OPERATION MANUAL
ECOM® DP
ECOM® LSG

Index

1. Application ecom-DP

The ecom-DP is designed to make easy pressure measurements and tightness checks at gas pipes and gas installations.

⚠	**Please respect the legal safety instructions by works at gas pipes!**

2. Design ecom-DP

Pressure connection P1+
Pmax = 999,9 mbar

Connection P1-

IR interface
(for IR printer)

Backside

Grafic
display

Battery
compartment

Magnetic
fixation

F1 F2 F3 F4

Connection
loading unit

Function keys
(current function is
shown on display)

OK

Cursor keys

ecom® • DP •

Confirmation key

ON

ON/OFF key

3. Connection of components

Please connect the components as shown on below plan.

Connection hose
(ecom-DP – Cross piece)

Hose 1
(Gas system – Cross piece)

Connection hose 1

ecom-DP

Swagelok-screw connec-tions

Shut-off valve

Compres-sed-air ball

Cross piece

Connection hose 2

Hose 2
(Gas system – Cross piece)

Quick connections

Plug for not necessary hose

Plug for not necessary connection at cross piece
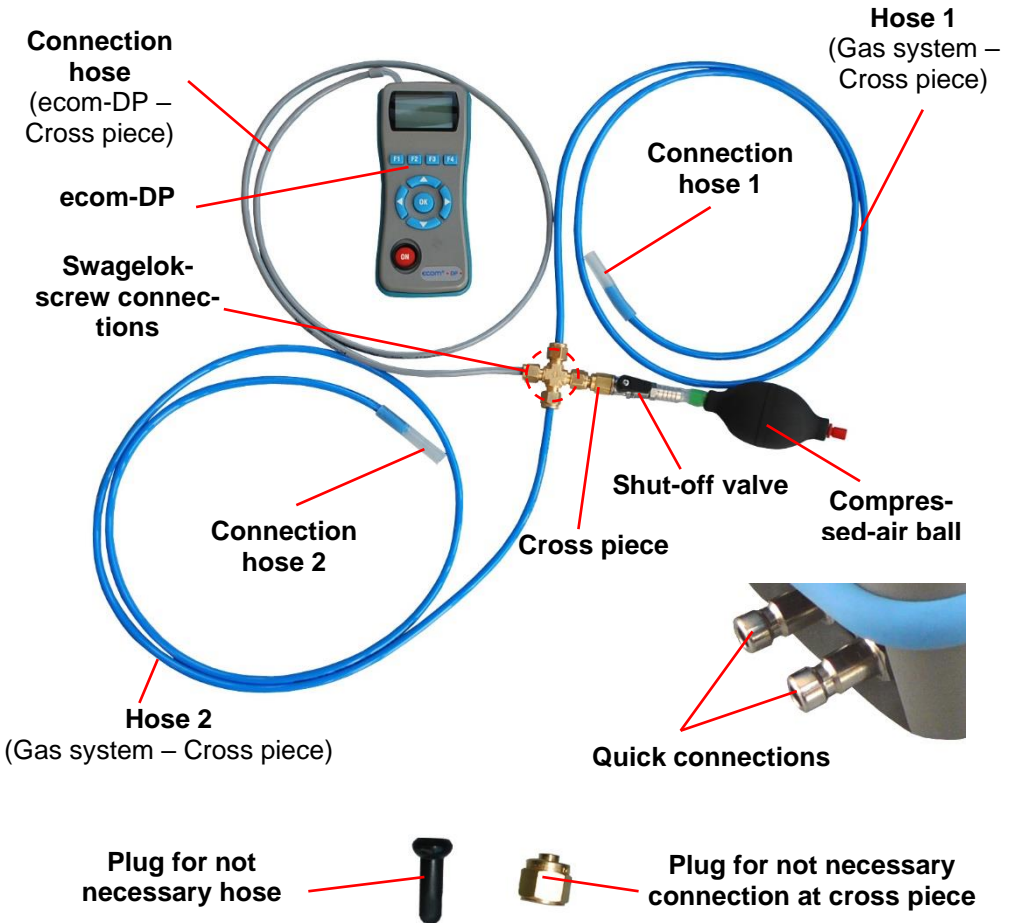
⚠️ **1. Please use for the pressure check only diffusion-close hoses!**
2. For usual pressure measurements also not diffusion-close material like e.g. silicone may be used.
3. A silicone hose can be pushed directly over the quick connection.

