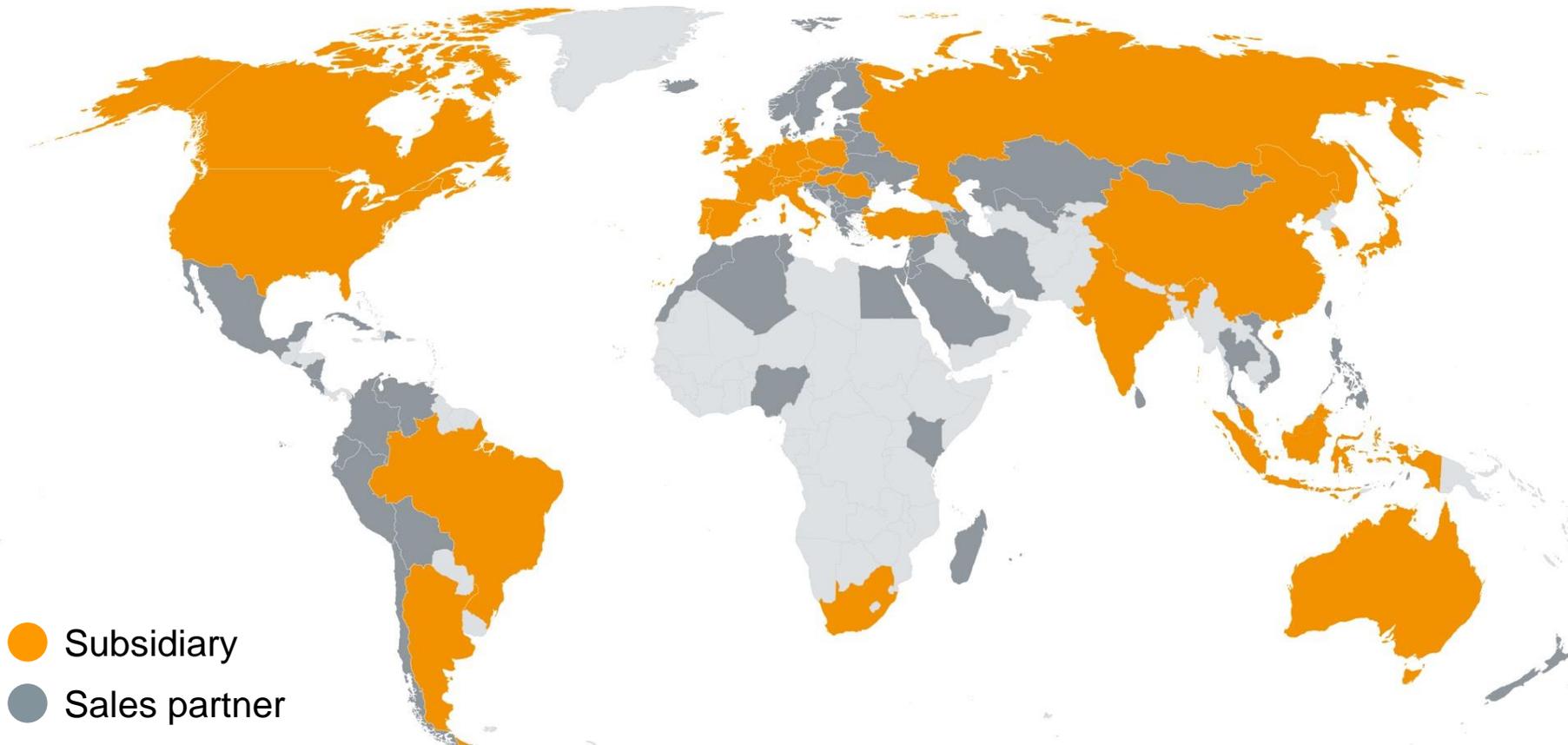


testo 160

The future of environmental monitoring in Museums & Archives

Roots in the Black Forest – at home worldwide

- 4 sites in Germany (Lenzkirch, Titisee, Kirchzarten, Berlin)
- 33 subsidiaries in 25 countries and 2,700 employees worldwide
- 80 sales and service partners on all continents





Innovation center Titisee

- Cutting-edge technology and continuous innovative power
- More than 200 engineers in research and development
- Approx. 10 % of annual turnover invested in research and development

The challenge

Display cases



Exhibitions



Storage



Transport



What?

