

## Holiday Detector mod. 184/45KV



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## Generals Mod. 184

The Holiday Detector Mod. 184 is used to check the integrity of insulating coatings applied to metallic structures.

## Technical Data

- **Power**  
60VA
- **Max pulse voltage on 900pF**  
45kV
- **Pulse duration**  
 $10 \div 12\mu\text{s}$ .
- **Pulse repetition frequency**  
 $20 \div 25\text{ Hz}$ .
- **Crest kilovoltmeter range**  
 $10 \div 50000\text{V}$
- **Measurement error**  
 $\pm 5\%$
- **Leak signal**  
Visual alarm with red lamp

Acoustic with Piezoceramic buzzer, 60dB at 2000Hz with continuous sensitivity regulation and signal extension of 1 second

- **Unit weight**  
25 Kg.
- **Unit Dimensions**  
800 x 600 x 300 mm

## Instruction for use

- a) Holiday Detector Mod. 184 has been designed for the inspection, on the production line, of the piping insulating coating.
- b) The inspection is made connecting the grounding clamp to the back bare end of the pipe section, before the bare front of pipe reaches the inspection point that is made by a conductive brush connected to the hot point that feels the whole coated pipe surface, discovering any possible leaks in coating.
- c) The unit generates High Voltage pulse discharges (up to 45000V per 10 microseconds) with a repetition frequency of about 20Hz (1 pulse every 50 milliseconds). That allows to inspect the whole coating surface with thin brushes, at normal pipe translation speed in the production line, minimizing operator risks.
- d) Main switch **(1)** connects the unit to 230Vac – 50Hz network (switch on **green** lamp **(7)**), activating HV output and the Crest Voltmeter **(3)** allowing real time reading of **effectively present pulse voltage** on insulating coating independently from the load represented by it (mostly capacitive).
- e) Change-over switch **(4)** allows to select the voltage range most suitable to the kind of coating under inspection, while the potentiometer **(5)** allows voltage fine adjustment between the interval of two steps.
- f) Leak presence is noticed by the activation of the piezoelectric acoustic signal and switching from the red lamp lighting **(6)**; in addition the leak signal is also available as free double change-over operation for remote signal transmission or auxiliary operations.
- g) The intervention sensitivity of acoustic piezoelectric alarm is adjusted by the potentiometer **(2)**, working on the achievement of the alarm intervention just in the moment of the discharge towards leak.

During the installation of the unit, it is important to note that the load is mostly of capacitive kind with a pole connected to ground, therefore, in order to avoid as useless as undesired loads, it will be useful to connect as short as possible the hot point to the brush, separating from the ground or from grounded metallic structures, using the special HV cable supplied with the unit.

## Safety

The unit feeded by 230Vac – 50Hz main, is used for the “on-line” inspection of different kinds of coatings applied on metallic surfaces in the production sites.

The unit generates an output pulse voltage of more than 45.000 V (max. value) with a duration of some tens of microseconds and a repetition frequency of  $20 \div 25$  Hz.

Average current at max output voltage is around  $200 \div 500$  microAmpere in the case of accidental superficial contact (e.g.. inspection brush that comes in contact with an human body) while it can increase up to 5mA in case of sure contacts ( $100\Omega$ ).

The high Internal impedance of the equivalent generator allows that operators safety is expose to danger only if the below listed instructions are not followed:

- 1) Be sure that the external ground terminal of the unit is connected to factory grounding net, using a cable with a copper min. section of 16 sqmm.

Pipe grounding cable must be connected to the same terminal.

The grounding network cable could instead be connected to the internal terminal **(for equipontential reason only)**.

- 2) Make physically not accessible (to unauthorised personnel) the production zone.
- 3) The operator charged to the ground clamp positioning must be provided with properly insulated gloves and boots.
- 4) The unit cannot operate in areas classified with explosion risk.

## Maintenance

Efficiency of insulators and H.V. cables used in the control system must be checked at least on six-monthly basis.

The unit calibration is suggested at least on annually basis.

