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TAU2-A

Model:

0811.06

Rev doc: 00

**Overheat protector for cars**

## Users Manual

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## Warnings

The device need 12Vdc to work.



The probe wire is thin and fragile ( is a earphone wire ) should not be taut or strained and should be handled with care. With wells the motor moves, keep in mind.



The temperature sensor have internal crystal, the excessive pressure or hard work broke and void the warranty.



**Dont puncture, open or break any hose o engine part.**



Install the device and wire the most away of heat sources and electrical noises like: exhaust, sparks, ignition coil and wires.



The electrical connections must be soldered, isolated and must not be strained since the cables are cut.



Do not wet the device and dont use chemical element for cleaning. Just a slightly damp cloth..



Don't forget add a fuse between 1A and 3A.



The right work depend from follow all instructions of this manual.

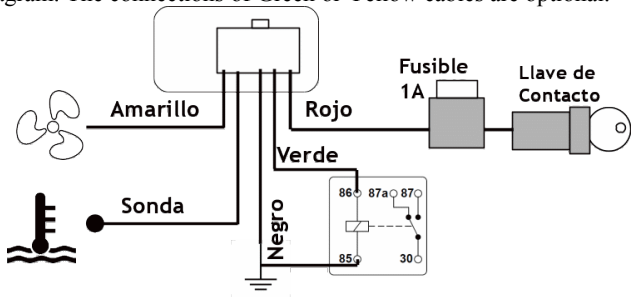


Fail to follow the instructions implies the warranty void and put in risk the car integrity.

**NOTE 1::**SCHlabs decline all responsibility for any damage to people or things due handling of devices or wires.

## Electrical Installation

The electrical wiring must be done as described on the following diagram. The connections of Green or Yellow cables are optional.



## Connecting radiator Fan

With the radiator cooling fan off, measure the voltage on the fan cables and write them down on a piece of paper. Wait for it to turn on, measure and record again. The Yellow wire connects to the wire that changed its voltage the most. You can use the following charts for reference.

Example 1:

	Fan OFF	Fan ON
C 1	12v	12v
C 2	12v	<6V

Example 2:

	Fan OFF	Fan ON
C 1	0v	0V
C 2	0v	>6V

Your Car:

	Fan OFF	Fan ON
C 1		
C 2		

## Shutdown Relay Connection

The TAU send 12v when is required shutdown the engine, so normally you will need a NC relay. The install of a relay is **optional**.

The installer must be take care of way for the engine shutdown to avoid:

- The driver don't loss the brakes
- The driver don't loss the steering control
- The driver don't loss the control of engine

The most reasonable way is cut the fuel.

## Probe considerations

There are 2 ways of use the temperature probe. Measuring the coolant or cylinder head.

In both cases is great keep in mind that the probe work by external touch. This mean that if the probe is misplaced the measure will be wrong and you don't get any protection.

- Must be touch the most close to heat origin ( the head of piston).
- The probe must have the most surface contact with the heat zone.
- The probe require thermal insulation to avoid that environment cool or alter the measure.
- The probe contain crystal internally, don't make pressure, hit or twist it.
- The wire dis tight avoid that the engine movement break it, handle with care.
- The probe was calibrated and verified 2 times. If you have any difference check again all considerations.
- DO NOT remove any original sensor of vehicle.



C=Thermal insulation (Eva Rubber)  
B=Probe  
A=Cylinder cover or coolant hose

## Measure in Cylinder Cover

If it is well measured it is the ideal way to save the engine. However, it depends a lot on the location of the probe, since it can be affected by the heat of the exhaust pipe, by the frontal winds and other circumstances, that's why it is only recommended to be installed by experts. In addition to having different variations to which one is

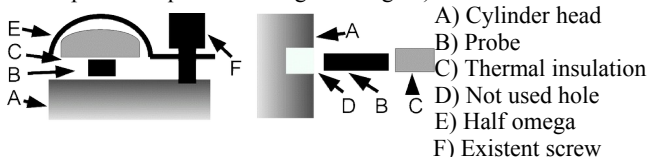
accustomed to see.

If you choose this way follow the next cautions:



- Touch the probe with shaded zone of image
- You can use a not used hole
- You can loose a screw and use a “half omega”
- Some people make a hole in the head cup, this is dangerous and only must do some that know the head cup of both sides.

-Don't remove covers, gaskets or cylinder head screw. (They have a special torque and damage the engine).



Adhesives: An adhesive can work fine, BUT is very important take care because the most household adhesives melt at 100°C (212°F) and you wouldn't want to drop the sensor just when you need it most.

Also take care that when the glue cure (hardness) can be separated one or two millimeters and so loose heat transfer.

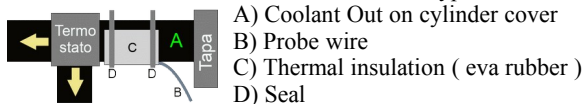
## Probe in coolant

This is the way chosen by car manufacturers to read the engine temperature.

