

31.01.2012

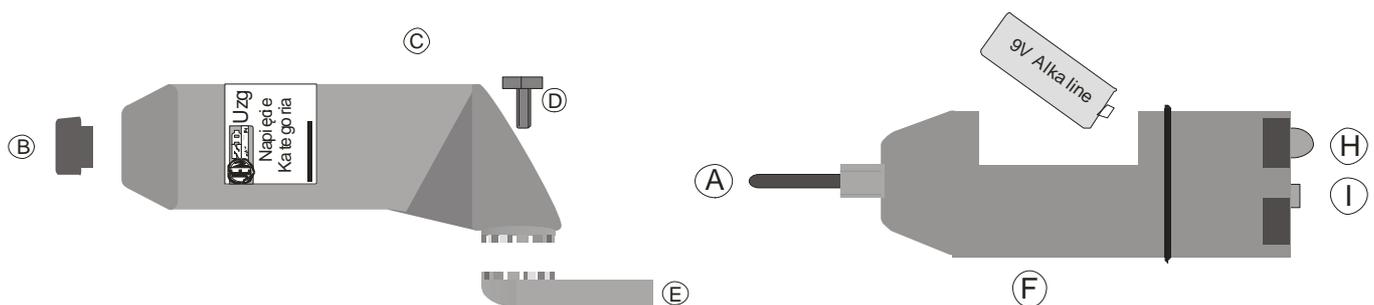
## DESCRIPTION AND INSTRUCTIONS OF USE

Unipolar acoustic-optical bar voltage detector type **JWNd-12/36** voltage range 12-36 kV

### 1. Technical data:

- Nominal voltage range: 12 kV – 36 kV ( phase to phase ), frequency 50 Hz.
- Type of signalling: I – two different signals :  
No voltage – intermittent audio and light signal,  
voltage present- continuous audio and light signal
- Type: outdoor, category L (without contact electrode extender) – designed for use in wet conditions inside or outside.
- Climatic category N: temperature from -25° to +55°C, humidity from 20% to 96%.
- Supply- alkaline battery 9V type 6LR61.
- The voltage detector meets the requirements of IEC 61243-1

### 2. Setting-up of the detector's elements:



- A – contact electrode
- B - nut
- C - casing of the indicator with rated plate
- D - screw
- E - insulating stick connector
- F - internal part
- G - 9V battery
- H - luminous diode
- I - on/off switch

### 3. Battery replacement:

- Unscrew the nut B without unscrewing the contact electrode
- Carefully, pressing the contact electrode push out the internal part F of the detector from the casing C. Be careful not to drop the internal part. Replace battery G. We advise you to use an alkaline battery. If you put in the battery reversely, the detector will not be damaged. The indicator will just not work.
- Put the internal part F to the casing C looking carefully at the position of both elements and screw in the nut B.

#### 4. Directions of use:

- Take the detector out of the cover.
- Check the validity of routine tests on the detector's plate.
- Check the technical condition of the device.
  - the detector cannot have any mechanical damage, cracks etc.,
  - the rated plate must be legible,
  - the range of rated voltage must be appropriate,
  - the device must be clean, it cannot have additional labels, inscriptions or signs carved on the casing
- **If the detector is covered with dew or covered with hoarfrost because a cold detector was brought into a warm room, it is required to wait until the temperatures are equal and next wipe it before using.**
- Install the detector on an insulating stick permitted to be used under the voltage being checked. . Be careful not to touch the voltage with the insulating stick under the connector and not to grab the stick above the grip limiter.

