



# Fire Detection- Saadiyat Island Tunnel

Abu Dhabi, UAE

The Saadiyat Island tunnel is 1.2 km long and connects the Louvre Abu Dhabi, the Guggenheim Abu Dhabi and the Zayed National museums. It is used for the safe transportation of supplies and especially for the very valuable works of art for the new museums.

The operators selected one AP Sensing Linear Heat Series 4 km device, with 2 channels, 44 relays and a Modbus TCP interface. Approximately 3000 meters of sensor cable was installed in a fully redundant configuration (to ensure continued monitoring in the unlikely event of a fiber break).

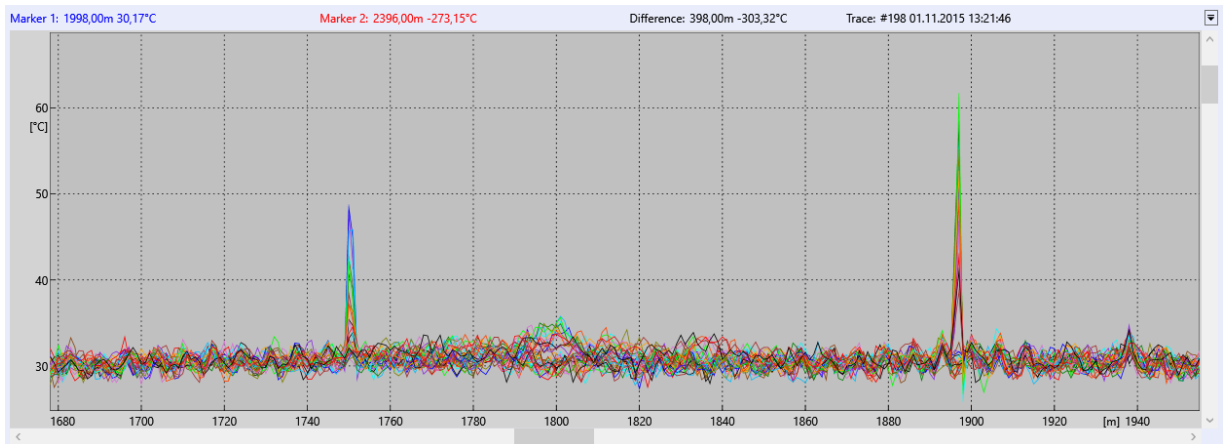
The passive sensor cable is immune to dirt, dust, humidity, corrosive materials and electromagnetic interference (EMI). In this case the sensor cable is contained in a stainless-steel tube with a halogen-free plastic coating.

In the event of a fire, information regarding the size and spread of the fire is immediately available to arriving fire-fighting personnel. The Linear Heat Series device communicates with the SCADA system via the Modbus protocol over TCP/IP.



*The Saadiyat tunnel with sensor fibers installed*

Over 200 different zones were defined along the 3 km stretch, to account for different allowed maximum temperatures (including time differentials) and differences between a measurement location and that zone's average (zone differentials).



A heat gun was used to trigger alarms during the zone test, as shown in the trace above. The AP Sensing DTS is installed in a 19" rack that is located in an air-conditioned remote control room.

The system passed the Final Acceptance Test with no issues and the system has been performing problem-free since operation began. A valuable infrastructure remains protected.



**19" rack mounted Linear Heat Series during installation**



**Saadiyat tunnel and its branches**