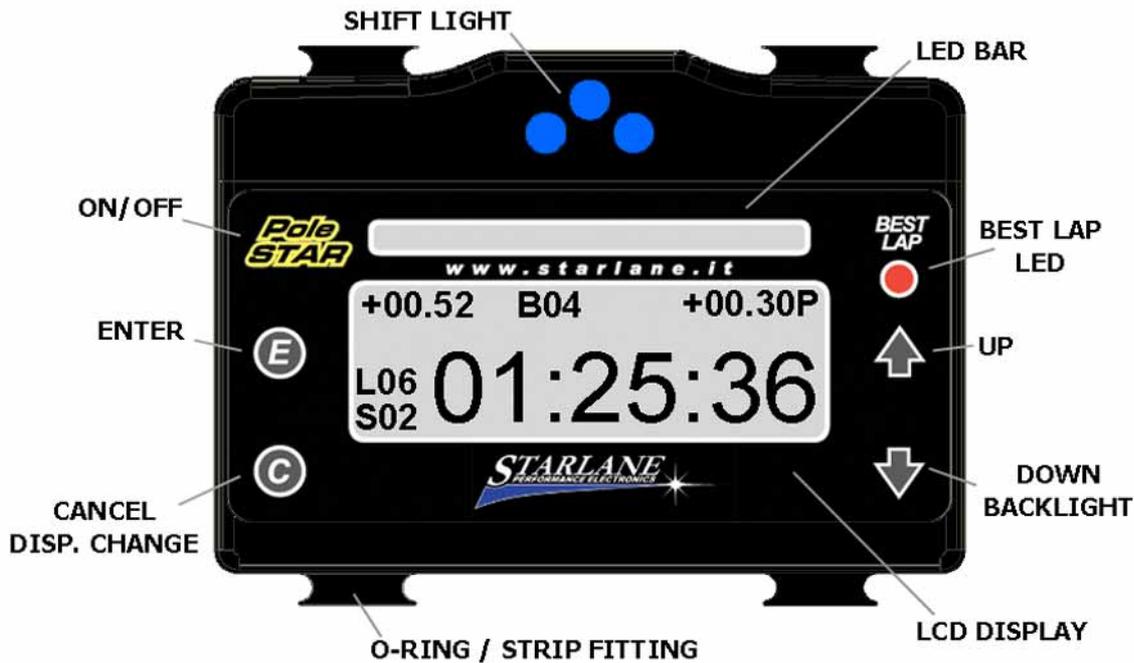
***POLE STAR*** is easily installed in the windshield of a Motorbike, on the fork plate, on the steering wheel of a Go Kart, or on the dashboard of a Car.

Fix ***POLE STAR*** with plastic strip fittings or O-Rings hooked up to the special hooking points. In the case of installation on cars, 4 screws positioned at the rounded ends of the hooking up points can be used.

To protect ***POLE STAR*** from vibrations, always put the special adhesive on the back.

## Front panel

The LED Bar, the Best Lap LED, the three blue high power LEDs of the shift light, the back-lit display and the keypad with 5 keys are located on the front panel.



## Connection

Connect the Red power supply wire to the +12V of the battery and the Black GND wire to the chassis or to any ground point, such as the Negative of the battery. It is also possible to connect **POLE STAR** to a PP3 9V battery through the proper adapter.

## Positioning the engine RPM reading wire

Determination of the engine revs takes place inductively by means of the special Violet wire which must be wound round the spark plug wire and fixed with a plastic strip.

In the case of "cigar" coils inserted in the cylinder head, wind the Violet wire with at least three turns round the input wire to one of the coils. If rev determination is not correct, increase the number of winding turns and check the settings indicated in the paragraph: *Setting the RPM reading parameters* in this manual.

If there are unexpected flashes of the lap counter or incorrect instantaneous values, the violet wire must be checked to ensure that it does not receive any interference from the wires of other cylinders, and therefore to make sure that the wire passes points of the chassis which are away from other cylinders and, if possible, it should be cut to the required length so that it does not receive any undesired signals.

Attention! Never connect the RPM reading wire directly to the coil connector or any other wire from the harness to prevent any inadequate voltage irreparably damaging the instrument.

