

Be sure. **testo**



# Keep a watchful eye on all environmental parameters.

Data loggers and integrated systems for standard-compliant environmental monitoring in the pharmaceutical sector.

Keep a watchful eye on **all environmental parameters.**

## You know exactly what you need: We have the perfect solution.

Testo offers a variety of solutions for monitoring and documenting parameters such as temperature, humidity, pressure and shock. But how do you find the one that's right for your project? First, let's take a closer look at your particular situation:



How many measuring points do you wish to monitor?



When it comes to using the measuring technology, what level of convenience do you require?



How stringent are your requirements for secure and uninterrupted documentation?



How complex and strict are the legal regulations you have to comply with?



How important is it for you to have extensive alarm options?

Based on your answers, you'll find the perfect measuring solution from Testo in next to no time. Basically, you have the choice between stand-alone data loggers and fully automated monitoring systems.

### Expert tip:

The more complex your project and the greater the requirement for secure and uninterrupted documentation, the greater the level of automation should also be when it comes to recording the measurement data.



# Data loggers and monitoring systems: Features and functions.

## Stand-alone data loggers

Measure and store parameters for later evaluation.

- **Measurement data recording:**  
Automated and continuous. No need to read the temperature curve manually.
- **Data storage:**  
In the data logger.
- **Reading out and analyzing the measurement data:**  
Manual.
- **Alarms in the event of limit value violations:**  
LED indication on the data logger.

- ▶ Mini data logger series [testo 174](#)
- ▶ Data logger series [testo 175](#)
- ▶ Data logger series [testo 176](#)
- ▶ Data logger series [testo 184](#)

## Fully automated monitoring systems

Monitor readings in real time and enable data access from anywhere.

- **Measurement data recording:**  
Automated and continuous. No need to read the temperature curve manually.
- **Data storage:**  
Ultimate data security thanks to redundant storage of recorded readings at different instances within the system.
- **Reading out and analyzing the measurement data:**  
Automated reporting and distribution to relevant staff. The documentation can be called up from anywhere and at any time.
- **Alerts in the event of limit value violations and critical system events:**  
SMS, e-mail or push notification.

- ▶ Radio data logger system [testo Saveris 2](#)
- ▶ Environmental monitoring system [testo Saveris Pharma](#)

## Data loggers from Testo: The number one choice for 25 years.



Did you know that the first Testo data logger was launched back in 1996?







Since then, our data loggers have been facilitating the day-to-day work of lots of companies in numerous industries all over the world.

They all find the high-precision measurement data recording, intuitive operation and smooth service a joy to use on a daily basis.

Find the perfect logger or monitoring system for your measuring task on the pages to follow.

# A brief outline: Data loggers and monitoring systems from Testo.

Product range	<p style="text-align: center;"><b>testo 174</b></p> 	<p style="text-align: center;"><b>testo 175</b></p> 	<p style="text-align: center;"><b>testo 176</b></p> 
Fields of application	<ul style="list-style-type: none"> <li>• Monitoring warehouse goods that are sensitive to temperature and humidity</li> <li>• Monitoring the IAQ in buildings</li> <li>• Transport monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term monitoring of cold storage and freezer facilities</li> <li>• Documenting the transport temperature in trucks</li> <li>• Monitoring temperature and relative humidity in work and storage areas</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term measurements even in extreme conditions</li> <li>• Monitoring the temperature of cold storage facilities and warehouses</li> <li>• Monitoring laboratory conditions</li> </ul>
Programming and analysis	<ul style="list-style-type: none"> <li>• With the free software testo ComSoft Basic, among others</li> </ul>	<ul style="list-style-type: none"> <li>• With the free software testo ComSoft Basic, among others</li> </ul>	<ul style="list-style-type: none"> <li>• With the free software testo ComSoft Basic, among others</li> </ul>
Advantages	<ul style="list-style-type: none"> <li>• Cost-effective</li> <li>• Compact format</li> <li>• Long-term stability of readings</li> </ul>	<ul style="list-style-type: none"> <li>• 2 connections for external probes</li> <li>• Wide measuring range</li> <li>• Stores up to 1 million readings</li> </ul>	<ul style="list-style-type: none"> <li>• Extremely robust</li> <li>• Stores up to 2 million readings</li> <li>• Up to 8 years of battery life</li> </ul>
Details	<p style="text-align: center;">● Pages 8 – 9</p>	<p style="text-align: center;">● Pages 10 – 13</p>	<p style="text-align: center;">● Pages 14 – 19</p>

Product range	<p><b>testo 184</b></p> 	<p><b>testo Saveris 2</b></p> 	<p><b>testo Saveris Pharma</b></p> 
Fields of application	<ul style="list-style-type: none"> <li>Monitoring the cold chain during transport</li> </ul>	<ul style="list-style-type: none"> <li>Automated monitoring of temperature, humidity and CO<sub>2</sub> concentration in storage and work areas</li> </ul>	<ul style="list-style-type: none"> <li>Fully automatic and uninterrupted monitoring of temperature, humidity and differential pressure through the integration of transmitters</li> </ul>
Programming and analysis	<ul style="list-style-type: none"> <li>For example, with the configuration file stored on the loggers – without installing any software</li> </ul>	<ul style="list-style-type: none"> <li>Via the intuitive web-based cockpit</li> </ul>	<ul style="list-style-type: none"> <li>testo Saveris PRO software</li> <li>testo Saveris CFR software (validatable, including ERES &amp; audit trail)</li> </ul>
Advantages	<ul style="list-style-type: none"> <li>Use without any installation or download</li> <li>Clear alarm indication</li> <li>Automatic PDF report</li> </ul>	<ul style="list-style-type: none"> <li>Alerts via SMS or e-mail</li> <li>Data access independent of location</li> </ul>	<ul style="list-style-type: none"> <li>Triple data storage</li> <li>Highly scalable</li> <li>21 CFR Part 11-compliant</li> </ul>
Details	<p> Pages 20 – 23</p>	<p> Pages 24 – 27</p>	<p> Pages 28 – 34</p>

# If you want to be absolutely sure: Compare the technical data.

	testo 174 T	testo 174 H	testo 175 T1	testo 175 T2	testo 175 T3	testo 175 H1	testo 176 T2	testo 176 T4	testo 176 H1	testo 176 P1	testo 176 T1	testo 176 T3
Measurement parameter												
Temperature	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Humidity	-	✓	-	-	-	✓	-	-	✓	✓	-	-
Pressure	-	-	-	-	-	-	-	-	-	✓	-	-
Shock	-	-	-	-	-	-	-	-	-	-	-	-
Applications												
Monitoring transport conditions	✓	✓	✓	-	-	-	-	-	-	-	-	-
Monitoring transport conditions (single-use logger)	-	-	-	-	-	-	-	-	-	-	-	-
Warehouse monitoring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Refrigerator monitoring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Freezer monitoring	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓
Cryogenic monitoring	-	-	-	-	-	-	✓	✓	-	-	-	-
IAQ (Indoor Air Quality) monitoring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Monitoring extreme conditions	-	-	-	-	✓	-	✓	✓	-	-	-	✓
Characteristics												
Items shown												
Display	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-
Alerts												
Alerts on the logger	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
More alerting functions (SMS, mail etc.)	-	-	-	-	-	-	-	-	-	-	-	-
Data transmission												
USB	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WLAN	-	-	-	-	-	-	-	-	-	-	-	-
Radio	-	-	-	-	-	-	-	-	-	-	-	-
Ethernet	-	-	-	-	-	-	-	-	-	-	-	-
Data storage												
Manual	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cloud-based	-	-	-	-	-	-	-	-	-	-	-	-
On-premises	-	-	-	-	-	-	-	-	-	-	-	-
Sensors & channels												
Total number of channels	1	2	1	2	2	2	2	4	4	5	1	4
Number of connections for external probes	-	-	-	1	2	-	2	4	-	2	-	4
Sensor type (temperature)	NTC	NTC	NTC	NTC	TE Type K/ TE Type T	NTC	Pt 100	TE Type K/ TE Type T/ TE Type J	NTC	NTC	Pt 100	TE Type K/ TE Type T/ TE Type J
Certifications/compliance												
HACCP-compliant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21 CFR Part 11-compliant	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Certified according to EN 12830	✓	✓	-	✓	✓	-	✓	✓	-	-	✓	-

