

R1 Gauge – Smart remote crackmeter



The R1 gauge is a remote crackmeter with 3 measurement sensors:

- 1 linear measurement sensor (resolution 0.01 mm)
- 1 ambient temperature sensor (resolution 0.1°C)
- 1 ambient humidity sensor (resolution: 1% RH)

The R1 gauge is **compact, self-contained and ready to install, so you can monitor the progress of a crack remotely.**

The case integrates all the components needed to collect and transmit data to the Sagnac application. No additional equipment is required for data transmission.

The R1 smart remote crackmeter offers the following advantages:

- **Three sensors in one:** linear measurement, ambient temperature and humidity levels
- **Configuration in just a few clicks**, with no need for IT skills
- Connectivity covering every country in Europe
- More than **7 years of autonomy possible** (depending on data transmission settings)
- **Flexible, remotely** adjustable settings
- A complete range of screws and bolts for installation on solid or hollow surfaces; flat or at an angle
- Amplitude can be adjusted by +/- 5mm after drilling and fixing
- An **application available on smartphone or PC** via a browser

A one-year subscription is included with the purchase of the gauge. The subscription starts the first time the gauge is initialised. The subscription can then be extended directly from the application or with an order form.

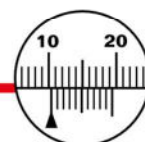
Depending on the configuration set, the remote crackmeter wakes up at regular intervals, measures the data using its three on-board sensors and saves the data in its local memory. The remote crackmeter then wakes up according to the sending frequency to transmit the stored data to the Sagnac application.



The tool, the measurement, the know-how and the service too

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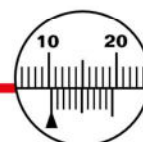
Technical specifications

| | |
|-----------------------|--|
| Linear sensor | Resolution: 0.01 mm, Measurement range: ~23 mm, Accuracy: $\pm 1\%$ of FS |
| Temperature sensor | Resolution: 0.1°C, Measuring range: -40°C to 125°C, Accuracy: $\pm 0.2^\circ\text{C}$ |
| Humidity sensor | Resolution: 1% RH, Measurement range: 0-100% RH, Accuracy: $\pm 2\%$ RH |
| Measurement frequency | Customizable in the application: 4h, 6h, 8h, 12h, 24h |
| Sending frequency | Customizable in the application: every day, every 2 days, every 3 days, every week |
| Autonomy | Estimated at between 2 and 7 years, depending on the frequency of measurement and dispatch. |
| Battery | SAFT 3.6V 13Ah battery included |
| Operating temperature | Between -30°C and +70°C |
| Network coverage | Multi-operator LTE-M / Nb-IoT communication module. Industrial SIM card included. |
| Frequency bands | B1, B3, B8, B20 and B28 |
| RF transmitting power | +21 dBm |
| Fixing | Can be fixed to a solid or hollow support using the screws supplied. Can be fixed at an angle using the joint supplied. |
| Dimensions | Case: 10 cm (length excluding piston) x 9 cm (width) x 3.5 cm (height) Length of case with piston and mounting: 18 cm |
| Case material | PA12 |
| Watertightness | IP65 |
| Weight | 250g with battery |
| Guarantee | 2 years |

Warning

The Saugnac R1 gauge is **not designed or approved for use in critical applications or life-saving alarm systems.**

The Saugnac R1 gauge is a connected measuring instrument that facilitates data collection but does not provide the necessary prerequisites (sending instant alerts, guaranteeing the reliability of the network connection at all times) for use in the event of an alarm with a risk of personal injury or damage to property.



Installation of the remote crackmeter

The R1 gauge is installed in 4 stages:

1. **Add the R1 gauge to the application:** by scanning the gauge's QR code or entering the identifier under the QR code.
2. **Define activation parameters:** time of first measurement, frequency of measurement, frequency of transmission.



3. **Turn on the gauge** by turning the plunger a quarter turn.

The gauge will light up: a light will come on to indicate the status of the setting. Once initialised, the gauge goes into standby mode.