## Mounting the speed sensor (optional)

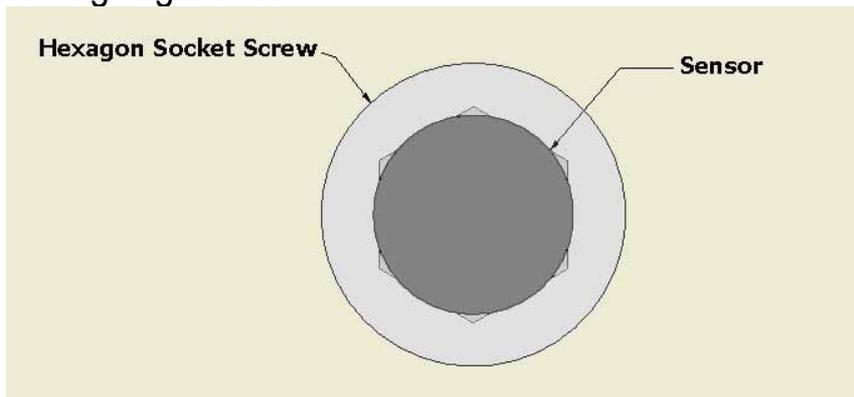
The speed sensor detects the bolts of the brake disk passing in front of its sensitive point. On the basis of the number of impulses and the wheel circumference entered, **POLE STAR** calculates the speed.

Carry out the following installation stages:

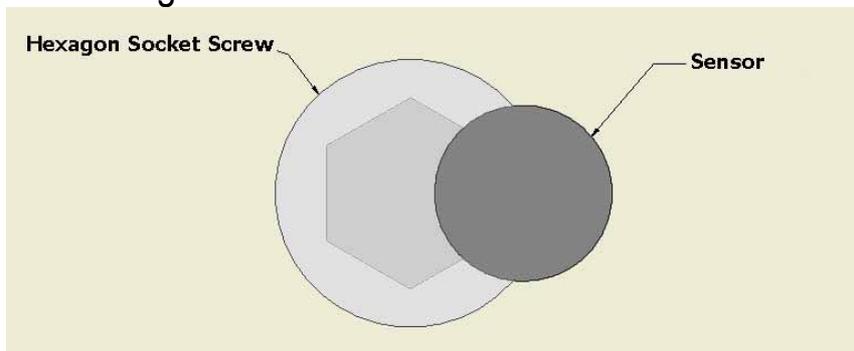
1. Remove the 2 front wheel pin holding bolts at the base of the right shank of the fork\*.
2. Screw up and lock the bolts supplied.
3. On the threaded extending part, insert the support provided for the sensor and fix it using the nuts supplied. (the support will bend slightly until it fits the rounded shape of the fork).
4. Insert the sensor in the appropriate hole on the support and position it so that the brake disk bolts run at a distance of about 1 mm. from the head of the sensor.
5. Lock the sensor nuts so as to fix it to the support . Attention! Do not tighten the nuts too much to prevent “ironing out” the sensor and damaging it irreparably.
6. Fix the cable to the fork with the special clamps so that it is never under tension during use.
7. Insert the connector in its counterpart, of same colour and type, positioned on the **POLE STAR** harness.
8. Switch on **POLE STAR**.
9. Check that the sensor works: every time a bolt passes in front of the sensor, the yellow LED near the sensor cable output must turn on. If this does not happen, bring the sensor slightly closer to the head of the bolt (the bolts must be made of ferrous material), in case of hexagon socket screws position the sensor with a little offset to avoid the sensor LED lighting up twice for the hole in the screw head (see picture).

\*If the fork has not the mentioned bolts create a proper support and proceed from point 4.

Wrong alignment:



Correct alignment:



## Mounting the cooling liquid temperature sensor

The temperature sensor must be installed on the water connector between the engine output and the radiator and fixed with two metal strips.

Connect the sensor to the fitting 2PIN connector on the **POLE STAR** harness.

## Installation of the magnetic sensor

The **CM POLE STAR** versions use the provided magnetic sensor to recognize the finish line on circuits with magnetic band. Yet it's possible to install the Infrared Kit as an accessory for these versions.

Carry out the following operations to install the magnetic sensor:

1. Make 2 holes of 4mm in diameter where the fairing is closest to the ground.
2. Fasten the sensor with the proper nuts so that it faces the ground.
3. Connect the sensor to the connector of the same colour and type of the **POLE STAR** harness through the proper patch band.

## Installation of the Infrared Kit

The Infrared Kit accessory allows *POLE STAR* to identify the finish line and therefore to calculate the lap time.

