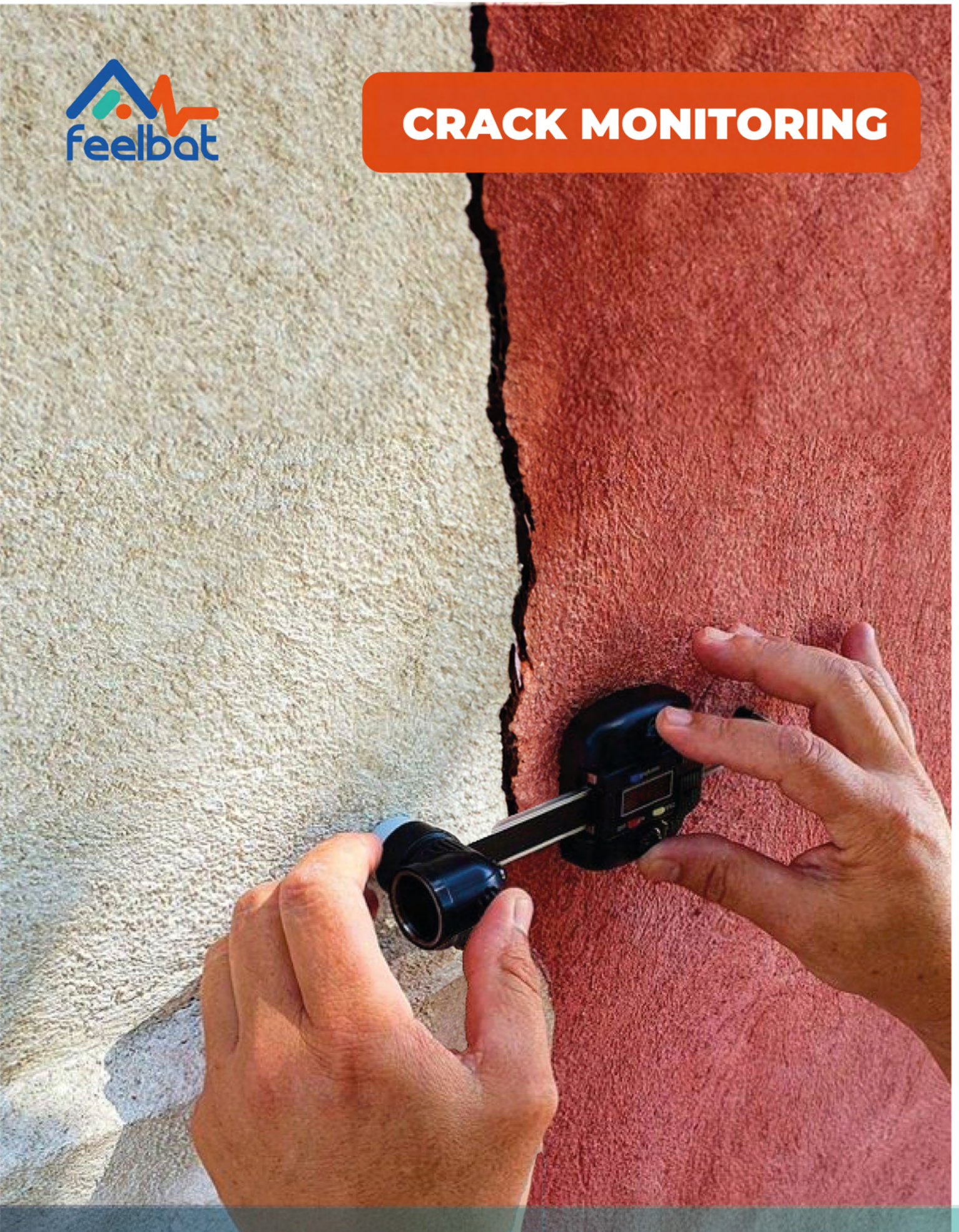




CRACK MONITORING



DELTA L MANUAL

Manual Crack Gauge





The DELTA L is ideal for precise manual monitoring of cracks across three measurement axes – opening, shearing, and offset – as well as angle measurement.

