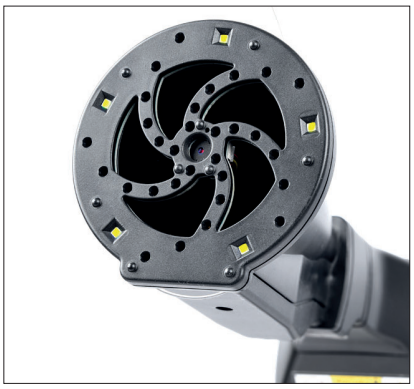
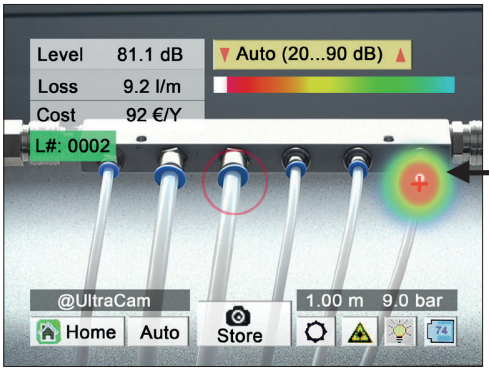
UltraCam LD 500 / LD 510 –
visualises the leaks directly in the image



- Significant time savings compared to traditional leak detectors
- 30 MEMS microphones generate an image of the leaks
- Brightness sensor activates LEDs in dark surroundings
- Upgradable from LD 500 / LD 510
- **NEW:** Multi-user capability with the 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
- Take pictures of the leaking parts
- Paperless documentation. Enter everything into the device on site: Define the leak's 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

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

Display and functionality



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

Advantage over **traditional leak detectors**:

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

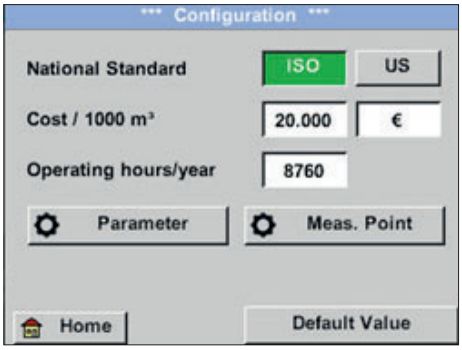
To **determine the leak rate**, the user aims the laser directly at the leakage. Leakage, laser and red circle must be on top of each other in the image. Then, the **leakage rate in l/min** or **CFM** and the **costs in € or $/year** are determined exactly. The distance is measured automatically.

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, 30 ultrasonic microphones for on screen leak visualisation, **additional logger input** for external sensors, 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

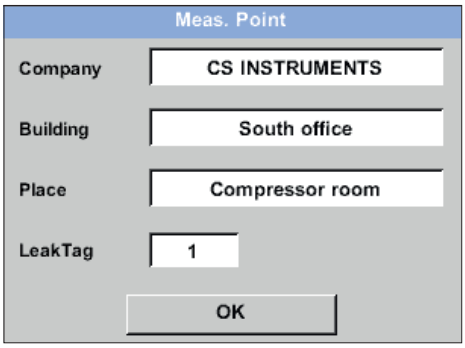
Reporting software see page 137
For further accessories, refer to pages 138-139

