

Broadband dielectric spectroscopy system (Novocontrol)

Low frequency unit



High frequency unit



Features:

frequency range: 3 mHz to 8 GHz in the two units

[(0.3 microHz to 20MHz) + (1 MHz to 3 GHz)]

impedance range: $10^{-3} \dots 10^{15} \text{ W}$

capacity range: $10^{-15} \dots 1 \text{ F}$.

high speed impedance and gain phase measurements ($\sim 200/\text{s}$)

non-linear dielectric, conductivity, impedance spectroscopy

system to control the temperature between -160 to 400 °C, heating/cooling rate 0.01 .. 30 °C/min, 0.01 °C temperature stability

Applications: *Materials characterization* (Dielectric relaxation of organic materials including polymers; Electronic conduction of inorganic and organic materials, including semiconductors; Electrical conduction of conventional electrolytes, polyelectrolytes, novel electrolytes; Electrical insulation in cables, capacitors using polymers; Piezoelectric, pyroelectric and ferroelectric behavior of inorganic and organic materials).
Basic studies of the dynamics of phase transitions under external influence (phase boundaries, electronic and ionic contributions to electrical conductivity)