E1 Gauge – Digital crackmeter

The E1 gauge is recommended for monitoring cracks on 1 axis (gap) or 2 axes (gap + shear).

It provides reliable measurements with a resolution of 0.01 mm and repeatability of ± 0.01 mm. **Its patented fastening system** allows the E1 gauge to be positioned in the plates and easily removed in any configuration.

The G1 gauge is recommended for monitoring parallel-lip cracks. It provides reliable measurements with 0.1 mm resolution.

An application, available at https://saugnac.app, is provided to read and manage the measurements, particularly for 2-axis tracking.

The E1 digital crackmeter offers the following advantages:

- **Digital reading** of the measurement
- Measurement resolution to **0.01 mm**
- Can track movement in **1 or 2 axes**
- **Removable gauge** stored in a carrying case
- Small, transparent positioning plates
- Unique identification of plates by QR code and measurement tracking in the Saugnac application (more information at https://saugnac.app/help)
- Suitable for **angled cracks** or those with wide gaps (up to 35 mm)

The E1 gauge is designed, produced and assembled in France (except for electronics).

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It is supplied with :

- a **top-of-the-range case** for easy storage and transport
- a **carbon standard** with a very low coefficient of expansion (3.5×10^{-6}) for zeroing before measurement. The standard is measured to one hundredth, with a value indicated on the body of the standard so that values can be compared if the standard is changed.
- a **1-axis installation jig**
- a **2-axis installation jig**
- **5 pairs of P1E1 plates** with impact anchors for tracking 5 cracks on 1 axis
- detailed instructions

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Technical data

Resolution	0.01 mm
Repeatability	±0.01 mm
Dimensions	E1 gauge: 220 mm (length) x 60 mm (width) x 30 mm (height) Plates: 33 mm (diameter without tab) x 9 mm (thickness)
Plate material	PA12
Material mounting pin	Hard anodised aluminium
Measurement range	Approx. 25 mm (variation possible between maximum and minimum measurement)
Weight	210 g

Fixing P1E1 (1 axis) or P2E1 (2 axes) plates

- **Mechanical fastening:** P1E1 and P2E1 plates are supplied with impact anchors for long-term fastening. The plates are manufactured with a Ø 4mm hole in the centre: these holes facilitate mechanical fastening using impact anchors. The 4 mm diameter makes it easy to drill a hole in any surface.

- **By gluing:** It is also possible to fix by gluing with fast-curing epoxy adhesive.

  This fast-setting adhesive can be bonded in 4 minutes, but as the final setting time is 2 hours, **it is necessary to wait for this time before taking the first measurement to ensure that the plates are perfectly attached to the substrate**. As the resolution of the E1 gauge 0.01 mm, the repeatability of the measurement to one hundredth depends on the quality of the fixing.

Fixing at an angle or in a plane with flush fitting

The patented mounting system allows installation configurations with minimal protrusion (up to 35 mm) or in corners.

Example of corner mounting (corner mounting possible, including 2-axis tracking):

Example of fastening with a 2.5 cm flush:

2-axis crack monitoring (gap + shear)

The E1 gauge offers the advantage of **2-axis crack monitoring**, i.e. both crack spreading and shearing.

To monitor a crack or movement of this type, you need to use the E1 gauge combined with P2E1 plates for 2-axis monitoring and the Saugnac.app application to perform the calculations.

The P2E1 plates are similar in operation to the P1E1 plates (identical fixing and positioning) but are supplied in triplicate (3 plates). They are sold separately in boxes of 5 triplets and can then be added to the carrying case.

The plates are fixed using the 2-axis template supplied, indicating three fixing points: A, B, and C. The measurements are then taken and entered into the application.

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The Saugnac.app application can be used to project these values onto an X,Y orthonormal coordinate system and deduce the movement on these 2 axes..

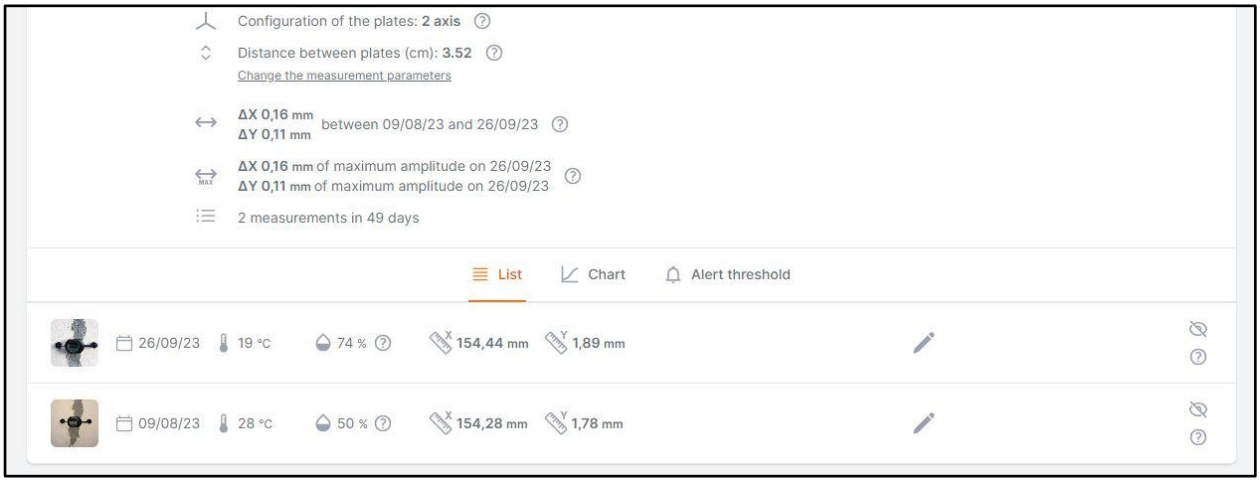
Weathering / UV resistance

Only the plates remain installed. The E1 gauge is stored in the protective case for optimum storage and transport.

The P1E1 / P2E1 plates are injected in a specific Nylon PA12 which has good resistance to shocks, UV, and rain and good stability at high temperatures.

This material is commonly used for parts subject to severe weather conditions, such as car headlights, watch windows, boat parts, spectacle frames, control panels, etc.

Monitoring measurements with the Saugnac application

The Saugnac web application, which is entirely free and unrestricted, is available on PC or smartphone from https://saugnac.app/. It allows you to :

- save measurements and photos in your space
- retrieve **temperature and humidity levels** using geolocation
- **calculate variations on 2 axes** (X and Y)
- collaborate on the same gauge
- manage **alert thresholds**
- classify gauges by location and locate them on a map
- download **data in Excel format**
- automatically display graphs
- **share data** with others without an account
- access the application from your **PC** or **smartphone**
- add measurements offline