However when there any coolant leak caused by a broken hose or radiator, you cant see the overheat before a big damage on the engine.

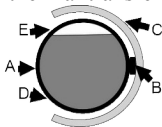
If you choose this way take care of following:

- DO NOT OPEN the coolant circuit (will brake the pressurization)
- Must be installed BEFORE thermostat bypass.



- A) Coolant Out on cylinder cover
- B) Probe wire
- C) Thermal insulation (eva rubber)
- D) Seal

Take care that the heat go up, but in case of a bubble the air loose thermal transfer. If is possible measure at side of hose.



- A) Hose or thermostat body
- B) Sensor
- C) Thermal insulation
- D) Coolant
- E) Air Bubble

## First start

In the first connection appear “ini” on screen. When you press any key the device will perform some reads of your car and will adapt to it. For this reason must be connected.

## How work

Normally the TAU2 measure the engine temperature in a range from  $0^{\circ}\sim 140^{\circ}\text{c}$  or  $30\sim 293^{\circ}\text{f}$

The blue led advice when cooling fan is ON.

If the measured temperature is **greater** to the CRITICAL temperature set by user, the TAU2 start to emitting sound and digit blinks.

When the alarm is active, if you press the middle button, the sound will be muted. It will stay muted until the temperature go down or you stop the engine. The muted sound don't cancel the shutdown.

If the temperature still rise, the sound will be more annoying (one extra beep by each grade).







If the temperature is  $6^{\circ}\text{c}$  greater that critical temperature, a red led will ON, a shutdown signal will be send, so if you put one external relay, then you can stop the engine automatically. If the device is in stop mode you can continue driving pressing the middle button.

The shutdown signal is immediate but you can configure a delay up to 64 seconds.

If when the engine start, the temperature is hot, the protection ( alarm and shutdown) only will be activated when the temperature go down.

## Settings

When press the middle button by 3 seconds you will see the product version and enter into the setup mode. Use the up and down keys to choose the parameter that you want change and press the middle button. Change the values with up/down button and press the middle button again.

	<b>Critical Temperature:</b> Set this value taking care that the sound start when the temperature exceed this value, and the shutdown when exceed 6 grades more.
	<b>Radiator Fan:</b> 0=With the fan off there are 12v in the cable 1=with the fan on there are 0v in the cable
	<b>Grades:</b> 0=Show in centigrade degree 1=Show in fahrenheit degree
	<b>Delay:</b> Show the time between critical condition and real shutdown.
	<b>Bright:</b> Change the brightness of screen
	<b>End:</b> Store the changes and end the setup mode.

## Troubleshooting

### - Appear SHT on screen

There are a short circuit in the probe wire. Check the wire integrity, and that the sensor is not under excessive pressure

### - Appear OPN on screen

A mistake on the install has cut the probe wire. Search the cut point and fix it. After that check the wire cares.

### - When start with an existent overheating, blink the LEDs but has not sound.

Is normal that the engine have overheat temperature in short stop ( for example when refuel the car). For this reason if when you start the engine is hot the device don't will sound and shutdown until the temperature go down

### - Measure very low temperature.

You have a bad thermal transfer. Try move the sensor to a best place, with more isolation or even with thermal grease. Remember that the device was calibrated and verified 2 times.

## Warranty

### - General rules of the guarantee

SCHlabs, guarantees the good and correct functioning of this product.

The guarantee will be recognized for a period of 3 (three) months from the purchase, the defects of construction and materials being covered.

If, during the guarantee period, the product is defective, SCHlabs will take charge of the repairs or substitutions required by the product. They will be made at the SCHlabs facilities and the shipping costs will be borne by the customer.

For accessories or components that have not been manufactured by SCHlabs, only the guarantees of the respective producers are valid.

This guarantee is the only one given by SCHlabs, so any other is excluded.

### - Terms

The guarantee will only be recognized with the presentation of this certificate with date and stamp of the reseller, or in its absence with the purchase invoice. This guarantee will be valid only for those who are in good standing with the payments.

### - Warranty exclusions

- 1.- Periodic checks, maintenance, repairs or replacement of parts due to normal deterioration.
- 2.- Malfunction due to negligence, improper use or improper installation not in accordance with the given technical instructions and any defect that was not produced due to construction defects.
- 3.- Products installed, modified, repaired, replaced, assembled or maneuvered by people who do not have written authorization from SCHlabs
- 4.- Accidents due to force majeure or other causes (water, fire, lightning, electromagnetic fields, etc.) that do not depend on SCHlabs.

## Another SCHlabs products

**HRR2:** Stepper, injector and IAC tester.

**HMP1:** Throttle and sensor tester and emulator, ckp& cmp generator

**TAU2-PLUS:** Complete engine protector

**LPA4:** Automatic car Light controller



SCHlabs

<https://www.schlabs.com.ar>

Tel: 54 11 4639-5945

El araucano 1389 Cap Fed - Argentina.

Whatsapp: 54 9 11 5616-3749