	testo 176 H2	testo 184 T1	testo 184 T2	testo 184 T3	testo 184 T4	testo 184 H1	testo 184 G1	testo Saveris 2 T1	testo Saveris 2 T2	testo Saveris 2 T3	testo Saveris 2 H1	testo Saveris 2 H2	testo 150 TUC4	testo 150 TC4	testo 150 DIN2	testo 150 T1
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✗	✗	✗	✗	✓	✓	✗	✗	✗	✓	✓	✓	✗	✗	✗
	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗*	✗	✗	✗
	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
	✗	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✗	✗	✗	✗	✓	✗	✗	✗	✗	✓	✗	✗	✓	✓	✓	✗
	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓
	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	✓	✓	✗
	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	✓	✓	✗
	✗	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✓	✓	✓	✓
	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓**	✓**	✓**	✓**
	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✗	✗	✗	✗
	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓
	4	1	2	2	2	2	3	1	2	2	2	2	16	4	2	1
	2	✗	✗	✗	✗	✗	✗	✗	2	2	✗	1	4	4	2	0
NTC										TE Type K/ TE Type T / TE Type J			Pt100 / NTC	TE Type K/ TE Type T / TE Type J	Pt100 / NTC	NTC
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗
	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✓	✓	✓	✓
	✗	✓	✓	✓	✓	✗	✗	✓	✓	✗	✗	✗	✓	✓	✓	✓

\* Differential pressure possible by integrating transmitters via the digital analog coupler

\*\* via testo UltraRange

## Ready for use in transport and storage: The testo 174 mini data logger series.



°C

%RH

mBar

Shock

The testo 174 mini data loggers are ideal for monitoring warehouse goods that are sensitive to temperature and humidity. In addition to monitoring the IAQ in buildings, the testo 174 mini data loggers are also an ideal travel companion - simply enclosed with the goods, e.g. in containers and cold storage facilities, they monitor the temperature continuously, safely and inconspicuously.

The free ComSoft Basic software allows fast programming of the data logger as well as easy data analysis. The cost-effective mini data loggers ensure reliable measurement results based on state-of-the-art measuring technology. The integrated sensors guarantee readings with long-term stability. This enables quality assurance guidelines to be complied with and documented securely.

### Suitable for monitoring the following areas and equipment:

- Cold storage and freezer facilities
- Storage facilities
- Air conditioning in buildings
- Transport



# Data

A comparison of  
testo 174  
data loggers



**testo 174 T**



**testo 174 H**

## General information

Brief description	Mini data logger with USB port and internal NTC sensor for monitoring temperature in warehouses and during transport	Mini data logger with USB port and internal sensor for monitoring temperature and humidity in buildings and during transport
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## Technical data

Measurement parameter	Temperature	Temperature/humidity
Measuring range	-30 to +70 °C	-20 to +70 °C / 0 to 100 %RH
Accuracy	±0.5 °C (-30 to +70 °C)	±0.5 °C (-20 to +70 °C) ±3 %RH (2 %RH to 98 %RH) at +25 °C ±0.03 %RH/K ±1 digit
Resolution	0.1 °C	0.1 °C / 0.1 %RH
Total channels	1	2
Number of external connections	None	None
Connection type	None	None
Sensor type (temperature)	NTC	NTC
Measuring cycle	1 min to 24 h	1 min to 24 h
Transmission interval / communication cycle	-	-
Memory capacity	16,000 readings	16,000 readings
Interface	USB	USB
Operating/storage temperature	-30 to +70 °C / -40 to +70 °C	-20 to +70 °C / -40 to +70 °C
Battery type	2 x 3V button cell (CR 2032)	2 x 3V button cell (CR 2032)
Battery life	500 days (15 min measuring cycle, +25 °C)	1 year (15 min measuring cycle, +25 °C)
Dimensions / weight	60 x 38 x 18.5 mm / 35 g	60 x 38 x 18.5 mm / 35 g
Protection class	IP 65	IP 20
Software compatibility	ComSoft Basic ComSoft Pro ComSoft CFR (Validatable, audit trail; ERES)	ComSoft Basic ComSoft Pro ComSoft CFR (Validatable, audit trail; ERES)
Order number	0572 1560	0572 6560

## Specialized in storage facility monitoring: testo 175 series.



The compact data loggers in the testo 175 series are suitable for long-term monitoring of cold storage and freezer facilities and for documenting the transport temperature in trucks. The testo 175 T2 version also has a connection for an external NTC temperature probe, for example to measure the core temperature of goods. For applications where the temperature has to be monitored in two places at the same time, the testo 175 T3 is ideal with its two connections for external thermocouples. The resulting large measuring range makes the data logger universally applicable.

The long-term stability of its humidity sensor makes the testo 175 H1 the professional compact data logger for monitoring temperature and relative humidity in work and storage areas. The external humidity probe (stub) features a faster response time compared to probes built into the housing.

The free ComSoft Basic software allows fast programming of the testo 175 data loggers as well as simple data analysis.

### Suitable for monitoring the following areas and equipment:

- Cold storage and freezer facilities
- Transport
- Air conditioning in buildings
- Process temperatures
- Storage facilities



# Specialized in storage facility monitoring: testo 175 series.



testo 175 T1



testo 175 T2

## General information

Brief description	Data logger with display and internal NTC sensor for monitoring temperature in cold storage and freezer facilities, storage facilities or during transport	Data logger with display and internal NTC sensor for monitoring temperature in cold storage and freezer facilities, storage facilities or during transport as well as a connection for an external probe (e.g. for measuring the core temperature of goods)
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## Technical data

Measurement parameter	Temperature	Temperature
Measuring range	-35 to +55 °C	-35 to +55 °C int. / -40 to +120 °C ext.
Accuracy	±0.4 °C (-35 to +55 °C)*	±0.5 °C (-35 to +55 °C)* ±0.3 °C (-40 to +120 °C)*
Resolution	0.1 °C	0.1 °C
Total channels	1	2
Number of external connections	None	1
Sensor type (temperature)	NTC	NTC
Measuring cycle	10 sec to 24 h	10 sec to 24 h
Transmission interval / communication cycle	-	-
Memory capacity	1 million measuring values	1 million measuring values
Interface	Mini USB, SD card slot	Mini USB, SD card slot
Operating/storage temperature	-35 to +55 °C	-35 to +55 °C
Battery type	3 x AIMn Type AAA or Energizer	3 x AIMn Type AAA or Energizer
Battery life	3 years (15 min measuring cycle, +25 °C)	3 years (15 min measuring cycle, +25 °C)
Dimensions / weight	89 x 53 x 27 mm / 130 g	89 x 53 x 27 mm / 130 g
Protection class	IP 65	IP 65
Software compatibility	ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)	ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)
Order number	0572 1751	0572 1752