It is capable of measuring cracks with a precision of up to 1/100th of a millimeter. Compact, durable, affordable, and easy to use, it is accessible to everyone.

Specifications

Battery 3,6 V	Weight 0,85kg	Dimensions 22 x 4,5 x 7 cm
Precision 0,01 mm	 Reading Electronic – digital display 	Maximum range 14 cm
Battery life 1 to 5years*	4 types of measurement	Fixing : Compatible with all material types

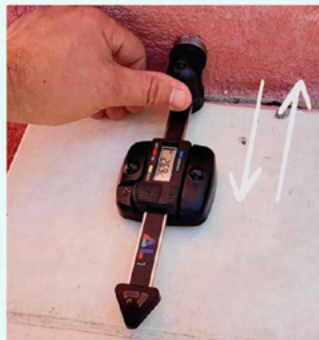
*Depending on usage.



Opening



Shearing



Angle measurement



Offset

EXPERT PACK



This kit includes:

- An electronic measurement ruler DELTA L1,
- The FEELBAT graduated ruler,
- 10 JC1 polycarbonate gauges for monitoring 5 cracks,
- The DELTA L2 measurement tool,
- The DELTA O calibration block,
- 3 JC2 gauges for monitoring 3 cracks in shearing and offset,
- 25 hammer-in anchors for fixation.

ESSENTIAL PACK



This kit includes:

- The DELTA L1 electronic measurement ruler,
- The DELTA L0 calibration block,
- 10 JC1 polycarbonate gauges for monitoring 5 cracks,
- 10 hammer-in anchors for fixation.

JC1 Gauge Fixation

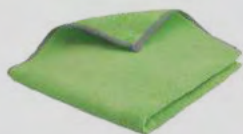


Rigid fixation
Hammer-in anchors



Adhesive fixation
Bi-component adhesive

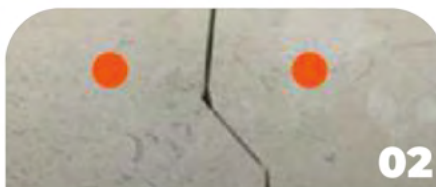
Adhesive Fixation



01

Surface Preparation

Clean the surface with a stiff brush to remove dust. Ensure the surface is free of grease or oily substances.



02

Placement Preparation

Mark the center of the gauges to be installed, then prepare the bi-component adhesive syringe.

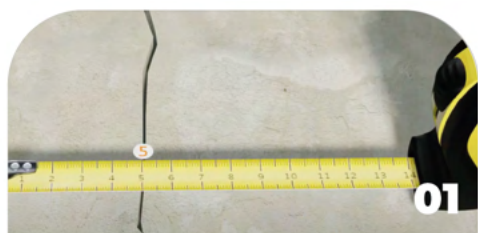


03

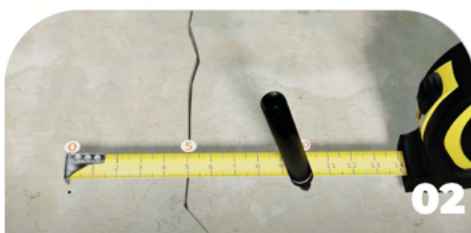
Application and Holding

Apply the bi-component adhesive over the entire contact surface of the gauge. Hold it in place at the center of the mark on the surface.

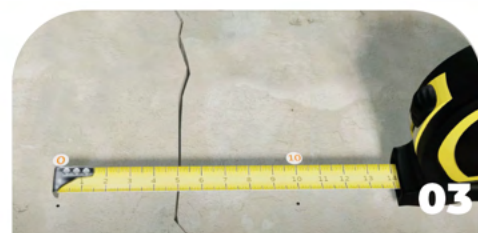
Positioning JCI Gauges



01
Place the measuring tape perpendicular to the crack, aligning the number 5 at the center of the crack.



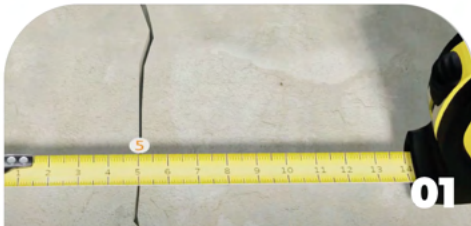
02
Use a marker to mark a point at 0 and another at 10.



