



## LD 500/510 leak detector with camera – indicates leakage rate in l/min and costs in €



Find out your leak rate (l/min) and potential saving (€/year)



Find the smallest leaks in far distance



Auto level: adapts the sensitivity automatically to the environment and eliminates the ambient noise reliably



Photograph leaking parts



Describe the leak and necessary actions



Transmit the leak details via USB to your desktop software



Create an ISO 50001 report



Seek the leak the whole day (9 hours)

| pressure | costs per year            |        |         |         |         |         |
|----------|---------------------------|--------|---------|---------|---------|---------|
|          | Leak size - Diameter (mm) |        |         |         |         |         |
|          | 0,5 mm                    | 1,0 mm | 1,5 mm  | 2,0 mm  | 2,5 mm  | 3,0 mm  |
| 3 bar    | 90 €                      | 361 €  | 812 €   | 1.444 € | 2.256 € | 3.248 € |
| 4 bar    | 113 €                     | 451 €  | 1.015 € | 1.805 € | 2.820 € | 4.061 € |
| 5 bar    | 135 €                     | 541 €  | 1.218 € | 2.166 € | 3.384 € | 4.873 € |
| 6 bar    | 158 €                     | 632 €  | 1.421 € | 2.527 € | 3.948 € | 5.685 € |
| 7 bar    | 180 €                     | 722 €  | 1.624 € | 2.888 € | 4.512 € | 6.497 € |
| 8 bar    | 203 €                     | 812 €  | 1.827 € | 3.248 € | 5.076 € | 7.309 € |

Table: Leakage costs within one year in case of operation 24 h/365 days, calculated with compressed air costs of 1.9 ct/Nm³.



# Leakage

## LD 500/510 is a consistent advancement

The new leak meters LD 500/510 with integrated camera and leakage calculation are ideal measuring instruments which help to find and document even smallest leakages (0.1 l/min corresponds to approx. 1 € per year) easily even in far distances.

LD 510 is the worldwide first leak meter with an additional freely assignable sensor input for all CS sensors. In addition to the leakage measurement and detection also all necessary measurements with regards to dew point, flow, pressure, and temperature ... can be carried out.



### Leak detection at:

- Compressed air, gas, steam and vacuum systems
- Steam Traps
- Seals
- Refrigeration systems



The noise-proof headset enables the leak detection also in EXTREMELY loud ambient. The ambient noise will be faded out, the leakage (inaudible ultrasonic sound) will be transformed to an audible signal. The laser grants an exact locating.

## Accessories



### Acoustic trumpet

bundles the acoustic waves of smallest leakages, disturbing ambient noise will be eliminated



### Focus tube with focus tip

for precise locating of smallest leakages in narrow areas



### Optionally available:

Gooseneck enables a positioning of the leakage on the spot – even in case of hardly accessible locations.



Leakage files stored in LD 500 are exported to a USB stick for issuing a report by software

If the leakage is found and stored the following data are also stored in the LD 500 and will be available after the export in the CS Leak Reporter software for issuing a report:

- Photo of the leakage point
- Date / time
- Company name / department / machine
- Size of the leakage in liters/min (unit selectable)
- Costs of the leakage per year in € (currency selectable)

Detailed reports can be issued via PC software, which can be placed at the disposal of the operators of compressed air systems resp. the head of the respective department.

The report can be issued for the whole company or for each department and it documents the detected leakages easily and clearly. Due to the summation at the end of the report it is easy to get an overview on the whole leakage amount in liters/min as well as the total leakage costs per year.

Leak Tags in hardcopies for documentation on-site

## Leakage - report for ISO 50001 Audits

| Photo        | Leak | Location   | Loss (l/min) | costs per year (Euro) | CO2 equivalent kg/year | ToDo                    | Status                                                                       |
|--------------|------|------------|--------------|-----------------------|------------------------|-------------------------|------------------------------------------------------------------------------|
|              | 26   | shph08     | 10.9         | 114                   | 600                    | Change connector        | <div>Done</div> <div>Date: 17.11.2017</div> <div>Durch: Max Mustermann</div> |
|              | 27   | CO2 system | 4.1          | 41                    | 230                    | Change pressure reducer | <div>Open</div>                                                              |
| <b>Total</b> |      |            | <b>15</b>    | <b>157</b>            |                        |                         |                                                                              |



By means of the History Report the continuous improvements which have been reached during several months/years due to consequent leakage detection and leakage elimination can be documented.