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



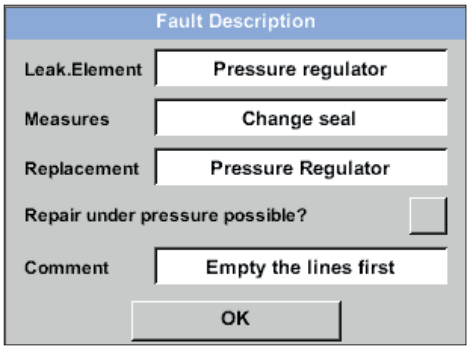
Entering the compressed air costs

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



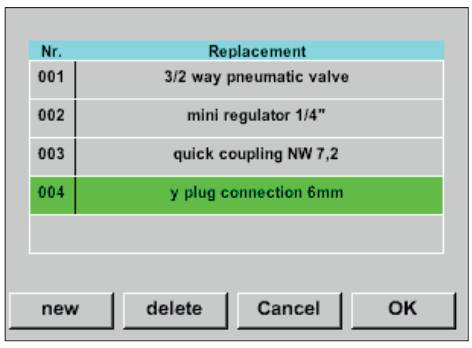
Define the location

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



Define leak repair

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



Custom spare parts list

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 CS Leak Reporter to quickly and efficiently produce an ISO 50001 report

CS Leak Reporter – cloud solution

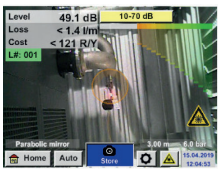
Ideal for leak detection service providers and for companies/large corporations with multiple locations. Web browser based with no software installation required. Create detailed ISO 50001 reports.

- Each user in the leak search team can be assigned a role (e.g. Leak search, maintenance, etc.). 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. No IT services required for approvals/installation

CS Leak Reporter – PC solution

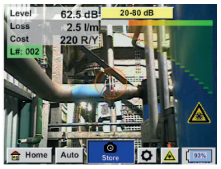
Creates detailed ISO 50001 reports. Provides an illustrated overview of the leaks found and their savings potential. Measures for elimination, including status display, can be defined for every leak. Includes 2 user licenses.

Leakage Report	Start: 15/04/2019	End: 25/04/2019	Duration: 10 day(s)
Contact details:	**Customer:**	**Auditor:**	
Company:	Acme	John Sample	
Address:	...	1 Sample St., 12345 Sampletown	
E-mail:	johnacme@sample.com	j.sample@acme.com	
Phone:	...	+49 1234 567890	
Logo:			
Project master data:			
Import date:		CO_2 emissions:	0.527 kg/kWh
Cost calculation basis:	Energy costs (70%)	Specific output:	0.12 kWh/m³
Compressed air costs:	21.6 €/1000 m³	Electricity price:	0.18 €/kWh
Operating hours per year:	4350 h		
Results:		**Improvements:**	
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 CO_2 per year:	11.91 tonnes	CO_2 saved per year:	0.06 tonnes



Leak tag: 1

Building – location	COMPRESSOR ROOM 1	**Repair under pressure possible? -** No
Date and time:	15/04/2019 12:06:03	**Error:** Ball valve defective
Leakage rate:	< 1.395 ltr/min	**Spare part:** 1/2" ball valve
Costs per year:	< 7.86 €	**Action:** Replace
Total CO_2 per year:	0.02 tonnes	**Note:** -
Priority:	Low	**Status:** Open
Comment:	Replace ball valve	**Remedied on:** - **Remedied by:** -



Leak tag: 2

Building – location		**Repair under pressure possible? -** No
Date and time:	15/04/2019 12:08:19	**Error:** Flange leaking
Leakage rate:	2.519 ltr/min	**Spare part:** DN 100 flange seal
Costs per year:	14.2 €	**Action:** Reestablish seal
Total CO_2 per year:	0.04 tonnes	**Note:** -
Priority:	High	**Status:** Done
Comment:	Reestablish flange seal	**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