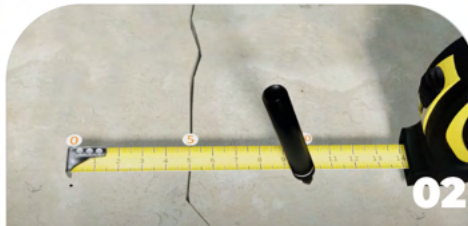
03
You now have the axis for positioning the JCI gauges.

Positioning JC1 Gauges

Angle Measurement

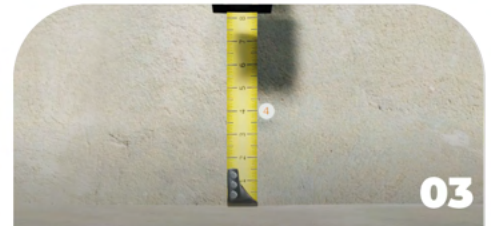


01
Place the measuring tape at an angle near the crack, laying it flat on the surface you wish to monitor.



02
Use a marker to place a point at the angle and at number 10 on the horizontal wall.

(Placement of the JC1 gauge on the horizontal wall, shown in beige on the image above.)



03
Place the measuring tape at the marked angle and add a mark at number 4 on the vertical wall.

(Placement of the JC1 gauge on the vertical wall, shown on the red wall in the image above.)



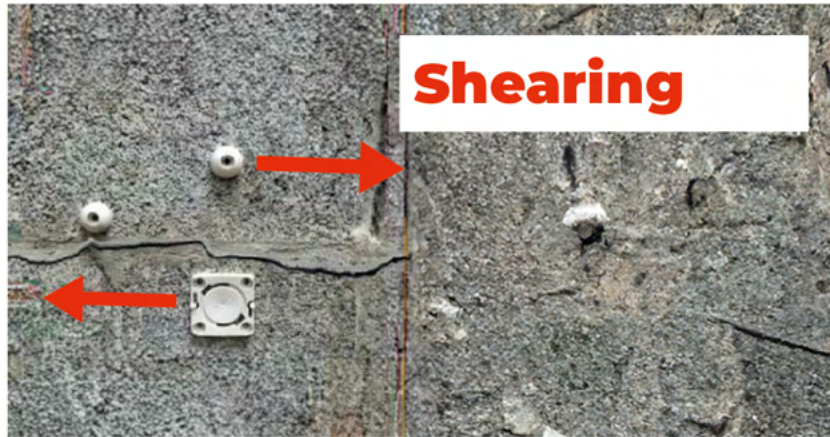
04
You now have the axis for positioning the JC1 gauges to monitor the movement of the crack at the angle.

Positioning JC1/JC2 Gauges

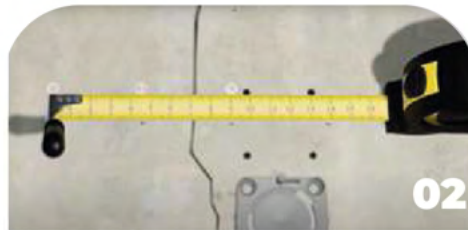
Offset



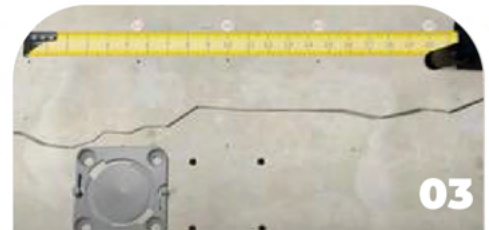
Shearing



01 Place the measuring tape perpendicular to the crack and position the JC2 gauge 2 cm from the edge of the crack.



02 Mark the 4 fixation points for the gauge using a marker, as shown by the arrows on either side of the JC2 gauge.



03 Align perpendicularly to the crack using the Delta L2 arrows. Place the gauge at 9 cm on the Delta C2 mark, 2.5 cm from the crack. Note the points at 0 cm (offset reference) and 4.5 cm (reference for the other gauges).