| Description                                                                                                                                                                                                                | Order no.        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Set LD 500</b><br><b>consisting of:</b>                                                                                                                                                                                 | <b>0601 0105</b> |
| LD 500 leak detector with acoustic trumpet, and integrated camera, 100 leak tags for marking the leakages on site                                                                                                          | 0560 0105        |
| Transportation case                                                                                                                                                                                                        | 0554 0106        |
| Sound-proof headset                                                                                                                                                                                                        | 0554 0104        |
| Focus tube with focus tip                                                                                                                                                                                                  | 0530 0104        |
| AC adapter plug                                                                                                                                                                                                            | 0554 0009        |
| Helix cable for connecting the ultrasonic sound sensor                                                                                                                                                                     | 020001402        |
| <b>Set LD 510</b><br><b>consisting of:</b>                                                                                                                                                                                 | <b>0601 0106</b> |
| LD 510 leak detector incl. acoustic trumpet, with integrated camera and additional input for external sensors, 100 leak tags for marking the leakages on site                                                              | 0560 0106        |
| Transportation case                                                                                                                                                                                                        | 0554 0106        |
| Sound-proof headset                                                                                                                                                                                                        | 0554 0104        |
| Focus tube with focus tip                                                                                                                                                                                                  | 0530 0104        |
| AC adapter plug                                                                                                                                                                                                            | 0554 0009        |
| Helix cable for connecting the ultrasonic sound sensor                                                                                                                                                                     | 020001402        |
| <b>Equipment:</b>                                                                                                                                                                                                          |                  |
| CS Leak Reporter – for detailed ISO 50001 reports.<br>Gives an illustrated survey of the found leakages and their possible savings.<br>Measures for elimination including status display can be defined for every leakage. | 0554 0105        |
| Gooseneck for leakage detection at sites which are difficult to access                                                                                                                                                     | 0530 0105        |
| Parabolic mirror for leak detection at long distances                                                                                                                                                                      | 0530 0106        |
| Ultrasonic tone generator for leak testing                                                                                                                                                                                 | 0554 0103        |
| 500 leak tags for marking the leakages on site                                                                                                                                                                             | 0530 0107        |
| <b>Calibration:</b>                                                                                                                                                                                                        |                  |
| Recalibration LD 500/LD510 inclusive certificate                                                                                                                                                                           | 0560 3333        |
| <b>Further sensors / accessories for connection to LD 510:</b>                                                                                                                                                             |                  |
| FA 510 dew point sensor for mobile devices, -80...+20°Ctd, incl. mobile measuring chamber, 5m connection cable and perforated protection cap                                                                               | 0699 1510        |
| Flow sensor VA 500, Max version (185 m/s) sensor length 220 mm, incl. 5 m connection cable                                                                                                                                 | 0695 1124        |
| Standard pressure sensor CS 16, 0...16 bar, ± 1 % accuracy of f. s                                                                                                                                                         | 0694 1886        |
| Differential pressure sensor 1.6 bar diff.                                                                                                                                                                                 | 0694 3561        |
| Connection cable for pressure, temperature or external sensors on mobile instruments, ODU / open ends, 5 m                                                                                                                 | 0553 0501        |
| CS Basic 2018 - data evaluation in graphic and table form - reading out of the measured data via USB Stick or Ethernet. License for 2 computers                                                                            | 0554 8040        |

## Technical data LD 500/510

|                             |                                                                                                   |
|-----------------------------|---------------------------------------------------------------------------------------------------|
| <b>Working frequency:</b>   | 40 kHz ± 2 kHz                                                                                    |
| <b>Connections:</b>         | 3.5 mm stereo jack for headset<br>Power supply socket for connecting an external recharger        |
| <b>Laser:</b>               | Wave length: 645...660 nm<br>Output power: < 1 mW (laser class 2)                                 |
| <b>Display:</b>             | 3,5" Touch screen                                                                                 |
| <b>Interface:</b>           | USB interface                                                                                     |
| <b>Data logger</b>          | 2 GB SD memory card (100 million values)                                                          |
| <b>Power supply:</b>        | Internal rechargeable Li-Ion batteries approx. 9 h continuous operation, 4 h charging time        |
| <b>Ambient temperature:</b> | 0...+50°C                                                                                         |
| <b>EMG:</b>                 | DIN EN 61326                                                                                      |
| <b>Auto level:</b>          | Adapts the sensitivity automatically to the environment and eliminates the ambient noise reliably |
| <b>Sensitivity:</b>         | min: 0.1 l/min at 6 bar, 5 m distance, approx. 1€/year compressed air costs                       |

## Technical data external sensor input (only LD 510)

|                         |                                                                                |
|-------------------------|--------------------------------------------------------------------------------|
| <b>Measuring range:</b> | Please see external CS sensors                                                 |
| <b>Accuracy:</b>        | Please see external CS sensors                                                 |
| <b>Voltage supply:</b>  | Output voltage: 24 VDC ± 10%<br>Output current: 120 mA in continuous operation |