



LIQUID LEAK DETECTION SYSTEMS

# Case Study

## TTK WATER LEAK DETECTION SYSTEM

### AT FUJAIRAH INTERNATIONAL AIRPORT, UAE



### PROJECT OVERVIEW

Fujairah International Airport, situated in the southern region of Fujairah City, UAE, recently completed a significant development project in 2023. This project encompassed the construction of a new iconic Air Traffic Control (ATC) Tower, a secondary runway, and a modern Fire and Rescue Substation.

The new ATC Tower, a prominent landmark within the airport, replaced the previous tower. Recognizing the critical nature of their operations, the airport administration sought an effective water leak detection system to safeguard the ATC Tower.



New ATC tower of Fujairah international airport

### PROJECT OVERVIEW

- Project** Fujairah International Airport Extension Project
- Client** Abu Dhabi airports Company (ADAC), Fujairah International Airport
- Location** Fujairah, United Arab Emirates
- Application** Chilled water pipes in ATC tower
- Project Type** New Project
- Project followed by** TTK Middle East (Dubai)
- Contract Scope** Turnkey, including Design, Supply of Leak Detection System, Installation, Testing and Commissioning and Client Handover.
- Completion Date** August 2023
- Technology** FG-ALS4/8: Four/Eight Zones Monitoring Units with water leak sensing cables FG-ECX

In response to this need, TTK Middle East was engaged to implement a comprehensive water leak detection solution that would promptly identify and address potential issues, ensuring the continuous and secure operation of the airport's ATC Tower.

# TTK's SOLUTION

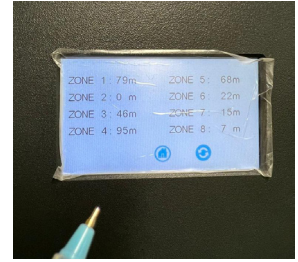
The airport's ATC Tower relies heavily on Chilled Water Pipes (CWP) integral to its air conditioning and cooling systems. Detecting leaks in these pipes is crucial to prevent infrastructure damage, system interruptions, and potential harm to sensitive equipment.

Following a site study and considering the limited quantity of CWP to monitor, TTK Middle East recommended using its locating water leak detection systems – the FG-ALS8 and FG-ALS4 panels, each equipped with eight or four zones, respectively, alongside FG-ECX analogue water sensing cables.

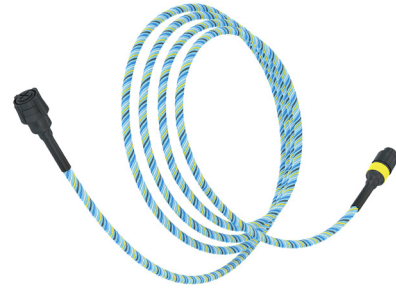
This solution offers cost efficiency compared to an FG-NET solution and is particularly suitable for medium and small-sized sites without future extensions.



FG-ALS8 locating 8 zones detection panel



Display of cable lengths per output on the FG-ALS8 panel screen



Analogue water sensing cable FG-ECX

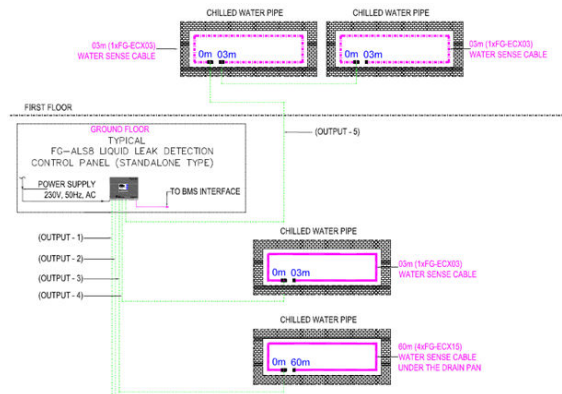
## Sensing Cables

Specially designed FG-ECX water sensing pipes, available in pre-finished lengths of 3, 7, or 15 meters and crafted from Low Smoke Zero Halogen materials, were installed under the overhanging chilled water pipes. These cables emit limited smoke and no halogen when exposed to high heat sources, ensuring continuous monitoring along the entire length of the pipes.

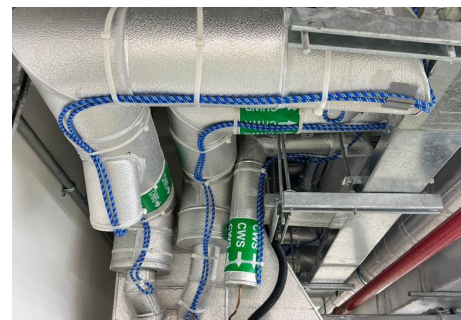
## Locating Monitoring Panels

All sensing cables were connected to two types of locating monitoring panels - FG-ALS8 (with eight outputs) and FG-ALS4 (with four outputs) - situated on the ground floor. The FG-ALS8 unit can manage up to 100 meters of sense cable per zone, while the FG-ALS4 unit can oversee up to 45 meters of sense cable per zone.

These panels, connected to the Building Management System (BMS) via RS232/485 Modbus communication protocol, provide real-time alerts and precise leak location identification on interactive maps in the event of a leak occurrence.



Extract of leak detection architecture layout



For installation instruction purpose only:  
Analogue water sensing cable FG-ECX installed under overhanging chilled water pipes