04 Position the measuring tape parallel to the crack, aligning 10 cm with the previously marked reference point. Apply another mark at 0 and 20 cm (shearing) and at 5.5 and 14.5 cm (offset).



05 You now have the two measurement points for shearing and three for offset. Choose the locations to install the JC1 gauges to measure the crack's shearing and offset.

If you encounter difficulties marking the reference points, FEELBAT offers a template using the flash code (detailed at the end of the manual).

Calibration 1: Crack Monitoring

Opening / Closing

The Delta L0 is a calibration tool made of noryl, a fiber-reinforced plastic offering high resistance to shocks and extreme temperatures, but above all, very low moisture absorption and excellent dimensional stability over time.

Calibration must be performed before each measurement campaign.

For example, to measure the initial value after attaching your JC1 gauges, you must place the Delta L1 on the Delta L0 as shown in the picture below and reset to zero. You can then proceed with the measurement.



Calibration 1 Instructions

Place the Delta L0 on a flat and stable surface, and turn on the Delta L1 tool.

Place the Delta L1 on the Delta L0 by aligning the stainless steel rings on the domes (see photo above).

Position your right thumb and index finger on the two smooth balls located around the digital screen, and your left hand on the ribbed ball.

Initiate a slight rotational movement to calibrate the Delta L1.

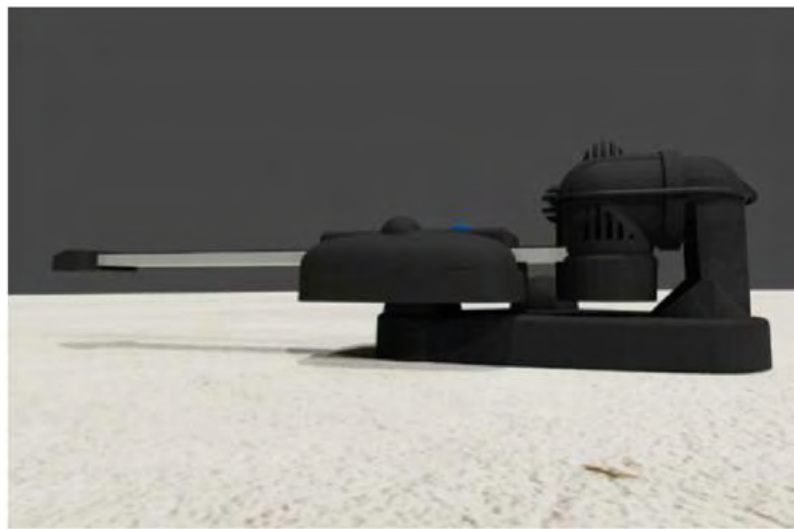
Keep your left index finger lightly pressed, and with your right index finger, press the "yellow" button to reset the tool to its initial position.

Calibration 2: Angle Measurements

Shearing and Offset

The Delta L0 is a calibration tool made of noryl, a fiber-reinforced plastic offering high resistance to shocks and extreme temperatures, but above all, very low moisture absorption and excellent dimensional stability over time.

For angle, shearing, or offset monitoring with the DELTA L2 tool, you need to calibrate the DELTA L1 as shown below:



Calibration Type 2 Instructions

Place the Delta L0 on a flat and stable surface, and turn on the Delta L1 tool.

Position the tip of the Delta L1 tool vertically at the top of the dome to easily secure the elastic band in the designated notch without pulling the elastic.

Tilt the Delta L1 tool and progressively stretch the elastic over the head of the Delta L1.

Position the "stainless steel ring" holder under the second dome of the Delta L0.

Place your thumb and index finger on the two smooth balls positioned around the digital screen.

Initiate a slight forward and backward rotational movement in contact with the domes to properly position the tool.

Keep your right thumb and index finger lightly pressed, and with your left index finger, press the "yellow" button to reset the tool to its initial position.

Congratulations, you have calibrated the Delta L1 tool to perform shearing, offset, and angle measurements.

For shearing and offset measurements, you will need the Delta L2 tool to secure it to the JC2 template and perform your measurements.

For angle measurements, use the Delta L2 tool and JC2 gauges.