The Infrared Kit consists of a Transmitter which must be positioned in the pits (normally on the wall) directed as perpendicularly as possible towards the path of the motorbike along the straight, and of a sensor (IR Receiver) which must be fixed onto the vehicle so that the small infrared sensor is directed towards the Transmitter when passing along the straight. The IR Receiver must be positioned so that visibility towards the Transmitter is not obscured by any part of the motorbike or the driver.

Connect the IR Receiver to the connector, of the same colour and type, positioned on the *POLE STAR* harness.

### Turning on and off the device.

To turn *POLESTAR* ON press the PoleSTAR key on the keypad; to turn it OFF keep the same key pressed for 2 seconds.

### Coding the infrared receiver

To prevent interference between various different Transmitters, even of other makes, which would cause detection of incorrect times, each Starlane Transmitter is fitted with a personal code. Your IR Receiver must therefore be programmed to recognise its own Transmitter:

1. Position the Transmitter ten metres in front of the IR Receiver mounted on the vehicle and connected to *POLE STAR*.
2. Supply the Transmitter with power from a PP3 9V and turn the switch ON.
3. Make sure that *POLE STAR* is off.
4. Press the pushbutton on the IR Receiver and keep it pressed.
5. With the pushbutton on the IR Receiver pressed, turn *POLE STAR* on. The Red LED on the IR Receiver lights up for a few seconds.
6. When the Red LED goes off, the Transmitter code has been stored in the IR Receiver.

7. Obscure the eye of the IR Receiver, passing your hand near the sensor several times. The Red LED must go off and light up again when it is not obscured and receives the signal from the Transmitter. (In closed rooms, reflections of the walls might activate the sensor if it is directed in the opposite direction in relation to the Transmitter. In this case, to check the code, completely obscure the sensor by putting your finger over the receiving “eye”). If the LED flashes at regular intervals, the code has not been stored, so the procedure under point 3 must be repeated.

This procedure can be carried out with the IR Receivers installed on several vehicles, still keeping the same Transmitter. This means that only a single Transmitter has to be positioned on the wall for several motorbikes in the same team.

## **Multi-page menu**

Apart from the main screen, the multi-page menu can be accessed and this is where the operating parameters of *POLE STAR* are set and the lap times acquired are displayed.

Press the E key for 2 seconds to access the multi-page menu.

By pressing the DOWN ARROW and UP ARROW keys, it is possible to scroll through the items of the sub-menus:

- ANALYSIS
- MAX VALUES
- ENGINE TIME
- MEMORY
- DISPLAY
- CHRONO
- RPM
- SPEED
- ALARM
- TEMPERATURE
- POWER SAVING

Press E to enter the selected sub-menu.

Press C to return through the higher menus and back to the main screen.

## Setting the RPM reading parameters

It is necessary to set the number of pulses received for each revolution of the crank shaft in *POLE STAR*.

- For 2-stroke or 4-stroke engines, with non-phased ignition, set the number of pulses to 1.
- For modern 4-stroke engines with phased ignition, the number of pulses must be set to 0.5.

Carry out the following operations to set the parameter:

1. From the main screen, keep E pressed for 2 seconds.
2. Press DOWN ARROW 6 times to go over the RPM sub-menu.
3. Press E to enter the RPM sub-menu.
4. Press the DOWN ARROW twice and then E to change the number of pulses for every revolution of the crank shaft - An asterisk on the right indicates that the value can be changed with the UP ARROW and DOWN ARROW keys.
5. Press the UP ARROW to increase the number of pulses, the DOWN ARROW to decrease it.
6. Press E to confirm the value - The asterisk will disappear.
7. Press C twice to return to the main screen.

## Setting the LED Bar and the Shift light

The LED Bar lights up from left to right according to the number of engine revs. The lighting up speed rate of the LED Bar can be set as desired. The final setting coincides with the one of the Shift light coming on which indicates the ideal shifting RPM and this can be set by the user according to the characteristics of engine output. The LED Bar is usually set to cover the ideal engine running conditions.

Carry out the following operations to set the parameter:

1. From the main screen, keep key E pressed for 2 seconds.
2. Press the DOWN ARROW 6 times to go over the RPM sub-menu.
3. Press E to enter the RPM sub-menu.
4. Press E to set the lighting up RPM of the LED Bar - An asterisk on the right indicates that the value can be changed using the UP ARROW and DOWN ARROW keys.
5. Set the lighting up speed rate - UP ARROW to increase it or DOWN ARROW to decrease it.

