



**testo 316-4**  
**Leakage detector for refrigerants**

Bedienungsanleitung  
Instruction manual

de  
en



# Safety and environment

## On this document

- › Read this document through carefully, and familiarize yourself with the product before you put it to use. Keep this documentation close to hand in order to be able to consult it if required. Pass this documentation on to later users of the product.
- › Pay particular attention to information which is marked with the following symbols:



· With the signal word **Warning!**:

Warns of dangers which can lead to serious injury if the prescribed safety measures are not taken.



· With the signal word **Attention!**:

Warns of dangers which can lead to light injuries or material damage if the prescribed safety measures are not taken.

 · Important information

## Avoiding personal injury/material damage

- › Use the measuring instrument only for the purpose for which it is intended, and within the parameters stated in the technical data. Do not use force.
- › If damage, malfunction or incorrect display occur, have the instrument checked. Do not use faulty instruments.
- › Do not carry out measurements with the product on or near live parts.
- › Never store the product together with solvents, acids or other corrosive substances.
- › Carry out only repair and maintenance work described in the instruction manual. Observe the prescribed handling steps. Use only original spare parts from Testo.

## Protecting the environment

- › Dispose of faulty rechargeable batteries/empty batteries at the proper collection points.
- › Send the product back to Testo at the end of its life. We will ensure that it is disposed of in an environmentally friendly manner.

# Specifications

## Functions and application

The testo 316-4 is a leakage detection instrument for the fast and reliable detection of leakages on refrigeration systems and heat pumps. Gas concentrations are indicated optically and audibly. The instrument can be adapted to your requirements thanks to its exchangeable measurement head

- 0554 3180: Refrigerant measurement head for R134a, R22, R404a, H2 and further CFC, HCFC, HFC
- 0554 3181: NH<sub>3</sub>-measurement head for ammonia.  
(Details see **Tips and assistance**)

**i** The testo 316-4 is not a piece of protective equipment! Do not use the testo 316-4 as a monitoring instrument for your personal safety!

## Technical data

### Technical measuring data

- Sensor: Gas-sensitive semi-conductor
- Reaction threshold: <3g/a / <0.1oz/yr
- Reaction time: <1s

### Further instrument data

- Operating conditions: -5 to 50°C/20 to 80%RH, with limited functionality (only audible indication, reduced accuracy, reduced operating time) can also be used in the range -20°C to -50°C
- Storage/transp. conditions: -25 to 70°C/20 to 80%RH
- Minimum bend radius gooseneck: 40 mm
- Current supply: Rech. battery pack NiMH

- Battery life: 8h
- Charging time: approx. 8h
- Dimensions: 57 x 190 x 42mm
- Weight: 348g

### Guidelines, norms and tests

- EC guideline: 89/336/EEC
- based on SAE J1627

### Warranty

- Duration: 2 years
- Warranty conditions: see warranty booklet

# Product description

## At a glance



- ① Measurement head with gas sensor, exchangeable.
- ② Flexible probe shaft.
- ③ Top: earplug socket, mains unit socket.
- ④ Display.
- ⑤ Operating buttons.

## Display and operating elements

Display	Meaning
<b>Colour of the display illumination</b>	
green	No gas detected.
red	Gas detected.
<b>Symbols</b>	
	Gas concentration trend display: No gas detected / Gas detected.
	Gas concentration trend display: First alarm threshold / Second alarm threshold.
	Gas concentration maximum value display : Maximum gas concentration detected since the last reset of the maximum display or since the last time the instrument was switched on.
	Type of gas to be detected.
	Switch-over search mode / localization mode.
	Battery capacity: Battery full / battery partly discharged / remaining capacity < 15min.
	Audible signal: on / off.
<b>Buttons</b>	
	Instrument: on / off.
	Type of gas to be detected: Select.
	Audible signal: on / off.
	Switch-over search mode / localization mode.

## Audible notification

The audible notification takes place with a signal tone whose interval frequency increases with increasing gas concentrations. A continuous signal sounds when the second alarm threshold is passed.

# First steps

## ➤ Charging battery:





**i** Use only the original mains unit 0554 1093!

The rechargeable battery can only be charged at an ambient temperature of  $\pm 0$  to  $45^{\circ}\text{C}$ .

If the rechargeable battery is completely discharged, charging takes approx. 8h.

In order to ensure as long a battery life as possible, the battery should always be completely discharged and recharged.

The instrument can continue to be used during charging.

- 1 Plug the mains plug into the country-specific adapter and then plug into the mains socket.
- 2 Plug the instrument plug into the mains unit socket of the instrument.
  - Charging begins: ,  and  light up alternately.
  - Charging stops automatically when the rechargeable battery is full:  lights up.