**testo 175 T3**



**testo 175 H1**



Data logger with display and 2 connections for external TC probes for monitoring extreme temperatures (e.g. monitoring process temperatures)

Data logger with display and external NTC sensor for monitoring temperature and humidity in storage facilities as well as the IAQ in buildings

Temperature	Temperature/humidity
-50 to +400 °C (Type T) -50 to +1000 °C (Type K)	-20 to +55 °C 0 to 100 %RH
±0.5 °C (-50 to +70 °C)* ±0.7% of m.v. (+70.1 to +1000 °C)* (Type K) ±0.5 °C (-50 to +70 °C)* ±0.7% of m.v. (70.1 to +400 °C)* (Type T)	±0.4 °C (-20 to +55 °C)* ±2 %RH (2 to 98 %RH) at +25 °C±0.03 %RH/K*
0.1 °C	0.1 °C / 0.1 %RH
2	2
2	None
TC type K / TC type T	NTC
10 sec to 24 h	10 sec to 24 h
-	-
1 million measuring values	1 million measuring values
Mini USB, SD card slot	Mini USB, SD card slot
-20 to +55 °C	-20 to +55 °C
3 x AIMn Type AAA or Energizer	3 x AIMn Type AAA or Energizer
3 years (15 min measuring cycle, +25 °C)	3 years (15 min measuring cycle, +25 °C)
89 x 53 x 27 mm / 130 g	89 x 53 x 27 mm / 130 g
IP 65	IP 54
ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)	ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)
0572 1753	0572 1754

## Extra-high-precision for monitoring during production: **testo 176 series.**



Thanks to their reliability, the data loggers in the testo 176 series are suitable for use over long periods of time. Whether you're looking for an instrument to monitor the temperature of cold storage facilities or warehouses, or to monitor laboratory conditions - this data logger series has a suitable model for every application. Depending on the application, you can choose between instruments that feature durability or clarity.

The models with an integrated, robust metal housing are ideal for applications in extreme conditions. For greater clarity, opt for the data logger variants with a large, easy-to-read display.

### Suitable for monitoring the following areas and equipment:

- Cold storage and freezer facilities
- Air conditioning in buildings
- Storage facilities
- Transport
- Laboratories
- Cryogenic applications
- Process temperatures



# Extra-high-precision for monitoring during production: **testo 176 series.**

A comparison of  
testo 176  
data loggers



**testo 176 T2**



**testo 176 T4**

## General information

Brief description	Data logger with display and 2 connections for external Pt100 probes for high-precision temperature monitoring in cold storage and freezer facilities, storage facilities and during transport	Data logger with display and 4 connections for external TC probes for monitoring extreme temperatures such as cryogenic applications or for monitoring process temperatures
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## Technical data

Measurement parameter	Temperature	Temperature
Measuring range	-100 to +400 °C	-100 to +750 °C (Type J) -195 to +1000 °C (Type K) -200 to +400 °C (Type T)
Accuracy	±0.2 °C (-100 to +200 °C)* ±0.3 °C (+200.1 to +400 °C)*	±1 % of m.v. (-200 to -100.1 °C)* ±0.3 °C (-100 to +70 °C)* ±0.5 % of m.v. (+70.1 to +1000 °C)*
Resolution	0.01 °C	0.1 °C
Total channels	2	4
Number of external connections	2	4
Sensor type (temperature)	Pt 100	TC type K / TC type T / TC type J
Measuring cycle	1 sec to 24 h (freely selectable, for online measurement 2 sec to 24 h)	1 sec to 24 h (freely selectable, for online measurement 2 sec to 24 h)
Transmission interval / communication cycle	-	-
Memory capacity	2 million measuring values	2 million measuring values
Interface	Mini USB, SD card slot	Mini USB, SD card slot
Operating/storage temperature	-35 to +70 °C -40 to +85 °C	-20 to +70 °C -40 to +85 °C
Battery type	1 x Lithium (TL-5903)	1 x Lithium (TL-5903)
Battery life	8 years (15 min measuring cycle, +25 °C)	8 years (15 min measuring cycle, +25 °C)
Dimensions / weight	103 x 63 x 33 mm approx. 220 g	103 x 63 x 33 mm approx. 230 g
Protection class	IP 65	IP 65
Software compatibility	ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)	ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)
Order number	0572 1762	0572 1764





**testo 176 H1**



**testo 176 P1**

Data logger with display and 2 connections for external temperature and humidity probes for monitoring the IAQ in buildings (particularly with regard to mould growth) and for monitoring temperature and humidity in storage facilities

Data logger with display and 2 connections for external temperature and humidity probes for monitoring laboratory conditions as well as an internal sensor for monitoring absolute pressure

Temperature/humidity	Temperature/humidity/absolute pressure
-20 to +70 °C 0 to 100 %RH	-20 to +70 °C 0 to 100 %RH 600 to 1100 mbar
±0.2 °C (-20 to +70 °C)* ±0.4 °C* (remaining meas. range) / probe-specific	±0.2 °C (-20 to +70 °C)* ±0.4 °C* (remaining meas. range) / probe-specific ±3 mbar (0 to +50 °C)*
0.1 °C / 0.1 %RH	0.1 °C / 0.1 %RH / 1 mbar
4	5
2	2
NTC	NTC
1 sec to 24 h (freely selectable, for online measurement 2 sec to 24 h)	1 sec to 24 h (freely selectable, for online measurement 2 sec to 24 h)
-	-
2 million measuring values	2 million measuring values
Mini USB, SD card slot	Mini USB, SD card slot
- 20 to +70 °C - 40 to +85 °C	- 20 to +70 °C - 40 to +85 °C
1 x Lithium (TL-5903)	1 x Lithium (TL-5903)
8 years (15 min measuring cycle, +25 °C)	8 years (15 min measuring cycle, +25 °C)
103 x 63 x 33 mm approx. 220 g	103 x 63 x 33 mm approx. 230 g
IP 65	IP 54
ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)	ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)
<b>0572 1765</b>	<b>0572 1767</b>

# Extra-high-precision for monitoring during production: **testo 176 series.**

A comparison of  
testo 176 data  
loggers



**testo 176 T1**



**testo 176 T3**

## General information

Brief description	Data logger featuring robust metal housing without display, with internal Pt100 sensor for high-precision temperature monitoring in rooms, cold storage or freezer facilities.	Data logger featuring robust metal housing without display, with 4 connections for external TC probes for monitoring extreme temperatures such as cryogenic applications or when monitoring process temperatures
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## Technical data

Measurement parameter	Temperature	Temperature
Measuring range	-35 to +70 °C	-100 to +750 °C (Type J) -195 to +1000 °C (Type K) -200 to +400 °C (Type T)
Accuracy	±0.4 °C (-35 to +70 °C)*	±1% of m.v. (-200 to -100.1 °C)* ±0.3 °C (-100 to +70 °C)* ±0.5% of m.v. (+70.1 to +1000 °C)*
Resolution	0.01 °C	0.1 °C
Total channels	1	4
Number of external connections	2	4
Sensor type (temperature)	Pt 100	TC type K / TC type T / TC type J
Measuring cycle	1 sec to 24 h (freely selectable, for online measurement 2 sec to 24 h)	1 sec to 24 h (freely selectable, for online measurement 2 sec to 24 h)
Transmission interval / communication cycle	-	-
Memory capacity	2 million measuring values	2 million measuring values
Interface	Mini USB, SD card slot	Mini USB, SD card slot
Operating/storage temperature	- 35 to +70 °C - 40 to +85 °C	- 35 to +70 °C - 40 to +85 °C
Battery type	1 x Lithium (TL-5903)	1 x Lithium (TL-5903)
Battery life	8 years (15 min measuring cycle, +25 °C)	8 years (15 min measuring cycle, +25 °C)
Dimensions / weight	103 x 63 x 33 mm approx. 410 g	103 x 63 x 33 mm approx. 430 g
Protection class	IP 68	IP 65
Software compatibility	ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)	ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)
Order number	0572 1761	0572 1763



