# HAUG Ionization – for the detection of perforations

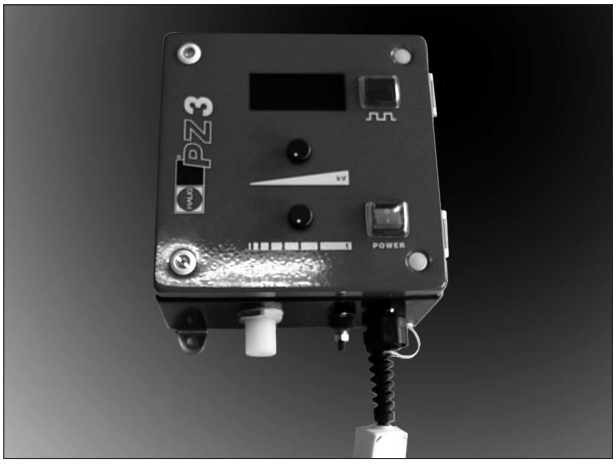



**Photo 1**

## Applications

The **PZ 3** perforation counter is mainly applied in the manufacturing of plastic bags. The contactless detection of perforations allows the number of bags/batches to be determined and indicates when the material rolls need to be changed.

## Mode of operation

Sparks are generated at the point of the perforation of the film by means of a high-voltage electrode (counting electrode) and a suitable earthed/grounded counter-electrode. These sparks are interpreted and counted by the logic circuit integrated in the **PZ 3** perforation counter and indicated visually on the display through a light-emitting diode. The counting pulses transmitted by an opto-coupler can be interpreted by an external counter and may be used for activating other machine functions (such as the control of reversing winding machines and cutting machines).

