testo 316-3 · Leakage detector for refrigerants

Instruction manual



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2 Safety and the environment

2.1. About this document

Use

> Please read this documentation through carefully and familiarize yourself with the product before putting it to use. Pay particular attention to the safety instructions and warning advice in order to prevent injuries and damage to the products.

> Keep this document to hand so that you can refer to it when necessary.

> Hand this documentation on to any subsequent users of the product.

Warnings

Always pay attention to information that is marked by the following warnings with warning pictograms. Implement the specified precautionary measures.

Representation	Explanation
⚠ WARNING	Indicates potential serious injuries
⚠ CAUTION	indicates potential minor injuries
NOTICE	indicates circumstances that may lead to damage to the products

2.2. Ensure safety

> Only operate the product properly, for its intended purpose and within the parameters specified in the technical data. Do not use any force.

> The testo 330 must be checked before commissioning for any visible damage. Do not commission the testo 330 if there are signs of damage on the housing, mains unit or supply lines. Electrical risk.

> Do not perform contact measurements on non-insulated, live parts.

> Do not store the product together with solvents. Do not use any desiccants.

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> Carry out only the maintenance and repair work on this instrument that is described in the documentation. Follow the prescribed steps exactly. Use only original spare parts from Testo.

> Temperatures given on probes/sensors relate only to the measuring range of the sensors. Do not expose handles and feed lines to any temperatures in excess of 70 °C unless they are expressly permitted for higher temperatures.

2.3. Protecting the environment

> Dispose of faulty rechargeable batteries/spent batteries in accordance with the valid legal specifications.

> At the end of its useful life, send the product to the separate collection for electric and electronic devices (observe local regulations) or return the product to Testo for disposal.

> Dispose of faulty rechargeable batteries/spent batteries in accordance with the valid legal specifications.

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3 Specifications

3.1. Use

The testo 316-3 is a leakage detector for fast and reliable leak detection in refrigeration systems and heat pumps. Gas concentrations are indicated both visually and audibly.

The testo 316-3 is not protective equipment! Do not use the testo 316-3 as a monitoring instrument for personal safety.

3.2. Technical data

Feature	Values
Sensor	Electrochemical sensor with heated diode
Detectable refrigerants	All HFCs, HCFCs and CFCs (e.g. R134a, R410a, R438A, R22 etc.)
Response threshold	<4 g/a / <0.15 oz/a
Sensor service life	80-100 hours (equates to approx. 1 year of normal usage)
Warm-up period (switching instrument on – ready to measure)	Approx. 20 s
Power supply	Alkaline Batteries (2xD)
Battery life	16 hours
Storage/transportation conditions	0 to 50 °C / 32 to 122 °F

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Feature	Values
Operating conditions	-20 to 50 °C / -4 to 122 °F 20 % - 80 %RH, non-condensing
Weight	Approx. 400 g (incl. batteries)
Dimensions (L x W x H)	Housing: approx. 270 x 65 x 65 mm Length of flexible sensor shaft including sensor head: approx. 285 mm
Warranty	Measuring instrument: 2 years (sensor excluded), For warranty terms see www.testo.com/warranty
EC Directives	2004/108/EC
Standards	SAE J1627 EN14624:2012

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4 Product description

4.1. Overview



1 Flexible probe shaft with probe head
2 Handle with battery compartment
3 Battery indicator **PWR** (green LED)
4 On/off button, sensitivity
5 Sensitivity indicator **HI** (high) / **LO** (low)
6 Gas concentration indicator (yellow LEDs)

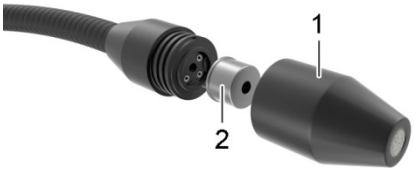
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5 First steps

5.1. Commissioning

Installing the sensor

1. Unscrew the protective cap (**1**) from the sensor head (counter-clockwise).
2. Take the sensor (**2**) out of its protective film packaging.
3. Carefully push the three sensor wires into the sockets in the sensor head, until they are no longer visible.



NOTICE

Malfunction due to damaged sensor wires!

> Do not damage sensor wires.

4. Put the protective cap on the sensor and tighten by turning in a clockwise direction.

Insert batteries

1. Using a screwdriver, push down the locking clip on top of the handle.



2. Slide the top part of the handle down.
3. Insert two mono (D) type batteries. Observe the polarity!

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4. Slide the top part of the handle back on.

Switch on

WARNING

Danger of explosion!

> The instrument must not be used in environments where flammable gases are present.

> Press [⏻] briefly.