## Components list

P/N	Description	Qty
P-9059-000	Changeover switch 5922/E/1B/12/20A ④ (see DWG. PR-0765-004)	1
P-7263-008	Microswitch cod. NAT AZH 2041	1
P-7434-126	Main switch green M22 ① (see DWG. PR-0765-004)	1
P-7007-038	Green Led 230V 3W for M22 P-7434-126	1
P-7429-005	Wire potentiometer 10k $\Omega$ 25mm $\varnothing$ ⑤ (see DWG. PR-0765-004)	1
P-7429-004	Wire potentiometer 47k $\Omega$ 25mm $\varnothing$ ② (see DWG. PR-0765-004)	1
GR-6192-013	Positive converter	1
A-9042-008	Trigger Detector	1
GR-1007-001	Dissipator group	1
GR-6200-002	Positive Crest Kilovoltmeter 50kV ③ (see DWG. PR-0765-004)	1
GR-1006-002	Positive feeder group	1
P-9432-008	Double diode module type SKKD 15/16	
GR-6194-004	HV coil group c/w high insulation cable	1
P-7422-030	Green lamp-holder ⑦ (see DWG. PR-0765-004)	1
P-7422-029	Red lamp-holder ⑥ (see DWG. PR-0765-004)	1

## Conformity Declaration

We declare that the Holiday Detector mod. 184 is complying with the following Standards:

<b>EN 50081-2 (1993)</b>	Electromagnetic compatibility - Generic standard emission. Part. 2: Industrial environment.
<b>EN 50082-2 (1995)</b>	Electromagnetic compatibility - Generic immunity standard. Part. 2: Industrial environment.
<b>EN 55011 (1990)</b>	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment.
<b>EN 61000-3-2 (1995)</b>	Electromagnetic compatibility (EMC) – Part. 3: Limits. Section 2: Limits for harmonic current emissions (equipment input current $\leq$ 16 A per phase).
<b>EN 61000-3-3 (1995)</b>	Electromagnetic compatibility (EMC) – Part. 3: Limits. Section 3: Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current $\leq$ 16 A.
<b>EN 61000-4-2 (1995)</b>	Electromagnetic compatibility (EMC) – Part. 4: Testing and measurement techniques Section 2: Electrostatic discharge test – Basis EMC Publication.
<b>EN 61000-4-4 (1995)</b>	Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques Section 4: Electrical fast transient/burst immunity test – Basic EMC publication
<b>EN 61000-4-8 (1993)</b>	Electromagnetic compatibility (EMC) – Part 4: Testing and measurement techniques Section 8: Power frequency magnetic field immunity test Basic EMC Publication.
<b>ENV 50140 (1993)</b>	Electromagnetic compatibility - Basic immunity standard - Radiated radio-frequency electromagnetic field - Immunity test.
<b>ENV 50141 (1993)</b>	Conducted disturbances induced by radio-frequency fields – Immunity test.
<b>ENV 50204 (1995)</b>	Radiated electromagnetic field from digital radio telephones - Immunity test.

As stated in the Test Report No. **EMC 2999/96** and, therefore it complies with the **EMC norms** for the **CE** marking.