**testo 176 H2**

Data logger featuring robust metal housing without display and 2 connections for external temperature and humidity probes for monitoring the IAQ in buildings and for monitoring temperature and humidity in storage facilities

Temperature/humidity
-20 to +70 °C 0 to 100 %RH
±0.2 °C (-20 to +70 °C)* ±0.4 °C* (remaining meas. range) / probe-specific
0.1 °C / 0.1 %RH
4
2
NTC
1 sec to 24 h (freely selectable, for online measurement 2 sec to 24 h)
-
2 million measuring values
Mini USB, SD card slot
- 35 to +70 °C - 40 to +85 °C
1 x Lithium (TL-5903)
8 years (15 min measuring cycle, +25 °C)
103 x 63 x 33 mm approx. 430 g
IP 65
ComSoft BasicComSoft ProComSoft CFR (Validatable, audit trail; ERES)
<b>0572 1766</b>

## In transit for you up to 500 days: testo 184 series.



With the testo 184 USB data loggers, you can monitor every step of your cold chain when transporting sensitive goods by rail, air or road.

At their destination, you see at a glance whether the configured limit values have been adhered to. For detailed information, all you need to do is connect the logger to a PC - a PDF report with all relevant data is created immediately.

To enable you to work even more conveniently and efficiently with the data loggers, all the files and information required for this are stored directly and securely in the respective testo 184 instrument: Configuration file, acceptance test certificate, instruction manual and PDF report of your recorded data.

Suitable for monitoring the following areas and equipment:

- Transport



# In transit for you up to 500 days: testo 184 series.

A comparison of  
testo 184  
data loggers



testo 184 T1

testo 184 T2

testo 184 T3

## General information

Brief description	USB data logger for temperature monitoring during transport; Single-use with an operating time of 90 days	USB data logger with display for temperature monitoring during transport; single-use with an operating time of 150 days	USB data logger with display for temperature monitoring during transport; unlimited operating time thanks to replaceable batteries
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## Technical data

Measurement parameter	Temperature	Temperature	Temperature
Measuring range	-35 to +70 °C	-35 to +70 °C	-35 to +70 °C
Accuracy	±0.5 °C	±0.5 °C	±0.5 °C
Resolution	0.01 °C	0.1 °C	0.1 °C
Total channels	1	1	1
Number of external connections	None	None	None
Sensor type (temperature)	NTC	NTC	NTC
Measuring cycle	1 min to 24 h	1 min to 24 h	1 min to 24 h
Transmission interval / communication cycle	-	-	-
Memory capacity	16,000 readings	40,000 readings	40,000 readings
Interface	USB interface	USB interface	USB interface
Operating/storage temperature	-35 to +70 °C / -55 to +70 °C	-35 to +70 °C / -55 to +70 °C	-35 to +70 °C / -55 to +70 °C
Battery type	Lithium battery, non-replaceable	Lithium battery, non-replaceable	Lithium battery CR2450, 3V, replaceable
Battery life	90 days from first program start (5-minute measuring cycle, -35°C)	150 days from first program start (5-minute measuring cycle, -35°C)	500 days (at +25 °C and 15 min. measuring cycle)
Dimensions / weight	33 x 9 x 74 mm / 25 g	44 x 12 x 97 mm / 45 g	44 x 12 x 97 mm / 45 g
Protection class	IP 67	IP 67	IP 67
Software compatibility	ComSoft Pro / ComSoft CFR (Validatable, audit trail; ERES)	ComSoft Pro / ComSoft CFR (Validatable, audit trail; ERES)	ComSoft Pro / ComSoft CFR (Validatable, audit trail; ERES)
Order number	0572 1841	0572 1842	0572 1843



**testo 184 T4**



**testo 184 H1**



**testo 184 G1**

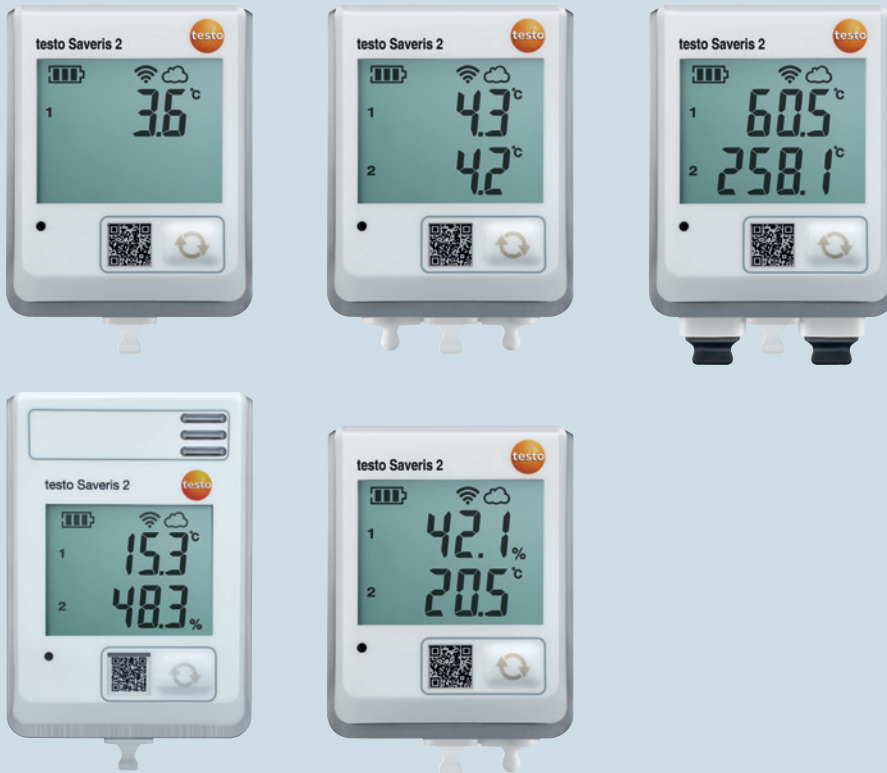
USB data logger for monitoring temperatures during transport down to -80 °C; unlimited operating time thanks to replaceable batteries

USB data logger with display for temperature and humidity monitoring during transport; unlimited operating time thanks to replaceable batteries

USB data logger with display for temperature, humidity and shock monitoring during transport; unlimited operating time thanks to replaceable batteries

