

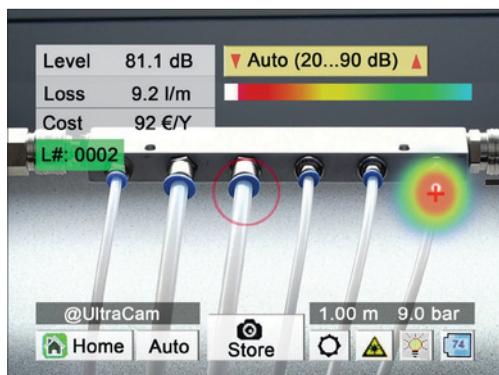


## UltraCam LD 500/510 – Visualises the leaks directly in the image



- 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 **distance** is measured automatically. are determined exactly.



### DESCRIPTION

#### Set UltraCam with leak detector LD 500:

LD 500 leak detector with UltraCam, integrated camera, 30 ultrasonic microphones for visualisation of the leakage on the screen, incl. 100 leak tags

	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

#### Set UltraCam with leak detector LD 510:

LD 510 leak detector with UltraCam, integrated camera, 30 ultrasonic microphones for visualisation of the leakage on the screen, incl. 100 leak tags

	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 €

**NEW:**

Multi-user capable through cloud solution

**NEW:**

Unique laser distance measurement for automatic cost determination

**NEW:**

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:

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:

**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.
<b>LD 500 set consisting of:</b> LD 500 leak detector with acoustic trumpet and integrated camera, 100 leak tags for marking the leaks on site	0601 0105 0560 0105
<b>NEW:</b> 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.
<b>LD 510 set consisting of:</b> 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	0601 0106 0560 0106
<b>NEW:</b> 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

\*\*\* Configuration \*\*\*

National Standard	ISO	US
Cost / 1000 m³	20.000	€
Operating hours/year	8760	
<input type="button" value="Parameter"/>		<input type="button" value="Meas. Point"/>
<input type="button" value="Home"/>	<input type="button" value="Default Value"/>	

## 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

Meas. Point

Company	CS INSTRUMENTS
Building	South office
Place	Compressor room
LeakTag	1
<input type="button" value="OK"/>	

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

Fault Description

Leak.Element	Pressure regulator
Measures	Change seal
Replacement	Pressure Regulator
Repair under pressure possible?	<input type="checkbox"/>
Comment	Empty the lines first
<input type="button" value="OK"/>	

## 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.



### 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 ISO50001 reports. Provides an illustrated overview of the leaks found and their savings potential. Measure every leak – license for two computers

Leakage Report	Start: 15/04/2019	End: 25/04/2019	
<b>Contact details:</b>	<b>Customer:</b>	<b>Auditor:</b>	
Company:	Acme	John Sample	
Address:	...	1 Sample St., 12345 Sampletown	
E-mail:	johnacme@sample.com	j.sample@acme.com	
Phone:	...	+49 1234 567890	
Logo:			
<b>Project master data:</b>			
Import date:		CO2 emissions:	0.527 kg/kWh
Cost calculation basis:	Energy costs (70%)	Specific output:	0.12 kWh/m <sup>3</sup>
Compressed air costs:	21.6 €/1000 m <sup>3</sup>	Electricity price:	0.18 €/kWh
Operating hours per year:	4350 h		
<b>Results:</b>		<b>Improvements:</b>	
Number of leaks:	141	Number remedied:	1
Total leakage amount:	718.126 ltr/min	Leakage amount saved:	3.468 ltr/min
Total costs per year:	4,048.49 €	Costs saved per year:	19.55 €
Total CO2 per year:	11.91 tonnes	CO2 saved per year:	0.06 tonnes

	<b>Leak tag:</b>	<b>1</b>	<b>Repair under pressure possible?</b> - No
	Building – location	COMPRESSOR ROOM 1	
	Date and time:	15/04/2019 12:06:03	<b>Error:</b> Ball valve defective
	Leakage rate:	< 1.395 ltr/min	
		< 7.86 €	<b>Spare part:</b> 1/2" ball valve
	Total CO <sub>2</sub>	0.02 tonnes	
		Low	<b>Action:</b> Replace
	Comment:	Replace ball valve	
	<b>Leak tag:</b>	<b>2</b>	<b>Note:</b> -
	Building – location		
	Date and time:	15/04/2019 12:08:19	<b>Status:</b> Open
	Leakage rate:	2.519 ltr/min	
		14.2 €	<b>Remedied on:</b> -
	Total CO <sub>2</sub>	0.04 tonnes	
		High	
	Comment:	Reestablish flange seal	
			<b>Remedied on:</b> 16/04/2019 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