- **PWR** LED lights up and all yellow gas concentration indicator LEDs start to flash one after another.
- The sensor is heated up.
- The instrument is ready to use once the gas concentration indicator LEDs have gone off and one beep per second can be heard.

Switch off

> Press and hold down [⏻].

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6 Using the product

6.1. Performing settings

Setting the sensitivity

There are two sensitivity levels: **HI** (high, default) and **LO** (low).

The **LO** level is 8x less sensitive than the **HI** setting. At high refrigerant gas concentrations, set the sensitivity to **LO**.

> Press [⏻] briefly to set the sensitivity to **LO**.

> Press [⏻] again to revert to the **HI** level.

6.2. Finding leaks

NOTICE
Sensor destruction due to desorbing substances (e.g. oils)!
> Do not operate the instrument in contaminated environments.

1. Move the leakage detector to the site where the leak is suspected.

Leak detection can only be carried out correctly if the probe is guided directly over the leak.

2. Guide the probe head over the surface to be tested at a maximum distance of 6 mm and a rate of 2.5 to 5 cm per second.

- If the instrument detects a leak, the yellow gas concentration indicator LEDs light up and the instrument starts to beep rapidly. The larger the leak, the more segments light up.

3. Move instrument away from the leak briefly.

> In the case of high refrigerant concentrations: before going back to the leak, set the sensitivity to **LO**.

4. Guide the probe head back to the leak in order to precisely locate the site.

> Set the sensitivity back to **HI** as soon as the leak has been precisely located.

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7 Maintaining the product

Cleaning the instrument

> If the housing of the instrument is dirty, clean it with a damp cloth.

Do not use any aggressive cleaning agents or solvents! Weak household cleaning agents and soap suds may be used.

Replacing the sensor

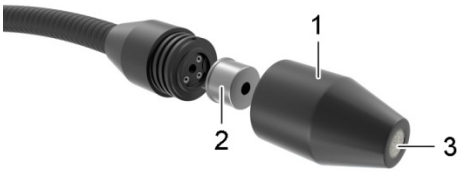
The electrochemical sensor has a service life of approximately 100 operating hours. Once this time is up, or if you suspect that some leaks have not been detected, the sensor must be replaced.

⚠ CAUTION

Risk of burns due to hot sensor head!

> Before removing the protective cap: switch instrument off and let the sensor head cool down.

1. Unscrew the protective cap (**1**) from the sensor head (anti-clockwise).
2. Remove defective sensor.
3. Take the new sensor (**2**) out of its protective film packaging.
4. Carefully push the three sensor wires into the sockets in the sensor head, until they are no longer visible.



NOTICE

Malfunction due to damaged sensor wires!

> Do not damage sensor wires.

5. Put the protective cap on the sensor head and tighten by turning in a clockwise direction.

Replacing the filter

The filter must be replaced if it is clogged with water or oil or if it appears to be dirty.

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CAUTION

Risk of burns due to hot sensor head!

> Before removing the protective cap: switch instrument off and let the sensor head cool down.

1. Unscrew the protective cap (**1**) from the sensor head (anti-clockwise).
2. Push the spent filter (**3**) out of the protective cap using a paper clip or something similar.
3. Insert the new filter into the protective cap.
4. Put the protective cap on the sensor head and tighten by turning in a clockwise direction.

Changing batteries

Once **PWR** starts to flash, this indicates that the battery has enough power left for approximately one hour.

1. Using a screwdriver, push down the locking clip on top of the handle.



2. Slide the top part of the handle down.
3. Remove the spent batteries.
4. Insert two mono (D) type batteries. Observe the polarity!



5. Slide the top part of the handle back on.

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8 Tips and assistance

8.1. Questions and answers

Question	Possible causes	Possible solution
All gas concentration indicator segments are lit up, audible signal is off	Sensor is missing or is no longer fully functional	> Change sensor.
At the smallest of movements, the instrument signals a leak	• Sensor wires are kinked.	> Remove sensor and examine wires. If necessary, straighten wires with pincers.
	• Sensor has been exposed to a high degree of humidity for too long.	> Switch the instrument on and wait until the alarm switches off (duration: up to 20 minutes).
Instrument is not very sensitive, seems to ignore leaks or does not detect some types of refrigerant.	Sensor has reached the end of its service life.	> Change sensor.
Instrument cannot be switched on.	Batteries are depleted.	> Change batteries.

If we have not been able to answer your question, please contact your local dealer or the Testo Customer Service. Contact details can be found on the internet at www.testo.com/service-contact

8.2. Accessories and spare parts

Description	Item no.
Replacement sensor	0554 2610
Replacement filter	0554 2611

For other accessories and spare parts, please refer to the product catalogues and brochures or look up on the internet at www.testo.com

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