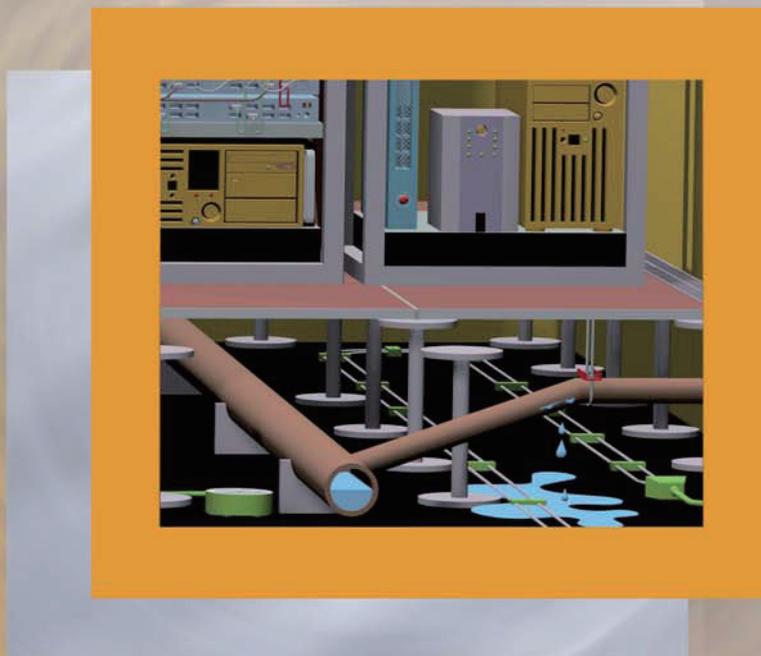


# Conductive Leakage detectors of the LeakConductive range

with electrode and relay



# DLWZ and DEHW ... conductive suspension electrodes

Conductive suspension electrodes are designed to signal via a connected conductive electrode relay the presence of an electrically conductive liquid caused, for example, by burst pipes.

Conductive suspension electrodes should only be used in normally dry environments. They must be mounted in suspended mode from above in such a way that the electrode rods are just slightly above the floor to be monitored.

The conductive suspension electrodes are fitted with two sensitive elements in the form of two electrode rods: 1 control electrode and 1 ground electrode. If the two electrode rods come into contact with an electrically conductive liquid (e.g. water, acid etc.), an electrical contact is made and an alarm signal given.

Suspension electrodes fitted or not with a Z10 cable break monitoring unit have the same appearance.



DEHW 1-Z10



DEHW 2-Z10



DEHW 3-Z10

# The conductive measuring principle

The conductive measuring principle is used for the detection of **electrically conductive liquids**.

**It is not suitable for the detection of electrically non-conductive liquids (e.g. oils, diesel, fuel oil, demineralised water ...).**

Electrically conductive liquids are generally aqueous solutions of salts, acids or alkalis. The molecules of these substances dissociate in water into positive and negative ions which give the aqueous solution its electrical conductivity.

The conductive leakage detector of the LeakConductive range consists of the combination of a conductive electrode and a conductive electrode relay. This combination detects the presence of an electrically conductive liquid at the electrodes, and an alarm signal is then emitted.

The measurement process uses alternating current to ensure exact response sensitivity and to prevent galvanic processes at the electrodes.

## Leakage detection with conductive “LeakConductive” point sensors

Conductive suspension electrodes	DLWZ		
	DEHW 1		
	DEHW 2		
	DEHW 3		
	DEHW 1-4		
	DEHW 2-4		
	DEHW 3-4		
	DEHW 1-Z10		
	DEHW 2-Z10		
	DEHW 3-Z10		