We help our customers to protect the value of the artwork and prevent liability

How?

With testo t160 our customers have a complete record of storage or transport conditions and can initiate corrective actions when needed.

testo 160 | Highlights



Battery change



Wall mount



Deco cover



Unlocking



- The deco covers can be individually painted or decorated to match the colored walls or backgrounds of the exhibit rooms.
- The main purpose is to avoid distraction from the artwork.





Illuminance



- Ambient conditions need to be measured in order to prevent delamination or micro cracks at exhibits: °C and %rH are important measurement parameters.
- Preference: Sensor and Logger should not attract any attention.



Illuminance



- Monitoring continuously both sunlight and indoor lighting helps to avoid deterioration of exhibits.
- Critical thresholds of cumulative exposure to light can trigger alarms.



Illuminance



- Indoor air quality (IAQ) is a crucial parameter that influences comfort for the visitors, especially in older museums with small rooms and many visitors.
- Measurement parameters like °C, %rH and CO₂ concentration should be monitored.

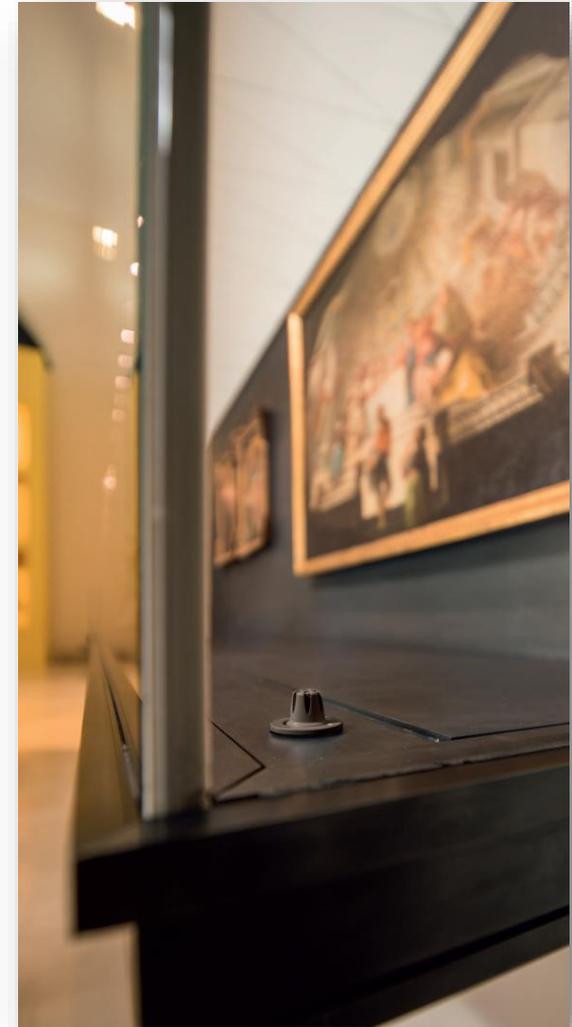
Application – Measuring in show cases



Illuminance



- Air exchange rate of display cases is often unknown, accordingly micro climate needs to be monitored.
- Exhaustion rate of the silica gel packs can be determined by monitoring humidity.
- External sensors are small, unobtrusive and don't need to be serviced.
- Battery change in the Wi-Fi logger can be handled independently from the actual sensor inside the locked case.





