

## 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



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 € 0.12/kWh  
 Annual electricity costs: **€ 180,000**

25% leakage cost: **27,000 €** per year!



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



### 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



### 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)
<b>Contact details:</b>			
Company:	Acme	Auditor:	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:		CO <sub>2</sub> 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>			
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 <sub>2</sub> per year:	11.91 tonnes	CO <sub>2</sub> saved per year:	0.06 tonnes

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

## Sensors:



### Acoustic trumpet

Focuses the sound waves of small leaks, thereby amplifying the audible noise. The laser enables precise detection. Integrated laser distance measurement



### Parabolic mirror

For leak detection at great distances. Laser pointer and camera integrated



### Focus tube with focus tip

For pinpoint detection of the smallest leaks in confined spaces



### Gooseneck

Enables pinpoint detection of the leak in places that are difficult to access. Background noise is faded out

## Accessories:



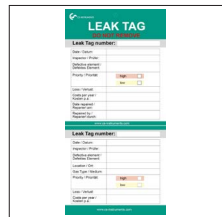
### Headset

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

Enables ergo-nomic and safe work



### Leak tags

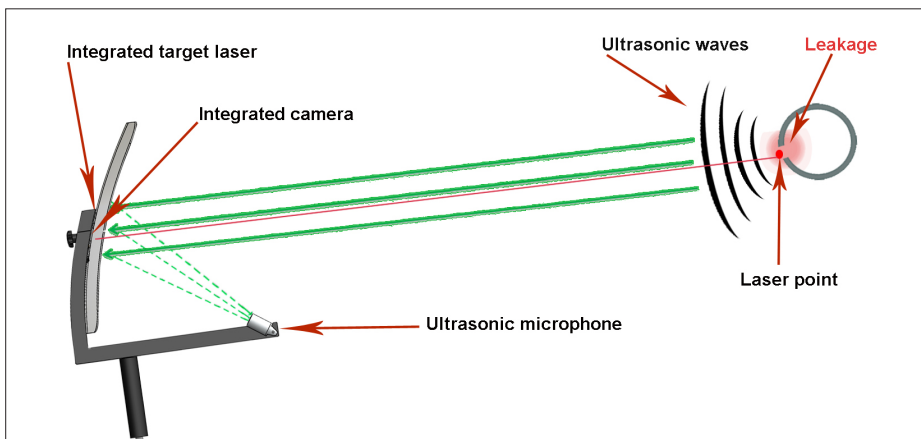
As hardcopies for documentation on site



### Ultrasonic tone generator

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 instrument

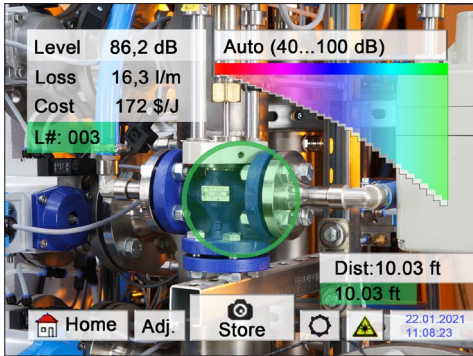
## Professional accessory – parabolic mirror



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 ( $\pm 15$  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.

## Easy documentation in the device directly on site



### Detect a leak

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.

**Meas. Point**

Company: CS INSTRUMENTS

Building: South office

Place: Compressor room

LeakTag: 1

OK

### Define the location

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?

Comment: Empty the lines first

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

new delete Cancel OK

### 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 Leak Reporter software.

The new leakage meters with integrated camera and leakage calculation are ideal measuring devices which help to easily find and document even the smallest leaks (0.1 l/min corresponds to approx. € 1 per year) even at great distances.

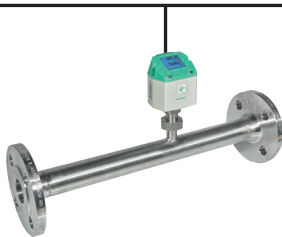


**Leak detection on:**

- Compressed air and pneumatic systems (up to 40 bar) and vacuum systems
- Technical gases such as nitrogen, oxygen, argon, ...
- Leak testing of containers (including unpressurised containers) using an ultrasonic transmitter



Flow meter



Flow meter



Dew point sensor



Pressure sensor



Current/effective power meters

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.



Transport case - instrument



Transport case – Parabolic mirror

**TECHNICAL DATA**

<b>Operating frequency:</b>	40 kHz ± 2 kHz
<b>Connections:</b>	3.5 mm stereo jack for headset, power supply socket for connecting an external charger
<b>Laser:</b>	Wavelength: 645...660 nm Output power: < 1 mW (laser class 2)
<b>Display:</b>	3.5" touch screen
<b>Interface:</b>	USB interface
<b>Data logger:</b>	16 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>EMC:</b>	DIN EN 61326
<b>Auto level:</b>	Automatically adapts the sensitivity to the environment and reliably eliminates ambient noise
<b>Sensitivity:</b>	min: 0.1 l/min at 6 bar, 5 m distance, approx. € 1/year of compressed air costs
<b>Weight without headset:</b>	540 grams

**TECHNICAL DATA OF EXTERNAL SENSOR INPUT**

<b>Measuring range:</b>	See external sensors
<b>Accuracy:</b>	See external sensors
<b>Power supply:</b>	Output voltage: 24 VDC ± 10% Output current: 120 mA in continuous operation



## DESCRIPTION

### set consisting of:

leak detector with acoustic trumpet and integrated camera, 100 leak tags for marking the leaks on site

**NEW:** Integrated laser distance measurement

Transport case

Sound-proof headset

Focus tube with focus tip

AC adapter plug

Spiral cable for connecting the ultrasonic sensor, length 2m (extended)

Holster with shoulder strap

## Accessories



## DESCRIPTION

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

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



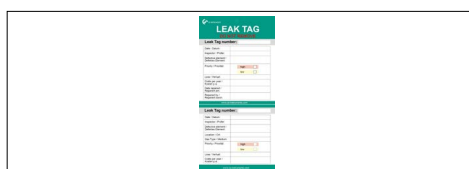
## DESCRIPTION

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



## DESCRIPTION

Ultrasonic tone generator for leak testing



## DESCRIPTION

500 leak tags for marking the leaks on site



## Software



### DESCRIPTION

#### 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



### DESCRIPTION

Leak Reporter V2 – additional licence for one computer



### DESCRIPTION

#### Leak Reporter – cloud solution

Basic package:

Browser-based access to the Cloud.

Advantages:

- Common database of all users in real time.
  - Work across standards in the team.
  - Paperless documentation.
  - Unlimited number of guest logins (read-only rights) can be set up.
- Only available in combination with at least one Cloud (0554 0306) user licence.



### DESCRIPTION

#### User licence – Cloud

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

## Calibration



### DESCRIPTION

re-calibration