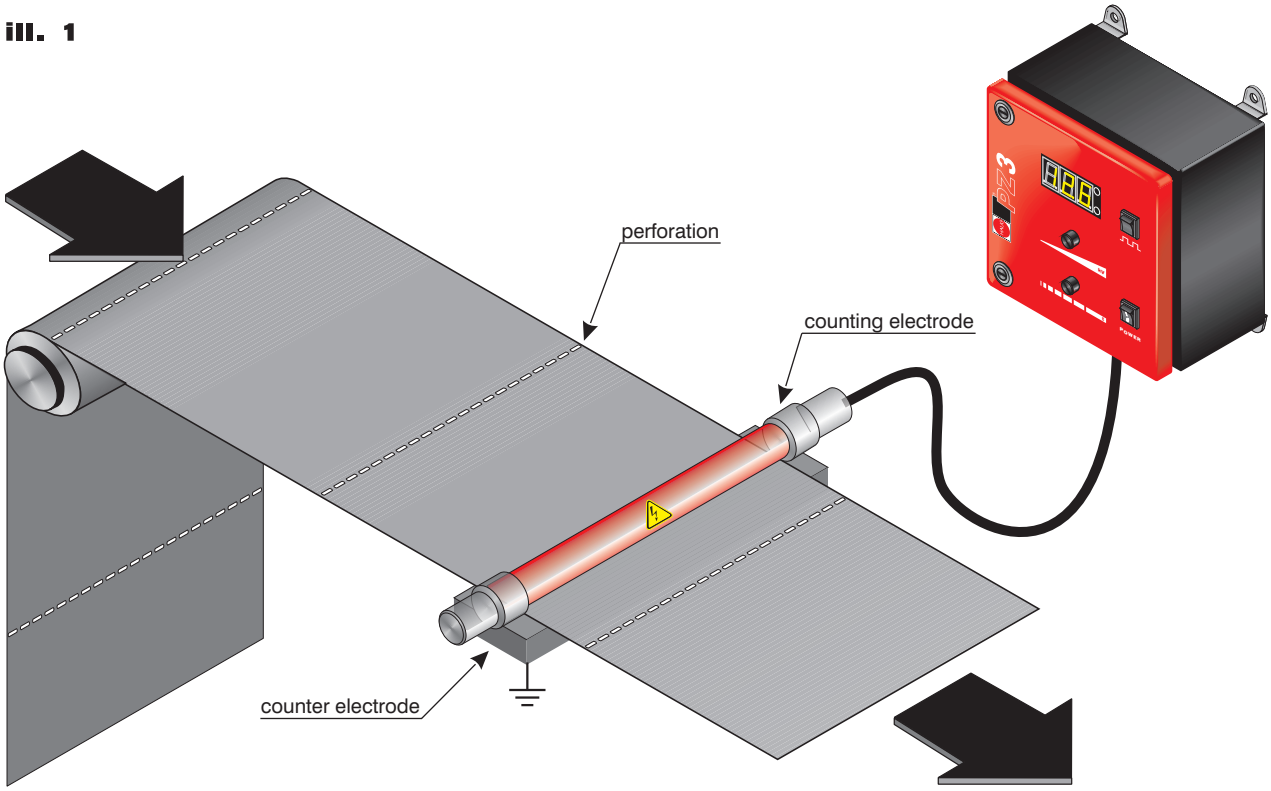
## Directions for installation

The counting electrode must be mounted above the material web at a distance of approx. 10 to 20 mm and centered over the perforations to ensure the perfect functioning of the **PZ 3**. An earthed/grounded counter-electrode below the material web (e.g. earthed metal drum) must be in physical contact with the foil opposite the counting electrode.

## Speoial features and advantages

- The **PZ 3** perforation counter offers the possibility to capture up to 900 counting pulses per minute. This corresponds to a counting rate of 15 counting pulses per second (15 Hz).
- The duration of the counting impulses is adjustable from 5 to 1000 ms. This helps to suppress subsequent spark-overs that may be triggered by "holes" in the film and should not be counted.
- The high voltage applied to the counting electrode is infinitely adjustable from 2.4 up to 17 $kV_{DC}$.
- The external release of the output voltage can be activated through a voltage-free contact, so that high voltage is applied to the counting electrode, for instance when the material web is moving.

**ill. 1**




Test Line - Perforation counter PZ 3

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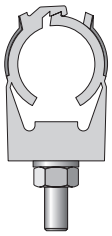
## Holder for counting electrode

Order no.: 10.0004.000



Order no.: X-0404

PZ 3

## Teohnioal data PZ 3

| | | | |
|---|---|---|---|
| Types: | **PZ 3** | (230 V) | Order-No.: 12.0800.000 |
| | **PZ 3** | (115 V) | Order-No.: 12.0801.000 |
| Dimensions: | | approx. 200 x 200 x 100 mm | |
| HV-terminals: | | 1 HV-terminal for counting electrodes | |
| Power supply: | | 115 $V_{\sim}$ / 230 $V_{\sim}$ (50 – 60 Hz) | |
| High voltage: | | $U$ = 2.4 to 18 $kV_{DC}$ | |
| Short circuit current: | | $I_K$ < 1 mA | |
| Internal counting lock: | | 5 ms to 1000 ms | |
| Counting rate: | | max. approx. 15 Hz, corresponding to 900 pulses per minute | |
| External voltage at counting output: | | 2 $V_{DC}$ up to max. 30 $V_{DC}$ internally isolated via optocoupler | |
| Operating temperature: | | +5 °C to +45 °C | |
| Transport/storage temperature: | | -15 °C to +60 °C | |
| Housing: | | Metal, protection type IP 54 | |
| Weight: | | approx. 2 kg | |
| Mains cable: | | 2.6 m; fixed to the device | |
| Smallest bending radius (cable): | | R 50 | |

Subject to technical changes!

## Aooessories

| | | |
|---|---|---|
| Counting electrode AS SL | | Order-No.: 08.8715.000 |
| Holder for counting electrode | | Order-No.: 10.0004.000 |
| Counting electrode AE 005 | 50 mm | Order-No.: 08.8598.105 |
| Counting electrode AE 008 | 80 mm | Order-No.: 08.8598.108 |
| Counting electrode AE 011 | 110 mm | Order-No.: 08.8598.111 |
| Signalling cable K 1 | | |
| 5 m, with round plug | | Order-No.: 06.8941.000 |
| 10 m, with round plug | | Order-No.: 06.8941.001 |
| 20 m, with round plug | | Order-No.: 06.8941.002 |
| Round plug | | Order-No.: X-0616 |
| Angled plug | | Order-No.: X-5718 |