

## RR420 rally timer sales/rent price for regularity rally – 03/2021

CRISARTECH propose to configure your regularity system tailored, based on a display/computer and several options:

## RR420

On the **RR400** display, we added an **interface for sensors and accessories that is integrated behind the display.**

In front:

- the infrared receiver for remote control with numeric keys (for easy distance corrections), control pad and colored function keys,
- the buzzer who precisely guides the pilot (accelerate / slow down),
- main power switch (also controls accessory supply like pilot display and speed sensors),
- USB socket for updates and files transfer using a simple USB drive :



And below, the connectors ("automotive" quality):



On this interface, you can directly plug (not delivered with basic kit):

- 2 wheel speed sensors, compatible with positive pulses 3 or 2 wires sensors. For 3-wires negative-pulse sensors, simply add a resistor in the harness or in the interface, ask us at order,
- the GPS receiver for time synchronization, distance measurement or automatic corrections,
- a link to the intercom. The pilot then has the sound indication in his helmet,
- a remote 4 buttons keyboard or “distance freeze” pedal,
- the 6 RGB leds module (HUD),
- the “pilot” display.

The RR420 comes with a harness with an **OBDII** connector for connection to a modern car (after 2006) for training, scouting... but **without** harness for historic vehicle.

The **cable clamp** attached to the cover, to secure all the wires below the case:



One of the advantages of the RR420 is that it can take the benefit of a precision 10 Hz GPS receiver to:

- synchronize the time with an accuracy of 2 hundredths of a second on the official "UTC" time or on an organizer's clock but keeping this remarkable precision,
- measure the distances fairly accurately (excluding dense forest and tunnel). This can serve as a replacement for the wheel sensors in the event of a failure (without distance loss at swapping), or outright replacement of the wheel sensors if the co-driver has frequent readjustment points,
- readjust the distances automatically (see this option below). In this case, the sensors are no longer required.

There are three ways to connect a GPS receiver:

- internal receiver, with internal connection. If you want to replace the internal receiver with an external receiver, you must remove the rear cover and disconnect the connector. Option to add to RR420 order,
- internal receiver, with external connection. If you want to exchange the internal receiver for an external receiver, simply disconnect the connector under the RR420 and vice versa. When this internal receiver is not in use, it is still powered, so if it has to replace the external GPS during the rally, it is operational instantly. Option to add to RR420 order,
- external receiver that can be placed on the roof for optimal reception. Accessory that can be added at any time.

Note: associated with the 12V backup battery, an internal GPS allows the RR420 to be transported near the organizer's clock to easily and precisely synchronize the RR420's clock.

Options to order with the main device:

- internal **10Hz precision GPS receiver** (GPS / Glonass / Galileo), with **internal** connection.
- internal **10Hz precision GPS receiver** (GPS / Glonass / Galileo) with **external** connection.
- « **TRIPY** » 12V power supply:



A power connector provided to the timing system is connected to the OBDII plug. This allows to power up the Tripy-R in "permanent +12V" during the New Energy rallies.

- **Tesla model S or X** vehicle power supply: option to use the OBDII plug present in these vehicles without disrupting their electronics

Options to order separately:

- ready-to-connect **harness for historic vehicles** (power supply, wheel sensor left or right):



Note: to connect two sensors, two sensor harnesses must be ordered

- **Blunik adapter :**



Easily replace Blunik device for tests, demonstration, small rallies...

Note: this adapter is not intended to be used in main competitions because it uses non automotive grade connector (Blunik side) and sensors power from RR420 is split for two sensors (only one wire for two sensors). In case of one sensor in short-circuit, the second will be out of order too (when connected directly to RR420, each sensor has its own power, protected against short-circuit).

- external **10Hz precision GPS receiver** (GPS/Glonass/Galileo), waterproof:



To improve distance calculation accuracy, it is thus possible to place the receiver:

- outside the car, especially for modern vehicles with heated or athermic windshields,
- above the wheel that the organizer has chosen to make its measurements ...