### Explanation of the colours used:

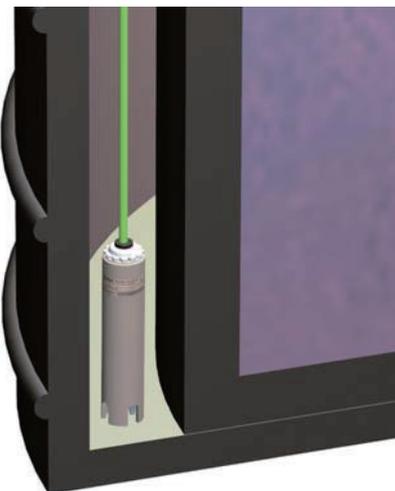
- = **without** cable break monitoring
- = **with** cable break monitoring
- = with relay: **without** cable break monitoring or  
= with electrode + relay: **with** cable break monitoring

# Leakage detection with conductive “LeakConductive” point sensors

Application example with  
a conductive suspension electrode



Use of a suspension electrode  
for leakage detection of  
an electrically conductive liquid  
in the collection tub of a storage tank  
for water-polluting liquids

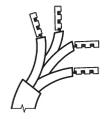
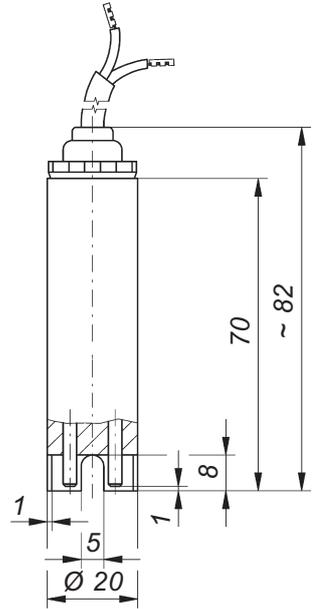
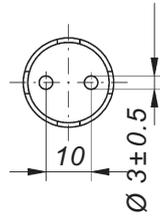
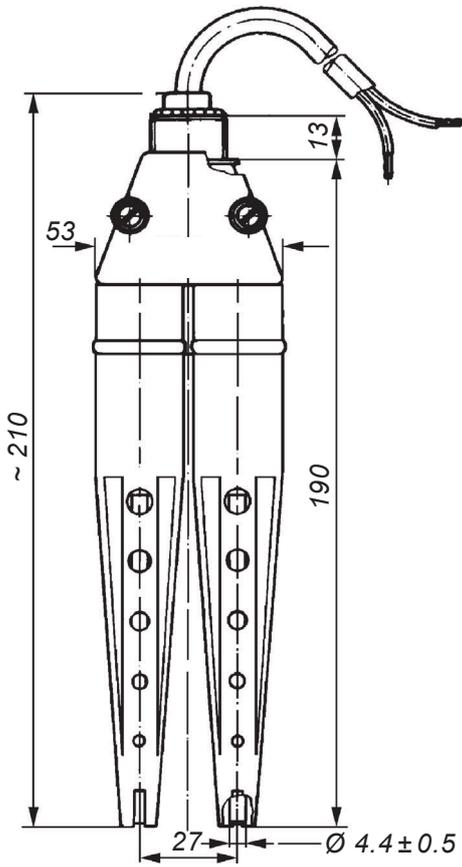


# DLWZ and DEHW . conductive suspension electrodes

Technical data	DLWZ	DEHW 1	DEHW 2	DEHW 3
Design	1 control electrode and 1 ground electrode			
Sensitive elements	2 electrode rods made of stainless steel 316 Ti on request: other materials (e.g. titanium, Hastelloy, Monel or tantalum)			
Housing	PP on request: other materials (e.g. PVDF or PTFE) 2 x 27 mm Ø x approx. 210 mm   20 mm Ø x approx. 82 mm   28 mm Ø x approx. 130 mm   40 mm Ø x approx. 130 mm			
Electrical connection	connecting cable 2X0.75 length 2 m, on request: • longer • made of CM or PTFE			
Temperature range	– 20°C to + 60°C, higher temperatures on request			
Cable break monitoring	<b>without</b>			
Classification	connection to one of the following conductive electrode relays			
• <b>without</b> cable break monitoring, <b>without</b> DIBt certificate	<b>LeakConductive 5</b> or <b>LeakConductive 5/G:</b> any number of DLWZ and/or DEHW may be connected in parallel to either one of these relays.			
Max. length of connecting cable	1,000 m between electrode relay and last electrode			
Mounting accessories	stuffing glands, housings with integrated stuffing gland and flanges with stuffing gland on request			