6. Press E to confirm the value - the asterisk disappears.
7. Press the DOWN ARROW to position yourself over the SHIFT LIGHT sub-menu.
8. Press E to set the lighting up speed rate of the Shift light - An asterisk on the right indicates that the value can be changed with the UP ARROW and DOWN ARROW keys.
9. Set the lighting up RPM.
10. Press E to confirm the value - The asterisk disappears.
11. Press C twice to return to the main screen.

It is possible to set the LED bar according to the Lambda mV value, the Lambda coefficient, the Termocouple K and the cooling liquid temperature (NTC).

Carry out the following operations to set the value chosen for the bar to light up:

1. From the main screen, keep key E pressed for 2 seconds.
  2. Press the DOWN ARROW 4 times to position yourself over the DISPLAY sub-menu.
  3. Press E to enter the DISPLAY sub-menu.
  4. Press DOWN ARROW to go over LED BAR.
  5. Press E to set the value - An asterisk indicates that the value can be changed using the UP ARROW and DOWN ARROW keys.
  6. Press DOWN ARROW or UP ARROW to set the value.
  7. Press E to confirm – The asterisk disappears.
  8. Press C twice to return to the main screen.
- If the LED bar is set according to the Lambda mV value it will light up from left to right when the value is from 50mV to 900mV.
  - Yet if the LED bar is set according to the Lambda coefficient the first three LEDs from the left will light up in case of lean carburation ( the first one with coefficient = 1,3; the second one with coefficient = 1,2 and the third one with coefficient = 1,1 respectively); in case of coefficient = 1 (stoichiometric value) you'll have the two central LEDs lit up and with rich carburation the last three LEDs on the right will light up ( with coefficient = 0,9 the first one after the two central LEDs; the second one with coefficient = 0,8 and the last one on the right with coefficient = 0,7 respectively).

For the temperature it is possible to set the values of start/end for the LED bar to light up from left to right as for the RPM.

In any case the three blue Shift Light LEDs will work according to the RPM as set in the relating sub-menu.

Carry out the following operations to set the parameter chosen between Termocouple K and cooling liquid temperature (NTC):

1. From the main screen, keep key E pressed for 2 seconds.
2. Press DOWN ARROW 9 times to position yourself over the TEMPERATURE sub-menu.
3. Press E to enter the TEMPERATURE sub-menu.
4. Press DOWN ARROW to go over the threshold to set.
5. Press E to change the value - An asterisk appears.
6. Press UP ARROW and DOWN ARROW to increase or decrease it.
7. Press E to confirm - The asterisk disappears.
8. Press C twice to return to the main screen.

## Setting the speed reading parameters

To be able to indicate the correct speed, **POLE STAR** needs two fundamental pieces of information:

1. The circumference of the wheel on which the speed is measured.
2. Number of pulses (for example, bolts of the brake disk) for each wheel turn.

Carry out the following operations to set the correct parameters:

1. From the main screen, keep the ENTER key pressed for 2 seconds.
2. Press the DOWN ARROW 7 times to position yourself over the SPEED sub-menu.
3. Press E to enter the SPEED sub-menu.
4. Press E to set the wheel circumference (Wheel circ.) - An asterisk on the right indicates that the value can be changed using the UP ARROW and DOWN ARROW keys.
5. Set the wheel circumference value in mm. - the UP ARROW to increase it, the DOWN ARROW to decrease it.
6. Press E to confirm the value - The asterisk disappears.
7. Press the DOWN ARROW then E to change the number of pulses (bolts) for each wheel turn - The asterisk appears.
8. Press the UP ARROW to increase the number of pulses, the DOWN ARROW to decrease it.

9. Press E to confirm the value - The asterisk disappears.
10. Press CANCEL twice to return to the main screen.

## Setting the temperature alarm

It is possible to set a cooling liquid temperature (NTC) and Termocouple K limit value so that whenever it is acquired by *POLE STAR* the three red LEDs of the bar flash as alarm.

Carry out the following operations to set the cooling liquid temperature (NTC) alarm:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 8 times to position yourself to the ALARM sub-menu.
3. Press E to enter the ALARM sub-menu.
4. Press E to activate or deactivate the NTC alarm - The asterisk appears.
5. Press UP ARROW or DOWN ARROW to change the setting from OFF to ON.
6. Press E to confirm the choice - The asterisk disappears.
7. Press DOWN ARROW once to go over THRESHOLD.
8. Press E to set the value - The asterisk appears..
9. Set the value - UP ARROW to encrease it or DOWN ARROW to decrease it (the values scroll fast if the arrow is kept pressed).
10. Press E to confirm the value - the asterisk disappears.
11. Press C twice to return to the main screen.