Illuminance



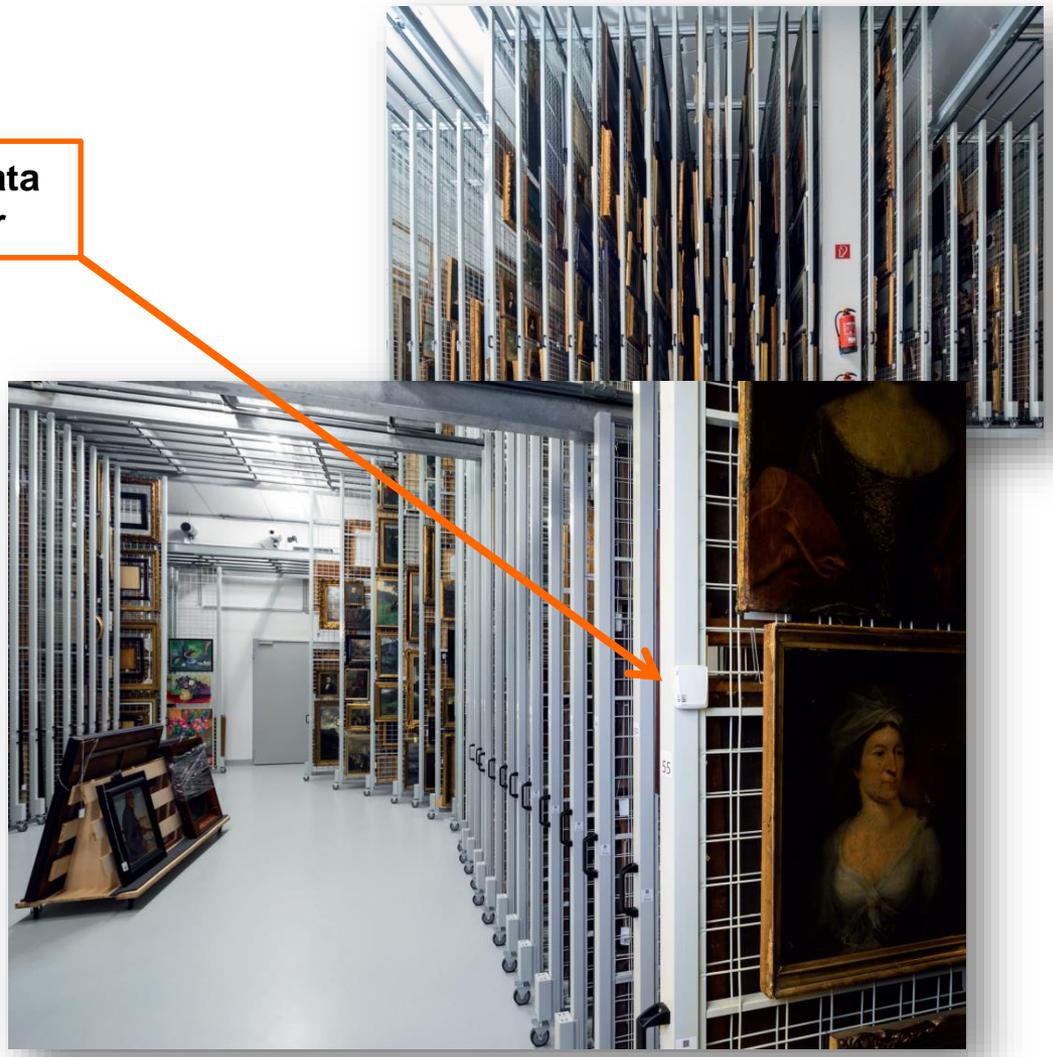
Only the **small temp/humidity sensor** is visible while the **logger** is placed in the base of the show case, or outside behind the case.

Application | Measuring in storage areas



**Wi-Fi Data
Logger**

- Most relevant parameters in storage: Temperature and humidity
- It can be worthwhile to monitor light as well (Are lights turned off?)