# DEHW .-4 and DEHW .-Z10 conductive suspension electrodes

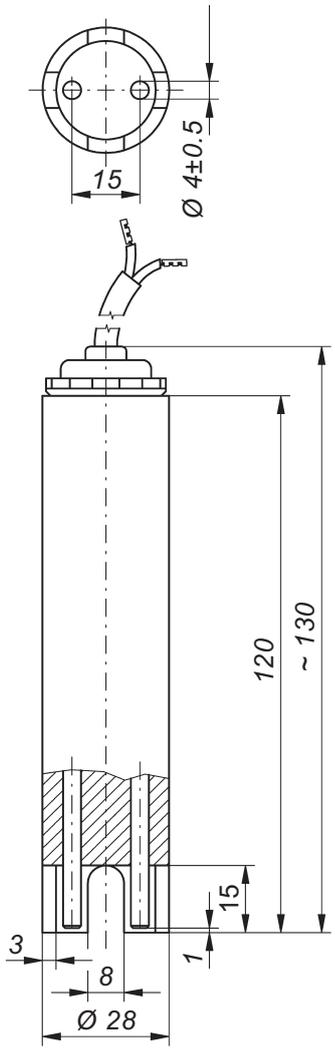
Technical data	DEHW 1-4	DEHW 2-4	DEHW 3-4	DEHW 1 -Z10	DEHW 2 -Z10	DEHW 3 -Z10
Design	1 control electrode and 1 ground electrode					
Sensitive elements	2 electrode rods made of stainless steel 316 Ti; on request: other materials (e.g. titanium, Hastelloy, Monel or tantalum)					
Housing	PP on request: other materials (e.g. PVDF or PTFE)					
	20 mm Ø x approx. 82 mm	28 mm Ø x approx. 130 mm	40 mm Ø x approx. 130 mm	20 mm Ø x approx. 82 mm	28 mm Ø x approx. 130 mm	40 mm Ø x approx. 130 mm
Electrical connection	connecting cable 4X0.75     2X0.75 length 2 m, on request: • longer • made of PTFE     • made of CM or PTFE					
Temperature range	- 20°C to + 60°C, higher temperatures on request					
Cable break monitoring	<b>without</b>	<b>without</b>	<b>without</b>	<b>with</b>	<b>with</b>	<b>with</b>
	integrated Z10 cable break monitoring unit					
Classification	connection to one of the following conductive electrode relays					
• <b>with</b> cable break monitoring, <b>with</b> DIBt certificate No. Z-65.40-203				<b>LeakConductive 101</b> or <b>LeakConductive 101/S:</b> one DEHW .-Z10		
				One or several DEHW .-4 may be connected in parallel between a DEHW .-Z10 and one of these relays.		
• <b>with</b> cable break monitoring, <b>without</b> DIBt certificate				<b>LeakConductive 171/1</b> or <b>LeakConductive 171/2:</b> one DEHW .-Z10  <b>LeakConductive 155:</b> max. five DEHW .-Z10		
				One or several DEHW .-4 may be connected in parallel between a DEHW .-Z10 and one of these relays.		
• <b>without</b> cable break monitoring, <b>without</b> DIBt certificate	<b>LeakConductive 5</b> or <b>LeakConductive 5/G:</b> any number of DEHW .-4 may be connected in parallel to either one of these relays.					
Max. length of connecting cable	1,000 m between electrode relay and last electrode					
Mounting accessories	stuffing glands, housings with integrated stuffing gland and flanges with stuffing gland on request					



