Testo
Application example

Be sure. testo

Comprehensive monitoring of ambient conditions in museums and archives with the monitoring system testo 160.

Each person has his/her own personal feel-good climate – and most objects in museums and archives do too. But unlike us, paintings, sculptures or antique books cannot adapt, and always depend on establishment of the appropriate ambient conditions. It is accordingly important to monitor indoor climate, light irradiation and air quality wherever they have an influence on the condition – and therefore the value – of exhibits.

The monitoring system testo 160 supports you in realizing this efficiently, protecting art objects from mould, fading, corrosion or deformation. The system's data loggers are of particularly small dimensions, and thanks to their individually designable cover, they blend into any surroundings. Measurement values are transmitted by wireless LAN, stored online and can be called up on any end device. Versatile alarm notification functions guarantee timely intervention in cases of limit value violation.

Thanks to the deco-cover, the data loggers adapt to their surroundings

Monitoring in an archive

The challenge.
Works of art are extremely sensitive to fluctuations in the ambient conditions in the rooms in which they are exhibited or stored. Changing temperature conditions, accompanied by rising or falling humidity, may cause permanent changes or lasting damage to these valuable exhibits. Heated room air that is too dry places just as much stress on valuable goods as the humid, sultry climate of midsummer. However, light intensity and UV radiation also negatively influence the physical integrity of works of art and documents.

Art is demanding
The one perfect climate for all works of art does not exist, since it is the specific material composition of the respective object which is the deciding factor. For example, the storage conditions for ceramics, marble statues or bronze medallions differ significantly from each other, which means that the air-conditioning of each respective environment needs to be customised individually. It is particularly critical in the case of organic materials such as leather, parchment, paper or wood. These are hygroscopic – i.e. they interact closely with the air humidity. Moisture is extracted from them when the air is too dry, meaning that they lose weight and shrink. When the ambient air is humid, the reverse happens. Changing climatic conditions mean that the objects of art are in constant motion, hence it is only a matter of time until a canvas rips or the paint on the baroque sculpture peels off. But even objects made from inorganic materials, e.g. metal or ceramic, may suffer damage due to unfavourable or constantly changing ambient humidity.

This climate-related damage usually goes unnoticed at first, since the initial cracks and fissures in the material are so fine that they cannot be perceived with the naked eye. Once the damage becomes evident, the deterioration is obvious too, and costly restoration work is needed.

Visitors also want to feel comfortable
But the climatic requirements of pieces of art do not present the only challenge for those in charge: Whereas climate control in archives can be perfectly adapted to the works of art and the artefacts, far away from the flow of visitors, in exhibition rooms the needs of the visitors and supervisory staff also need to be taken into account. Here, it is essential to create a climate that is pleasant for humans.
In order for art lovers to feel comfortable in the exhibitions, attention should additionally be paid to implementing the monitoring of the ambient climatic conditions as inconspicuously as possible. Neither the data loggers themselves, nor sensors or wiring should distract from the exhibits.

The solution.

With the monitoring system testo 160, you monitor temperature, humidity, light intensity, UV radiation and CO_2 concentration, unobtrusively and without interruption. The wireless LAN data loggers thus enable you to protect your exhibits from loss of value and to be able at all times to prove adherence to the correct exhibition and storage conditions. Even in case of a power cut, the recording of the data with testo 160 continues to function without interruption, so there are no gaps in the documentation.

On duty everywhere

The measuring points for data loggers and probes may be located in display cases and cabinets, in exhibition rooms, on/in/behind pieces of art or in deposits that are not open to the public. Small glass display cases, in which it was previously not possible to place a data logger, can also be monitored with the system. For this purpose, a special external temperature and humidity probe with a wall bushing has been developed, which can be used without drawing attention in even the smallest display cases.

Wireless and secure

All measurement values are transferred by wireless LAN to an online database (Testo Cloud) and securely stored there. The integration of the monitoring system testo 160 into an existing wireless LAN network is easily carried out, without IT know-how, by following the guided step-by-step instructions. Thanks to the wireless data transfer, you can position the data loggers flexibly at any time, so that any rearrangements are not hindered by the measurement technology.

All data stored in the Testo Cloud can be called up and analyzed at any time and from anywhere in the world. Either with the testo Saveris 2 App for iOS and Android or by PC, tablet and smartphone and a normal browser. This does not just save time: With the help of the uninterrupted data archiving, you are also at all times able to provide proof of the status of the works of art to insurers or owners.

