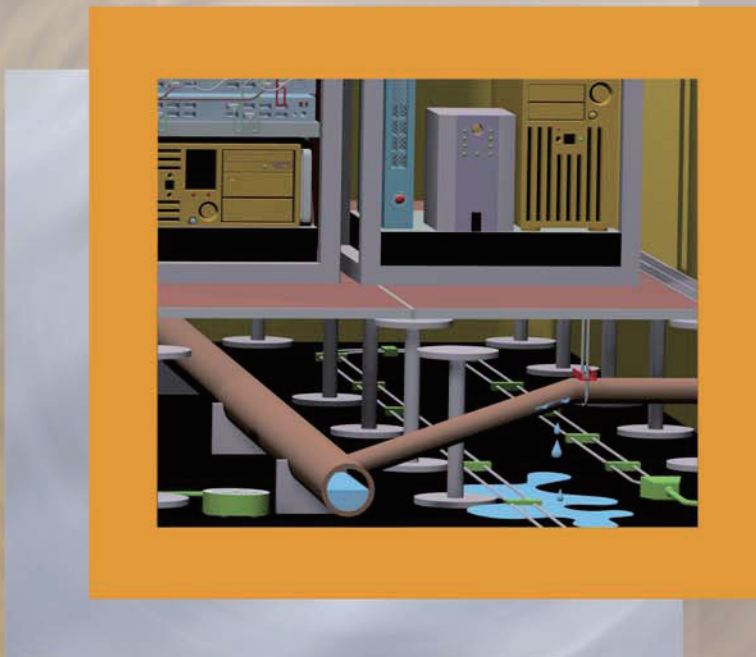


Conductive Leakage detectors of the LeakConductive range

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.



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

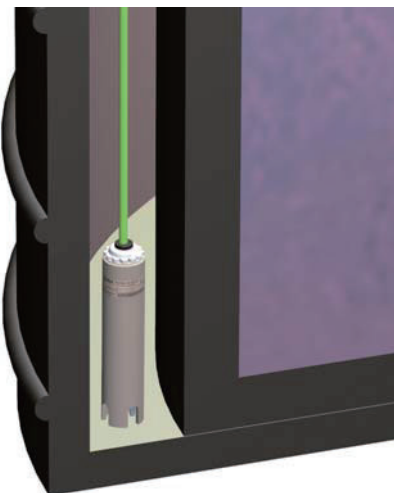
= with **electrode** + **relay:** **with** cable break monitoring

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

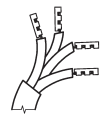
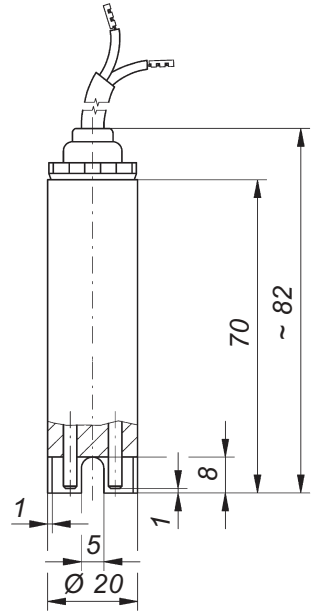
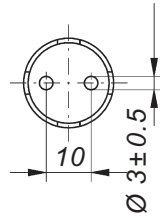
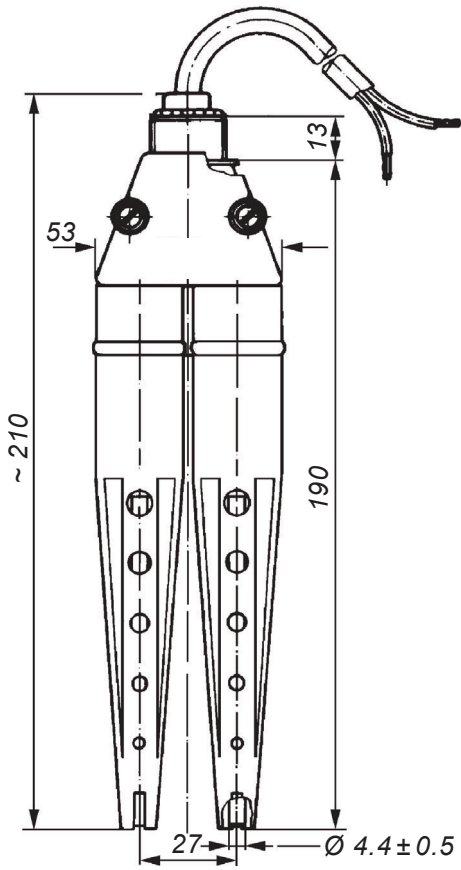