January 2013

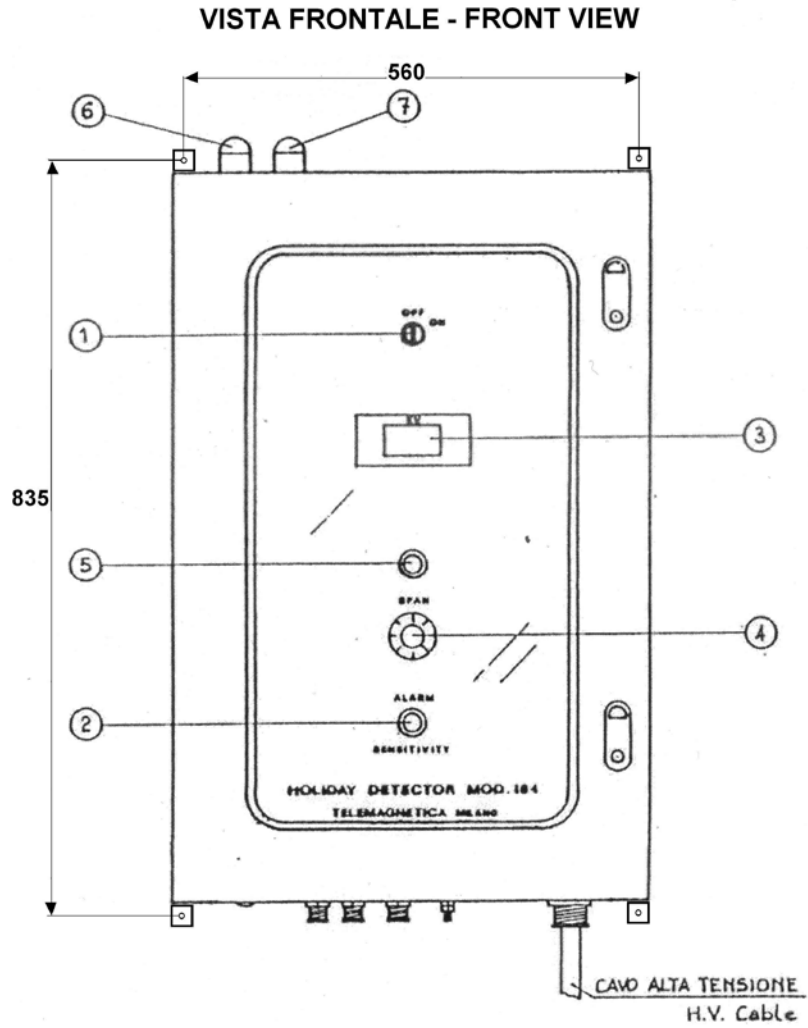
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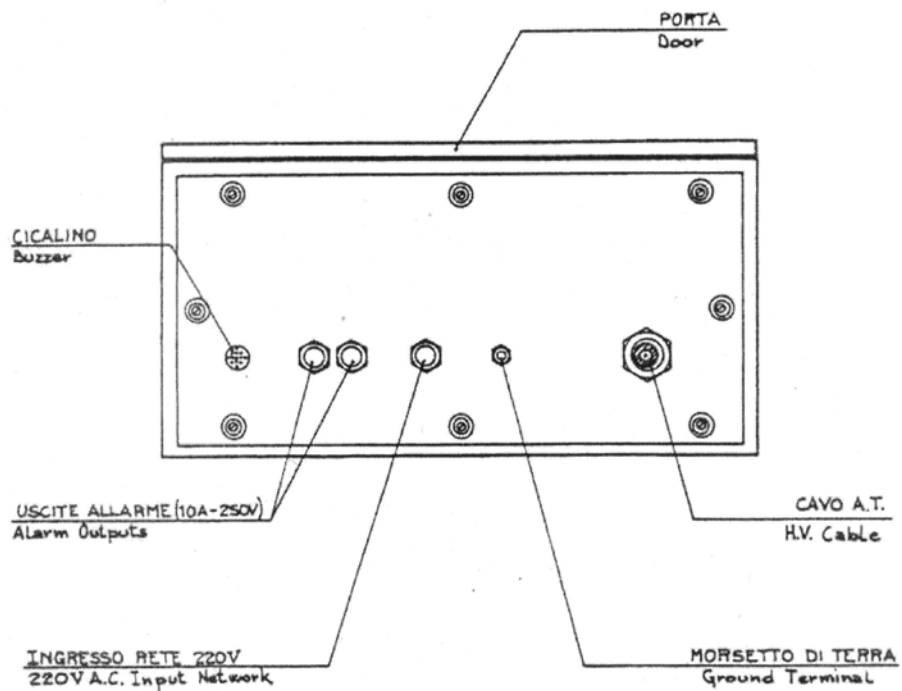
## Attached drawings