Note: Do not worry about minor variations during calibration. The calibration precision may vary by ± 0.02 mm depending on the pressure applied to the tool. This margin of error is negligible, representing the average thickness of a hair split into 10 parts.

Measuring / Recording JC1 Gauges



It is necessary to calibrate the Delta L1 before each measurement, following Calibration #1. Reading the JC1 gauge in "opening/closing" mode.

To take the first reading and subsequent measurements, follow the same positioning steps as for Calibration #2, placing the rings of the Delta L1 on the two JC1 gauges on either side of the crack.

01

Turn on the Delta L1 tool and place the "stainless steel ring" holders under the JC1 gauges.

02

Position your right thumb and index finger on the two smooth balls surrounding the digital screen and your left hand on the ribbed ball.

03

Initiate a slight forward and backward rotational movement in contact with the domes to properly position the tool against the metallic rings.

04

Stabilize your pressure on the tool and record the indicated value.

05

If this is your first measurement, it will serve as the baseline. Subsequent measurements will indicate the difference, or "delta," in the crack's movement over time.

Measuring / Recording JCI Gauges



Reading the JCI Gauge in "angled crack" mode

To take the first reading and subsequent measurements, follow the same positioning steps as for Calibration #2, placing the rings of the Delta L1 on the two JCI gauges on either side of the crack.

01

Turn on the Delta L1 tool and place the "stainless steel ring" holders on the JCI gauges, one positioned on the horizontal ring of the tool and the other on the vertical ring.

02

Position your right thumb and index finger on the two smooth balls surrounding the digital screen, with your left hand on the ribbed ball parallel to the wall.

03

Initiate a slight forward and backward rotational movement in contact with the domes to properly position the tool against the metallic rings.

04

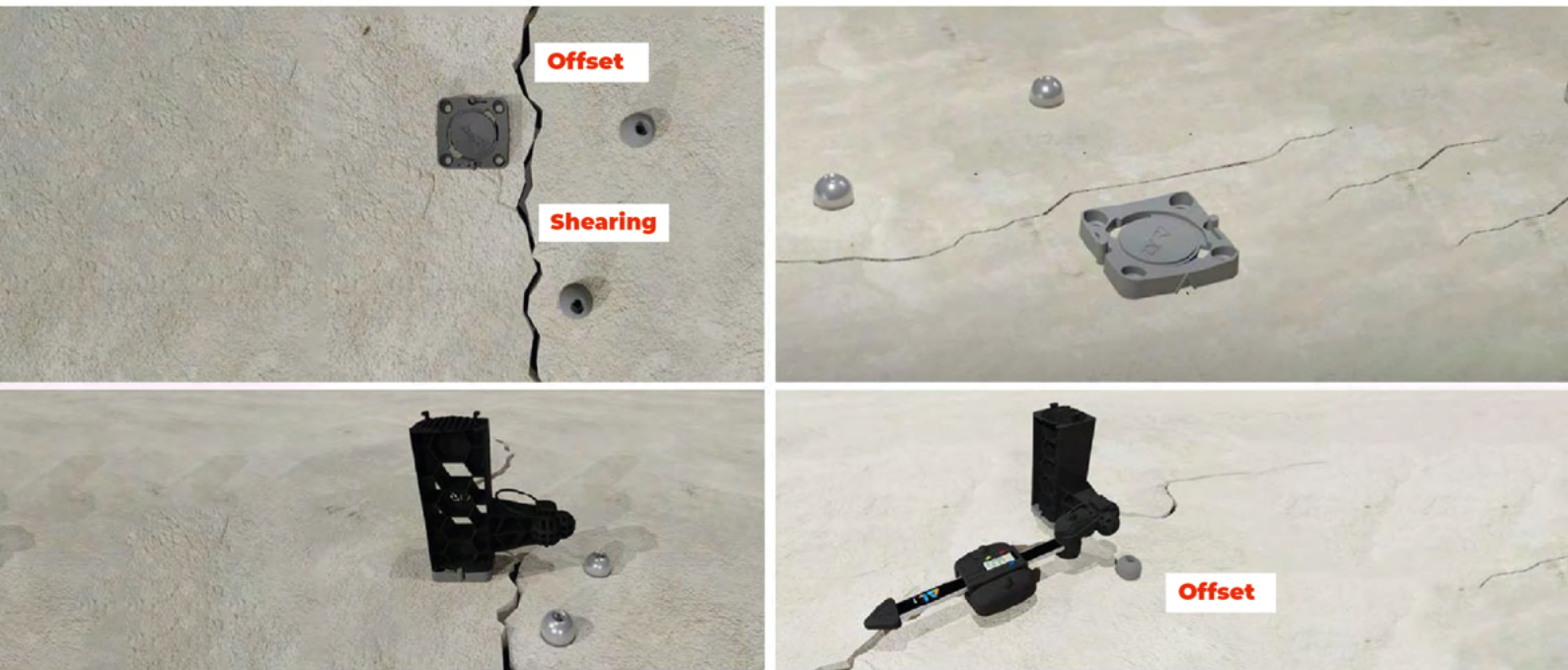
Stabilize your pressure on the tool and record the indicated value.

