

## R2200

*Multichannel portable device for recording and analysis partial discharges in insulation*



Universal portable multi-channel device «R2200» is used for recording, processing and analysis partial discharges in insulation of different high-voltage equipment (transformers, cable lines, electric machines, etc.).

The «R2200» device is very effective for PD diagnostics, because it has great combination of hardware and software for PD noise rejection.

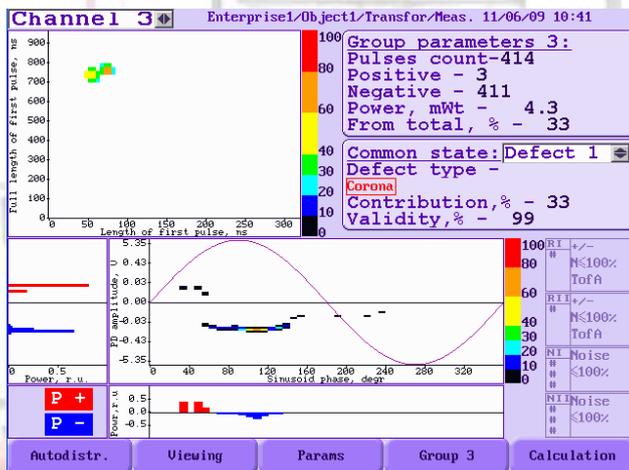
Principle of the «R2200» device operation is differed from the oscilloscopes operation used for partial discharges analysis. The fundamental difference consists that the «R2200» device immediately (at the hardware level, in real time) makes a decision is the given pulse the partial discharge in insulation or a noise pulse. It allows to user takes part only in the analysis of PD of pulses, which optimizes the process of diagnostics.

User can configure device measuring part in on-line mode. Features settings:

- Pulses cross-matrix from channel to channel;
- «Time of Arrival» parameters, accuracy 2 ns;
- Pulses polarity filter from channel to channel;
- Build-in additional channels of noise rejection.

These analysis algorithms allow separating place of partial discharges in high voltage equipment of various types.

The «R2200» device has unique feature - build-in expert system «PD-Expert». It is absent in the devices of other manufacturers.



Different types of viewing partial discharges (Time-Frequency Plane «TFP» and «AFFP») in «PD-Expert» system and build-in «fingerprint» of defects allows to find and identify different defect types in insulation.

There are the diagnostic results of transformer insulation condition on the drawing: top drawing to the left - «TFP», to the right - Phase Resolved PD Diagram (AFFP).

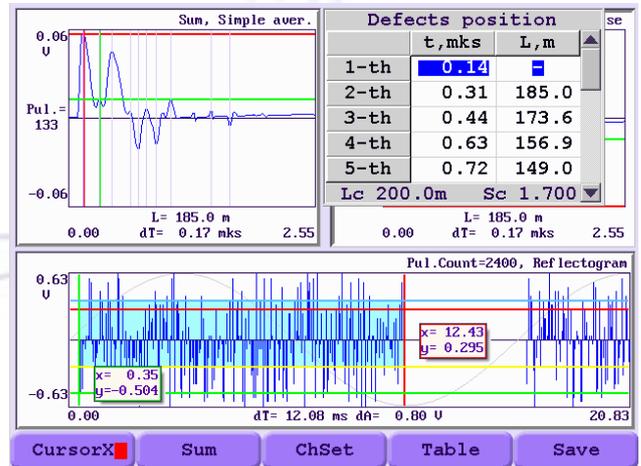
The results of «PD-Expert» system are on the drawing to the left.

Reflectometer of the «R2200» device uses partial discharges pulses as probe pulses. It can locate the places of PD in cable lines insulation. Feature of this reflectometer is possibility to make on-line diagnostics in cable line.

There is example of reflectogram registered in cable line on the drawing to the right. Positions of defects are automatically shown in the right table.

«R2200» has 3 types of AC synchronizations of partial discharges parameters measuring, it is: from external signal source of power-line frequency; from AC signal of the first channel, and from internal generator.

The «R2200» device is used in the scientific centers and laboratories, production departments and field trials. Device can be used in electromagnetic fields of AC frequency on the power substations.



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The «R2200» includes the «GKI-2» calibration generator and different partial discharge sensors. It is enough for diagnostics of different high-voltage equipment.

## Specifications

Technical parameter of device	Measurement range
PD channels	9
Synchronization channel	1
Operating time by 9 channels, min.	2-30
PD frequency bandwidth, MHz	0,5 - 10,0
PD amplitude range, dB	70
Phase accuracy, degrees	7,5
Reflectometer inaccuracy in determining the place of PD, m	±2
Internal memory size, Mb	256
PC interface	USB
Operating time from built-in accumulator, hours	4
Power supply, V	~220
Measuring range of outer temperatures, ° C	-20 ÷ +45
Warranty period, months	18
Device dimensions, mm	260x250x80
Weight of device / complete set, kg	3,5/14,0