PR-0765-004	FRONT VIEW
S-0409-005	BLOCK DIAGRAM
S-0372-001	H.V. OUTPUT WAVEFORM
S-0373-000	H.V. COIL AND TRIGGER WAVEFORMS
PR-1097-000	PIPE AND INSPECTION BRUSH CONNECTIONS

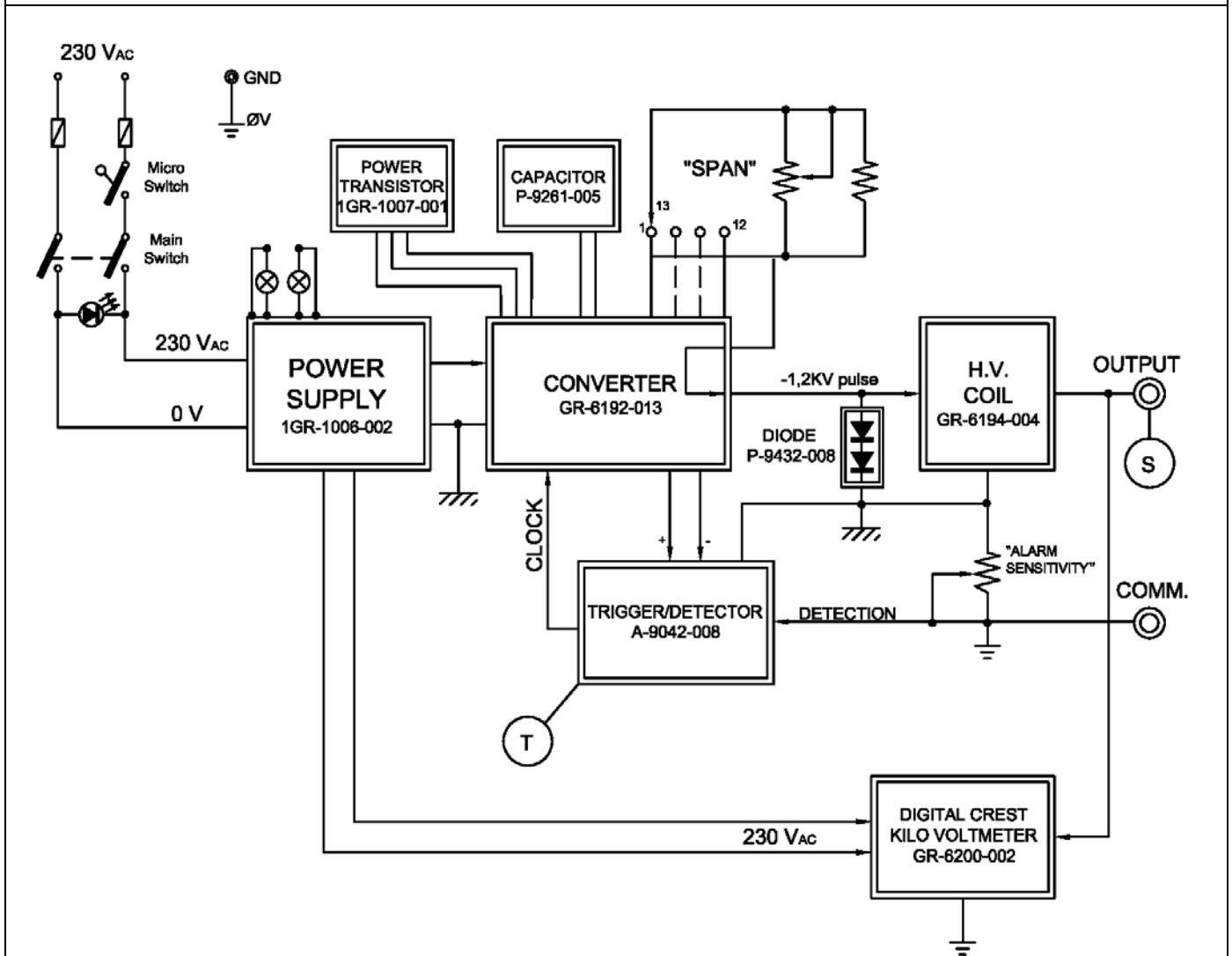
PR-0765-004 - FRONT VIEW