Technical Data	
Temperature	
Measuring range	-10 to +50 °C
Accuracy	± 0.5 °C
Resolution	0.1 °C
Humidity	
Measuring range	0 to 100 %RH
Accuracy	± 2% RH @ 25°C (Interval: 20-80 %RH)
Resolution	0.1% RH

Features and highlights:

- ✓ Internal temperature and humidity sensors
- ✓ Small and unobtrusive design
- ✓ Can be camouflaged with a deco cover





Technical Data

Temperature

Measuring range	-10 to +50 °C
Accuracy	± 0.5 °C
Resolution	0.1 °F / °C

Humidity

Measuring range	0 to 100 % RH
Accuracy	± 2% RH @ 25°C (Interval: 20-80 %RH)
Resolution	0.1% RH

Features and highlights:

- ✓ Internal temperature and humidity sensors (THE only)
- ✓ Connection ports for two probes (S-TH, S-LuxUV or S-Lux)
- ✓ Small and unobtrusive design
- ✓ Can be camouflaged with a deco cover



Technical Data	
Temperature	
Measuring range	-10 to +50 °C
Accuracy	± 0.5 °C
Resolution	0.1 °C
Humidity	
Measuring range	0 to 100 %RH
Accuracy	± 2% RH @ 25°C (Interval: 20-80 %RH)
Resolution	0.1% RH
Lux	
Measuring range	0 ... 20,000 Lux
Accuracy	± 3% (Reference 5032A)
Resolution	0.1 Lux
UV	
Measuring range	0 ... 10,000 mW/m ²
Accuracy	± 5%
Resolution	0.1 mW/m ²

- Features and highlights:**
- ✓ Internal temperature and humidity sensors
 - ✓ Internal Lux- and UV-sensors
 - ✓ Small and unobtrusive design
 - ✓ Can be camouflaged with a deco cover



Technical Data

Temperature

Measuring range	-10 to +50 °C
Accuracy	± 0.5 °C
Resolution	0.1 °C

Humidity

Measuring range	0 to 100 %RH
Accuracy	± 2% RH @ 25°C (Interval: 20-80 %RH)
Resolution	0.1% RH

CO₂

Measuring range	0 ...5,000 ppm
Accuracy	± 50 ppm
Resolution	1 ppm

Atmospheric Pressure

Measuring range	600 to 1,100 mbar
Accuracy	±3 mbar at +22 °C
Resolution	1 mbar

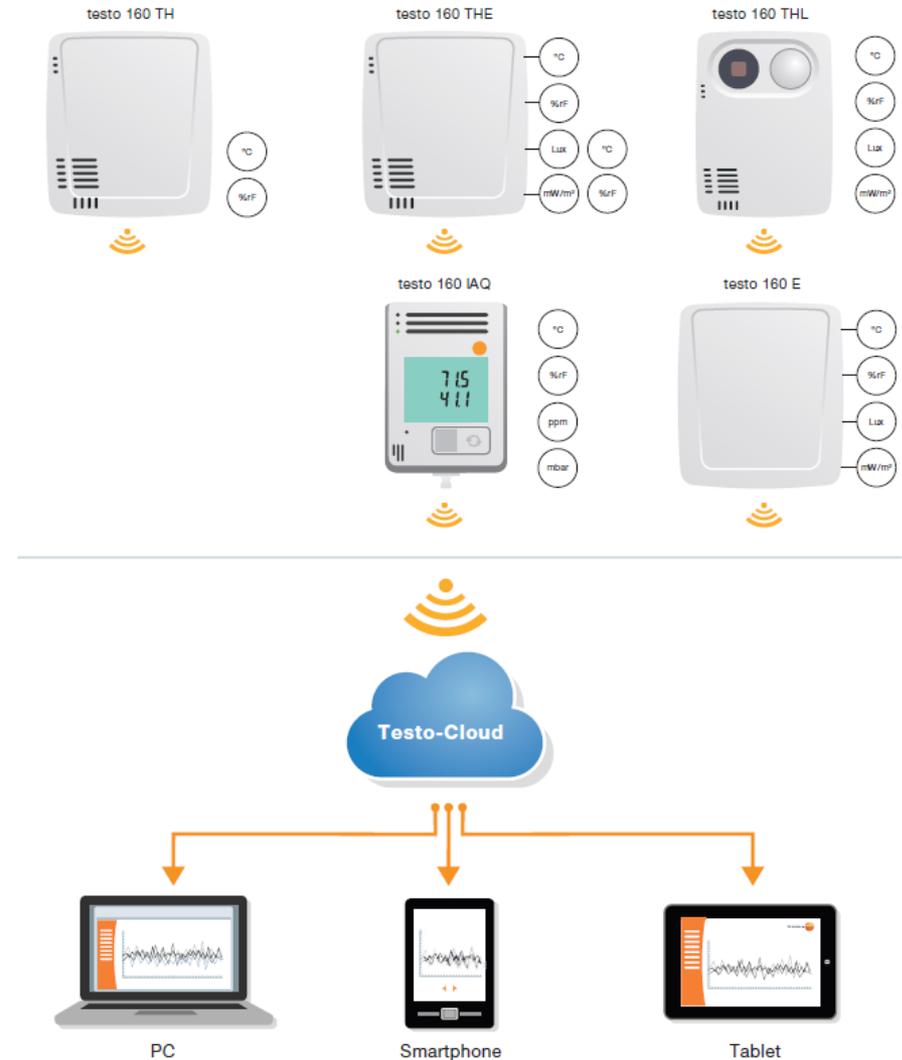
Features and highlights:

- ✓ Internal temperature and humidity sensors
- ✓ Internal CO₂ concentration and atmospheric pressure sensors

- **All important parameters included in a single system**
- **Easy installation & operation**
- **Design**
 - Small and unobtrusive design
 - Deco Cover for perfect camouflage
 - Special external T/RH probe for show cases
- **Data management**
 - Data access and analysis from anywhere in the world with a PC, tablet or smartphone
 - Programmable automatic reporting
 - Programmable alarming via email and / or text messaging
 - Alarm for Lux hours per day / week / month



- ✓ Free access to the testo 160 Cloud is included (Basic License)
- ✓ testo 160 Wi-Fi loggers are set up and configured online via cloud account
- ✓ Data and alarms can be viewed and managed online in the Cloud account
- ✓ Automated reports are sent to predefined recipients via email (Advanced license)
- ✓ Data export as .csv file or pdf



Summary

Unobtrusive loggers with show case grommet

- Deco cover can be designed individually
- Show case grommet for external RH sensor

All important measurement parameters integrated in one system

- Temp, Humidity, LUX, UV, CO₂ and atmospheric pressure
- Cumulative exposure to light

Cloud & Wi-Fi

- User- friendly Cloud with easy installation
- Data access and analysis with PC, tablet or a smartphone
- Current system at any time (automated updates)

Product overview



Testo 160 TH
°C, %RH



Testo 160 THE
°C, %RH
+ 2 ext. probes



Testo 160 THL
°C, %RH,
Lux, UV



Testo 160 E
2 ext. probes



Testo 160 IAQ
°C, %RH,
CO₂, mbar



S-TH
°C, %RH



S-LuxUV
Lux, UV



S-Lux
Lux



Deco Cover

Wall Mount

	Basic	Advanced		
Measuring cycle	15 min. (fixed)	1 min. to 24 h (flexible)		
Communication cycle	15 min. (fixed)	1 min. to 24 h (flexible)		
Data storage	Max. 3 months	Max. 2 years		
Reports	Manual (.pdf/.csv)	Manual (.pdf/.csv) Automatic (.pdf/.csv)		
Data analysis	For one measurement channel in each case	For up to 10 measurement channels simultaneously		
Number of users per account	1	10		
Number of WiFi data loggers per account	Unlimited	Unlimited		
Alarm options	Upper/lower alarm limits	<ul style="list-style-type: none"> • Upper/lower alarm limits • Alarm delay • Time control of alarms 		
System notifications	<ul style="list-style-type: none"> • Notification of low battery • Radio link interrupted • Power supply interrupted 	<ul style="list-style-type: none"> • Notification of low battery • Radio link interrupted • Power supply interrupted 		
E-mail alarm	Yes	Yes		
SMS alarm	No	<ul style="list-style-type: none"> • Including 25 SMS per logger and year • More SMS packages purchasable 		
		12-month licence order no. 0526 0735	24-month licence order no. 0526 0732	36-month licence order no. 0526 0733