**DEHW 1-4 version**

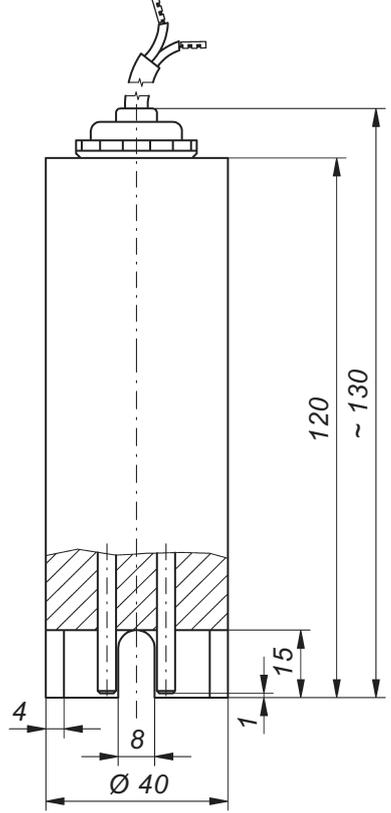
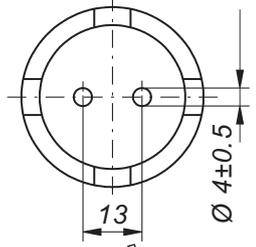
**DEHW 1(-Z10)**

*Dimensions in mm*



**DEHW 2-4 version**

**DEHW 2(-Z10)**



**DEHW 3-4 version**

**DEHW 3(-Z10)**

## Examples of electrically conductive liquids

**Accumulator acid**, 32 %  
**Acetic acid**, 70 %  
**Acrylic acid**, 70 %  
**Adipic acid** \*  
**Aluminium chloride** \*  
**Aluminium potassium sulphate**:  
 see alums  
**Aluminium salts from mineral acids**: see alums  
**Aluminium sulphate** \*  
**Alums (Me(I)-Me(III) sulphates)** \*  
**Ammonia water**  
 (ammonia solution), 25 %  
**Ammonium acetate** \*  
**Ammonium bromide** \*  
**Ammonium carbonate** \*  
**Ammonium chloride** \*  
**Ammonium fluoride** \*  
**Ammonium nitrate** \*  
**Ammonium phosphate** \*  
**Ammonium sulphate** \*  
**Ammonium sulphide**, 40 %  
**Ammonium thiosulphate** \*  
**Anodic oxidation bath**  
 (HNO<sub>3</sub>-30 %, H<sub>2</sub>SO<sub>4</sub>-10 %)  
**Anticalcium**: see antiliming agent (sulfamic acid)  
**Antiliming agent (sulfamic acid)**,  
 50 g/l of H<sub>2</sub>O  
**Aqua regia**, nitrohydrochloric acid, 1 : 1

**Barium carbonate** \*  
**Barium chloride** \*  
**Barium hydroxide** \*  
**Barium nitrate** \*  
**Bicarbonate of ammonia** \*  
**Borax (sodium tetraborate)** \*  
**Borofluoric acid**  
 (tetra boro fluoric acid), 35 %  
**Bromine water** \*

**Cadmium chloride** \*  
**Cadmium sulphate** \*  
**Calcium acetate** \*  
**Calcium bromide** \*  
**Calcium chloride** \*  
**Calcium fluoride** \*  
**Calcium hydroxide** \*  
**Calcium hypochlorite** \*  
**Calcium sulphate**  
**Caustic potash solution**  
 (potassium hydroxide) \*  
**Caustic soda**, 32 %  
**Chlorine water** \*  
**Chloroacetic acid**, saturated  
**Chlorsulfon acid**, > 97 %  
**Chromic acid**, 5 %  
**Chromic sulfuric / acid mixture**  
**Citric acid** \*  
**Cupric chloride** \*  
**Cupric cyanide** \*  
**Cupric nitrate** \*  
**Cupric sulphate** \*