⚠️ **If remounting the Swagelok-screw connections, please turn the nut firmly with your fingers and another 1/4 revolution with a wrench!**

4. Initialisation

4.1. Power supply

The ecom-DP is powered by 3 batteries. The following types can be used to operate the instrument:

- Battery   1,5 V AA (Mignon)
- Battery   1,2 V AA NiCd (nickel cadmium)
- Battery   1,2 V AA NiMh (metal hydride)

If you are using a battery charger, please adjust the function „Bat. Loading" (see chapter 8.4.)

Open the battery compartment and insert the batteries. Be careful to ensure proper polarity. If using the rechargeable battery type, it will be necessary to fully charge the batteries prior to initial use (approx. 4 hours). The voltage of the batteries is monitored by the DP and will indicate a low battery condition by approx. 3.3 V by beeping and flashing a signal on the LCD display. If the voltage sinks (approx. 3 V) so the ecom-DP will automatically switch off.

Battery warning

4.2. Battery charging

The battery charging procedure is monitored by the ecom-DP. Once connected to AC power, the instrument switches on. During the charging procedure, a BATTERY indicator will be shown on the LCD display. Once the battery is fully charged, the BATTERY indicator on the display will blink. It is possible to operate the ecom-DP on AC power during the charging procedure by pressing the <ON> button.

4.3. Setting clock

The internal clock and the internal RAM memory of the ecom-DP are buffered via a capacitor. If the instrument is without current supply during more than approx. 10 minutes, the recorded information gets lost. Before using the ecom-DP for the first time, adjust the internal clock and delete the internal RAM memory.

Press <ON> to switch on the ecom-DP.
The instrument displays the following:

    Clock set
    Delete RAM
    Press OK to continue!

- Press twice the <OK> key and the measurement value menu will be displayed.
- Press <F2> (wrench symbol) to call up the menu „Instrument settings".
- With the cursor keys <UP/DOWN> scroll until the menu point "Set clock".
- Press <OK> to activate.

Date and time can be set as follows:

1. Select with the cursor keys <RIGHT/LEFT> the position to be changed (corresponding field blinks).

2. Adjust the correct numbers with the cursor keys <UP/DOWN>.

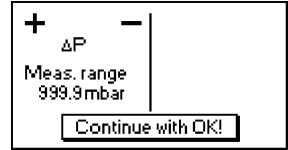3. Press <OK> to confirm correct date and time settings.

5. Numerical indication

After switch-on, the specifications of the pressure sensor will be displayed: denomination, measurement range and connection seizure (+/-). Press <OK> to access to the measurement value menu.
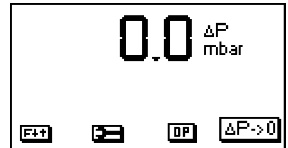
5.1. Zeroing the internal pressure sensor

Please remember not to flow the pressure sensors with pressure during the zeroing procedure.

As the difference pressure sensor can drift because of its sensitivity in the zero point, it is possible to reset the zero point.

- Press <F4> (∆P1) to zero the value of the pressure sensor.

Different functions can be called up with the function key <F1>. The current seizure of the other function keys (<F2> - <F4>) is shown on the display. Press one time <F1> to display the functions „Hold", „Min/Max" and „Print".

5.2. Freezing of measurement value

- Press <F2> (Hold) to „freeze" that measurement value displayed at the time the key is pressed (active function = Hold indication blinks).
- Press again <F2> (Hold) to quit the „freezing" and the current value will be displayed.

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5.3. Minimal / Maximal measurement values

With <F3> (Min/Max) the determined minimal and maximal values since unit´s switch-on (or deleting via „CLR") can be called up.
- Press one time <F3> (Min/Max) to view the lowest determined values (Min/Max blinks).
- Press <F2> (CLR) to delete the minimal values (new scanning begins).
- Press again <F3> (Min) to view the highest values (Min/Max blinks).
- Press <F2> (CLR) to delete the highest values (new scanning begins).
- Press one more time <F3> (Max) to quit the menu.

5.4. Printout measurement values

Press <F4> (Print) to transmit the current measurement values via the infrared interface to the IR printer (option). Condition hereto is a trouble-free connection (direct sight) between the sending diode at the front of the instrument and the receiving diode of the printer. The distance between both instruments should not exceed 40 cm (1.3 foot), otherwise a trouble-free transmission is not warranted at any time.
The printout can be made with the infrared printers ecom-P and HP 82240B. Please choose the used printer, as shown under chapter 8.3.