Carry out the following operations to set the Termocouple K alarm:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 8 times to position yourself to the ALARM sub-menu.
3. Press E to enter the ALARM sub-menu.
4. Press DOWN ARROW twice to go over TK.
5. Press E to activate or deactivate the TK alarm - The asterisk appears.
6. Press UP ARROW or DOWN ARROW to change the setting from OFF to ON.
7. Press E to confirm the choice - The asterisk disappears.
8. Press DOWN ARROW once to go over THRESHOLD.
9. Press E to set the value - The asterisk appears..
10. Set the value - UP ARROW to encrease it or DOWN ARROW to decrease it (the values scroll fast if the arrow is kept pressed).

11. Press E to confirm the value - the asterisk disappears.
12. Press C twice to return to the main screen.

## **Selection of the units of measurement**

**POLE STAR** can indicate the temperature either in °C or °F and the speed in Km/h or Mph.

Carry out the following operations to set the units of measurement:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 4 times to highlight the DISPLAY sub-menu.
3. Press E to enter the DISPLAY sub-menu.
4. Press the DOWN ARROW once, then E to change the type of measurement unit - The asterisk appears.
5. Press the UP ARROW or the DOWN ARROW to pass from one measurement system to the other.
6. Press E to confirm the value - The asterisk disappears.
7. Press CANCEL twice to return to the main screen.

## **Selection of the initial screen**

The initial screen can be set to show:

- RPM - LAP: the display indicates the RPM and, in the black sector, the number of completed laps.
- RPM - NTC: the display indicates the RPM and, in the black sector, the cooling liquid temperature.
- RPM - SPEED: the display indicates the SPEED and, in the black sector, the speed.
- SPEED - NTC: the display indicates the SPEED and, in the black sector, the cooling liquid temperature.
- RPM - NTC - SPD: the display indicates the RPM and, in the black sector, the cooling liquid temperature (below) and the speed (above).
- CHRONO: the display indicates lap time in Minutes:Seconds.Hundredths.
- TK: the display indicates the thermocouple K and in the black sector, the cooling liquid temperature.
- LAMBDA: the display indicates the Lambda coefficient and, in the black sector the relating mV value.

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Carry out the following operations to set the initial screen:

1. From the main screen, keep key E pressed for 2 seconds.
2. Press the DOWN ARROW 4 times to position yourself over the sub-menu DISPLAY.
3. Press E to enter the DISPLAY sub-menu.
4. Press E to change the SCREEN - The asterisk appears.
5. Press UP ARROW or DOWN ARROW to choose the initial screen option.
6. Press E to confirm the value - The asterisk disappears.
7. Press C twice to return to the main screen.

## Setting the chrono functions

### Selection of how lap times are shown

The lap time can either be shown in a simplified way with immediate reading or in a more complete way with the session and delay details.

The following information relative to timing performance is shown on the detailed screen:

- Instantaneous time - at the bottom on the right.
- Current session number - at the bottom on the left.
- Current lap number – on the left above the session.
- Gap from the best lap – at the top on the left.
- Best lap number – at the top in the centre.
- Gap from previous lap – at the top on the right.



Carry out the following operations to activate display of the details:

1. From the main screen, keep key E pressed for 2 seconds.
2. Press the DOWN ARROW 4 times to position yourself over the DISPLAY sub-menu.
3. Press E to enter the DISPLAY sub-menu.
4. Press the DOWN ARROW once to position yourself over the CHRONO DETAILS sub-menu.
5. Press E to set the CHRONO DETAILS - The asterisk appears.
6. Press the UP ARROW or DOWN ARROW to go from YES to NO.
7. Press E to confirm the value - The asterisk disappears.
8. Press C twice to return to the main screen.

### Activation of the chrono

To activate the chrono manually, press the UP ARROW from the main screen. If the RPM screen has been set, a flashing sector appears in the top corner on the left to indicate that the Chrono is active and that the time will be indicated on passing over the finish line. On the other hand, if the CHRONO screen has been set, you will see that the chrono starts to run. **POLE STAR** can be set so that the chrono is activated automatically the first time the finish line is passed.