Temperature	Temperature/humidity	Temperature/humidity/shock
-80 to +70 °C	-20 to +70 °C / 0 to 100 %RH	-20 to +70 °C / 0 to 100 %RH 0 to 27 g
±0.8 °C (-80 to -35.1 °C) ±0.5 °C (-35 to +70 °C)	±0.5 °C (0 to +70 °C) ±0.8 °C (-20 to 0 °C) ±1.8 %RH + 3% of m.v. at +25 °C (5 to 80 %RH)	±0.5 °C (0 to +70 °C) ±0.8 °C (-20 to 0 °C) ±1.8 %RH + 3% of m.v. at +25 °C (5 to 80 %RH) ±0.03 %RH / K (0 to 60 °C) ±0.1 g + 5% of m.v.
0.1 °C	0.1 °C / 0.1 %RH	0.1 °C / 0.1 %RH / 0.1 g
1	2	5
None	None	None
NTC	NTC	NTC
1 min to 24 h	1 min to 24 h	1 min to 24 h / 1 s
-	-	-
40,000 readings	64,000 readings	64,000 readings (temperature and humidity) 1,000 readings (shock)
USB interface	USB interface	USB interface
-80 to +70 °C / -80 to +70 °C	-20 to +70 °C / -55 to +70 °C	-20 to +70 °C / -55 to +70 °C
Lithium battery TLH2450, 3V, replaceable	Lithium battery CR2450, 3V, replaceable	Lithium battery CR2450, 3V, replaceable
100 days (at 15 min. measuring cycle)	500 days (at +25 °C and 15 min. measuring cycle)	120 days (at +25 °C and 15 min. measuring cycle)
44 x 12 x 97 mm / 45 g	44 x 12 x 97 mm / 45 g	44 x 12 x 97 mm / 45 g
IP 67	IP 30	IP 31
ComSoft Pro / ComSoft CFR (Validatable, audit trail; ERES)	ComSoft Pro / ComSoft CFR (Validatable, audit trail; ERES)	ComSoft Pro / ComSoft CFR (Validatable, audit trail; ERES)
<b>0572 1844</b>	<b>0572 1845</b>	<b>0572 1846</b>

# Monitors and sounds the alarm: testo Saveris 2.



°C

%RH

mBar

Shock

The testo Saveris 2 radio data logger system is the state-of-the-art solution for monitoring temperature and humidity values in storage and work areas. The system is simple to install, and can be implemented via your browser. The radio data loggers reliably record temperature and humidity values at adjustable intervals and transmit the readings via WLAN to the Testo Cloud.

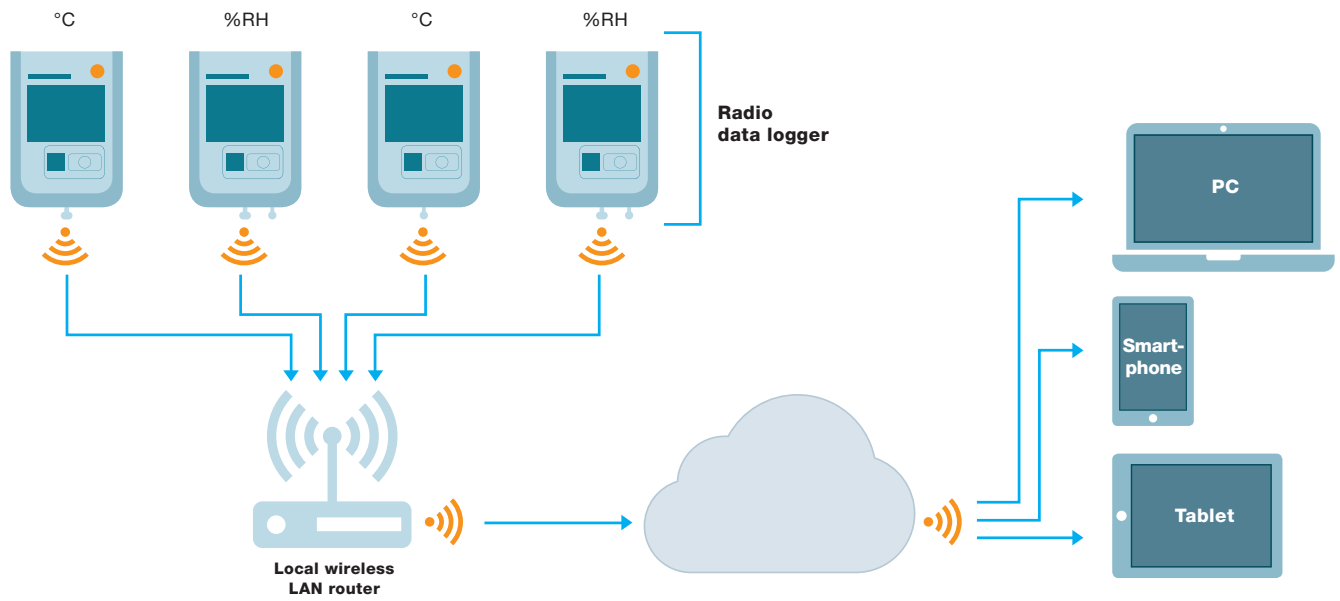
The readings stored can be analyzed at any time, anywhere, using an internet-enabled smartphone, tablet or PC. Limit value violations are immediately reported via e-mail, or optionally via SMS. This allows critical processes to be kept always under control, even if you are not on site. The long battery life additionally ensures that the testo Saveris 2 system needs to be serviced only rarely.

## Suitable for monitoring the following areas and equipment:

- Indoor air quality
- Storage facilities
- Refrigerators and freezers
- Production



# System architecture



# Monitors and sounds the alarm: testo Saveris 2.

A comparison of  
testo Saveris 2  
data loggers



testo Saveris 2 T1



testo Saveris 2 T2

## General information

Brief description	Radio data logger with display and internal NTC temperature sensor	Radio data logger with display and 2 connections for external NTC temperature probes
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## Technical data

Measurement parameter	Temperature	Temperature
Measuring range	-30 to +50 °C	-50 to +150 °C
Accuracy	±0.5 °C	±0.3 °C
Resolution	0.1 °C	0.1 °C
Total channels	1	2
Number of external connections	None	2
Sensor type (temperature)	NTC	NTC
Measuring cycle	Dependent on the Cloud Basic licence: 15 min to 24 h Advanced: 1 min to 24 h	Dependent on the Cloud Basic licence: 15 min to 24 h Advanced: 1 min to 24 h
Transmission interval / communication cycle	1 min to 24 h (15 min default)	1 min to 24 h (15 min default)
Memory capacity	10,000 readings/channel	10,000 readings/channel
Interface	WLAN; USB	WLAN; USB
Operating/storage temperature	-30 to +50 °C/-40 to +50 °C	-30 to +50 °C/-40 to +50 °C
Battery type	4 x AA AIMn batteries; Mains unit optional; for temperatures below -10 °C please use Energizer batteries 0515 0572	4 x AA AIMn batteries; Mains unit optional; for temperatures below -10 °C please use Energizer batteries 0515 0572
Battery life	12 months	12 months
Dimensions / weight	95 x 75 x 30.5 mm / 240 g	96 x 75 x 30.5 mm / 240 g
Protection class	IP 65	IP 65
Software compatibility	www.saveris.net	www.saveris.net
Order number	0572 2031	0572 2032