5.5. Contrast adjustment and lighting

Basing on the previous function seizure, the functions „LUMI" and „Light" are displayed after pressing <F1>. The graphic display of the ecom-DP can be adjusted to different visual conditions. The contrast can be adjusted in 5 steps (each key pressing = one step) while pressing <F3> (LUMI). Additionally the backlighting of the display can be activated while pressing <F4> (Light).

6. Pressure check

Call up the „Pressure check" by pressing <F3> (DP)

Proceed as follows:

1. Connect the components a described in chapter 3.

2. Connect the connection hose with the gas system.

3. Create the pre-adjusted test pressure with the compressed-air ball (max. 999,9 mbar).

4. Interrupt the connection to the compressed-air ball (switch-off the valve).

5. Start „Pressure check with <OK>. After end of stabilization time the measurement time starts automatically.

6. After end of measurement time the result is indicated on the display. With <F2> the result can be printed by an IR-printer (option).

7. If the „Pressure Check" is selected again, so the result can be called up with <F1> (as long as the ecom-DP is on) or a new measurement can be started with <OK>.

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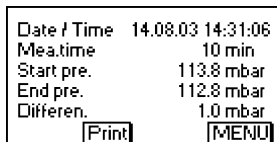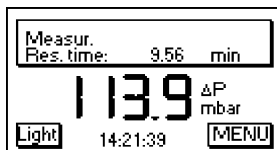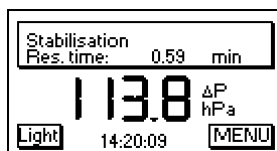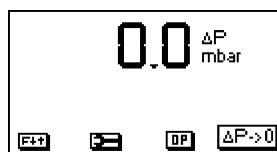
7. Clock set

- Scroll with <UP/DOWN> until the menu point "Set clock".
- Press <OK> to activate. Date and time can be adjusted as follows:

1. Select with <RIGHT/LEFT> the position to be changed (corresponding field blinks).

2. Adjust the correct figures using <UP/DOWN>.

3. Confirm with <OK>.

8. Internal instrument settings

Further instrument settings can be performed in the menu "Internal". Press <OK> to access this menu.
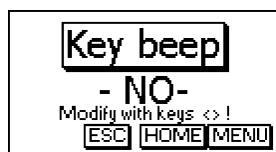
## 8.1. Key beep on/off switch

- With the cursor keys <UP/DOWN> scroll until the menu point "Key beep".
- Activate with <OK>.
- With the cursor keys <RIGHT/LEFT> modify the adjustment (YES or NO).
- Confirm with <OK>.

8.2. Pressure Auto -> 0 by start

The ecom-DP normally zeroes the internal pressure sensor during switch-on (adjustment „YES"). If the instrument is to remain connected to a pressure source, so this adjustment can be modified:
- Scroll with the cursor keys <UP/DOWN> until the menu point "Pressure auto -> 0 by start".
- Press <OK> to activate.
- Use the cursor keys <RIGHT/LEFT> to modify the adjustment (YES or NO).
- Confirm the modification with <OK>.
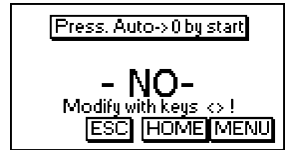
8.3. Choose printer (ecom-P)

Please choose the used printer as follows:
- Scroll with the cursor keys <UP/DOWN> until the menu point "ecom-P".
- Press <OK> to activate.
- Use the cursor keys <RIGHT/LEFT> to modify the adjustment (YES = printer ecom-P or NO = printer HP 82240B).
- Confirm the modification with <OK>.

8.4. Battery loading

The ecom-DP is able to work with batteries and AC power (option):
- Scroll with the cursor keys <UP/DOWN> until the menu point "Battery loading".
- Press <OK> to activate.
- Use the cursor keys <RIGHT/LEFT> to modify the adjustment (YES = using AC power for charging batteries or NO = no AC power used).
- Confirm the modification with <OK>.

8.5. Display damping

The display damping can be adjusted to various measurement duties. 7 damping steps can be selected (1 = no damping; 7 = high damping).

Additionally the damping steps 3 - 7 enable the selection of a damping progression. This means:

not progressive:
by massive pressure changes the display does **not** react faster than by small pressure changes

low progressive:
by massive pressure changes the display reacts some-what faster than by small pressure changes.

high progressive:
by massive pressure changes the display reacts **much** faster than by small pressure changes.