4. **Fix the gauge to the crack** using the screws supplied



Fixing the remote crackmeter

On solid supports

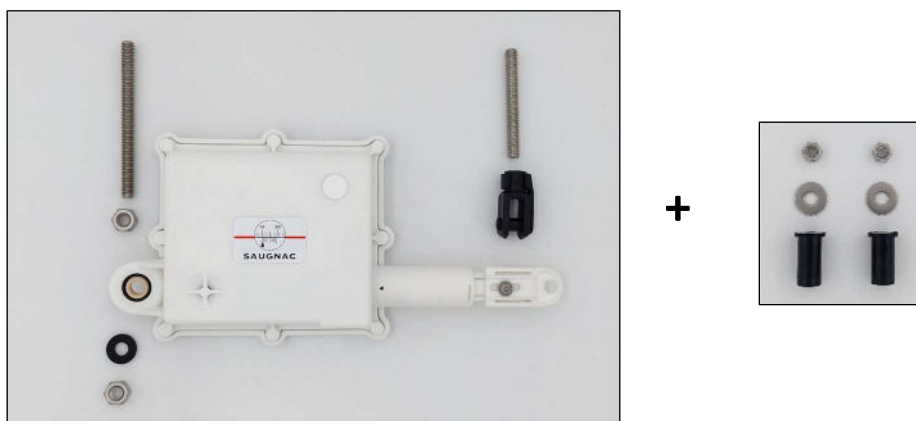
- Equipment required (**not supplied**): drill, Ø8 mm drill bit, 6 pan 3 mm spanner, 10" spanner
- Screws and bolts **supplied** for solid support: 2 brass dowels, 2 grub screws, 2 nuts, a washer and a joint.



All you need to do is drill two Ø8 mm holes 30 mm deep. All the steps are described in detail with photos in the instructions supplied.

On hollow supports (can also be used on solid supports)

- Equipment required (**not supplied**): drill, Ø13 mm drill bit, 6 pan 3 mm spanner, 10" spanner
- Screws and bolts **supplied** for hollow support: 2 EPDM dowels, 2 grub screws, 2 nuts, a washer and a joint.



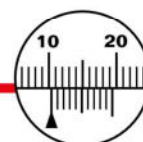
All you need to do is drill two Ø13 mm holes 30 mm deep. All the steps are described in detail with photos in the instructions supplied.



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Corner mounting

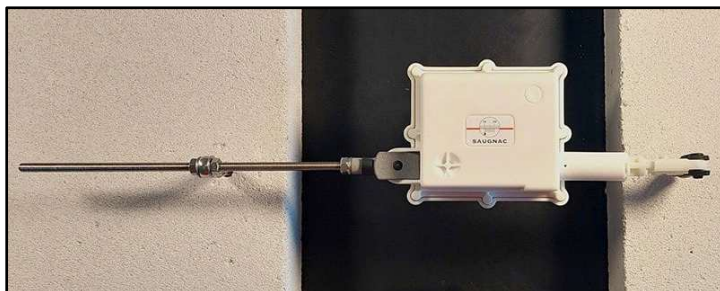
The articulated bracket supplied with the R1 gauge allows it to be fixed at an angle without any additional equipment. Example of an R1 gauge fixed at an angle to the ceiling :



Fixing kits

Several fixing kits are also available:

- Extension kit for fixing with a centre-to-centre distance greater than 18 cm and up to 32 cm



- Fixing kit for monitoring shearing



- Fixing kit for tracking a misalignment



Network coverage of the remote crackmeter

The R1 gauge works with an LTE-M / Nb-IoT communication module (exchange protocol specific to connected objects), an industrial SIM card and a **multi-operator subscription**.

We have agreements **throughout Europe** (Switzerland, Belgium, Germany, Austria, Spain, Portugal, England, Ireland, Czech Republic, Greece, Romania, etc.) and the main countries of the **rest of the world**. Don't hesitate to contact us if you have any questions.

In addition, the specific LTE-M / Nb-IoT protocol enables reception even in areas where telephones no longer receive (basements, car parks, etc.).

Autonomy of the the remote crackmeter

Battery life depends on the settings of the R1 gauge. The higher the measurement and transmission frequency, the higher the battery consumption.

Based on the tests carried out, **the autonomy of the R1 gauge is estimated at between 2 years and over 7 years** under normal conditions of use. Autonomy values are estimates. They in no way represent a commitment on the part of Saugnac. Battery life depends on a number of non-predictive parameters: signal quality, transmission power and weather conditions.

An alert is sent at the end of the battery's life to warn you to change it. The battery can be changed simply by following the instructions in the manual.