Carry out the following operations to set the type of activation of the chrono:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 5 times to position yourself over the CHRONO sub-menu.
3. Press E to enter the CHRONO sub-menu.
4. Press the DOWN ARROW once to position yourself over the CHRONO START sub-menu.
5. Press E to change the CHRONO START - The asterisk appears.
6. Press the UP ARROW or DOWN ARROW to pass from MANUAL to AUTO.
7. Press E to confirm the value - The asterisk disappears.
8. Press C twice to return to the main screen.

### Deactivation of the chrono

To deactivate the chrono, press the UP ARROW from the main screen.

## Setting of the number of markers positioned on the circuit (only for systems with magnetic or uncoded Infrared sensor)

When there are several markers (transmitters) on the circuit, it is necessary to set the number to avoid errors in calculation of the laps and relative times.

Carry out the following operations to set the number of markers:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 5 times to position yourself over the CHRONO sub-menu.
3. Press E to enter the CHRONO sub-menu.
4. Press E to change the Track Markers - The asterisk appears.
5. Press the UP ARROW or DOWN ARROW to increase or decrease the number of markers.
6. Press E to confirm the value - The asterisk disappears.
7. Press C twice to return to the main screen.

## Displaying intermediate times

The intermediate times can be highlighted at the time of passing on the relative markers.

Carry out the following operations to display of the intermediate times:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 5 times to position yourself over the CHRONO sub-menu.
3. Press E to enter the CHRONO sub-menu.
4. Press the DOWN ARROW twice and then E to change the SHOW INTERMED. - The asterisk appears.
5. Press the UP ARROW or DOWN ARROW to alternate between Yes and No.
6. Press E to confirm the value - The asterisk disappears.
7. Press C twice to return to the main screen.

## Setting the Freeze Time

Indication of how long the lap time passing over the finish line lasts can be set. While the time of the lap just completed is shown, the system does not consider any other impulses received by the sensor. This allows the problem of close resets to be eliminated when uncoded transmitters are used:

Carry out the following operations to set the Freeze Time:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 5 times to position yourself over the CHRONO sub-menu.
3. Press E to enter the CHRONO sub-menu.
4. Press the DOWN ARROW once and then E to change the Freeze Time - The asterisk appears.
5. Press the UP ARROW or DOWN ARROW to increase or decrease the time (2 seconds minimum, 30 maximum).
6. Press E to confirm the value - The asterisk disappears.
7. Press C twice to return to the main screen.

## "Best Lap" LED

The LED "BEST LAP" is a very useful indication to immediately give information on an improvement in performance without distracting the driver by making him read the display.

- When the "BEST LAP" LED is permanently lit it indicates an improvement compared with the previous lap.
- When the "BEST LAP" LED flashes it indicates the driver's best time of all.

## Analysis of the stored times

At the end of the practice sessions, the times of 120 laps divided into 99 sessions can be analysed. Each time the chrono is stopped and started again, a new test session is automatically created.

Carry out the following operations to display the stored times:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press E to enter the ANALYSIS sub-menu.

The various sessions with the number of laps completed in each are listed in the ANALYSIS sub-menu.

Carry out the following operations to display the stored times:

1. In the ANALYSIS sub-menu, press the DOWN ARROW to position yourself over the session you are interested in and press E to access the list of stored laps for that session with the relative times and gaps. The Best Lap and the total number of stored laps are indicated in the top part of the screen.
2. Press C three times to return to the main screen.

## **Max Values sub-menu**

*POLE STAR* stores automatically the RPM, SPEED, NTC and TK higher values reached and those acquired at the maximum speed.

Carry out the following operations to see the values stored:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW once to position yourself over the MAX VALUES sub-menu.
3. Press E to enter the MAX VALUES sub-menu.
4. Press C twice to return to the main screen.

## **Engine Time sub-menu**

*POLE STAR* also counts the time of activity of the engine.

Carry out the following operations to see the time counter:

1. From the main screen, keep key E pressed for 2 seconds.
2. Press DOWN ARROW twice to position yourself over the ENGINE TIME sub-menu.
3. Press E to enter the ENGINE TIME sub-menu.
4. Press C twice to return to the main screen.

## **Cancelling the memory**

Carry out the following operations to cancel the time memory:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 3 times to position yourself over the MEMORY sub-menu.
3. Press E to enter the MEMORY sub-menu.