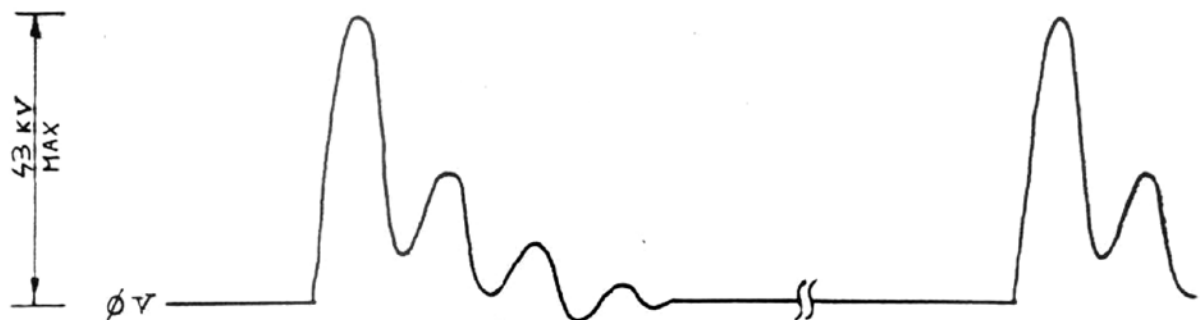
**VISTA DAL BASSO - BOTTOM VIEW**



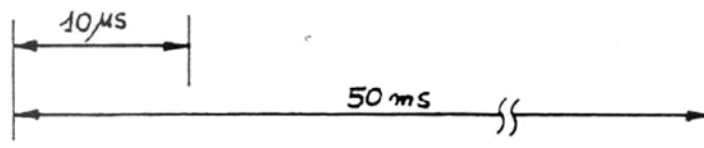
S-0409-005 - BLOCK DIAGRAM



S-0372-001- H.V. OUTPUT WAVEFORM

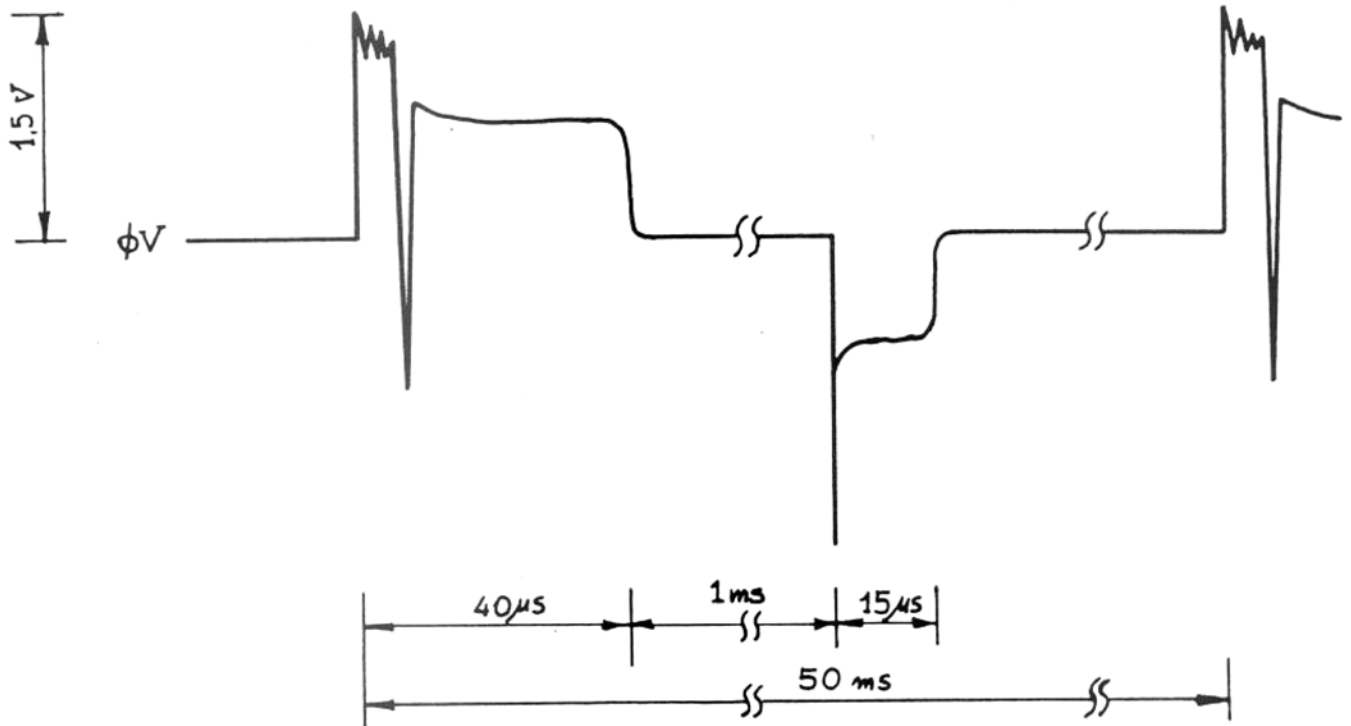