DLWZ and DEHW . conductive suspension electrodes

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	without			
Classification	connection to one of the following conductive electrode relays			
• without cable break monitoring, without DIBt certificate	LeakConductive 5 or LeakConductive 5/G: 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

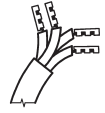
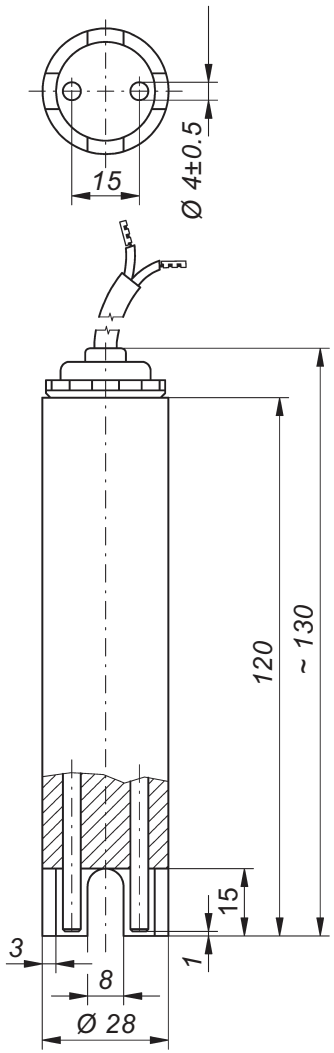
Technical data	DEHW 1-4	DEHW 2-4	DEHW 3-4	DEHW 1 -Z10	DEHW 2 -Z10	DEHW 3 -Z10
Design	1 control electrode and 1 ground electrode					
Sensitive elements	2 electrode rods made of stainless steel 316 Ti; on request: other materials (e.g. titanium, Hastelloy, Monel or tantalum)					
Housing	PP on request: 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	without	without	without	with	with	with
	integrated Z10 cable break monitoring unit					
Classification	connection to one of the following conductive electrode relays					
• with cable break monitoring, with DIBt certificate No. Z-65.40-203				LeakConductive 101 or LeakConductive 101/S: one DEHW .-Z10		
				One or several DEHW .-4 may be connected in parallel between a DEHW .-Z10 and one of these relays.		
• with cable break monitoring, without DIBt certificate				LeakConductive 171/1 or LeakConductive 171/2: one DEHW .-Z10 LeakConductive 155: max. five DEHW .-Z10		
				One or several DEHW .-4 may be connected in parallel between a DEHW .-Z10 and one of these relays.		
• without cable break monitoring, without DIBt certificate	LeakConductive 5 or LeakConductive 5/G: 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

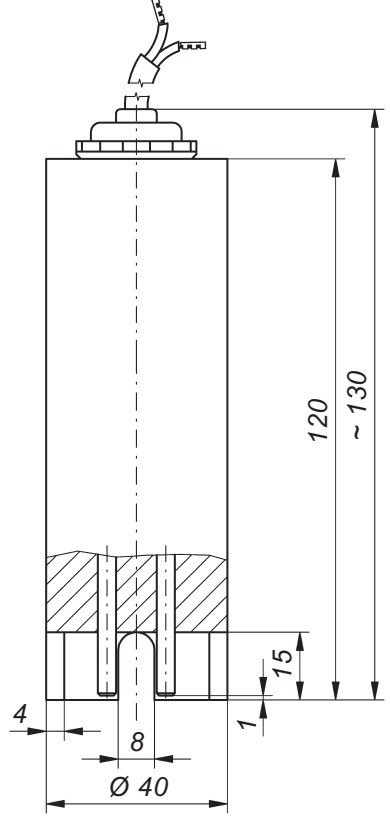
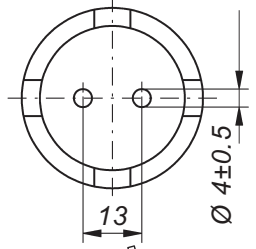
DEHW 1(-Z10)

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
 (HNO₃-30 %, H₂SO₄-10 %)
Anticalcium: see antiliming
 agent (sulfamic acid)
Antiliming agent (sulfamic acid),
 50 g/l of H₂O
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,
 AgNO₃/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
 (flouhydric acid), 40 %
Hydrogen peroxide, 30 %

Javel water / bleaching lye:
 see sodium hypochloride

Liquid fertilizer application:
 see manuring salts

Magnesium chloride *
Magnesium hydroxide carbo-
 nate (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 % SO₃ **
Sulfurous acid, 5 - 6 % SO₂

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).