## ➤ Using the earplug:


**i** Use only the original earplug 0554 5001!

The instrument loudspeaker is deactivated when the earplug is plugged in!

- Plug the connection plug of the earplug into the earplug socket of the instrument.

# Using the product

## > Switching on the instrument:


- 1 Press  .
  - All display segments light up (duration: 3 sec), the suction pump starts (ventilator noise).
  - The initialization phase is carried out (heating, adjustment, auto-test). The remaining duration is displayed.
  - After the end of the initialization phase: OK lights up (duration: 2 sec).



**Attention!** Danger of burning from the hot measurement head after prolonged use!

- > Before touching the measurement head or packing up the instrument, switch off and allow to cool.





## > Selecting gas to be detected (only with measurement head 0554 3180):

- > Press  several times, until the arrow lights up under the desired gas type.  
For other gas types, please consult the table in the chapter **Tips and assistance** .

## > Change operating mode:

After switching on, the instrument is automatically in search mode. In this mode the instrument is optimized for fast leakage detection and the approximate localization of a possible leak, by high sensitivity to the change in the signal.

If a leak has been found in search mode, and its approximate position has been established, it can easily be localized in the localization mode, by optimization of the sensitivity to the leakage quantity.

- > Press  .
  -  lights up in display. Localization mode is activated.
- > Press  again.
  -  disappears. Search mode is activated again.

> Carrying out gas detection:



**Attention!** Destruction of the sensor by non-desorbant substances (e.g. oils)!

- > Do not use the instrument in dirty surroundings.

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- > Move the measurement head as close as possible, and slowly (3 to 5 cm per second) over the parts which are to be examined for leaks.

> Resetting maximum value display:

- > Press  and  simultaneously.

> Switching instrument off:

- > Press and hold  until the display switches off.

## Maintaining the product

> Charging the rechargeable battery:

See chapter “First steps”

> Changing the measurement head:



**Attention!** Danger of burning from the hot measurement head after prolonged use!

- > Before touching the measurement head or packing up the instrument, switch off and allow to cool.

1 Unscrew the measurement head and remove it from the probe shaft.

2 Plug the new sensor head on to the probe shaft and screw tight.

> Cleaning the sensor:

Tobacco smoke, dirty air, oils, grease and evaporating liquids or gases can lead to deposits on the surface of the sensor. This can result in reduced sensitivity and falsified display of concentrations. If necessary clean the sensor.

- > Switch on the instrument, wait until the end of the initialization phase and switch off again. Repeat this procedure several times.

> Cleaning the measurement head:

- > If dirty, clean the measurement head with a soft dry cloth.

> **Cleaning the housing:**

- If dirty, clean the housing with a damp cloth (soap solution). Do not use aggressive cleaning products or solvents!

> **Regular servicing:**

Testo recommends yearly servicing of the gas detector by an authorized service centre.

## Tips and assistance

### Questions and answers

Question	Possible causes / solutions
"Error 01"	· Instrument error: please contact your dealer or Testo customer service.
"Error 02"	· Sensor defective (wire breakage): please contact your dealer or Testo customer service.
"Error 03"	· Sensor connection incorrect: check plug connection of measurement head
"Error 04"	· Impermissible measurement head: change measurement head.
"Sensor" blinkt	· Sensor dirty: clean sensor, see chapter "Maintaining product".

If we were not able to answer your question, please contact your dealer or Testo customer service. Contact data can be found in the warranty booklet or on the internet at: [www.testo.com](http://www.testo.com)



## Detectable refrigerants

Refrigerant	Reference refrigerant	Detectable	Refrigerant selection
Refrigerant group	(lower reaction threshold specified)	refrigerant	in instrument
HFC		x	R22
CFC		x	R404a
HCFC		x	R134a
R12		x	R22
R22	x		R22
R123		x	R22
R134a	x		R134a
R404	x		R404a
R407a, b, c, d, e		x	R134a
R408		x	R22
R409		x	R22
R410a		x	R134a
R505		x	R22
R507		x	R134a
Hydrogen	x		H <sub>2</sub>
Ammonia	x		NH <sub>3</sub>

## Accessories and spare parts

Description	Part no.
Refrigerant measurement head	0554 3180
NH <sub>3</sub> measurement head	0554 3181
Earplug	0554 5001
Mains unit	0554 1093

A complete list of all accessories and spare parts can be found in the product catalogues and brochures or on the internet at: [www.testo.com](http://www.testo.com)

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