- To change the adjustment, scroll with the keys <UP/DOWN> until the menu point "Damping".
- Press <OK> to activate.
- Adjust the desired damping step using the cursor keys <RIGHT/LEFT>.
- Press <OK> to confirm.

8.6. Pressure unit

The measuring unit of the internal pressure sensor can be changed. The following units are selectable:

Millibar	mbar
Inch water column	"H2O
Inch mercury column	"Hg
Pound per square inch	PSI
Millimetre mercury column	mmHg
Hectopascal	hPa

For modification:

- Scroll with the cursor keys <UP/DOWN> until the menu point "Pressure unit".
- Press <OK> to activate.
- Use the cursor keys <RIGHT/LEFT> to adjust the de-sired unit for the pressure sensor.
- Press <OK> to confirm.

8.7. Auto OFF function

The ecom-DP is able to switch off autonomously after 270 sec.:
- Scroll with the cursor keys **<UP/DOWN>** until the menu point "Auto OFF function".
- Press **<OK>** to activate.
- Use the cursor keys **<RIGHT/LEFT>** to modify the adjustment (YES = activate the function or NO = disable the function
- Confirm the modification with **<OK>**.

8.8. Contrast

The contrast of the display can be adjusted with the help of the cursor keys **<RIGHT/LEFT>:**
- Scroll with the cursor keys **<UP/DOWN>** until the menu point "Contrast".
- Press **<OK>** to activate.
- To increase the contrast use cursor key **<RIGHT>**.
- To decrease the contrast use cursor key **<LEFT>**.
- Confirm the modification with **<OK>**.

8.9. Light

The lighting of the display can be switched ON and OFF.
- Scroll with the cursor keys **<UP/DOWN>** until the menu point "Light".
- Press **<OK>** to activate.
- Use the cursor keys **<RIGHT/LEFT>** to modify the adjustment (YES = switch ON the light or NO = switch OFF the light
- Confirm the modification with **<OK>**.

Press **<F2>** (ESC) to quit the menu "Internal".

9. Sensor setup

The sensors in the instrument are given factory specified designations that can be changed by the user. Using the <UP/DOWN> cursor keys, scroll to "Sensor setup" menu. Press <OK>. Open the edit function by pressing <OK> two times.

A maximum of 6 characters (letters, numbers and special characters) can be used in the sensor designation. Using the <UP/DOWN> cursor keys, select the position to be changed (sign blinks). Use the <UP/DOWN> cursor keys to select the character that should stand on this position. Starting from the current one and using the <UP> key, the following characters are stored in the instrument in the following succession:

Blank sign
A - Z
a - z
Ä -Ü
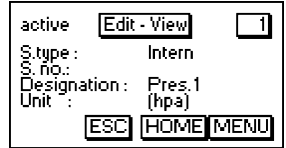ä - ß
0 - 9
Special characters

Once the renaming procedure is complete, press <OK> to store.
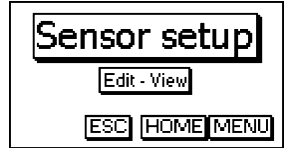
10. View service information

- Use the cursor keys <UP/DOWN> to scroll thru until the menu point "Service".
- Press <OK> and an info window will be opened in which the address and phone number of the competent service centre as well as the instrument version (e.g. ECOM DP V3.1) will be displayed.

11. Data logger program „ecom-DP Logger"
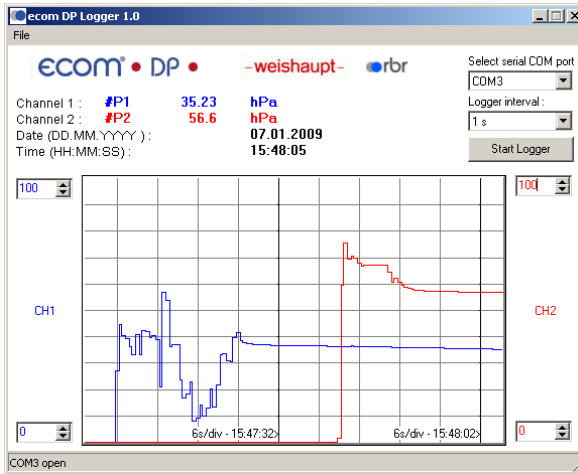
The measured value process of the **ecom-DP** can be logged with the help of the data logger program „ecom-DP Logger ". The program can be loaded free of charge from the download area of the ecom homepage www.ecom.de. To transfer the data a USB cable (kind becomes. - No.: 55818) and a driver (free download from www.ecom.de) is needed. The measured value rows can be stored in the xls format (Excel).

