Senceive

Canal des Deux Mers - Lock Wall Repairs

CLIENT: OSMOS / URETEK

How a turnkey wireless monitoring system with high frequency reporting supported safe maintenance on France's historic waterway

Challenge

The Canal des Deux Mers is a UNESCO World Heritage Site in south-west France that enables navigation between the Mediterranean and Atlantic. Targeted maintenance works are conducted under the supervision of Voies Navigables de France (VNF) in short winter closures.

They appointed ground engineering specialist Uretek to seal leaks at Lock 45 in Montpouillan using expanding geopolymers. To prevent damage to the ageing structure there was a need for precise movement monitoring during the works. Challenges included the need for quick installation and immediate warning of any movement.

Solution

Specialists in structural behaviour analysis, OSMOS partnered with the contractor to ensure continuous control of the lock stability. Using Senceive wireless technology, they set up:

8 no. 2000 mm tilt beams (FF-BK-2000)
These high-resolution tilt sensors were deployed over the full 30 metre length of the lock wall using lightweight aluminium fixings. By covering the full height of the lock the system gave insight on the general behaviour of the structure rather than specific non-rigid sections (loose brick, cracks etc.).
The bespoke beam design provided constant stability under temperature and humidity variations.

1 no. cellular gateway (FM3G-HSPA)
The solar powered data transfer platform allowed remote installation without power or data cabling, and continuous data transfer at 30 second intervals.

Outcome

The full installation was conducted by the contractor in just two hours, including beam fixing. Calculations to translate tilt rotation (angle) to wall displacement (mm) were undertaken remotely by the OSMOS team.

5 mm trigger levels were set up, with text and email alerts sent to the injection team. Coupled with high frequency reporting, this allowed Uretek personnel to immediately stop the flow of geopolymer if an alarming trend was spotted.

An API connection between Senceive and an OSMOS web platform displayed continuous data to the project team, providing assurance that the lock integrity had not been compromised.