This receiver has a cable of about 3.5 m.

- **infrared remote control** with digits to quickly and easily type distances/average speed or correction distances for example:



- **"pilot display" RP380**: 4"3 TFT colour display as high readability repeater:



- **HUD 6 RGB (multicolore) leds module**, équivalent to more than 18 leds:



The **regularity** to the 1 / 10th of a second without leaving the road of the eyes!

- rigid **suction cup** with double ball and aluminum arm for RP380:



- rigid **suction cup** with double ball and aluminum arm for RR420:



- ditto **rigid support** with double ball joint and aluminum arm for RP380 or RR420 (without suction cup) to **screw on dashboard** and less impede the the pilot vision:



- **fixing ball** only:



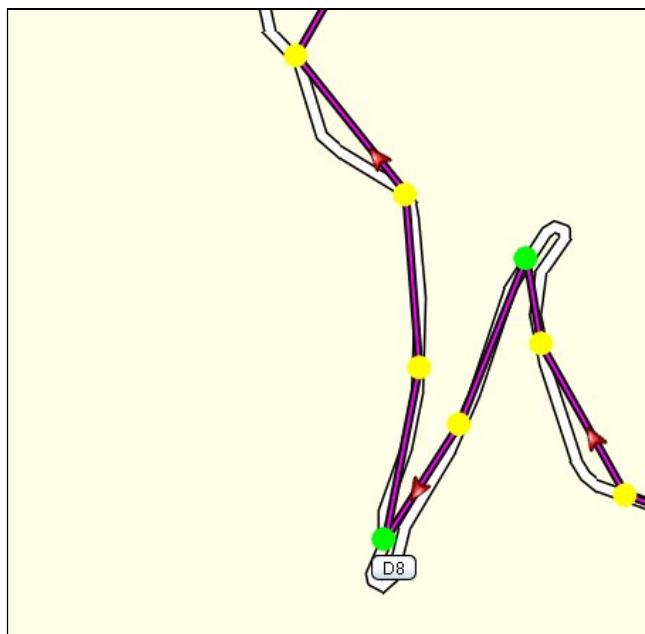
Several possible uses:

- o screwed onto the dashboard, it replaces the suction cup. The RR420 is used with suction cup during recce, then with this support during the race, screwed into the racing car,
  - o screwed behind the RR420 for those who already have **RAM Mounts** accessories in stock.
- **220V** power supply for “in door” training to train in your chair (the timer has a "speed simulation" mode) or to enter data at the hotel before the rally:



Note: this power supply is not intended to power the RP380 pilot display in addition to the RR420.

- **automatic distance corrections by GPS**, during race from the way points taken during the scouting. The **accuracy is about 2 meters**.



*Innovative function developed by CRISARTECH that has proven itself during the Monte-Carlo rallies winning 4 individual editions: electric in 2017, 18, 19, historic in 2019 and by team: historic in 2020!*