> ⚠ **The USB cable can be used as the power supply for the ecom DP. Therefore the function „Battery loading" must be adjusted on „no" when using 1,5 V AA (Mignon) batteries (see 8.4.)!**

12. Technical Data ecom-DP

Power supply:
- Battery: 3 x 1,5 V AA (Mignon)
- or battery: 3 x 1,2 V AA NiCd (nickel cadmium)
- or battery: 3 x 1,2 V AA NiMh (metal hydride)
- Internal loading unit
- Connection via 1.3 mm hollow plug
- Loading current approx. 500 mA

Power consumption:
- With backlit approx. 90 mA
- Without backlit approx. 45 mA
- Operation time depending on used power supply

Display:
- Graphic display
- Resolution 128 x 64 pixel
- Window approx. 43 x 28 mm

Operation:
(menu-monitored)
- 4 cursor keys
- 1 confirmation key
- 4 function keys
- 1 ON/OFF key

Differential pressure measurement:
- Pressure range +/- 1500 hPa (mbar) or
- Pressure range +/- 70 hPa (mbar)

Resolution:
- 0.1 hPa or
- 0.01 hPa

Accuracy:
- < 0,5 % of full scale

Internal clock:
- Adjustment via menu and keyboard
- Buffer battery for battery change only (approx. 1 min.)

Dimensions (LxWxH):
- Approx. 170 x 75 x 35 mm

Weight:
- Complete approx. 300 g

Ambient temperature:
- 0 bis 50 °C

Subject to technical changes
01.2023

13. Maintenance tip

To secure the accuracy of your measuring instrument we recommend the annual check by an authorized ecom partner. In the case of strong demand (e.g. permanent several hours of measurement per day, rough conditions etc.) shorter intervals between checks should be selected - please contact your ecom partner. All ecom partners are listed under www.ecom.de.2

ecom®

EG-Konformitätserklärung | EC Declaration of Conformity

Hiermit erklärt der Hersteller
The manufacturer

ecom GmbH
Am Großen Teich 2
D-58640 Iserlohn, Germany

CE

in alleiniger Verantwortung für die Ausstellung dieser Erklärung, dass die nachfolgend aufgeführten Produkte:
hereby declares under its sole responsibility, that the products

Druckmessgeräte / pressure measurement devices

Type: ecom-UNO

ecom-DP

ecom-DP Engine

ecom-DP3

allen einschlägigen Bestimmungen der folgenden EU-Richtlinien entsprechen:
comply with the following European Directives:

2014/30/EU	**EMV-Richtlinie** / *EMC Directive*	
2011/65/EU	**RoHS**	

Folgende Normen wurden angewendet:
The following standard/s were used:

EN 61000-6-2:2005/AC:2005 — EMV – Störfestigkeit für Industriebereiche
EMC – Immunity for industrial environments

EN 61000-6-3:2007/A1:2011 — EMV – Störaussendung für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe
EMC - Emission standard for residential, commercial and lightindustrial environments

EN IEC 63000:2018 — Technische Dokumentation zur Beurteilung von Elektro- und Elektronikgeräten hinsichtlich der Beschränkung gefährlicher Stoffe
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Iserlohn, 25.07.2022

Matthias Platte (Geschäftsführer / *Managing Director*)

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Declaration of Conformity

The manufacturer

ecom GmbH
Am Großen Teich 2
D-58640 Iserlohn, Germany

UK
CA

hereby declares under its sole responsibility, that the products

Pressure measurement devices

Type: **ecom-UNO**

    ecom-DP

    ecom-DP Engine

    ecom-DP3

are in conformity with the relevant statutory requirements of the following enactments:

Electromagnetic Compatibility Regulations 2016
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
Regulations 2012 (RoHS)

The following designated standards were used:

EN 61000-6-2:2005/AC:2005	EMC – Immunity for industrial environments
EN 61000-6-3:2007/A1:2011	EMC - Emission standard for residential, commercial and light industrial environments
EN IEC 63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Iserlohn, 12.10.2022