**testo Saveris 2 T3**



**testo Saveris 2 H1**

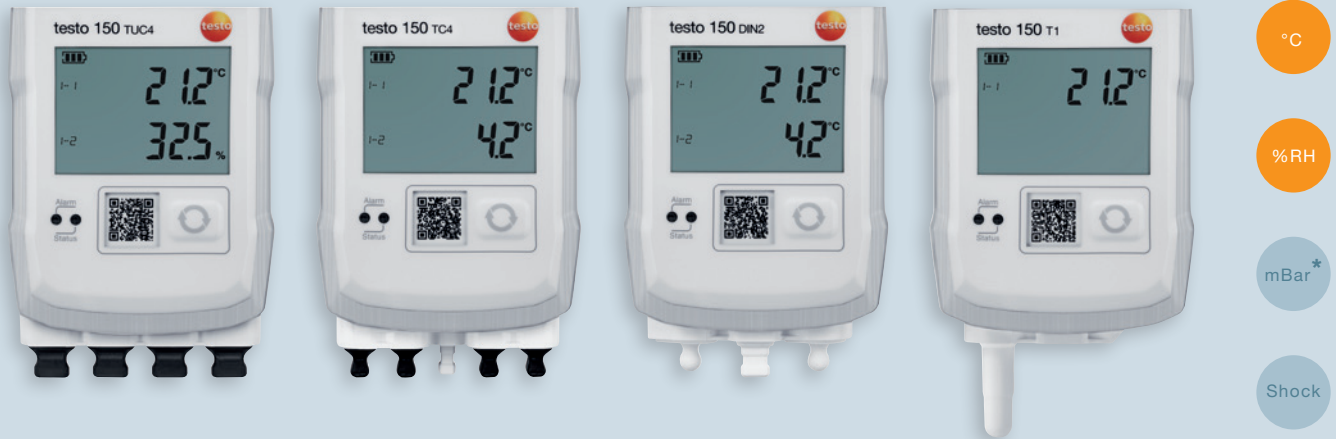


**testo Saveris 2 H2**

Radio data logger with display and 2 connections for external TC probes, for applications in extreme temperature ranges	Radio data logger with display, with internal sensors for measuring temperature and humidity	Radio data logger with display and connection for an external temperature and humidity probe
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Temperature	Temperature/humidity	Temperature/humidity
- 195 to +1350 °C (Type K) - 100 to +750 °C (Type J) - 200 to +400 °C (Type T)	-30 to + 50 °C 0 to 100 %RH	dependent on probe
±(0.5 + 0.5 % of m.v.) °C	±0.5 °C / ±2 %RH	dependent on probe
0.1 °C	0.1 °C / 0.1 %RH	0.1 °C / 0.1 %RH
2	2	2
2	None	1
TC type K / TC type T / TC type J	NTC	NTC
Dependent on the Cloud Basic licence: 15 min to 24 h Advanced: 1 min to 24 h	Dependent on the Cloud Basic licence: 15 min to 24 h Advanced: 1 min to 24 h	Dependent on the Cloud Basic licence: 15 min to 24 h Advanced: 1 min to 24 h
1 min to 24 h (15 min default)	1 min to 24 h (15 min default)	1 min to 24 h (15 min default)
10,000 readings/channel	10,000 readings/channel	10,000 readings/channel
WLAN; USB	WLAN; USB	WLAN; USB
-30 to +50 °C/-40 to +50 °C	-30 to +50 °C/-40 to +50 °C	-30 to +50 °C/-40 to +50 °C
4 x AA AIMn batteries; Mains unit optional; for temperatures below -10 °C please use Energizer batteries 0515 0572	4 x AA AIMn batteries; Mains unit optional; for temperatures below -10 °C please use Energizer batteries 0515 0572	4 x AA AIMn batteries; Mains unit optional; for temperatures below -10 °C please use Energizer batteries 0515 0572
12 months	12 months	12 months
97 x 75 x 30.5 mm / 240 g	115 x 82 x 31 mm / 240 g	95 x 75 x 30.5 mm / 240 g
IP 54	IP 30	IP 54
www.saveris.net	www.saveris.net	www.saveris.net
<b>0572 2033</b>	<b>0572 2034</b>	<b>0572 2035</b>

## The reliable all-in-one solution: testo Saveris Pharma.



\* Pressure can be measured via transmitters.  
(See diagram on the right).

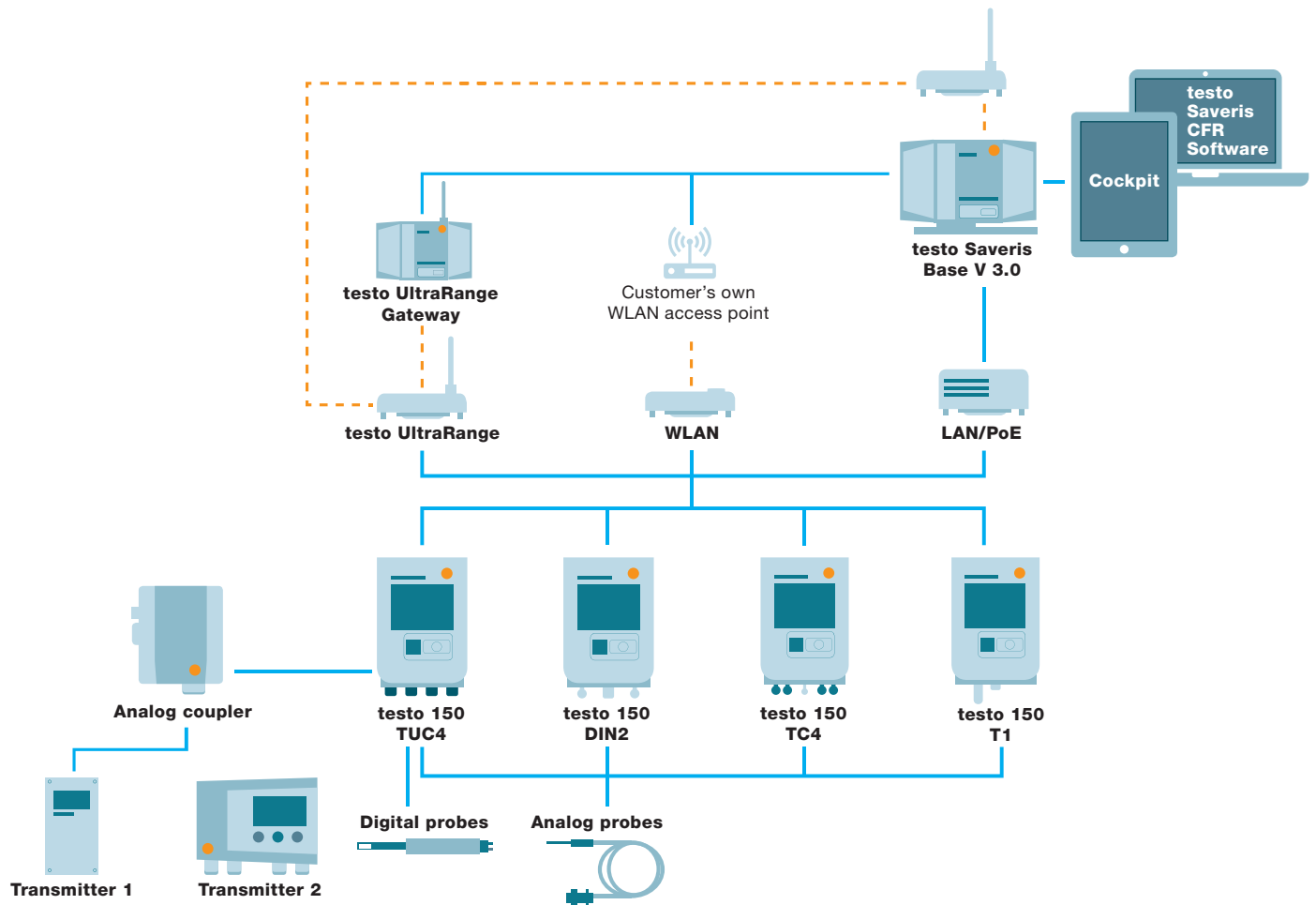
Use the testo Saveris Pharma environmental monitoring system to monitor the environmental parameters temperature and humidity as well as differential pressure\* (\*by integrating Testo's own transmitter) automatically and seamlessly. The system is so flexible that other required parameters can also be integrated via additional components. The modular design principle of the testo 150 data loggers allows perfect adaptation to the structural conditions of the place of use - so that various output interfaces can be flexibly combined with the different communication standards WLAN, LAN or testo Ultra Range.

