

UltraCam LD 500/510 – Visualises the leaks directly in the image



Enormous time saving compared to classic leak detectors



30 MEMS microphones create the image of the leaks



Brightness sensor activates LEDs in dark surroundings



Available as an upgrade for LD 500/510



NEW: Multi-user capable through cloud solution



NEW: Unique laser distance measurement for automatic cost determination



Find out your leakage rate (l/min or cfm) and potential savings (€/year). Currency can be set as required



Photograph leaking parts



Paperless documentation. Enter everything into the device on site: Define the leakage location as well as the remedial measures and spare parts required



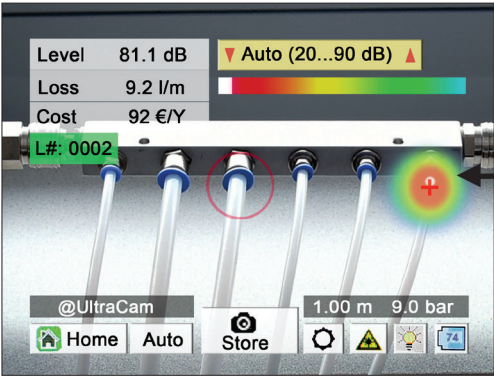
Create a report in accordance with ISO 50001



Fatigue-free work – ergonomic, one-hand operation – low weight



Display and function in detail



The UltraCam LD 500/510 uses 30 MEMS microphones to calculate and visualise the ultrasound image. In addition, the device makes inaudible ultrasound audible

Advantage over the **classic leak detectors**:

Visual representation of the leakage in the live image, even in noisy environments during production

To **determine the leakage rate**, the user aims the laser directly at the leakage. Leakage, laser and red circle must be on top of each other in the image. Then, the **leakage rate in l/min or cfm** and the **costs in €/year** are determined exactly. The distance is measured automatically.



| DESCRIPTION | ORDER NO. |
|--|-----------|
| Set UltraCam with leak detector LD 500: | 0601 0205 |
| LD 500 leak detector with UltraCam, integrated camera, 30 ultrasonic microphones for visualisation of the leakage on the screen, incl. 100 leak tags | 0560 0205 |
| Transport case | 0554 0106 |
| Sound-proof headset | 0554 0104 |
| Focus tube with focus tip | 0530 0104 |
| AC adapter plug | 0554 0009 |
| Spiral cable for connecting the ultrasonic sensor, length 2m (extended) | 020001402 |
| Holster with shoulder strap for LD 500/510 | 020001795 |



| DESCRIPTION | ORDER NO. |
|--|-----------|
| Set UltraCam with leak detector LD 510: | 0601 0206 |
| LD 510 leak detector with UltraCam, integrated camera, 30 ultrasonic microphones for visualisation of the leakage on the screen, incl. 100 leak tags | 0560 0206 |
| Transport case | 0554 0106 |
| Sound-proof headset | 0554 0104 |
| Focus tube with focus tip | 0530 0104 |
| AC adapter plug | 0554 0009 |
| Spiral cable for connecting the ultrasonic sensor, length 2m (extended) | 020001402 |
| Holster with shoulder strap for LD 500/510 | 020001795 |

Reporting software see page 137
For further accessories, refer to pages 138-139

LD 500/510 – Leak detector with camera - Shows leakage rate in l/min and cost in €



The LD 500 meets the requirements of class I instruments for the "Standard Test Method for Leaks Using Ultrasonic" (ASTM Int. – E1002-05)



NEW:

Multi-user capable through cloud solution



NEW:

Unique laser distance measurement for automatic cost determination



Find out your leakage rate (l/min or cfm) and potential savings (€/year). Currency can be set as required



Find the smallest leaks at large distances



NEW:

Automatic sensor detection



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



Photograph leaking parts



Paperless documentation. Enter everything into the device on site: Define the leakage location as well as the remedial measures and spare parts required



Transmit the leakage data via USB to your desktop software



Create a report in accordance with ISO 50001



9 hours of continuous operation possible



Fatigue-free work – ergonomic, one-hand operation – low weight

FINDING LEAKS PAYS OFF:

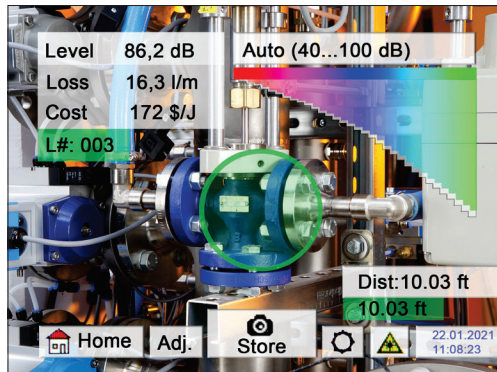
Sample calculation for a medium-sized company:

Approx. 25% of compressed air is lost due to leaks
Installed compressor capacity 150 kW(el) x 6000 OpHrs x € 0.24 /kWh
Annual electricity costs: **€ 216.000**

25% leakage cost: 54.000 € per year!



