How to install a NodeLog and a crackmeter

Installation procedure

Code FE-005
Owner IoT Department

Versions

Version	Date	Auteur	Modification
V1.0	26/05/2023	AAU	Document Creation
V2.0	23/10/2023	AAU	Add “probe style” transducer installation
V2.0	09/04/2024	MLM	Homogénéisation des documents

Sommaire

1. INTRODUCTION

This procedure aims to present how to properly install a NodeLog associated with a crackmeter (also called “transducer”). That association is also called “CrackLog”. Here a schematic that illustrate this definition.

Photo of a transducer Photo of a NodeLog

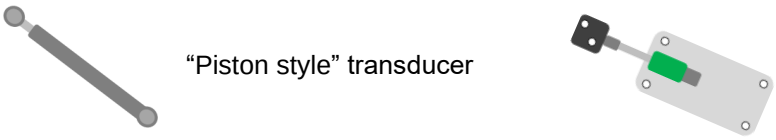
Figure 1 : presentation of the relationship between the NodeLog and a transducer

In this procedure, the NodeLog and the transducer may be represented by illustration. Here is the correspondence.

Figure 2 : correspondence between photo and schematics

2. TRANSDUCER TYPES

Here are the types of transducers the documentation deals with.



“Piston style” transducer “Probe style” transducer

Figure 3 : transducer types

3. PREREQUISITE

The NodeLog transmits data over LoRaWAN. Before installation, **please ensure there is a LoRaWAN coverage where the device is going to be installed**.
Regarding the coverage, there are two possibilities: via Socotec Monitoring gateway or via Orange connectivity (France only).

When you have chosen yours, please inform Socotec Monitoring IoT team on **iot-smf@socotec.com**

4. INSTALLATION OF A “PISTON STYLE” TRANSDUCER

4.1. Orientation of the transducer

Chose the right orientation of the transducer. Always place the transducer **perpendicular** to the crack. The figure below shows how to proceed.

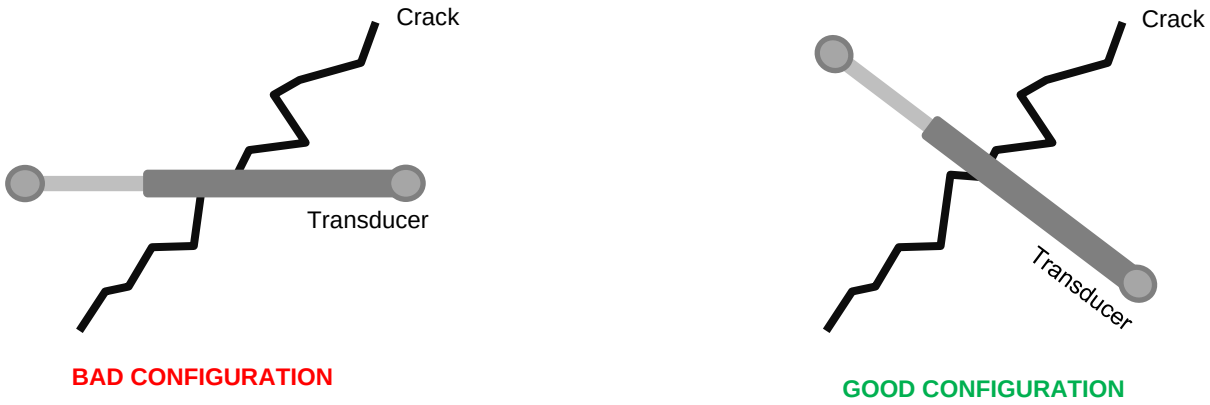


Figure 4 : Illustration of the right orientation of the transducer

4.2. Spacing between transducer eyelets

Chose the right spacing between the transducer eyelets. That spacing depends on the course out of the transducer. The figure below shows the relationship between these elements. As the movement of a crack could be unpredictable (it may open or close again), we will always place the transducer with **50% of its course out**.

Before installing the transducer, set the transducer course to 50% out and **note the corresponding eyelet spacing**.

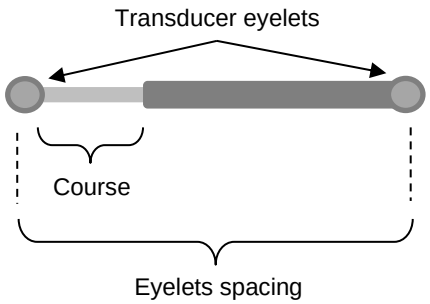


Figure 5 : Relationship between spacing eyelets and course out

Example

For example, if the transducer to be installed has a total course of 100mm, the course out must therefore be 50mm. Then the transducer shall be installed as shown on the figure below.