05

If this is your first measurement, it will serve as the baseline. Subsequent measurements will indicate the difference, or "delta," in the crack's angle and movement over time.

Measuring / Recording JC1/JC2 Gauges

Shearing Measurement



The images above show two gauges representing shearing and offset.
Before each measurement, the device must be calibrated following Calibration #2.
The example of the device's measurement and positioning (above) allows the measurement of a shearing value.

01

Turn on the Delta L1 tool.

02

Position the Delta L2 block upside down on the JC2 gauge, then rotate it a quarter turn until you hear a "click" and see the alignment of the markers between the gauge and the tool.

(During this step, place your fingers as close as possible to the rotation axis to prevent wear on the Delta L2 rotation lugs.)

03

Position the elastic band in the slot at the center of the ribbed ball and tilt the head so that the ring comes into contact with the dome.

04

Place the ring from the base of the Delta L1 on the JC1 gauge. Position your right thumb and index finger on the two smooth balls surrounding the digital screen, and ensure the other end of the tool remains held by the elastic.

05

Initiate a slight forward and backward rotational movement in contact with the domes to properly position the tool against the metallic rings.

Stabilize your pressure on the tool and record the indicated value.

06

If this is your first measurement, it will serve as the baseline. Subsequent measurements will indicate the difference, or "delta," in the crack's movement over time.

Measuring / Recording JC1/JC2 Gauges Offset Measurement



Calibration 2: Measuring crack offset movement

Before each measurement, the device must be calibrated following Calibration #2.

The example of the device's measurement and positioning (above) allows for the measurement of an offset value.

01

Turn on the Delta L1 tool.

02

Position the Delta L2 block upright on the JC2 gauge by sliding the claws into the slots, then rotate it a quarter turn until you hear a "click" and see the alignment of the guide markers between the gauge and the tool.

(During this step, place your fingers as close as possible to the rotation axis to prevent wear on the Delta L2 rotation lugs.)

03

Place the "stainless steel ring" holders on the JC1 gauge, ensuring the Delta L1 tool's dome is gently resting on the vertical wall. The counterweight should remain in its natural position, and pressure should only be applied to the tool head.

04

Position your right thumb and index finger on the two smooth balls surrounding the digital screen, with your left hand on the ribbed ball parallel to the wall.

05

Initiate a slight forward and backward rotational movement in contact with the domes to properly position the tool against the metallic rings. Stabilize your pressure on the tool and record the indicated value.

06

If this is your first measurement, it will serve as the baseline. Subsequent measurements will indicate the difference, or "delta," in the crack's movement over time.

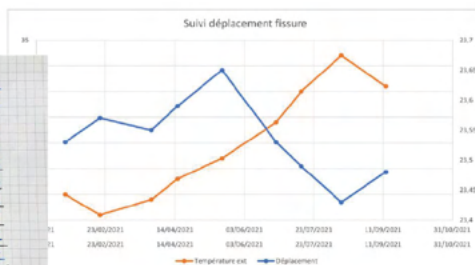
It is possible that the stainless steel ring detaches from the measuring ruler (Delta L1) for various reasons. Don't panic! Simply apply super glue to the surface of the ring and reattach it to its position.