The redundant data storage of the readings in the data logger, base station and software/database on a local server ensures maximum data security and uninterrupted documentation. The stored readings can be viewed and checked at any time and from any location via the browser-based cockpit. Real-time alerts via LED indications on the hardware as well as SMS, mail or push notifications via smartphone, tablet or desktop PC enable immediate intervention in the event of any limit violations or system-relevant incidents.

### Suitable for monitoring the following areas and equipment:

- (Research) laboratories
- Cleanrooms
- Greenhouses
- Biobanks, blood and tissue banks
- Refrigerators, freezers, ultra-low-temperature freezers, liquid nitrogen applications
- Warehouses and distribution centres

# System architecture



# The reliable all-in-one solution: testo Saveris Pharma.

A comparison of  
testo Saveris  
Pharma  
data loggers



## General information

Brief description	Data logger module with display and 4 connections for all Testo sensors with TUC (Testo Universal Connector)	Data logger module with display and 4 connections for external TC probes
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## Technical data

Measurement parameter	Temperature/humidity	Temperature
Measuring range	Analog (NTC): -40 to +150 °C Digital: See probes	1. TC Type K: -200 to +1350 °C 2. TC Type J: -100 to +750 °C 3. TC type T: -200 to +400 °C
Accuracy	Analog (NTC): ±0.3°C Digital: See probes	±(0.5 °C + 0.5% of measured value)
Resolution	Analog (NTC): 0.1 °C / 0.1 °F Digital: See probes	0.1 °C
Total channels	16	4
Number of external connections	4	4
Sensor type (temperature)	Pt100 / NTC	TC type K / TC type T / TC type J
Measuring cycle	5 seconds to 24 hours (Ethernet communication)/ 1 minute to 24 hours (testo UltraRange radio or WLAN)	5 seconds to 24 hours (Ethernet communication)/ 1 minute to 24 hours (testo UltraRange radio or WLAN)
Transmission interval / communication cycle	1 min to 24 h	1 min to 24 h
Memory capacity	min. 16,000 readings per channel	min. 64,000 readings per channel
Interface*	Ethernet/WLAN/UltraRange	Ethernet/WLAN/UltraRange
Operating/storage temperature	-40 to +50 °C / -40 to +60 °C	-40 to +50 °C / -40 to +60 °C
Battery type	4 x AA batteries. At temperatures below +10 °C, the use of Energizer Li batteries is recommended (0515 0572)	4 x AA batteries. At temperatures below +10 °C, the use of Energizer Li batteries is recommended (0515 0572)
Battery life	testo UltraRange: up to 7.2 years WLAN: 3.5 years (1 h communication cycle, 15 min measurement, +25 °C, 1 digital NTC probe connected)	testo UltraRange: up to 6.4 years WLAN: 3.3 years (1 h communication cycle, 15 min measurement, +25 °C, 1 type K probe connected)
Dimensions / weight	69.3 x 88.0 x 29.0 mm / approx. 255 g	69.3 x 89.3 x 29.0 mm / approx. 255 g
Protection class	IP 67 & IP 65 (with mounted testo UltraRange and WLAN communication module), IP 30 (Ethernet) (in each case without probe)	IP 67 & IP 65 (with mounted testo UltraRange and WLAN communication module), IP 30 (Ethernet) (in each case without probe)
Software compatibility	testo Saveris PRO software, testo Saveris CFR software (validatable; ERES & audit trail)	testo Saveris PRO software, testo Saveris CFR software (validatable; ERES & audit trail)
Order number	0572 3320	0572 3330



**testo 150 DIN2**



**testo 150 T1**



Data logger module with display and 2 connections for external DIN probes

Data logger module with display and 1 internal NTC temperature sensor

Temperature NTC: -40 to +150 °C Pt100: -200 to +600 °C	Temperature -40 to +50 °C (internal probe)
NTC: ±0.3°C Pt100: ±0.1 °C (0 to +60 °C) ±0.2 °C (-100 to +200 °C) ±0.5 °C (other measuring ranges)	±0.4°C
NTC: 0.1 °C / 0.1 °F Pt100: 0.01 °C / 0.01 °F	0.1 °C / 0.1 °F
2	1
2	0
Pt100 / NTC	NTC
5 seconds to 24 hours (Ethernet communication)/ 1 minute to 24 hours (testo UltraRange radio or WLAN)	5 seconds to 24 hours (Ethernet communication)/ 1 minute to 24 hours (testo UltraRange radio or WLAN)
1 min to 24 h	1 min to 24 h
min. 128,000 readings per channel	256,000 readings per channel
Ethernet/WLAN/UltraRange	Ethernet/WLAN/UltraRange
-40 to +50 °C / -40 to +60 °C	-40 to +50 °C / -40 to +60 °C
4 x AA batteries. At temperatures below +10 °C, the use of Energizer Li batteries is recommended (0515 0572)	4 x AA batteries. At temperatures below +10 °C, the use of Energizer Li batteries is recommended (0515 0572)
testo UltraRange: up to 6.7 years WLAN: 3.7 years (1 h communication cycle, 15 min measurement, +25°C, 1 analog NTC probe connected)	testo UltraRange: up to 7.2 years WLAN: 3.5 years (1 h communication cycle, 15 min measurement, +25 °C)
69.3 x 87.9 x 29.0 mm / approx. 255 g	69.3 x 88.3 x 29.0 mm / approx. 255 g
IP 67 & IP 65 (with mounted testo UltraRange and WLAN communication module), IP 30 (Ethernet) (in each case without probe)	IP 67 & IP 65 (with mounted testo UltraRange and WLAN communication module), IP 30 (Ethernet) (in each case without probe)
testo Saveris PRO Software, testo Saveris CFR Software (Validatable; ERES & audit trail)	testo Saveris PRO Software, testo Saveris CFR Software (Validatable; ERES & audit trail)
<b>0572 3340</b>	<b>0572 3350</b>

\* Communication module must be ordered separately

# The reliable all-in-one solution: testo Saveris Pharma.



## General information

Brief description	Digital analog coupler with current/voltage input for integrating other measurement parameters
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## Technical data

Measuring range	4 to 20 mA; 0 to 10 V
Accuracy	<p>Power</p> <p>Maximum error: <math>\pm 0.03</math> mA</p> <p>Resolution (min. error): <math>0.75 \mu\text{A}</math> (16 bit)</p> <p>Typical error: <math>5 \mu\text{A}</math></p> <p>Voltage</p> <p>0 to 1 V maximum error: <math>\pm 1.5</math> mV</p> <p>Resolution (min. error): <math>39 \mu\text{V}</math> (16 bit)</p> <p>Typical error: <math>250 \mu\text{V}</math></p> <p>0 to 5 V maximum error: <math>\pm 7.5</math> mV</p> <p>Resolution (min. error): <math>0.17</math> mV</p> <p>Typical error: <math>1.25</math> mV 0 to 10 V</p> <p>Maximum error: <math>\pm 15</math> mV</p> <p>Resolution (min. error): <math>0.34</math> mV</p> <p>Typical error: <math>2.50</math> mV</p>
Connections	<p>2- or 4-wire</p> <p>Current/voltage input</p>
Measuring cycle	1 min to 24 h
Transmission interval / communication cycle	depends on method of communication of testo 150
Memory capacity	6,000 readings
Operating/storage temperature	<p>Operating temperature: <math>+5</math> to <math>+45</math> °C</p> <p>Storage temperature: <math>-25</math> to <math>+60</math> °C</p>
Power supply	Power supply via testo 150 TUC4 logger
Dimensions / weight	85 x 100 x 38 mm / 240 g
Protection class	IP54
Order number	0572 2166