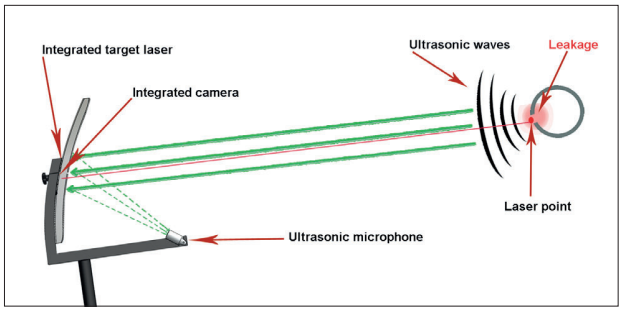
Focus tube with focus tip

For pinpoint detection of the smallest leaks in confined spaces

Holster with shoulder strap

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

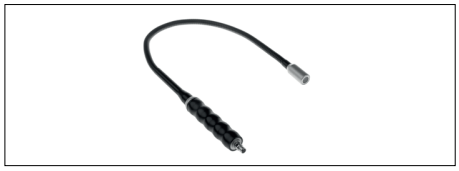
Parabolic Mirror with Camera and Laser



By focusing the ultrasonic waves in the parabolic mirror, even the smallest leaks of 0.8 l/min (approx. $8 annually) can be located with pinpoint precision (± 6 in.) at a distance of 32 to 50 ft.

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

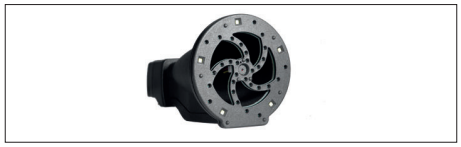


DESCRIPTION	ORDER NO.
Gooseneck for detecting leaks at hard-to-reach locations. (length 600 mm)	0530 0105
Gooseneck for detecting leaks at hard-to-reach locations. (length 1500 mm)	0530 0108
High sensitivity Gooseneck for leak detection on vacuum systems (length: 600 mm)	0530 0110

DESCRIPTION	ORDER NO.
Parabolic mirror **for leak detection with laser pointer and camera** for leak detection in long distances, incl. transport case	0530 0206
Parabolic mirror for leak detection at long distances, incl. transport case	0530 0106

DESCRIPTION	ORDER NO.
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	0554 0103

DESCRIPTION	ORDER NO.
500 leak tags for marking the leaks on site	0530 0107



DESCRIPTION	ORDER NO.
UltraCam – funnel with integrated camera, 30 ultrasonic microphones for visualisation of leakages – for retrofitting to existing LD 500 / LD 510	Z554 5500

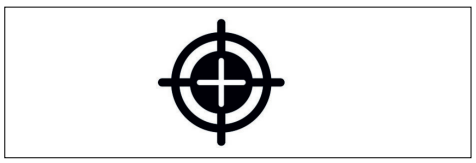
DESCRIPTION	ORDER NO.
CS Leak Reporter V2 Creates detailed ISO 50001 reports. Provides an illustrated overview of the leaks found and their savings potential. Measures for elimination, including status display, can be defined for every leak – license for two computers New functions: - Simple spare parts 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 – 1 additional user license	Z554 0205CS

DESCRIPTION	ORDER NO.
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. - 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

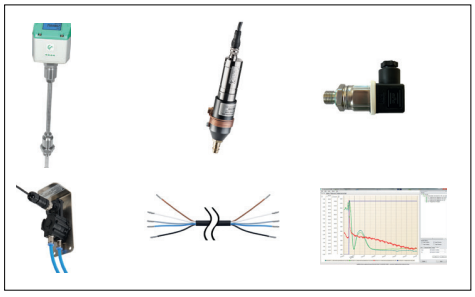
DESCRIPTION	ORDER NO.
User licence – CS Cloud 1 user / 12 months for CS Leak Reporter Cloud solution use.	0554 0306
Term extension - 1 user / 12 months for CS Leak Reporter Cloud solution use.	0554 0307

LD 500/510 calibration



DESCRIPTION	ORDER NO.
LD 500 / LD 510 recalibration	0560 3333

Additional sensors / accessories for connection to LD 510



DESCRIPTION	ORDER NO.
FA 510 dew point sensor for mobile devices, -112 to 68 °Ftd incl. mobile measuring chamber, 5 m connection cable and perforated protection cap	0699 1510
VA 500 flow probe, max. version (607 ft/s), probe length 220 mm (8.6 inches), incl. 16 ft connection cable	0695 1124
Standard pressure probe CS 16, 0…232 psi, ± 1% accuracy of f.s.	0694 1886
Differential pressure probe 23.2 psi diff.	0694 3561
Connection cable for pressure, temperature or external sensors on mobile instruments, 16 ft	0553 0501
CS Basic – data evaluation in graphic and table form – readout of the measured data via USB or Ethernet. Includes 2 user licenses.	0554 8040