Display and function in detail



Search for leaks

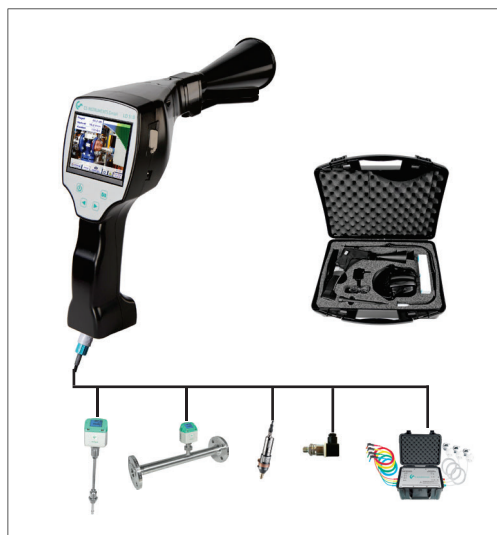
The ultrasound, which is inaudible to the human ear, is made audible via headphones. Loud ambient noises are faded out.

The device indicates the leakage rate in (l/min or cfm) and the savings potential in (€ /year) on the display. Currency can be set as required. This data is saved together with the photo.

With the LD 500/510, the smallest leaks, even over long distances (0.1 l/min corresponds to approx. 1 € p.a.) can also be tracked and documented.

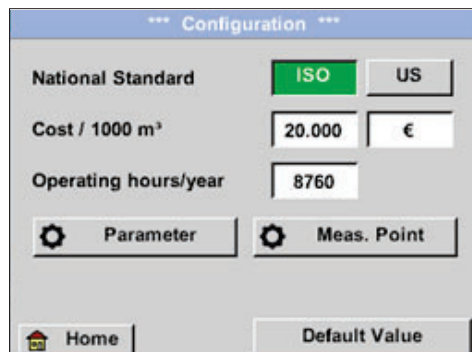


| DESCRIPTION | ORDER NO. |
|---|-----------|
| LD 500 set consisting of: | 0601 0105 |
| LD 500 leak detector with acoustic trumpet and integrated camera, 100 leak tags for marking the leaks on site | 0560 0105 |
| NEW: Integrated laser distance measurement | Z554 5000 |
| Transport case | 0554 0106 |
| Sound-proof headset | 0554 0104 |
| Focus tube with focus tip | 0530 0104 |
| AC adapter plug | 0554 0009 |
| Spiral cable for connecting the ultrasonic sensor, length 2m (extended) | 020001402 |
| Holster with shoulder strap for LD 500/510 | 020001795 |



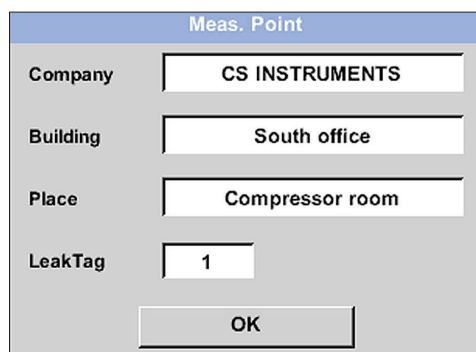
| DESCRIPTION | ORDER NO. |
|--|-----------|
| LD 510 set consisting of: | 0601 0106 |
| LD 510 leak detector incl. acoustic trumpet, with integrated camera and additional input for external sensors, 100 leak tags for marking the leaks on site | 0560 0106 |
| NEW: Integrated laser distance measurement | Z554 5000 |
| Transport case | 0554 0106 |
| Sound-proof headset | 0554 0104 |
| Focus tube with focus tip | 0530 0104 |
| AC adapter plug | 0554 0009 |
| Spiral cable for connecting the ultrasonic sensor, length 2m (extended) | 020001402 |
| Holster with shoulder strap for LD 500/510 | 020001795 |