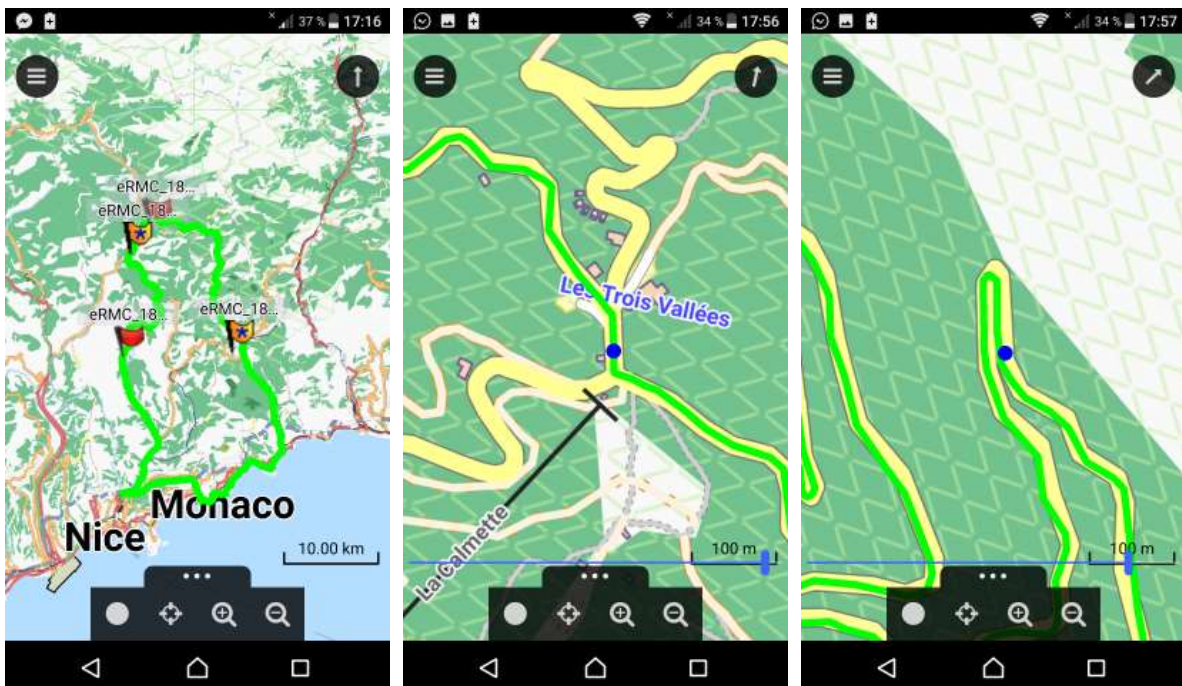
Note: this option requires a **10 Hz precision receiver GPS** sold separately (see above).

- **GPS signal repeater:**



The GPS precision signal is used by both the timer and a navigation application on tablet or smartphone:

- the co-pilot also monitor the proper functioning of the GPS,
- thanks to the high sensitivity of the GPS located on the roof of the car, **the application does not "pick up" anymore**, even in the Turini,
- the application **refreshes the position 10 times per second** (instead of 1 time!) and with a delay almost zero, which allows the co-pilot to announce the changes of direction, as well as the shape of the turns very precisely, and **even the braking points in the fog**:



Note: Now supplied with  $\mu$ -USB and USB-C adapter to work with any **ANDROID** device.

Warning: this accessory is not compatible with internal GPS connected internally, but compatible with internal GPS connected externally.

- **cigarette lighter**



Straight or angled model to be specified when ordering.

