



**ICMET**  
National Institute for Electrical Engineering  
Research - Development - Testing

## LABORATORY DEPARTMENT

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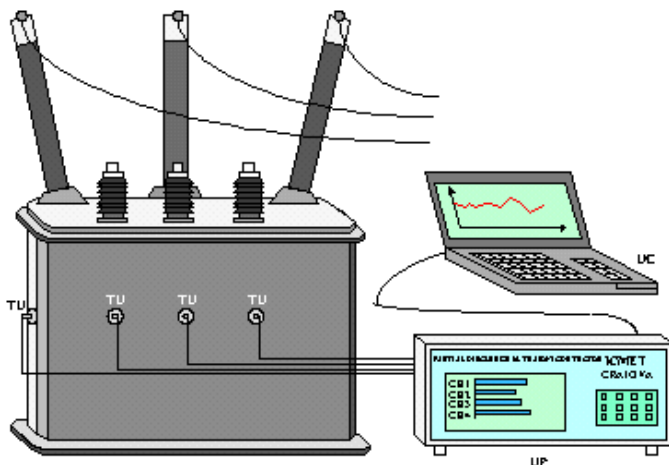
### DUDP-3

## ACOUSTIC EMISSION PARTIAL DISCHARGE DETECTOR

ICMET has gained a wide experience in acoustic emission (AE) partial discharges (PD) detection in the paper-oil insulation of HV equipment.

The need for numerical processing of information and storage has imposed the development of micro-controller equipped measuring systems.

**DUDP-3** represents the last generation of PD measuring systems intended to monitor permanently insulation state in HV transformers.



### Main components:

#### A. Acoustic Emission transducers

(UT) – 4 pcs.

##### each including:

- PZT sensitive ceramic elements;
- narrow band pre-amplifier;
- magnetic fastening system (on transformer tank).

#### B. Main unit (MU) - 1 pc

##### including:

- analogical unit for signal processing;
- micro-controller unit for analogical signals acquisition and processing;
- liquid crystal graphical display.

# Main Features

- Non-intrusive PD level detection
- PD location by comparison of PD level at each transducer when changing its position
- Warning at an overshoot of PD pre-established levels
- PD intensity measurement on the basis of a specific algorithm
- Storage of measured value necessary for subsequent analyses

## TECHNICAL CHARACTERISTICS

- Maximum level of measured PD: 2,500 mV (equiv. to 10,000 pC)
- Minimum level of measured PD: 25 mV (equiv. to 100 pC)
- Detection frequency: 60 kHz
- Supply: 220 V; 50 Hz
- Real time clock
- Calibrator
- Environmental temperature range: 0<sup>0</sup> C ...+ 40<sup>0</sup> C
- Protection degree:
  - AE transducer: IP 54
  - main unit: IP 30 (IP 54 - when mounted in transformer cabinet)
- Overall dimensions:
  - AE transducer: - diameter: 60 mm  
- height: 55 mm
  - main unit: 295 x 205 x 180 mm

## FUNCTIONS

- Analogical (bargraf type) and numerical value display on four distinct channels (on LCD screen)
- Real time display
- Programming of two warning thresholds for each channel
- Acquired value display as a graphic versus time, in two modes:
  - short time (last 24 hours) with values acquired once at 60 seconds;
  - long time (last 30 days) with values representing the maximums for each hour.
- Possibility for a serial data transmission (RS 232) to a PC and software for data display, storage and analysis
- Measuring system calibration