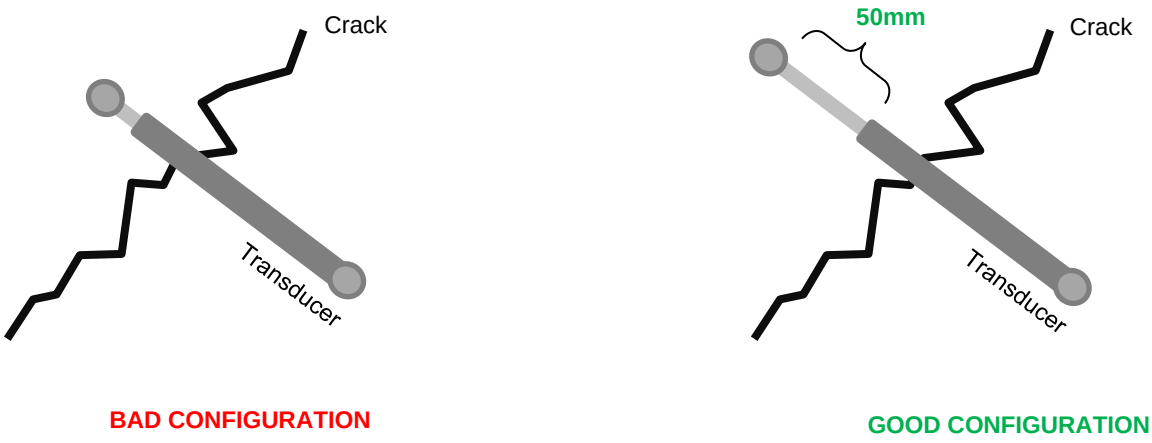


Figure 6 : Illustration of the course out and the eyelets spacing of the transducer, example with a 50mm transducer.

4.3. Transducer installation

4.3.1. Installation with wedge anchor

Install the transducer as follows:

- Make holes in the wall respecting the **eyelets spacing you've noted previously**.
- In those holes, put and fix the "spit" (or "wedge anchor").
- Install the transducer and **make sure it is securely attached. No part should move.**

Example

Here is an example for one hole with 100mm "wedge anchor" and an Electrical Crackmeter from *gestecno*.

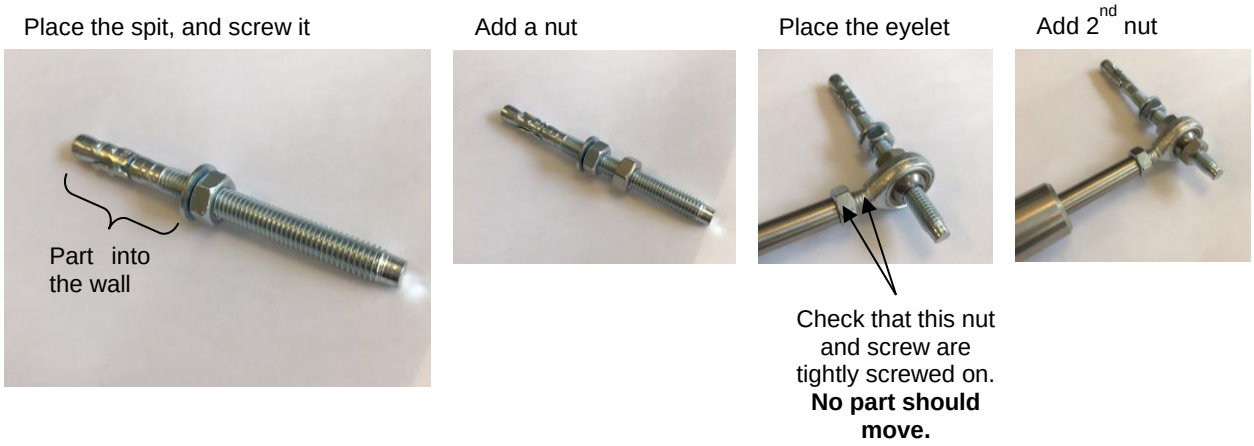


Figure 7 : Illustration of the 4-steps process to install an Electrical Crackmeter

4.3.2. Installation with screws and spacers

Install the transducer as follows:

- Make holes in the wall respecting the **eyelets spacing you've noted previously**.
- In those holes, put the screw plugs.
- Place the spacer between the wall and the transducer and attach it with the screw. **Make sure it is securely attached. <u>No part should move.</u>**

Example

Here is an example for one hole with 9mm spacers and PZ 50mm transducer from *GEFRAN*.

