

# Hagia Sophia Mosque - Istanbul



## technology met with magnificence...



### History

The Hagia Sophia is an enormous architectural marvel in Istanbul, Turkey, that was originally built as a Christian Basilica nearly 1,500 years ago. However, its function has changed several times in the centuries since.

Hagia Sophia is a work that was constructed three times in the same location. Today's Hagia Sophia is known as the "Third Hagia Sophia". The first construction of Hagia Sophia started during the reign of Constantine I, who accepted Christianity as the official religion of the Roman Empire. This building, which was constructed as a basilica with a wooden roof on the first of the seven hills of Istanbul and was called "The Great Church" at the time, was opened during the reign of Constantine II in 360. There is no remnant from this structure, which was largely devastated as a result of a fire that broke out in the revolt that started in 404.

The second Hagia Sophia was built by Emperor Theodosius II on the first one and opened to worship in 415. This building, which was also constructed as a basilica and with a wooden roof, was devastated by the rebels in the Nika Revolt against Emperor Justinian in 532.

Just after the riots, Emperor Justinian decided to build a larger and more glorious Hagia Sophia than the first two. The third Hagia Sophia was built by the Byzantine Emperor Justinian I in 532-537.

Hagia Sophia, which was turned into a mosque with the conquest and served as a mosque for 481 years, was closed to the public after the restoration works that started in the 1930s. Then it was turned into a museum in 1934 and remained in this status until 2020. This magnificent building now reopened for worship since July 2020.

## Challenges

Since it is an old and historical building, in case of a fire, there is a risk of fire spreading much faster and causing damage compared to modern buildings. For this reason, the building was in need of a fire detection system that was safe, stable and would not damage its historical texture.

In addition, there was an architectural difficulty that did not allow any infrastructure work, including cabling, which could damage the structure texture. As a result of all these, the fire detection need of the building was met with Teknim Wireless Fire Alarm Systems.



## Solution

In order to prevent damage to the historical structure, the security of the environment was ensured with TWD-1850 Wireless Multiple Detectors at all points where the cabling infrastructure could not be applied.

The high dome of the prayer area in the mosque caused the need to provide detection with Beam Detectors and a module connection was required to transmit alarm-fault conditions to the Fire Alarm Panel. However, since cabling between the module and the panel was not possible, TWM-1887 Wireless I/O Modules were used to transmit alarm and fault information to the panel.

Since the wall thicknesses at many points were about 4-5 times thicker than normal buildings, this situation adversely affected the signal transmission distance of wireless devices at some points. In addition to this, the fact that there was a very dense circulation of visitors inside the mosque created a separate source of difficulty in terms of signal quality. In order to overcome both challenges, TWM-1886 Routers, which can only work with 24V DC supply and do not need any additional connection, were placed at certain points of the mosque. In this way, the thick wall structure of the mosque and the density of people negatively affecting the signal levels were eliminated.

With Mosaic Graphic Monitoring Software, the entire system is monitored live, helping the authorities to intervene quickly in possible dangerous incidents.

