AarteLink® - Another quantum leap in natural hazard alerts

Rock crevisse monitoring with AarteLink Telejointmeter ng (pat. pend.)

The new AarteLink Telejointmeter ng TJM ng fits seamlessly into the existing AarteLink product range. In addition to the well-known unique selling points such as

- built up in no time at all
- Energy-autonomous over 10 years
- all system components can be remotely adjusted and maintained
- Large radio distance between GeoSensor and gateway
- Extremely robust, waterproof and small

the new AarteLink® TeleJointMeter TJM ng with sophisticated AarteLink® CFRP extension pole is characterised by the following features:

- No separate data logger, communication module, power supply and photovoltaics necessary. **AarteLink® has this all in one!**
- Installation in no time: drill three rock anchors, screw on the Leica spigot, attach the universal sensor and Telejoint, secure, fully digitalised commissioning with RF Tool, **done!**
- Mechanically tension-free and backlash-free operation, regardless of the difficulty in accurately predicting the rock movement direction.
- The changes in length of the entire measuring device during temperature fluctuations with the AarteLink® CFRP extension are only marginal. This is in comparison to the aluminium extension rod, which has a temperature dilatation coefficient 240 times greater (depending on the type of CFRP winding).
- Easy removal and re-installation of the TJM without loss of information.
- Seamless continuation of a measurement series, thanks to geodetic standardised mounting technology
- Correct measurement data is available immediately after commissioning! There is no need to wait for long time series before distinguishing rock movement from inherent dilatation in the measurement system.
- short connection cable from linear potentiometer to universal sensor (typ. 1 - 2m) -> massively improved lightning protection!
- Absolute measurement through Leica measuring spigot system; thus compatible with all other measuring methods based on Leica measuring spigots.
- Mounting distance between 0.3 - 6.0 m (typ.), thanks to high-strength, lightweight AarteLink® CFRP extension rods also in telescopic version.
- Measuring range 50 mm, resolution 0.1 mm
- Autonomy: 10 years from the primary battery installed in the universal sensor.
- Functional in a very wide temperature range from -25^0 C to +70^0 C

 © Aartesys AG 2022

Figure 1: Typical installation of an AarteLink® TJM ng.

© Aartesys AG 2022

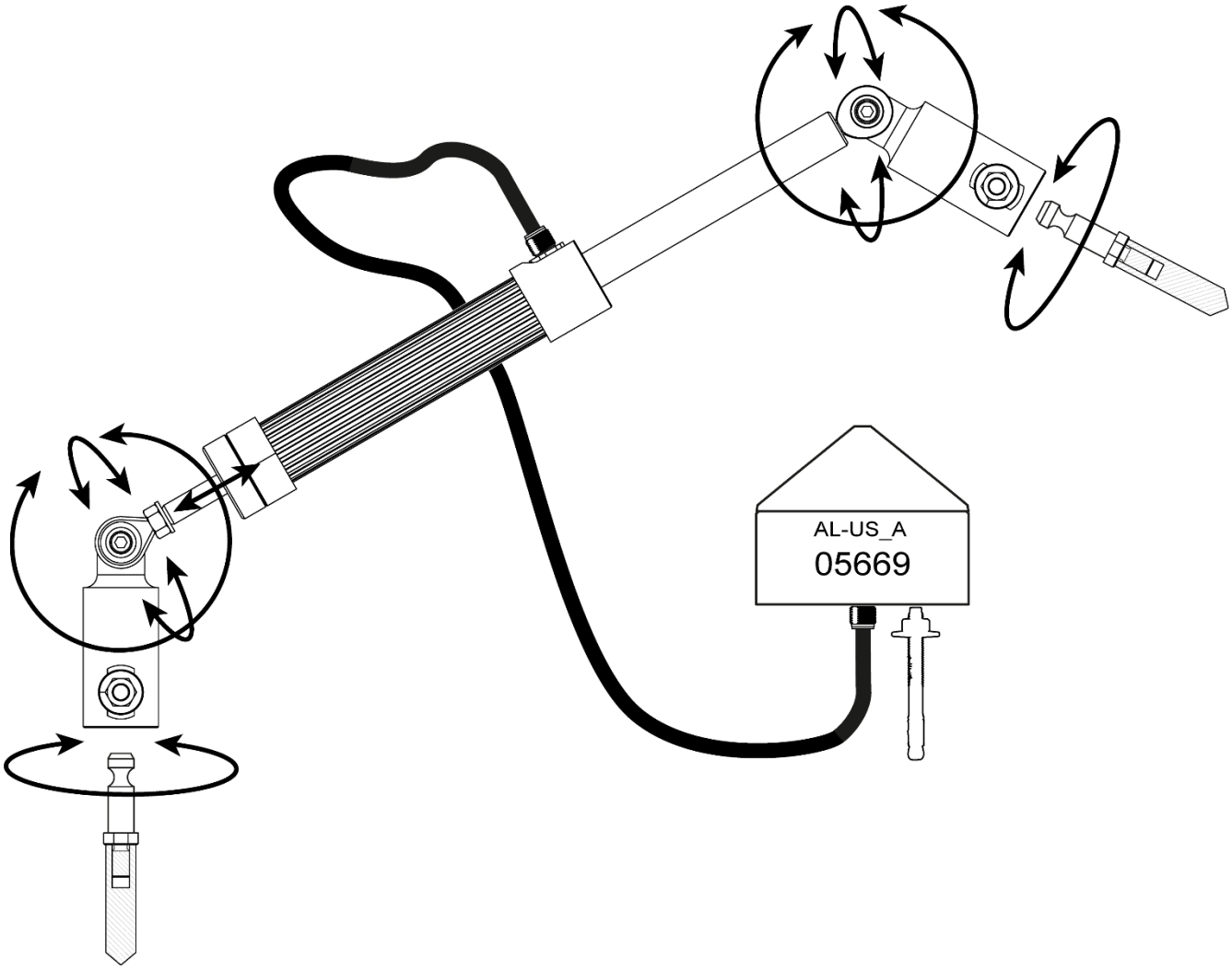

Figure 2: With their degrees of freedom, the precise Inox mounting adapters always enable optimal installation with mechanically stress-free measurement, regardless of how the sides shift.