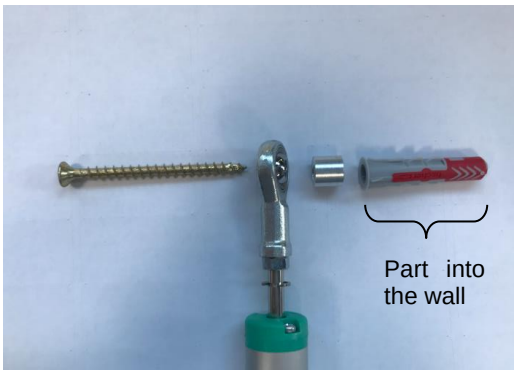


Figure 8 : Illustration of the installation of the screws-spacer solution

5. INSTALLATION OF A “PROBE STYLE” TRANSDUCER

5.1. Orientation of the transducer

Chose the right orientation of the transducer. Always place the transducer **perpendicular** to the crack. The figure below shows how to proceed.

Figure 9 : Illustration of the right orientation of the transducer (with plate)

5.2. Space between the bracket and the probe

Chose the right length of the course out of the transducer. As the movement of a crack could be unpredictable (it may open or close again), we will always place the transducer with **50% of its course out**.

Before installing the transducer, set the transducer course to 50% out and **note the corresponding spacing**.

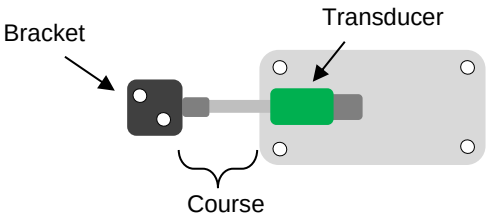


Figure 10 : Course on probe transducer

5.3. Transducer installation

Install the transducer as follows:

- Make holes in the wall respecting the **transducer plate holes** and the **brackets ones** ensuring a **50% course out of the transducer**.
- Install the plate and the bracket. **Make sure it is securely attached. <u>No part should move.</u>**

6. NODELOG INSTALLATION

Install the NodeLog reasonably close to the transducer. It is recommended to screw it on the wall. Ensure that **the cable gland is facing downwards**. Moreover, **make sure the antenna points upwards**.

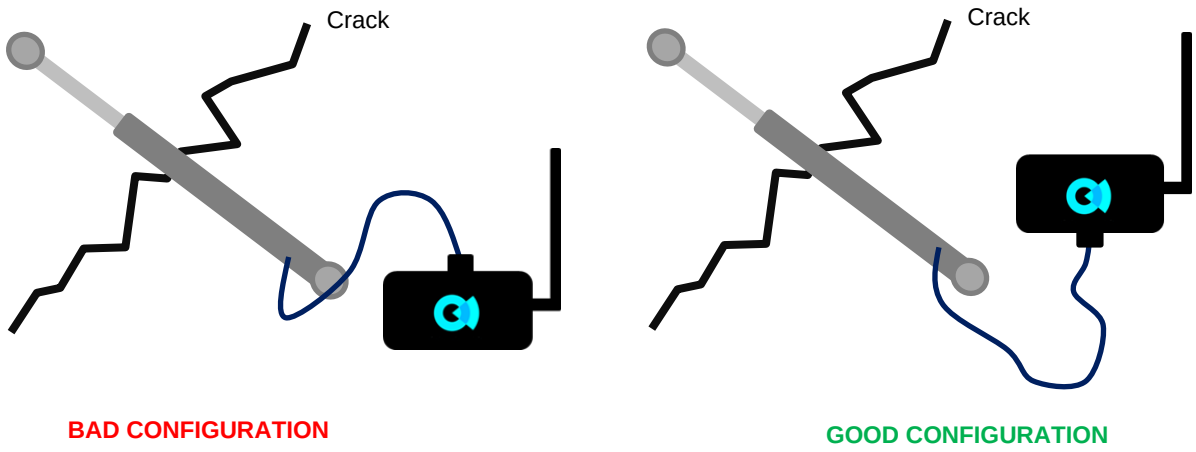


Figure 11 : Illustration of the right way of NodeLog installation

6.1. Example of installation

Here is an example of a good installation.

Figure 12 : Photo of a NodeLog installation with 100mm GEFRAN transducer

6.2. After the installation

An **installation report is mandatory**. Each sensor must be **photographed and listed with its serial number**.