

Case Study

TTK WATER & FUEL LEAK DETECTION SYSTEM AT The Largest Hosting Data Center, UAE

PROJECT REQUIREMENTS

- With its 12,000m² of vast white space and various indoor and outdoor water and oil installations, the client requires a "2-in-1" leak detection system consisting of both water and fuel leak protection.
- The numerous outdoor tanks (bulk tanks, day tanks), generators and over 3 kilometers of fuel supply pipes, double containment pipes necessitate a fast-response and reliable oil detection system.
- A dedicated BMS Interfacing system for TTK leak detection is required to facilitate the monitoring and management in case of water or fuel leak.



PROJECT OVERVIEW

Project	The largest hosting Data Center in UAE* *: Due to client confidentiality, the client name has been removed from this project study.
Location	Dubai and Abu Dhabi, United Arab Emirates
Application	White space, chilled water pipes, generators, diesel tanks and fuel sys- tems in data center
Project Type	New Project
oject followed by	TTK Middle East (Dubai)
Contract Scope	TTK design, supply of the leak detec- tion system; installation training and Test & Commissioning
Completion Date	November 2019
Technology	FG-NET digital monitoring unit with digital water sense cables (including Cut to Length water sense cables); fuel sense cable FG-OD and point sensor FG-ODP

ABOUT THE DATA CENTER

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Founded in 2012 and located in Dubai and Abu Dhabi, this is one of the largest data center solution providers in UAE. It currently has two facilities in the UAE, one in Meydan

Dubai (34,000 m² site) and the other in Masdar City Abu Dhabi (40,000 m² site). Each data center facility comprises of six independent data center modules (PODs).

The expansion which took place at the end of 2019, covers a total build-up area of around 31,000m² across the existing facilities in Abu Dhabi and Dubai out of which 7,500m² is IT whitespace.

Each data center is awarded Tier III design certification.

TTK'S SOLUTION

Water leak detection solution

- After project studies, TTK ME recommended two types of water sense cables for all risky areas. The addressable water sense cable FG-EC at standard lengths (3, 7, 15m) and FG-ECS cut to length sense cable (up to 45m).
- White spaces, numerous technical CRAC corridors, UPS rooms, battery rooms, mechanical rooms and some chilled water (CHW) pipes are protected by over 41 kilometers of FG-EC cables with typical installation under the raised floors.
- CHW pipes in utility buildings are protected by over 7 kilometers of cut to length water sense cables to fit the complex installation environment.

Fuel leak detection solution

- A fuel leak detection system using the FG-OD range of addressable fuel sense cables and point sensors is installed on the site. Over 3 kilometers of sense cables are laid to the perimeter of indoor generators and outdoor bulk tanks and inside fuel pipe trench, along the entire fuel supply pipes. To reinforce the protection, over 20 FG-ODP point sensors are placed in the trench, where fuel leak may stagnate.
- Designed to be cleaned and reused after leak detection, these fuel sense cables and point sensors make on-site testing possible.
- In total, over 3,600 lengths of water and fuel sense cables (over 50 kilometers) are installed in the data center sites.

Monitoring panel

- The monitoring of both water and oil sense cables/ probes is carried out on a bespoke FG-NET panel. It can display a precise location (to the nearest meter) on a dynamic map and detects simultaneous leaks. TCP/IP connection and RS232/485 Modbus communication protocol with BMS are integrated on the panel.
- As required by the client, a dedicated BMS Interfacing system for TTK leak detection is used for this project. In case of a leak, cable break or back to normal status, all alarms will be reported to the BMS in real time showing the status of the 44 FG-NET units used for this project.
- As the premises may keep expanding, all TTK systems installed are modular to allow them to be extended with additional sense cables in the future.

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FG-ECS cut to length water sense cables installed on the CHW pipes



FG-EC water sense cables in perimeter of a UPS room





FG-ODP oil sensor installed on the fuel supply pipes

FG-OD oil sense cables installed around a diesel generator



BMS interfacing with FG-NET digital leak monitoring panel

In conclusion, for this project, TTK ME supplied 10-year-warranty products and technical training for installation has been carried out by the local TTK technical team.

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