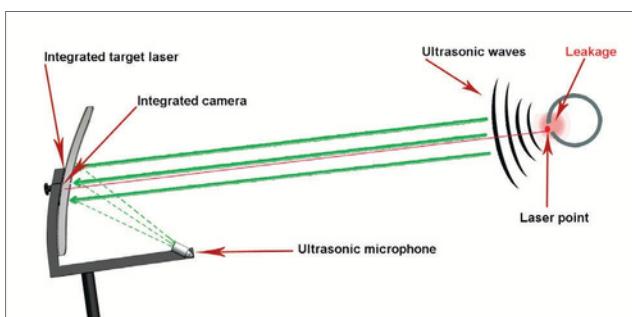
### Holster with shoulder strap

For the LD500/510, enables ergonomic and safe work



### Focus tube with focus tip

For pinpoint detection of the smallest leaks in confined spaces



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

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

(length 600mm)

### ORDER NO.

0530 0105

(length 1500mm)

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

### ORDER NO.

Z554 5500



## Software



### DESCRIPTION

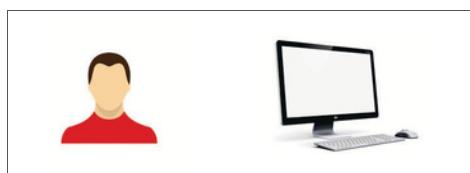
#### CS Leak Reporter V2

Creates detailed ISO50001 reports. Provides an illustrated overview of the leaks found and their savings potential. Measures for elimination, computers New functions: -Simple spare parts management -Histogram functions for documenting continuous improvement in

### ORDER NO.

0554 0205

accordance with ISO 50001 on the company or building level



### DESCRIPTION

#### CS Leak Reporter V2 – additional licence for one computer

### ORDER NO.

Z554 0205CS



### DESCRIPTION

#### CS Leak Reporter – cloud solution

Basic package:

Browser-based access to the CS Cloud.

Advantages:

- 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.

### ORDER NO.

0554 0305



### DESCRIPTION

#### User licence – CS Cloud

1 user / 12 months for CS Leak Reporter Cloud solution use.

Term extension - 1 user / 12 months for CS Leak Reporter Cloud solution use.

### ORDER NO.

0554 0306

0554 0307

## LD 500/510 calibration



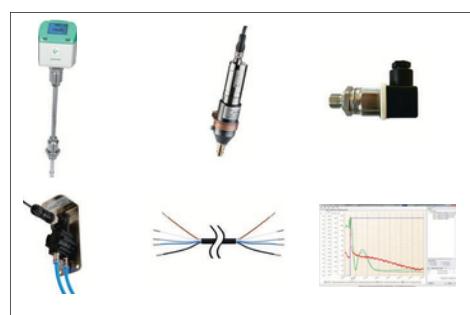
### DESCRIPTION

#### LD 500/LD 510 re-calibration / UltraCam LD 500/510

### ORDER NO.

0560 3333

## Additional sensors / accessories for connection to LD 510



### DESCRIPTION

FA 510 dew point sensor for mobile devices, -80...+20°Ctd incl. mobile measuring chamber, 5m connection cable and perforated protection cap

### ORDER NO.

0699 1510

5m connection cable

0695 1124

Standard pressure probe CS 16, 0...16bar,  $\pm 1\%$  accuracy of f.s.

0694 1886

Connection cable for pressure, temperature or external sensors on mobile instruments, 5 m

0694 3561

CS Basic – data evaluation in graphic and table form – readout of the measured data via USB or Ethernet. License for two workstations

0553 0501

0554 8040



## Calculation

Pressure						
	0.5 mm	1.0 mm	1.5 mm	2.0 mm	2.5 mm	3.0 mm
<b>3 bar</b>	€ 90	€ 361	€ 812	€ 1,444	€ 2,256	€ 3,248
<b>4 bar</b>	€ 113	451	€ 1,015	€ 1,805	€ 2,820	€ 4,061
<b>5 bar</b>	€ 135	541	€ 1,218	€ 2,166	€ 3,384	€ 4,873
<b>6 bar</b>	€ 158	632	€ 1,421	€ 2,527	€ 3,948	€ 5,685
<b>7 bar</b>	€ 180	722	€ 1,624	€ 2,888	€ 4,512	€ 6,497
<b>8 bar</b>	€ 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/Nm<sup>3</sup>.

### TECHNICAL DATA OF THE LD 500 / LD 510

<b>Connections:</b>	40 kHz ± 2 kHz
<b>Laser:</b>	3.5 mm stereo jack for headset, power supply socket for connecting an external charger
<b>Interface:</b>	Wavelength: 630...660 nm Output power: < 1 mW (laser class 2)
<b>Data logger:</b>	3.5" touch screen
<b>Operating temperature:</b>	USB interface
<b>EMC:</b>	16 GB SD memory card (100 million values)
<b>Auto level:</b>	Internal rechargeable Li-Ion batteries, approx. 9 h continuous operation (without UltraCam), 6 h continuous operation (with UltraCam)
<b>Weight without headset:</b>	4 h charging time -5...+50 °C DIN EN 61326
<b>Measuring range:</b>	540 grams (without UltraCam), 698 grams (with UltraCam)



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