Easy documentation in the LD 500 / UltraCam LD 500 directly on site



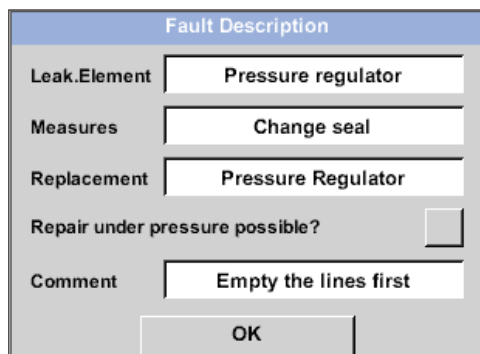
Entering the compressed air costs in the unit

Depending on the electricity costs, the costs per 1000 m³ (or per 1000 cf) can be freely entered in any currency



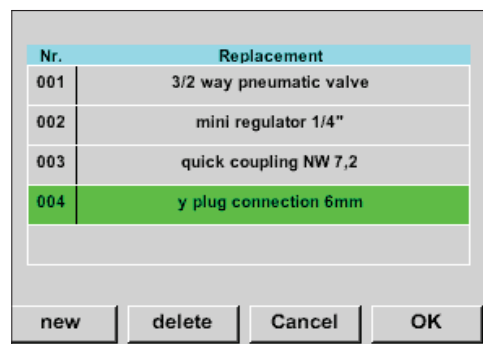
Define the location

The location of each leak can be stored:
Company / building / location



Remedy the leak

Efficiency and clarity also for elimination of leaks. Definition of the necessary spare parts and maintenance work already on site.



| Nr. | Replacement |
|-----|-------------------------|
| 001 | 3/2 way pneumatic valve |
| 002 | mini regulator 1/4" |
| 003 | quick coupling NW 7,2 |
| 004 | y plug connection 6mm |

Spare parts list in the device

The software can be used to transfer a custom spare parts list to the device. The device offers an intelligent search function with auto-complete feature. The list with the required spare parts can be exported from the CS Leak Reporter software.

Use the reporting software to quickly and efficiently produce an ISO 50001 report



CS Leak Reporter – cloud solution



Ideal for leak detection service providers and for companies/ major corporations with multiple locations.

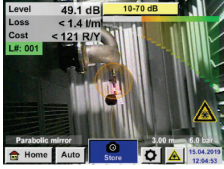
- Each “user” in the leakage search team can be assigned a role (e.g. leakage search, leakage repair, monitoring, checking for success)
- Access rights to individual or all projects can be assigned individually to each user
- The browser-based software ensures a common database in real time and paperless documentation



CS Leak Reporter – PC solution

Creates detailed ISO 50001 reports. Provides an illustrated overview of the leaks found and their savings potential. Measures for elimination, including status display, can be defined for every leak – license for two computers

| Leakage Report | Start: 15/04/2019 | End: 25/04/2019 | Duration: 10 day(s) |
|--|-------------------|-----------------|---------------------|
| <div> <div> Contact details: Company: Address: E-mail: Phone: Logo: </div> <div> Customer: Acme ... johnacme@sample.com ...  </div> <div> Auditor: John Sample 1 Sample St., 12345 Sampletown j.sample@acme.com +49 1234 567890  </div> </div> | | | |
| <div> <div> Project master data: Import date: Cost calculation basis: Compressed air costs: Operating hours per year: </div> <div> Energy costs (70%) 21.6 €/1000 m³ 4350 h </div> <div> CO₂ emissions: 0.527 kg/kWh Specific output: 0.12 kWh/m³ Electricity price: 0.18 €/kWh </div> </div> | | | |
| <div> <div> Results: Number of leaks: Total leakage amount: Total costs per year: Total CO₂ per year: </div> <div> 141 718.126 ltr/min 4.048.49 € 11.91 tonnes </div> <div> Improvements: Number remedied: Leakage amount saved: Costs saved per year: CO₂ saved per year: </div> <div> 1 3.468 ltr/min 19.55 € 0.06 tonnes </div> </div> | | | |