Weather resistance

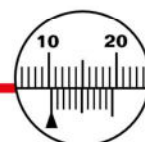
The enclosure is designed for IP65 protection. The choice of materials and electronic components, and the tests carried out, ensure that the R1 gauge operates between -30°C and +70°C.

Remote monitoring of measurements with the Saugnac application

All the data collected by the 3 sensors can be accessed on the Saugnac application <https://saugnac.app/> from a PC or smartphone. The application is supplied with the R1 gauge and remains accessible even if the subscription to send the gauge data has expired.

This easy-to-use application allows you to :

- **Generate and download graphs**



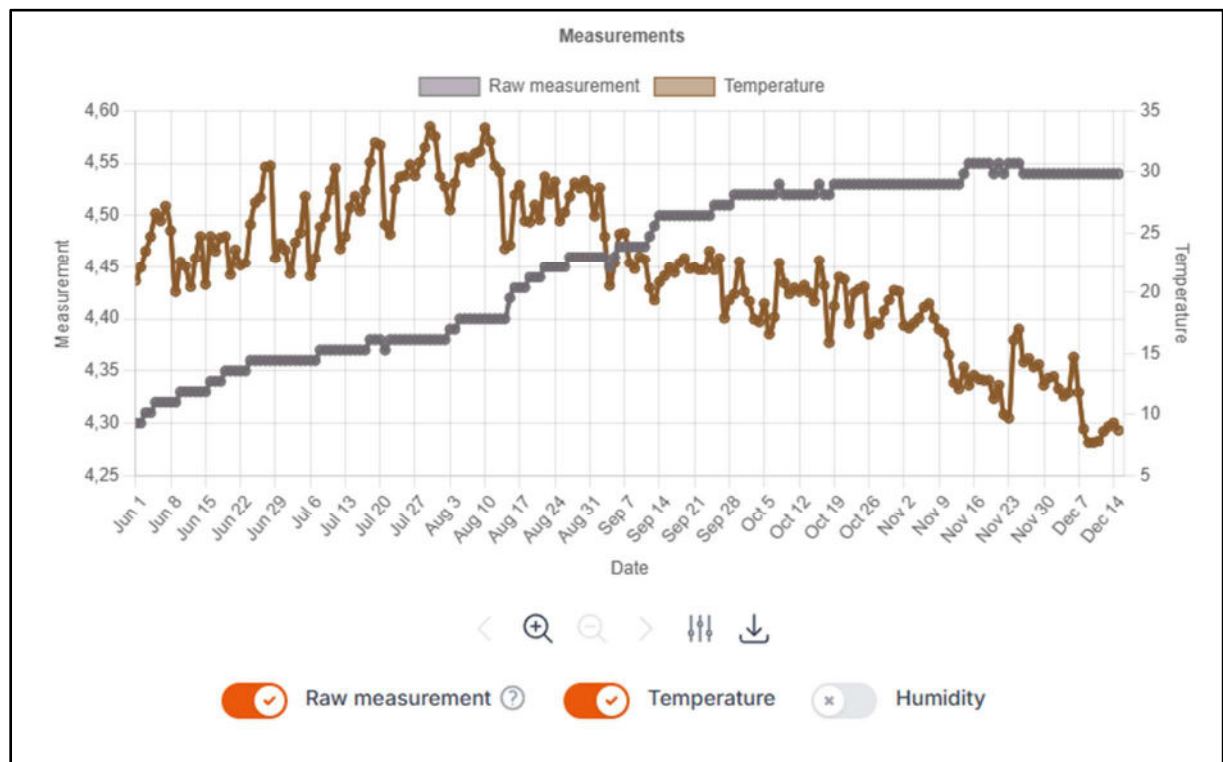
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- Download data in Excel or CSV format

Select the format:

.xlsx

Excel file containing gauge measurements

Download

.zip

Zip archive containing the excel file and all the pictures

Download

.csv

Raw file containing measurements without formatting or context

Download

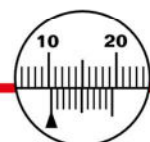
Cancel



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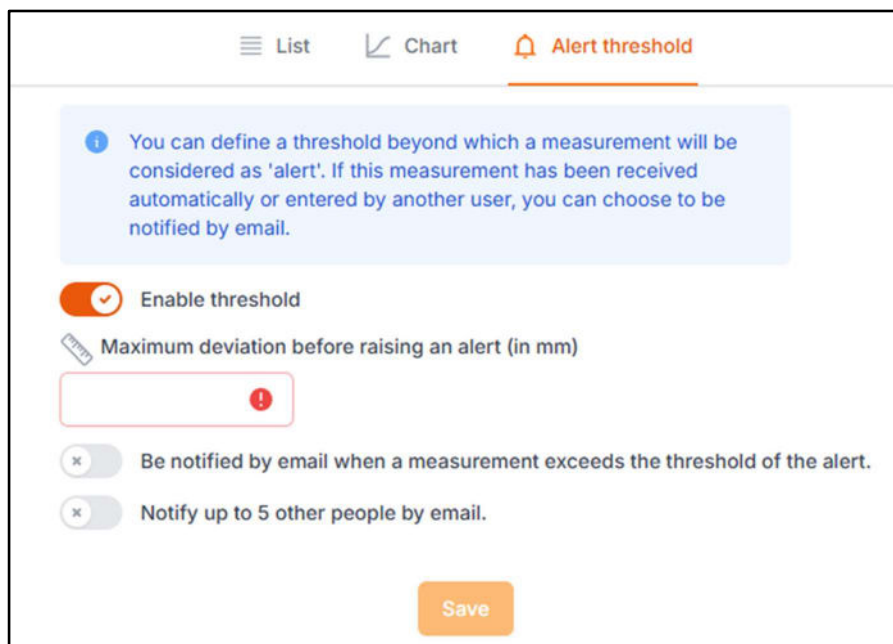
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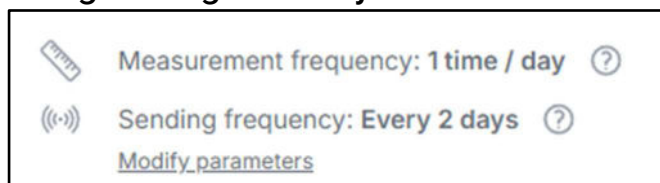
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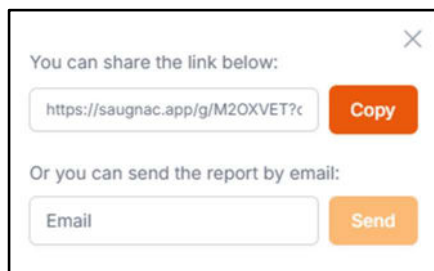
- Set alert thresholds with email notifications



- Change settings remotely



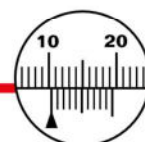
- Share data in one click



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Frequently asked questions

⇒ How do you know if the R1 gauge will pick up the network at the installation site?

The R1 gauge uses the LTE-M / Nb-IoT protocol, which relies on operators' 4G antennas. It is therefore possible to check whether the desired area is covered by 4G to find out whether the gauge will be able to operate.

⇒ What happens if the gauge can no longer connect to the network to send data?

In the event of a one-off problem with the network, the gauge saves the data and sends it on for the next measurement. Depending on the settings, the gauge stores between 5 days and 1 month's worth of data to ensure that no data is lost.

In the event of a prolonged problem, the gauge tries to change operator in order to reconnect. Unless there is a major and lasting problem, the gauge must be able to communicate over the long term. If this happens, an alert is sent to indicate that the gauge is no longer able to communicate.

⇒ What happens at the end of the subscription?

At the end of the subscription, the measurements are no longer sent. However, in order to check that the subscription is up to date, the gauge will continue to connect to the network regularly and therefore consume battery power. If you no longer need the gauge at the end of the subscription, we recommend that you switch it off to conserve battery power.

The application and data remain accessible even if the subscription is terminated. The subscription can be reactivated at any time.

⇒ How do I renew a subscription?

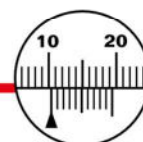
You can renew your subscription directly in the application, either by paying by credit card or by sending us your order form.

⇒ Can the R1 gauge be reused in another location?

The R1 gauge is designed to be reusable. Use the archive function in the application, then switch the gauge off and put it away. Installation on a new site is carried out in the same way as for the first installation.

⇒ How do I change the battery in the R1 gauge?

The battery is easy to change if you're careful. Instructions are provided in the manual. However, if you do not wish to carry out this operation, you can order the battery, return your gauge to us and we will do the change free of charge by returning the gauge to you with the new battery.



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