*Figure 3: Installation of an **AarteLink**® TJM ng. The AarteLink® CFRP extension (with "aartesys" written on it) of the measuring instrument can be (a) made to measure (picture), (b) with telescopic tube (flexible) or (c) with standard lengths plus threaded rod (flexible). The AarteLink® universal sensor can be detached several metres (typ. 1-2 m to optimise the radio connection to the AarteLink® gateway).*

Figure 4: In situ comparison of three extension rod materials in the use of a TJM: (a) Inox, (b) carbon fibre (AarteLink® CFRP) and (c) aluminium (from left to right).

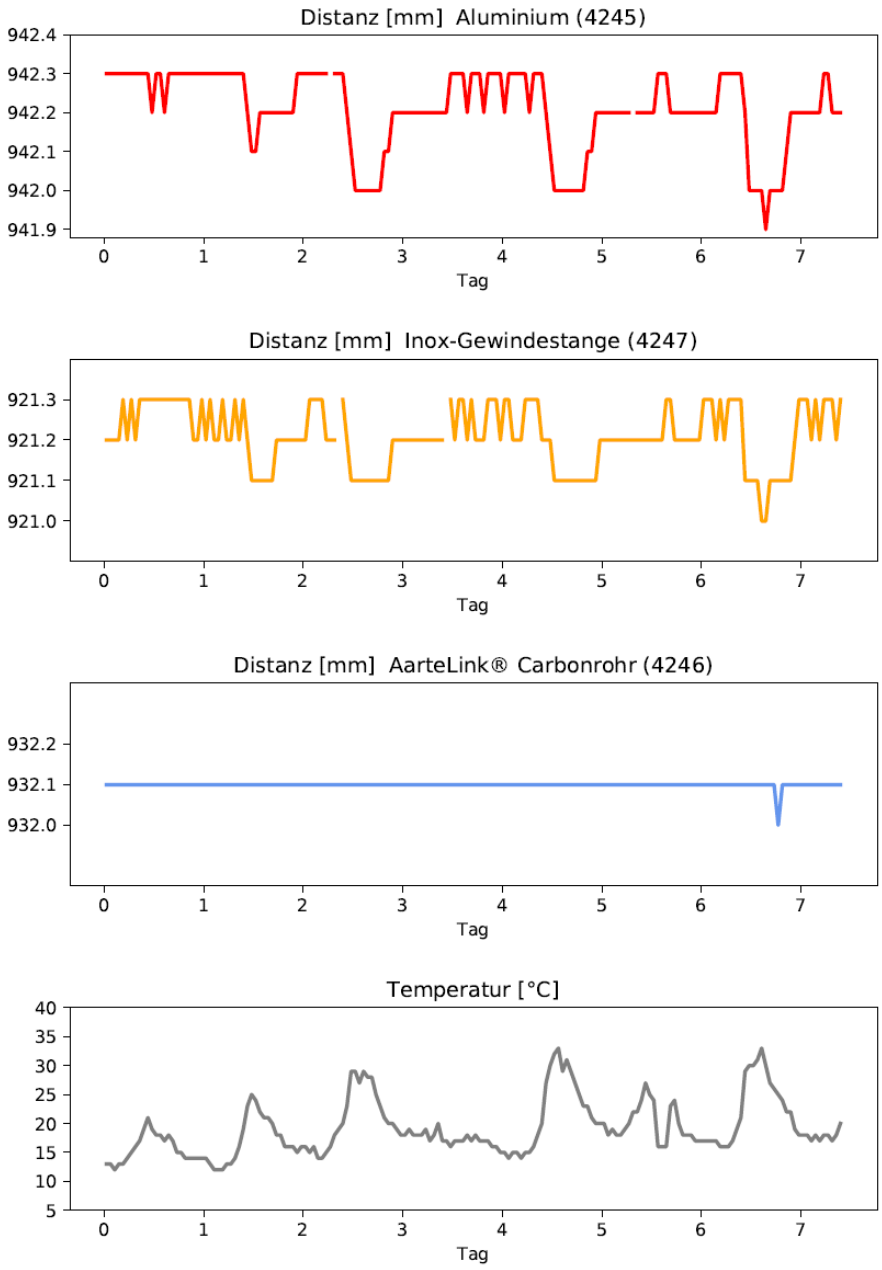

Figure 5: Measurement comparison over 7 days of the three TJM from the in situ comparison (Figure 4). The graph of the TJM ng with CFRP extension simplifies the assessment (that no crevisse change has taken place; blue). The aluminium extension oscillates in the range of 4/10 mm.(Temperature range in the observation period of 7 days +12^0 C to +33^0 C = 21^0 C).

AarteLink® - for professionals by professionals