| | | | |
|--|--------------------|--|--|
|  | Leak tag: 1 | Building – location: COMPRESSOR ROOM 1 Date and time: 15/04/2019 12:06:03 Leakage rate: < 1.395 ltr/min Costs per year: < 7.86 € Total CO₂ per year: 0.02 tonnes Priority: Low Comment: Replace ball valve | Repair under pressure possible? - No Error: Ball valve defective Spare part: 1/2" ball valve Action: Replace Note: - Status: Open Remedied on: - Remedied by: - |
| | Leak tag: 2 | Building – location: Date and time: 15/04/2019 12:08:19 Leakage rate: 2.519 ltr/min Costs per year: 14.2 € Total CO₂ per year: 0.04 tonnes Priority: High Comment: Reestablish flange seal | Repair under pressure possible? - No Error: Flange leaking Spare part: DN 100 flange seal Action: Reestablish seal Note: - Status: Done Remedied on: 16/04/2019 Remedied by: AM |

Accessories included in the set:



Headset

The noise-proof headset enables leak detection even in an extremely loud environment. The ambient noise is faded out, and the leakage (inaudible ultrasonic sound) is transformed into an audible signal



Holster with shoulder strap

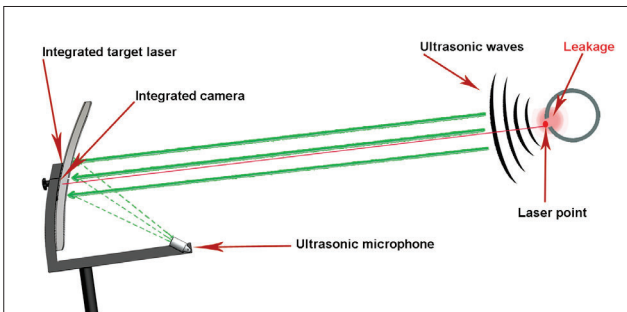
For the LD 500/510, enables ergonomic and safe work



Focus tube with focus tip

For pinpoint detection of the smallest leaks in confined spaces

Professional accessory – parabolic mirror



By focusing the ultrasonic waves in the parabolic mirror, even the smallest leaks of 0.8 l/min (approx. € 8 p.a.) can be located with pinpoint precision (± 15 cm) at a distance of up to 10 to 15 m.

The shape of the parabolic mirror ensures that only ultrasonic waves of the targeted leak are evaluated. Background noise is reduced to a minimum.

Accessories



DESCRIPTION

Gooseneck for leak detection at sites which are difficult to access (length 600 mm)

ORDER NO.

0530 0105

Gooseneck for leak detection at sites which are difficult to access (length 1500 mm)

0530 0108

Gooseneck High Sensitivity for leak detection on vacuum systems and for leak testing (length: 600 mm)

0530 0110



DESCRIPTION

Parabolic mirror with laser distance measurement for leak detection in long distances, incl. transport case

ORDER NO.

0530 0206

Parabolic mirror for leak detection at long distances, incl. transport case

0530 0106



DESCRIPTION

Ultrasonic tone generator for leak testing. A handy ultrasonic tone generator is available for detecting leaks in systems that are not under pressure. The transmitter is positioned so that the sound can enter the pipe system. The ultrasonic signal penetrates the smallest openings, which can then be detected with the LD 500

ORDER NO.

0554 0103

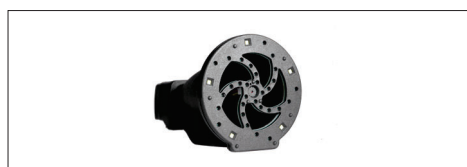


DESCRIPTION

500 leak tags for marking the leaks on site

ORDER NO.

0530 0107



DESCRIPTION

UltraCam – funnel with integrated camera, 30 ultrasonic microphones for visualisation of leakages – for retrofitting to existing LD 500 / LD 510

ORDER NO.

Z554 5500

Software



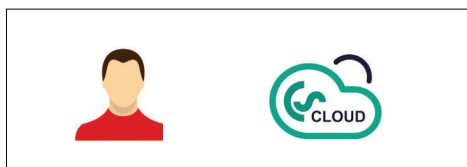
| DESCRIPTION | ORDER NO. |
|--|-----------|
| CS Leak Reporter V2 Creates detailed ISO 50001 reports. Provides an illustrated overview of the leaks found and their savings potential. Measures for elimination, including status display, can be defined for every leak – license for two computers New functions: <ul style="list-style-type: none"> - Simple spare parts management - Histogram functions for documenting continuous improvement in accordance with ISO 50001 on the company or building level | 0554 0205 |



| DESCRIPTION | ORDER NO. |
|---|-------------|
| CS Leak Reporter V2 – additional licence for one computer | Z554 0205CS |