Minimal length of the insulating piece of the insulating stick according to IEC 61243-1:

Working voltage kV	Minimal length of the insulating piece mm
$7.2 < U_r \leq 12$	360
$12 < U_r \leq 17,5$	370
$17,5 < U_r \leq 24$	470
$24 < U_r \leq 36$	520

- Switch on the detector with the switch 1. The signalling of absence of voltage will appear – discontinuous sound with discontinuous shining of the red luminous diode H. Pressing the switch once again will switch off the detector.
  - Before the beginning of work, according to the requirements IEC 61243-1, there is a need to check the detector's functioning on the known voltage.
  - The absence of voltage will not cause the change of signal; it will still be discontinuous. The presence of voltage will cause an immediate change of an optic and acoustic signal into a permanent one. The permanent signal is present when the contact electrode is under voltage. If the element, which is being checked, is rusty or covered with paint, sparking between this element and the contact electrode may occur. This can disturb the sound of the signal. It is required to make sure if the contact electrode has a good contact with the inspected element.
- In accordance with the regulations, if the signalling “no voltage” appears, the measurement needs to be repeated.
- The indicator has an inbuilt controlling apparatus, which checks all its circuits and the voltage of the supplying battery. If damage appears at any moment, the detector will switch itself off after a few seconds at the latest. If the voltage of the supplying battery is too low, the detector will emit three short signals and will switch off. Then it is required to replace the battery.

The detector can be used during precipitation. The detector does not react to the constant voltage – it is not suitable for usage in the contact system.

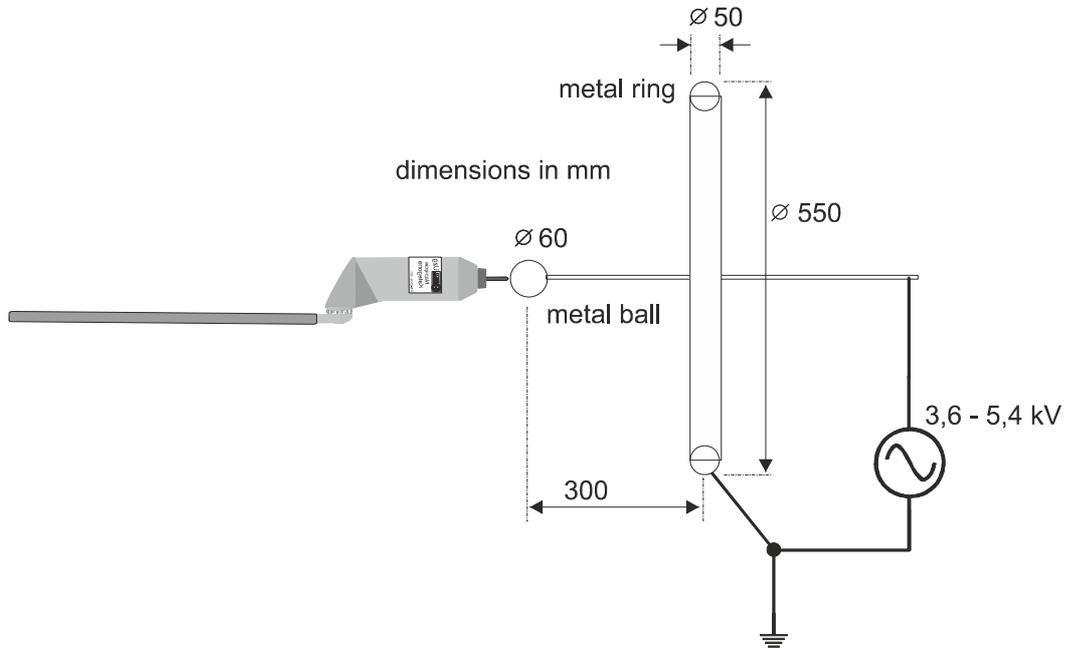
#### 5. Storage and maintenance:

The detector needs to be kept clean. Any dirt should be wiped off with a wet cloth and a small amount of soap. Solvents cannot be used. During the exchange of the label of routine tests please remove the remains of the glue from the casing. Please do not put additional labels, **ESPECIALLY METALLIZED ONES** because they can limit the insulation and sensitivity of the detector in wet conditions. Please do not inscribe, cut or engrave the detector. It needs to be kept dry in the original package. After its usage during rain, please wipe the detector.