4. Keep E pressed for 2 seconds to cancel all the laps and all the stored sessions or press the DOWN ARROW to position yourself over CLEAR LAST SESSION and keep E pressed for 2 seconds to only cancel the last session stored. This operation can be carried out several times to eliminate the last sessions stored in sequence.
5. Press C once to return to the main screen.

Carry out the following operations to cancel the max values:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 3 times to position yourself over the MEMORY sub-menu.
3. Press E to enter the MEMORY sub-menu.
4. Press DOWN ARROW to go over RESET MAX VALUES and keep E pressed for 2 seconds to cancel the stored values.
5. Press C twice to return to the main screen.

Carry out the following operations to reset the time counter:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 3 times to position yourself over the MEMORY sub-menu.
3. Press E to enter the MEMORY sub-menu.
4. Press DOWN ARROW to go over RESET ENGINE TIME and keep E pressed for 2 seconds to reset the time.
5. Press C twice to return to the main screen.

## **Setting Energy saving and Auto shut-down**

To considerably reduce power consumption, it is possible to set operation of the LED Bar and the Shift Light suitably. It is also possible to set auto shut-down of *POLE STAR* after an established time.

### **Deactivation of the LED Bar**

Carry out the following operations to deactivate the LED Bar:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 10 times to position yourself over the POWER SAVING sub-menu.
3. Press E to enter the POWER SAVING sub-menu.

4. Press E to change the value of LED BAR - The asterisk appears.
5. Press the UP ARROW or DOWN ARROW to change the setting from ON to OFF.
6. Press E to confirm the value - The asterisk disappears.
7. Press C twice to return to the main screen.

## Deactivation of the Shift Light

Carry out the following operations to deactivate the Shift light:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press DOWN ARROW 10 times to position yourself over the POWER SAVING sub-menu.
3. Press E to enter the POWER SAVING sub-menu.
4. Press the DOWN ARROW once to position yourself over the SHIFT LIGHT sub-menu.
5. Press E to change the value of SHIFT LIGHT - The asterisk appears.
6. Press the UP ARROW or DOWN ARROW to change the setting from ON to OFF.
7. Press E to confirm the value - The asterisk disappears.
8. Press CANCEL twice to return to the main screen.

## Setting the LED to low consumption

If you want to reduce consumption keeping the LED Bar and the Shift light active, lighting of a single LED at a time can be set. In this mode, the trails of lit LEDs in sequence will not be shown or the Bar, but a lit LED which moves towards the right. In this mode the Shift light also only operates with the central blue LED.

Carry out the following operations to set the LED to low consumption:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 10 times to position yourself over the POWER SAVING sub-menu.
3. Press E to enter the POWER SAVING sub-menu.
4. Press the DOWN ARROW twice to position yourself over the SINGLE LED MODE sub-menu.
5. Press E to change the value of the SINGLE LED MODE - The asterisk appears.

6. Press the UP ARROW or DOWN ARROW to change the setting from ON to OFF.
7. Press E to confirm the value - The asterisk disappears.
8. Press C twice to return to the main screen.

## Activation of auto shut-down

It is possible to make *POLE STAR* shut down automatically if the keypad is not used for 2 consecutive minutes and no impulse is detected on the RPM signal.

Carry out the following operations to activate the auto shut-down:

1. From the main screen, keep the E key pressed for 2 seconds.
2. Press the DOWN ARROW 10 times to position yourself over the POWER SAVING sub-menu.
3. Press E to enter the POWER SAVING sub-menu.
4. Press the DOWN ARROW 3 times to position yourself over the AUTO SHUT DOWN sub-menu.
5. Press E to change the value of AUTO SHUT DOWN - The asterisk appears.
6. Press the UP ARROW or DOWN ARROW to change the setting from ON to OFF.
7. Press E to confirm the value - The asterisk disappears.
8. Press C twice to return to the main screen.

## Short keys

From the main screen it is possible to:

1. Press C to alternate the indication between the initial screen and the LAP TIME.
2. Press DOWN ARROW to activate and deactivate the backlight of the display.
3. Press UP ARROW to activate and deactivate the chrono.

## Cleaning the surfaces

Use a soft cloth wetted with water to clean the surfaces of your *POLE STAR*. Using alcohol or aggressive detergents might turn the transparent areas opaque.

## **Warranty**

*POLE STAR* is covered by a 12-month warranty for all manufacturing defects.

## **Notes**

*POLE STAR* is not approved for road use.

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