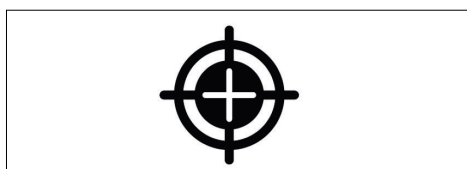


| DESCRIPTION | ORDER NO. |
|---|-----------|
| CS Leak Reporter – cloud solution Basic package: Browser-based access to the CS Cloud. Advantages: <ul style="list-style-type: none"> - Common database of all users in real time. - Cross-location work in a team - Paperless documentation. - Unlimited number of guest logins (read-only rights) can be set up. Only available in combination with at least one CS Cloud (0554 0306) user licence. | 0554 0305 |



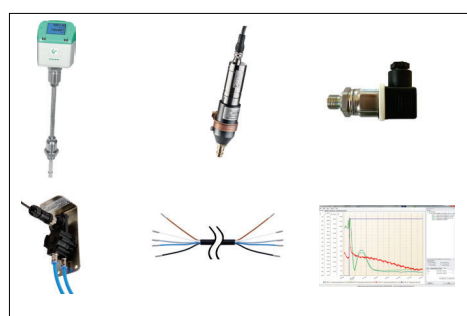
| DESCRIPTION | ORDER NO. |
|---|-----------|
| User licence – CS Cloud 1 user / 12 months for CS Leak Reporter Cloud solution use. | 0554 0306 |
| Term extension - 1 user / 12 months for CS Leak Reporter Cloud solution use. | 0554 0307 |

LD 500/510 calibration



| DESCRIPTION | ORDER NO. |
|--|-----------|
| LD 500/LD 510 re-calibration / UltraCam LD 500/510 | 0560 3333 |

Additional sensors / accessories for connection to LD 510



| DESCRIPTION | ORDER NO. |
|---|-----------|
| FA 510 dew point sensor for mobile devices, -80...+20 °Ctd incl. mobile measuring chamber, 5 m connection cable and perforated protection cap | 0699 1510 |
| VA 500 flow probe, max. version (185 m/s), probe length 220 mm, incl. 5 m connection cable | 0695 1124 |
| Standard pressure probe CS 16, 0...16 bar, ± 1% accuracy of f.s. | 0694 1886 |
| Differential pressure probe 1.6 bar diff. | 0694 3561 |
| Connection cable for pressure, temperature or external sensors on mobile instruments, 5 m | 0553 0501 |
| CS Basic – data evaluation in graphic and table form – readout of the measured data via USB or Ethernet. License for two workstations | 0554 8040 |

Calculation

| Costs per year | | | | | | |
|----------------|------------------------------|--------|---------|---------|---------|---------|
| Pressure | Size of leak – 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 in one year with 24-hour operation 365 days per year calculated with compressed air costs of 1.9 ct/Nm³.

TECHNICAL DATA OF THE LD 500 / LD 510

| | |
|--------------------------------|--|
| Operating frequency: | 40 kHz ± 2 kHz |
| Connections: | 3.5 mm stereo jack for headset, power supply socket for connecting an external charger |
| Laser: | Wavelength: 630...660 nm Output power: < 1 mW (laser class 2) |
| Display: | 3.5" touch screen |
| Interface: | USB interface |
| Data logger: | 16 GB SD memory card (100 million values) |
| Power supply: | Internal rechargeable Li-Ion batteries, approx. 9 h continuous operation (without UltraCam), 6 h continuous operation (with UltraCam) 4 h charging time |
| Operating temperature: | -5...+50 °C |
| EMC: | DIN EN 61326 |
| Auto level: | Automatically adapts the sensitivity to the environment and reliably eliminates ambient noise |
| Sensitivity: | min: 0.1 l/min at 6 bar, 5 m distance, approx. € 1/year of compressed air costs |
| Weight without headset: | 540 grams (without UltraCam), 698 grams (with UltraCam) |

TECHNICAL DATA OF EXTERNAL SENSOR INPUT (LD 510 ONLY)

| | |
|-------------------------|--|
| Measuring range: | See external CS sensors |
| Accuracy: | See external CS sensors |
| Power supply: | Output voltage: 24 VDC ± 10% Output current: 120 mA in continuous operation |