Individual limit values

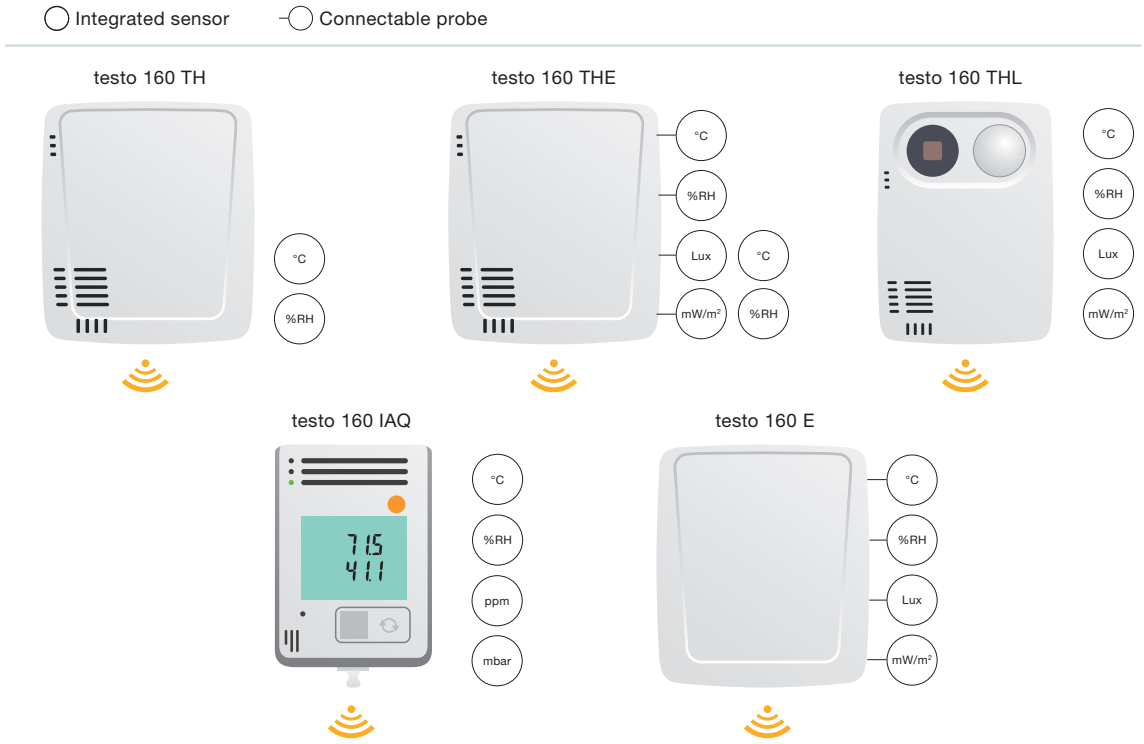
Depending on the condition and material composition of the exhibited artwork, you can set specific limit values for the stresses caused by environmental influences. In cases of a limit value violation, individually adaptable alarm notification options by SMS or e-mail are available. For light intensity, an alarm can also be triggered if the accumulated light quantity within a day, a week or a month exceeds a limit value.

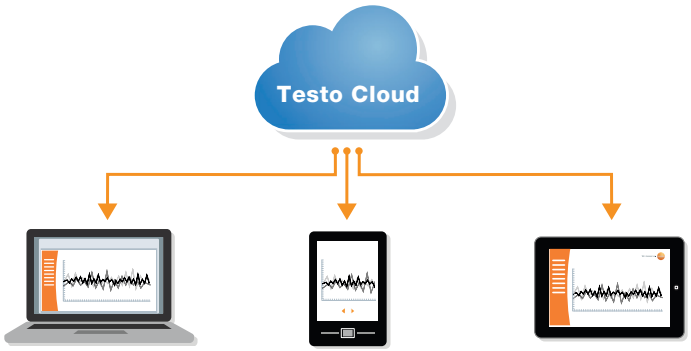
Almost invisible

Since the measurement values are transferred by wireless LAN, the testo 160 loggers do not require any bothersome cabling which needs to be integrated into the building substance, which due to concerns regarding the protection of historical monuments may not even be possible. This is supported by one of the outstanding properties of the monitoring system: The data loggers have small dimensions and especially minimalistic design. And they have a "cloak of invisibility". An individually designable cover is available for each data logger. You can paint, spray or decorate this deco-cover whichever way you like. This places the loggers in the background, and so they do not distract from the exhibits.

Data analysis via the Testo Cloud

External probes allow flexible use of the montoring system





The advantages

- Uninterrupted and automated monitoring of temperature, humidity, light intensity, UV radiation and CO_2 concentration
- Transfer of the measurement values by wireless LAN to the Cloud store
- Measurement values can be called up on all end devices and by App or internet browser
- Alarm notification by SMS or e-mail
- Inconspicuous design and small dimensions
- Individually designable housing cover for optimum adaptation of the data loggers to the surroundings

More information.

You can obtain further information and get answers to any queries you may have about climate monitoring in museums and archives from our experts at www.testo.com.

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