Matthias Platte (Geschäftsführer / *Managing Director*)
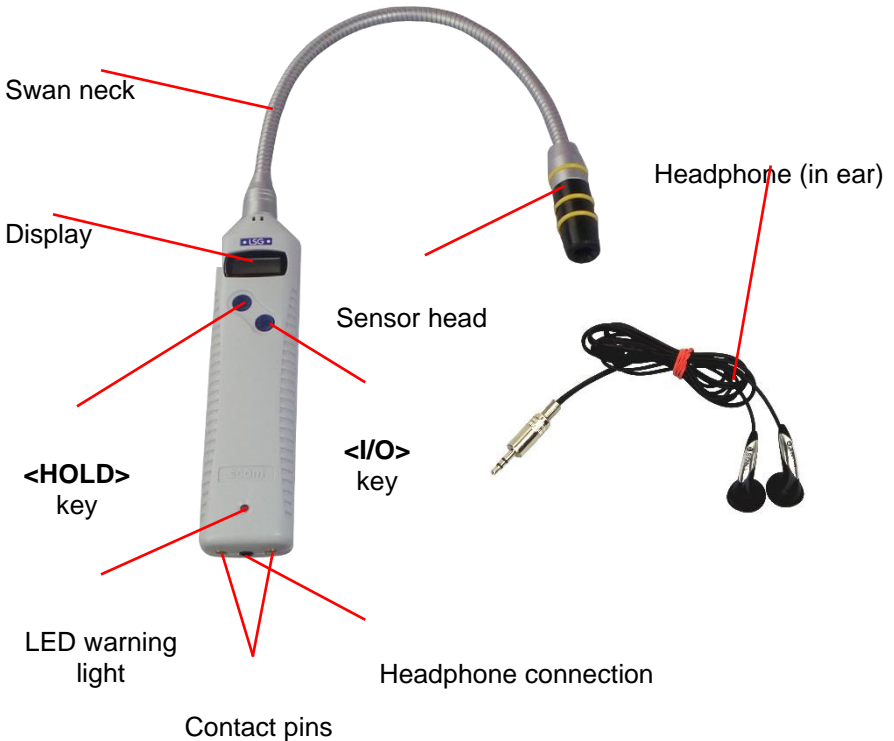
14. Application ecom-LSG

The gas leak detection head **ecom-LSG** is engineered for the quick and reliable detection of untight gas installations. Reverse to leak detection sprays which can rise and re-seal e.g. hemp sealings, the leakage detection with the **ecom-LSG** is made easy and without problems.

The unit shows existing gas concentration on the display and warns with optical and acoustical signals. The sensor sensibility can be adjusted, so that even small leakages can be traced. The robust sensor head is connected with a flexible swan-neck, so that also hardly accessible system parts can be reached.

> ⚠ **Please respect the legal safety instructions by works at gas pipes!**

15. Instrument Design ecom-LSG

Swan neck

Headphone (in ear)

Display

Sensor head

<HOLD> key

<I/O> key

LED warning light

Headphone connection

Contact pins

16. Power supply

The **ecom-LSG** is delivered with two batteries 1,5 V AAA (Micro). Alternatively the following battery types can be used:

    1,2 V AAA NiCd (Nickel-Cadmium)
or 1,2 V AAA NiMh (Nickel-Metal-Hydride)

Low batteries are indicated by a grey battery symbol at the left side of the display (capacity for approx. 1 h). If the voltage further sinks, the battery symbol will turn to black and the **ecom-LSG** will switch off automatically.

For recharging the batteries you can use the charging station (option).

17. Battery Change

Open the battery compartment located on the back of the instrument and exchange the batteries (respect polarity). Always dispose of used batteries in official recycling containers only (e.g. in battery shops).

18. Operation ecom-LSG

Switch on the **ecom-LSG** in **gas-free** air. Hereto press the **<I/O>** key until a beep is given. The instrument starts a warm-up phase during which the sensor is set to operation temperature (running bar graph on display). After warm-up phase the operability is signalized with 3 beeps and display shows the current gas concentration as bar graph:

-no gas concentration = 1 line
-gas concentration > 0,5 % = 14 lines
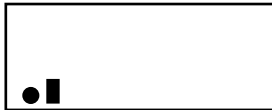
If necessary (strong ambient noise) the headphones (in ear) can be connected to ecom-LSG (headphone connection). Please use only the supplied headphones from ecom.