**Warning: it is strongly advised not to use such a power supply without the backup power supply below.**

- **12V emergency power supply:**



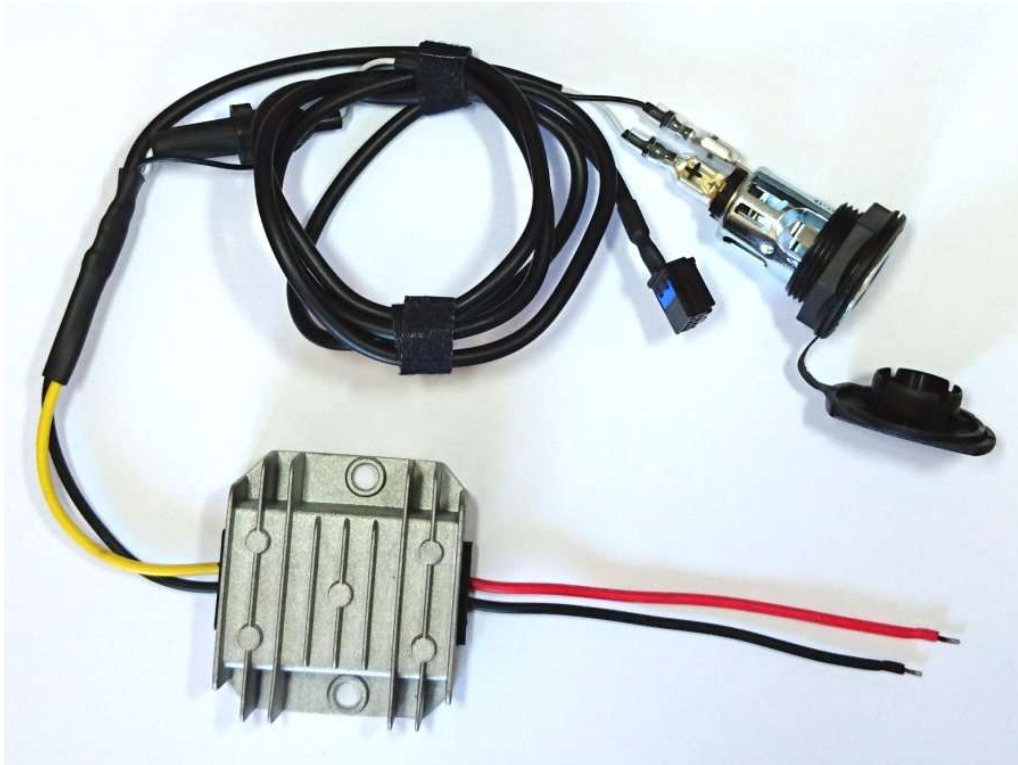
With a **high-capacity Li-Ion battery**, this accessory makes it possible to operate an RR420 with approximately 5 hours of battery life. Possible uses are:

- guarantee the operation of the timer in the event of a power failure (blown fuse, unplugged connector or wire, etc.),
- simplify the wiring by connecting the timer to the ignition power which avoids pulling a wire directly from the battery, maybe cigarette lighter,
- use of the timer outside the car (in party room to enter the average speeds, time organizer verification, in the hotel to load / unload data ...).

**Notes:**

- the timer can still detect and display low battery voltage alerts (alternator failure, too many consumers as headlights...) but does not know the charge level of this battery,
- the autonomy is divided by about two, with the simultaneous use of the pilot display.

- **power converter for 6V cars:**



Provides 12V power for:

- the RR400 or RR420 timer and its accessories,
- the speed sensor (s),
- optional "cigar lighter" plug to charge the phone, GPS ... Maximum 2A, fuse protection to prevent an overload on this socket (could cut timer power).

Note: the timer can no longer detect low battery voltage alerts.

- **protective cover for RR420 or RP 380:**



Protects the screen during transport.

- **transport case:**

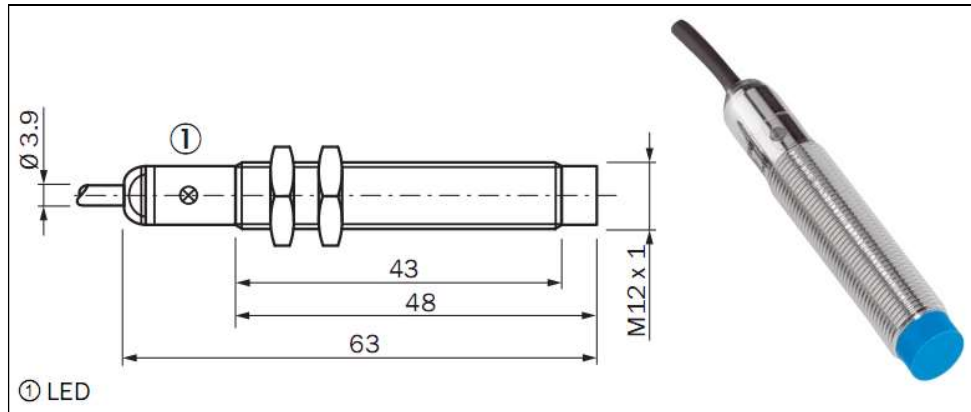


To store / transport:

- RR420 (without protective cover),
- RP380,
- two suction cup supports,
- IR remote control,
- various accessories (OBDII beam, GPS receiver, LED6 module, etc.).