Calculation

Supply Pressure psig	Cost of Air Leaks and Open Lines										
	Orifice Diameter in Inches										
	1/64	1/32	1/16	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1
	Leakage Rate in CFM at Supply Pressure										
70	0.30	1.20	4.80	19.19	76.76	172.71	307.04	479.75	690.83	940.30	1228.15
SCF/Year	157,165	628,659	2,514,637	10,058,546	40,234,194	90,526,937	160,936,776	251,463,713	362,107,746	492,868,877	643,747,104
kWh/Year	488	1,953	7,813	31,253	125,011	281,275	500,044	781,319	1,125,099	1,531,385	2,000,176
Cost	$59	$234	$938	$3,750	$15,001	$33,753	$60,005	$93,758	$135,012	$183,766	$240,021
80	0.34	1.34	5.36	21.46	85.82	193.10	343.29	536.39	772.40	1051.32	1373.15
SCF/Year	175,720	702,881	2,811,525	11,246,099	44,984,394	101,214,887	179,937,576	281,152,463	404,859,546	551,058,827	719,750,304
kWh/Year	546	2,184	8,736	34,943	139,770	314,483	559,081	873,564	1,257,932	1,712,186	2,236,324
Cost	$66	$262	$1,048	$4,193	$16,772	$37,738	$67,090	$104,828	$150,952	$205,462	$268,359
90	0.37	1.48	5.93	23.72	94.88	213.49	379.54	593.03	853.96	1162.33	1518.15
SCF/Year	194,276	77,103	3,108,412	12,433,649	49,734,594	111,902,837	198,983,376	310,841,213	447,611,346	609,248,777	795,753,504
kWh/Year	604	2,415	9,658	38,632	154,530	347,691	618,118	965,810	1,390,766	1,892,987	2,472,472
Cost	$72	$290	$1,159	$4,636	$18,544	$41,723	$74,174	$115,897	$166,892	$227,158	$296,697
100	0.41	1.62	6.50	25.99	103.95	233.88	415.79	649.67	935.52	1273.35	1663.15
SCF/Year	212,831	85,325	3,405,300	13,621,199	54,484,794	122,590,787	217,939,176	340,529,963	490,363,146	667,438,727	871,756,704
kWh/Year	661	2,645	10,581	42,322	169,289	380,900	677,155	1,058,055	1,523,599	2,073,788	2,708,621
Cost	$79	$317	$1,270	$5,079	$20,315	$45,708	$81,259	$126,967	$182,832	$248,855	$325,034
125	0.49	1.98	7.91	31.65	126.60	284.86	506.41	791.27	1139.43	1550.89	2025.65
SCF/Year	259,220	1,036,880	4,147,518	16,590,074	66,360,294	149,310,662	265,441,176	414,751,838	597,242,646	812,913,601	1,061,764,704
kWh/Year	805	3,222	12,887	51,547	206,187	463,921	824,748	1,288,669	1,855,683	2,525,790	3,298,991
Cost	$97	$387	$1,546	$6,186	$24,742	$55,670	$98,970	$154,640	$222,682	$303,095	$395,879
	Atmsphere 14.7	Cost/kWh $0.120	Hours/Day 24.0	Days/Week 7	Weeks/Year 52.0	hp / scfm 0.25					

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), 6h (with UltraCam), 4 h charging time
Operating temperature:	-41…+122°F
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:	1.19 lbs (without UltraCam), 1.54 lbs (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