Note: The stainless steel ring has a flat edge (to glue to the designated area on the Delta L1) and a beveled edge (necessary for performing measurements). Ensure the correct side is glued before proceeding.



Recording / Monitoring Displacement

Date	Déplacement	T°
25/01/21	23,53	5°C
19/02/21	23,57	1°C
28/03/21	23,55	4°C
16/04/21	23,53	8°C
18/05/21	23,65	12°C
26/06/21	23,53	13°C
14/07/21	23,49	25°C
12/08/21	23,43	32°C
13/09/21	23,48	26°C



First Basic Method

Record the measured values on a notepad. Use the first recorded value as the baseline, then subtract subsequent values over the weeks and months to calculate the variation in crack opening or closing. This allows you to analyze the "delta" in your crack's displacement.

You can also use an Excel spreadsheet to create a trend curve and gain better insights into the importance of your crack's variation.

Second Assisted and Digital Method

Feelbat provides a mobile application that allows you to track crack movements easily and efficiently.

Download the app from the iOS or Android store.

Open the app, click on the "plans" tab, and select "create a project." Add your gauges to the project.

Take a photo of your sensor in place.

Repeat this process as often as needed to add gauge positions.

Navigate to the "plans" tab, add a plan or photo of the area to place your gauge locations.

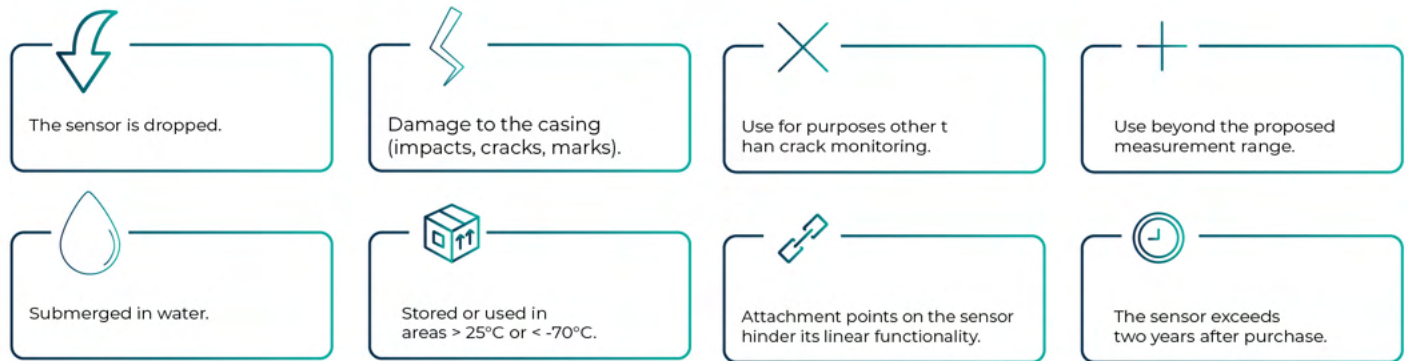
Now, you can follow the evolution of your cracks over time, with data securely stored in our cloud environment.



Warranty

FEELBAT products are covered by the legal conformity warranty, which covers defects in compliance with the sales contract that appear within two years from the date of product delivery, and by the hidden defects warranty, which covers non-apparent defects at the time of sale that render the product unsuitable for its intended use or significantly reduce its usability.

As such, the warranty does not apply in the following cases:



FAQ

My Delta L1 sensor displays a blinking value. What should I do?

Replace the battery.
Battery type: LR44



My Delta L1 sensor displays completely incorrect values. What should I do?

01
Replace the battery.
Battery type: LR44

02
If the device was used in the rain, place it back in its case and allow it to dry. Try again after a few hours.

I lost or broke a calibration element (L0, L1, L2, etc.)

Feelbat offers the option to purchase these products individually. Visit the online store or contact your regional sales representative.

The ring on my Delta L1 detached. Should I replace the device?

You can use super glue to reattach the stainless steel ring to its designated position (red outline).

Note: Pay attention to the ring's orientation when gluing. The beveled side of the ring ensures accurate measurements—make sure to glue the correct side (see photo for reference).



To assist you, you can download printable templates!





boutique en ligne

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