**S** = H.V. Output - Uscita A.T.

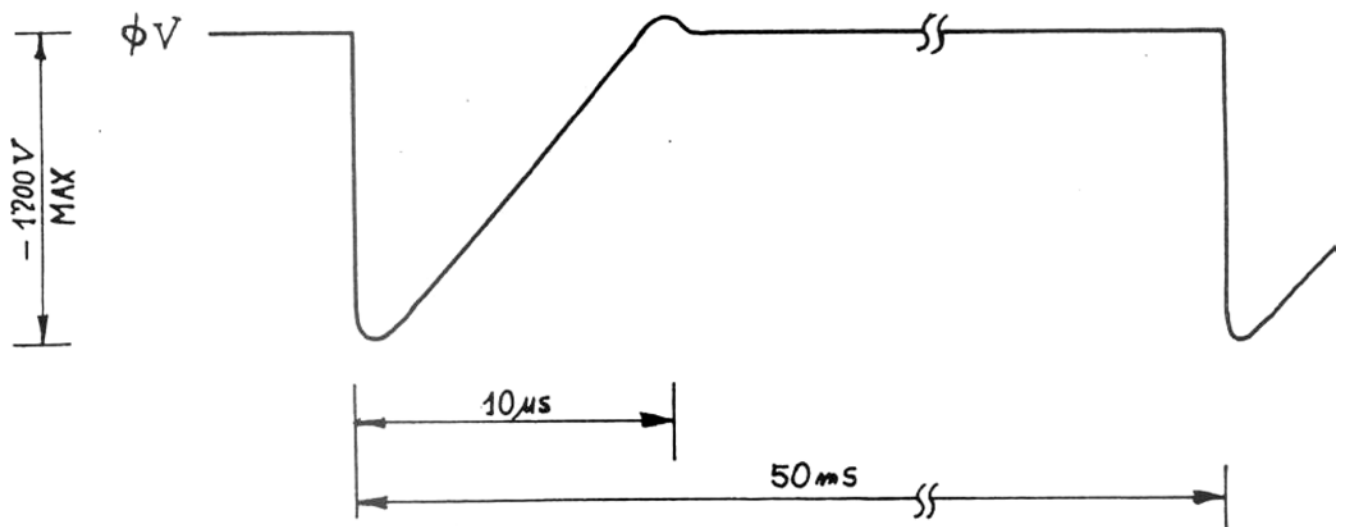




S-0373-000- H.V. COIL AND TRIGGER WAVEFORMS



**T** = TRIGGER



**P** = PRIMARY WINDING H.V. COIL  
PRIMARIO BOBINE ALTA TENSIONE

PR-1097-000- PIPE AND INSPECTION BRUSH CONNECTIONS