Shockproof, waterproof, possibility to put two padlocks.  
Dimensions 336x300x148 mm, weight 1.6 kg

- **inductive sensor :**

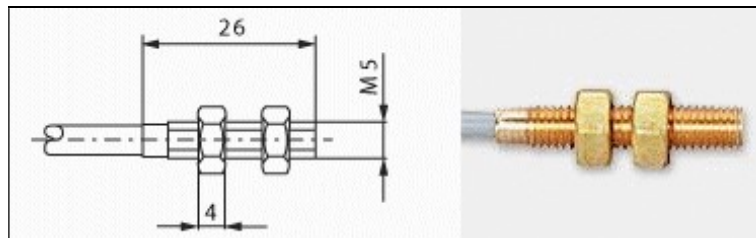


Type 3 wires, aim for screw heads or other ferromagnetic "targets" (avoid stainless steel) up to 8 mm.  
Cable length: 5 m.

**Lights up when it detects the "target".**

Non flushed installation. **Protected against reverse connections and short circuits.**

- **magnetic sensor :**

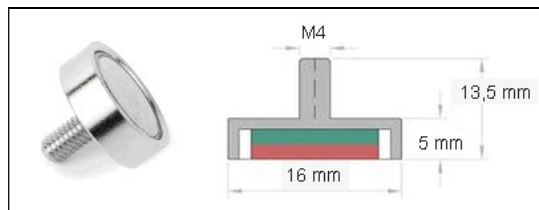


Type 2 wires, ILS technology (without polarity), brass body, requires minimum 1 magnet, 2 better, 4 being the top.

Cable length: 3 m.

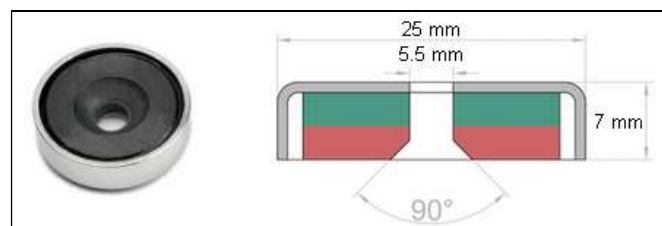
**Not protected against short circuit.**

- **neodymium magnet:**



Very powerful, compact (about 15 mm "air gap" with sensor above), but **maximum temperature. 80 ° C.**

- **"classic" ferrite magnet:**



Powerful (about 10 mm "air gap" with sensor above), max temperature. **250 ° C.**

Purchase order, price including French VAT, 03/2021:

Designation	Qty	U. price	Price
RR420 tripmaster / timer for regularity rally with OBD II harness, cable clamp, USB socket, buzzer with interface for sensors, HUD leds, remote ctrl... (without thoses accessories)	1	1 065.00 €	1 065.00 €
Option: internal 10Hz precision GPS receiver with internal connection		95.00 €	
Option: internal 10Hz precision GPS receiver with external connection		140.00 €	
Option: Tripy power supply from OBDII plug		18.00 €	
Option: power from OBDII plug in "Tesla" cars S and X		16.00 €	
Option: distance auto-correction by GPS ( <b>without</b> GPS receiver)		95.00 €	
<b>Accessories:</b>			
12V power harness for HV (with assembled and sheathed connector)		9.00 €	
2 or 3 wires wheel sensor harness for HV (with assembled, sheathed connect.)		9.00 €	
Blunik adapter		78.00 €	
External precision GPS receiver 10 Hz, waterproof		150.00 €	
Same GPS receiver, spare model, with reduced price		100.00 €	
Audible indication in the intercom harness		23.00 €	
6 multicolored leds HUD module		220.00 €	
IR remote control with digits		35.00 €	
RAM suction cup with double ball and aluminum arm for RR420		62.00 €	
RAM suction cup with double ball and aluminum arm for RP380		68.00 €	
RAM rigid support with double ball and aluminum arm for RR420		46.00 €	
RAM rigid support with double ball and aluminum arm for RP380		52.00 €	
RAM ball to screw on dashboard		12.00 €	
RAM ball to screw behind RR420 (with screws)		12.00 €	
RAM ball to screw behind RP380 (with plate and srews)		16.00 €	
RP380 pilot display (TFT colour 4.3")		445.00 €	
Power converter for 6V car		45.00 €	
Power converter for 6V car with protected 12V-2A lighter option		75.00 €	
220 V. power to use RR400 outside of vehicle		23.00 €	
Cigarette lighter		33.00 €	
12 V. emergency power supply (Li-Ion battery inside)		99.00 €	
Inductive wheel sensor (without connector, aim for the screw heads...)		60.00 €	
Magnetic wheel sensor (without connector, needs at least one magnet)		28.00 €	
Magnet (several models, to be defined at order)		5.00 €	
GPS signal repeater		110.00 €	
Protective cover for RR420		49.00 €	
Protective cover for RP380		45.00 €	
Transport case		145.00 €	

Total:

Postal shipping to France costs (for order of a new timer): offered

Prices are non-contractual and may vary according to accessories supply and options compatibility.

**CRISARTECH can also rent this equipment for the duration of the race  
see typical configurations on the following pages**

# ADDITIONAL SERVICES

For some rallies like the Monte-Carlo or Tour de Corse Historique, CRISARTECH can provide services such as:

- **GPS auto-correction** files for RR400 / 420,
- **rally route in digital form** to replace the traditional road-book (for Garmin Navigation GPS, tablet or smartphone),
- traditional **road-book**...

**Ease and performance assured!**

CRISARTECH also provides individual or group **training**, do not hesitate to contact us...

## EXAMPLES OF CONFIGURATIONS

**Here are** some examples of configurations, among all the possibilities, do not hesitate to contact us for other combinations or services:

**Minimal configuration “RR400 starter for New Energy rallies”** pack, timer is shared:



Compatibility: please contact us.

1 month rental price:

**250 € inc. VAT**

“RR420 starter” pack: timer is shared, screwed on dashboard. Sensors are reused:



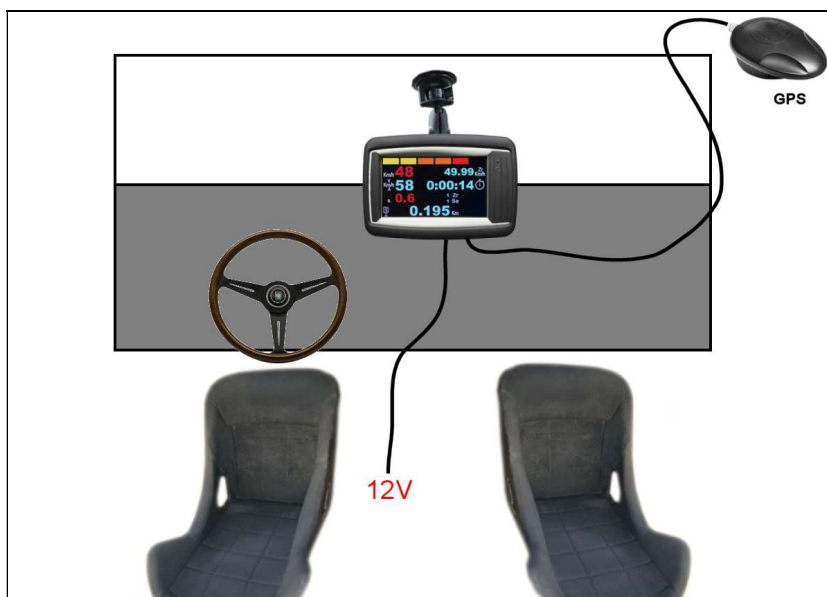
Sales price: RR420 + remote control + harness:

$1065 + 35 + 9 \times 3 = 1127 \text{ € inc. VAT}$

1 month rental price:

**330 € inc. VAT**

“RR400 GPS starter” pack: timer is shared, GPS auto-correction (from scouting made with an OBDII compatible vehicle or purchased from CRISARTECH, **without sensor**):



1 month rental price:

**315 € inc. VAT**

Pack "**Hud-Gps**": GPS auto-correction (based on scouting made with an OBDII compatible vehicle or purchased from CRISARTECH). The timer is positioned more co-driver side, the driver has the LEDs displayed 'HUD' on the windshield and the buzzer. The co-pilot has a remote control to easily manipulate the timer while driving:



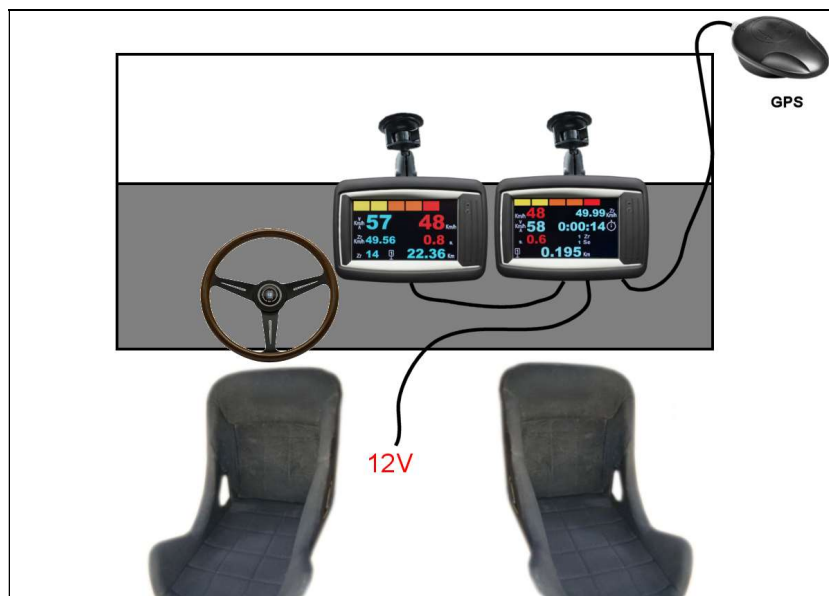
Sales price: RR420 + suction cup + GPS + GPS auto-correction + IR remote control + harness:

1065 + 150 + 95 + 220 + 35 + 62 + 9 = **1636 € inc. VAT**

1 month rental price:

**460 € inc. VAT**

"**twin GPS**" pack: GPS auto-correction (based on scouting made with an OBDII compatible vehicle or purchased from CRISARTECH). The timer is positioned more co-driver side, the driver has a colored screen for him:



1 month rental price:

**445 € inc. VAT**

**Complete** configuration for **all rallyes** (but it is possible to add more accessories), pilot display, distance corrections by GPS (from data acquired with OBDII compatible vehicle or bought from CRISARTECH), emergency power supply, suction cups, remote control, 220V power adaptor, bips sent to intercom, two inductive sensors, transport case:



Sales price: RR420 + RP380 + Internal GPS + external GPS + GPS auto correction + UPS + keyboard + IR remote control + harnesses + suction cup + 220v power + 2 sensors + case:

1065 + 445 + 140 + 150 + 95 + 3x9 + 23 + 35 + 62 + 68 + 23 + 2x60 = **2497 € inc. VAT**

1 month rental price (without sensors):

**595 € inc. VAT**

These are just a few examples.  
Compose your own configuration by contacting us  
by phone to create a personalized quote.