**LAN communication module**



**WLAN communication module**



**testo UltraRange communication modules**

## General information

Brief description	LAN communication module with PoE for testo 150 data loggers	WLAN communication module for testo 150 data loggers	testo UltraRange communication modules for testo 150 data logger and testo UltraRange Gateway or testo Base V3.0
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## Technical data

Transmission interval / communication cycle	1 min to 24 h	1 min to 24 h	1 min to 24 h
Radio frequency	-	2.4 GHz	868 MHz (Europe region) 868 MHz (China) 920 MHz (APAC* region) 915 MHz (Americas region) 922 MHz (South Korea) 865 MHz (India) 868 MHz (Russia)
Transmission range	-	20 m inside buildings	100 m inside buildings (depending on spatial conditions) 17 km with no obstructions
Operating/storage temperature	-35 to +50 °C / -40 to +60 °C	-35 to +50 °C / -40 to +60 °C	-35 to +50 °C / -40 to +60 °C
Dimensions / weight	67.8 x 29.5 x 28.9 mm / approx. 45 g	67.8 x 12.2 x 28.9 mm / approx. 17 g	67.8 x 112.8 x 28.9 mm / approx. 30 g
Protection class	IP 30 (when connected to a testo 150 data logger module)	IP 67 (when connected to a testo 150 data logger module)	IP 67 (when connected to a testo 150 data logger module)
Compatible with	testo 150 TUC4, testo 150 TC4, testo 150 DIN2, testo 150 T1	testo 150 TUC4, testo 150 TC4, testo 150 DIN2, testo 150 T1	testo 150 TUC4, testo 150 TC4, testo 150 DIN2, testo 150 T1
Order number	0554 9330	0554 9320	*see overview

Version	for	Order no.	Version	for	Order no.
Region	Data logger	0554 9311 01	Region South Korea	Data logger	0554 9315 01
Europe	Base and Gateway	0554 9311 02	Region South Korea	Base and Gateway	0554 9315 02
Region	Data logger	0554 9312 01	Region India	Data logger	0554 9316 01
Americas	Base and Gateway	0554 9312 02	Region India	Base and Gateway	0554 9316 02
Region	Data logger	0554 9313 01	Region	Data logger	0554 9317 01
China	Base and Gateway	0554 9313 02	Russia	Base and Gateway	0554 9317 02
Region	Data logger	0554 9314 01			
APAC*	Base and Gateway	0554 9314 02			

\*Japan, Malaysia, Singapore, Taiwan, Macau

# The reliable all-in-one solution: testo Saveris Pharma.



testo Saveris Base V3.0



testo UltraRange Gateway

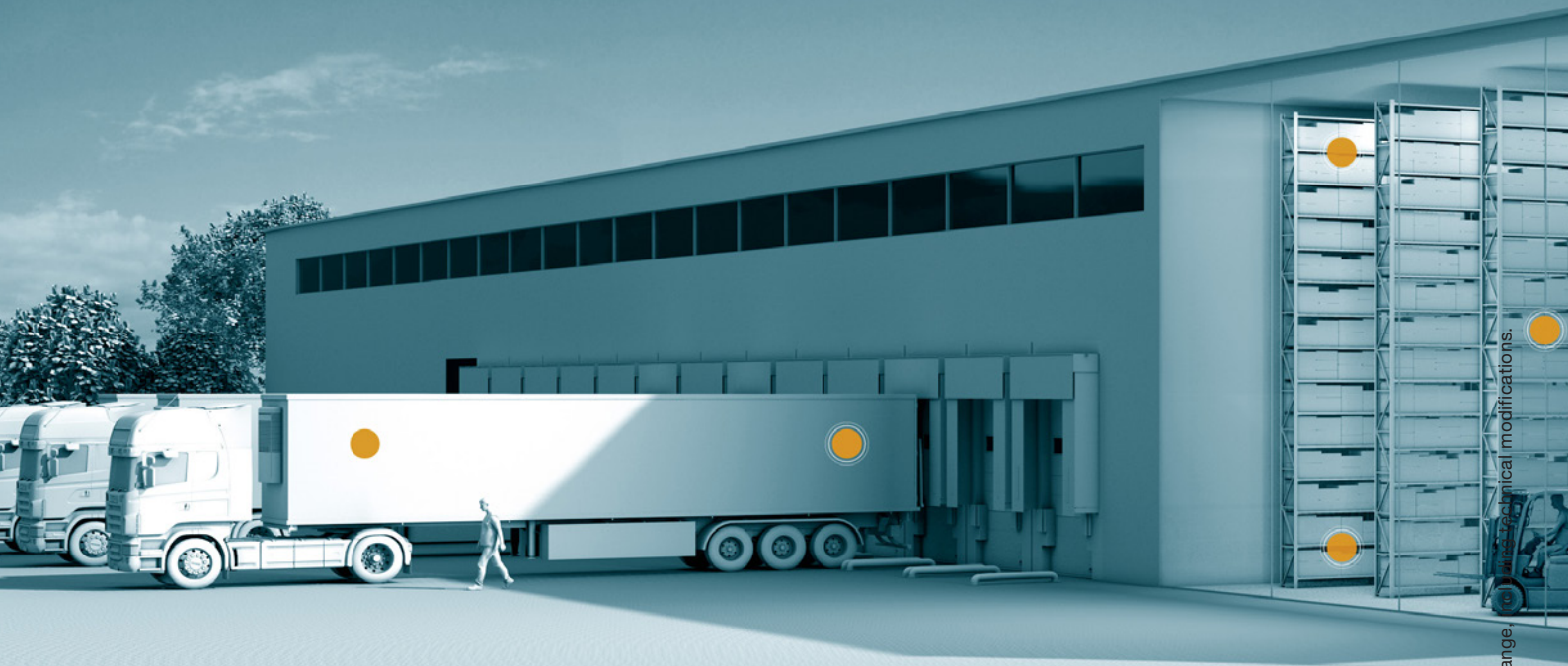
## General information

Brief description	Base station for managing up to 3,000 measurement channels	Transmission support for using the testo UltraRange radio technology
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## Technical data

Connections	2x USB LAN/PoE: Transmission rate 10/100 Mbit PoE class 0 micro USB alarm relay connection	1x USB LAN/PoE: Transmission rate 10/100 Mbit PoE class 0 micro USB
Channels per Base	120,000,000	-
Loggers per Gateway	-	40
Max. number of measurement values	120,000,000 (circular buffer memory)	-
Operating/storage temperature	+5 to +35 °C / -20 to +60 °C	0 to +45 °C / -20 to +80 °C
Power supply	PoE class 0; optionally via mains unit & micro USB cable (order no. 0572 5004)	PoE class 0; optionally via mains unit & micro USB cable (order no. 0572 5004)
Rechargeable battery type	Li-Ion rechargeable battery, 3.7 V / 2.6 Ah, Order no. 0515 0107 (for data backup and emergency alarm in the event of power failure)	-
Dimensions / weight	193 x 112 x 46 mm / approx. 370 g	193 x 112 x 46 mm / approx. 314 g
Protection class	IP 20	IP 20
Order number	0572 9320	0572 9310





Subject to change without technical modifications.

2981 0724/cw/1/04.2021