**Electroplating bath**,  
 AgNO<sub>3</sub>/KCN  
**Ethylen diamine tetra acetic acid** (trilon B)

**Ferric (III) chloride** \*  
**Ferrous (II) sulfate**  
**Formaldehyde**, 40 %  
**Formic acid**, 80 %

**Glycol acid**, 50 %

**Hydrazine hydrate**, 80 %  
**Hydrobromic acid**,  
 aqueous solution \*  
**Hydrochloric acid**, 37 %  
**Hydrofluoric acid**  
 (fluohydric acid), 40 %  
**Hydrogen peroxide**, 30 %

**Javel water / bleaching lye**:  
 see sodium hypochloride

**Liquid fertilizer application**:  
 see manuring salts

**Magnesium chloride** \*  
**Magnesium hydroxide carbonate** (magnesium carbonate) \*  
**Magnesium sulphate** \*  
**Manuring salts / saline manure**  
**Mercury nitrate** \*  
**Mercury sulphate** \*

**Naphtalene sulphonic acid** \*  
**N-butyric acid**, 70 %  
**Nickel chloride** \*  
**Nickel nitrate** \*  
**Nitrating acid mixture**: see aqua regia, nitrohydrochloric acid  
**Nitric acid (fuming)**  
**Nitric acid (not fuming)**,  
 approx. 65 %  
**Nitrolotriacetic acid (Trilon A)** \*  
**Nitrosylsulphuric acid**, 30 %

**Oleum**: see sulfuric acid,  
 fuming

**Phenidone**  
 (1-Phenyl-3-Pyra-zolidinone)  
**Phosphoric acid**, concentrated  
**Photographic developer**, pure  
**Picric acid** \*  
**Potassium bicarbonate** \*  
**Potassium borate** \*  
**Potassium bromide**  
**Potassium bromide** \*  
**Potassium carbonate (potash)** \*  
**Potassium chlorate** \*  
**Potassium chloride** \*  
**Potassium cyanide** \*  
**Potassium ferrocyanide and potassium ferricyanide** \*

**Potassium iodide** \*  
**Potassium nitrate** \*  
**Potassium sulphate** \*  
**Propionic acid**, 80 %

**Salicylic acid** \*  
**Silver nitrate**, 2 % solution  
**Sodium acetate** \*  
**Sodium aluminium sulphate**:  
 see alums  
**Sodium bisulphite** \*  
**Sodium bromide** \*  
**Sodium carbonate** \*  
**Sodium chlorate** \*  
**Sodium chloride** \*  
**Sodium cyanide** \*  
**Sodium dichromate** \*  
**Sodium dithionite** \*  
**Sodium hydrogen carbonate** \*  
**Sodium hydrogen sulphate** \*  
**Sodium hypochlorite** (up to  
 30°C; 150 g/l of active chlor)  
**Sodium nitrate** \*  
**Sodium nitrite** \*  
**Sodium peroxide** \*  
**Sodium phosphate** \*  
**Sodium silicate** \*  
**Sodium sulfide** \*  
**Sodium sulphate** \*  
**Sodium sulphite** \*  
**Sodium tetraborate**: see Borax  
**Sodium thiosulphate** \*  
**Sulfuric acid**, 20 %  
**Sulfuric acid**, 96 - 98 % \*\*  
**Sulfuric acid, fuming (oleum)**,  
 65 % SO<sub>3</sub> \*\*  
**Sulfurous acid**, 5 - 6 % SO<sub>2</sub>

**Tartaric acid** \*  
**Tin(II) chloride** \*  
**Trichloroacetic acid**

**Water** (tap water)

**Zinc chloride** \*  
**Zinc nitrate** \*  
**Zinc sulphate** \*

\* Saturated solution

\*\* Only suitable for point sensors, because the line and surface sensors have a too long reaction period

A reliable detection of electrically poor conductive liquids (compared to the above-mentioned liquids) can be achieved by adaption of the sensitivity of the conductive electrode relay in our works (on request).