19. Leak Detection

Sweep the sensor head slowly along the gas installation to be checked. As soon as the unit nears a leakage, the display indication reacts and, by exceeding the first threshold (2 lines in display), the red LED blinks.

The blinking red LED together with an acoustical signal (can be switched off) shows an increased concentration of gaseous hydrocarbons. Parallel to the increasing concentration, the signal tone is getting more intensive and the red LED blinks in shorter intervals, so that a leakage can be accurately localized.

The largest concentration registered so far is displayed with a grey bar (dragging announcement). The sensitivity of the sensor (middle sensitivity after switching on) can be adjusted in 3 steps (see Adjustments).

20. Zero Point

Indication drifts from the zero point can be corrected while pressing the **<HOLD>** key (dragging announcement gets erased). pressed longer than 2 seconds. The change of the zero point is indicated by flashing of the first bar. If the **<HOLD>** key is kept pressed longer than 2 seconds, the original zero point gets back (no flashing of the first bar).

21. Adjustments ecom-LSG

If the **<I/O>** key is pressed, first the sensitivity step can be selected with the **<HOLD>** key (small bars = low sensitivity; middle bars = middle sensitivity; large bars = high sensitivity). After repeated pressing of the **<I/O>** key, the battery capacity is indicated. If only 4 bars (grey) are indicated, the capacity is still sufficient for approx. 1 hour. With the help of the **<HOLD>** key the following adjustments can be selected :
- without lighting/without acoustic signal
- with lighting/without acoustic signal
- without lighting/with acoustic signal
- with lighting/with acoustic signal
With the **<I/O>** key the selected adjustment is taken over and the adjustment menu is left.

22. Switch off

Keep the **<I/O>** key pressed until all bars in display are gone.

23. Function control ecom-LSG

Unscrew the cover cap of the testing bottle and hold the sensor head over the opened bottle (see illustration). If the sensor is correct, the bar line display shows a clear reaction. The sensor can be changed at **switched off** instrument (unscrew sensor head - replace sensor element with a new sensor element - mount sensor head).

24. Technical data ecom-LSG

Indication range: up to 0,5 % CH4
Reaction time: < 2 seconds
Indication: Bar diagram;
        Display size approx. 20 x 7 mm
        1 bar = no concentration
        14 bar = max. concentration

⚠	**The ecom-LSG serves for seeking out leakages! Accurate concentration measurements are not possible!**

Power supply:
Batteries 2 x 1,5 V AAA (micro) or
Batteries 2 x 1,2 V AAA NiCd (Nickel-Cadmium) or
Batteries 2 x 1,2 V AAA NiMh (Nickel-Metallhydride)

Warm-up time: approx. 180 sec.
Operation temperature: - 5 to 40 °C
Storage temperature: - 25 to 40 °C
Operation moisture: 20 to 80 % rF

⚠	**Changes in air humidity cause indicator falsifications!**

Dimensions:
   - Housing: 155 x 35 x 22 mm
   - Swan-neck: 355 mm long
Weight: approx. 200 g

Subject to technical changes
01.2023

25. Maintenance tip ecom-LSG

To secure the accuracy of your measuring instrument we recommend the annual check by an authorized ecom partner. In the case of strong demand (e.g. permanent several hours of measurement per day, rough conditions etc.) shorter intervals between checks should be selected - please contact your ecom partner. All ecom partners are listed under www.ecom.de.

ECOM®

EG-Konformitätserklärung | EC Declaration of Conformity

Hiermit erklärt der Hersteller
The manufacturer

CE

ecom GmbH
Am Großen Teich 2
D-58640 Iserlohn, Germany

in alleiniger Verantwortung für die Ausstellung dieser Erklärung, dass die nachfolgend aufgeführten Produkte:
hereby declares under its sole responsibility, that the products

Lecksuche / leak detection

Type: ecom-LSG

allen einschlägigen Bestimmungen der folgenden EU-Richtlinien entsprechen:
comply with the following European Directives:

2014/30/EU	**EMV-Richtlinie / *EMC Directive***
2011/65/EU	**RoHS**

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Iserlohn, 25.07.2022

Matthias Platte (Geschäftsführer / *Managing Director*)

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ECOM®

Declaration of Conformity

The manufacturer

ecom GmbH
Am Großen Teich 2
D-58640 Iserlohn, Germany

UK
CA

hereby declares under its sole responsibility, that the products

Leak detection

Type: ecom-LSG

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Iserlohn, 12.10.2022

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