### 6. Routine tests:

Routine tests need to be conducted in the producer's laboratory or in a different competent one. In the appointed time that is no later than given on the label, there is a need to:

- put the detector under inspection, which means checking if the threshold voltage is between 1 kV and 1,35 kV. The inspection needs to be conducted according to the drawing below and in accordance with IEC 61243-1 - the detector without the contact electrode extender and repeat at least once a year.



The optic and acoustic signalling of the presence of voltage should be clear.

- It is required to do a visual inspection of the detector. You must not use the detector if it is dirty, mechanically damaged, has a cracked casing or an illegible rated plate. The dirt needs to be removed. You must not repair the device on your own. Every device which is believed to be in a bad condition needs to be withdrawn from using or taken to the producer to be inspected.

### 7. Routine tests conducted every 6 years:

The standard of PN-EN 61243-1 recommends conducting additional extended inspections in the time of maximum 6 years. The inspections need to be conducted in accordance with IEC 61243-1, attachment G.

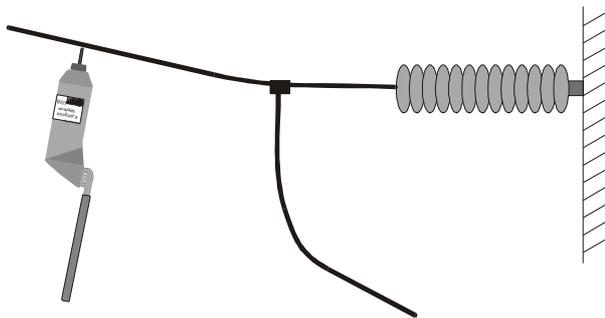
## 8. Annotations concerning the possible influence of the disturbing voltage on the safety of the user:

The JWNd-3/10 detector, as every capacitive voltage detector, measures the current flowing from the inspected element through the contact electrode, internal meter circuits, the detector's casing and further through the capacity between the casing and its surroundings to the ground.

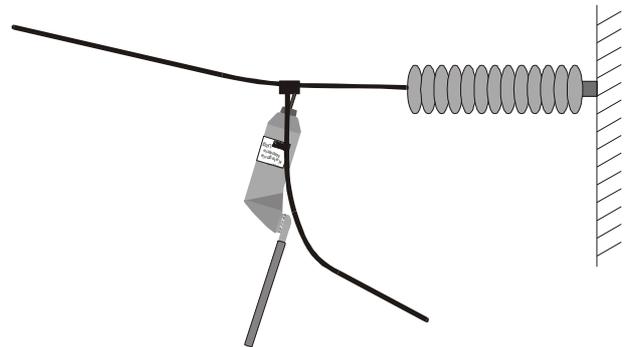
The size of the current depends especially on the difference of voltage in the air between the casing and surrounding elements. The sensitivity of the detector, which is its functioning threshold, depends on the presence of other surrounding sources of voltage. There appear the following possibilities:

- a) The presence of earthed elements or elements connected to the other phase than inspected near the inspected device increases the sensitivity of the detector, which means that the initial voltage of signalling is smaller.
- b) The presence of the elements under voltage of a phase consisted with the inspected one near the inspected device decreases the sensitivity of the detector, which means that the initial voltage of signalling is bigger.

It is required to avoid the measurements, during which there is an element near the detector's casing under the same voltage as supplied to the contact electrode. Then the detector is "immersed" in the electric field and the difference of voltage between the contact electrode and the detector's casing is small. The measuring current is not big – in an extreme case the detector on the bar may not show the presence of voltage despite supplying it to the contact electrode.



Correct measurement



Uncertain measurement – the detector's casing is too close to the wire under the same voltage. If the signalling "no voltage" appears. There is a need to repeat the measurement in a different point of the wire next to the first measurement. (The measurements always need to be repeated when "no voltage" signalling occurs.)