

// dielectric properties



εpsilon
PLUS

EPSILON+

// Measuring System for Dielectric Fluid Properties

Determining the Complex Fluid Impedance

// CONDUCTIVITY, PERMITTIVITY, LOSS FACTOR DDF

The EPSILON+ is a compact laboratory measuring system for determining the dielectric properties of fluids in accordance with DIN EN 60247. The device is for example suitable for characterizing engine and gear oils as well as lubricating greases.

The study of electromobility consumables is a typical field of application since the electrical and dielectric fluid behavior is of critical importance in the presence of high voltages.

The EPSILON+ system determines the following parameters:

- electrical conductivity
- relative permittivity/dielectric constant ϵ_r
- dielectric loss factor $\tan \delta$
- temperature

// KEY FEATURES

- ✓ determination of the complex impedance of fluids and greases
- ✓ high accuracy and repeatability
- ✓ short set-up times and easy handling
- ✓ 8 ml sample size already sufficient
- ✓ wear-free stainless steel screw-in sensor
- ✓ integrated temperature measurement (PT100)
- ✓ evaluation electronics in compact table housing with LC Display and Menu knob
- ✓ EPSILON+ PC software for measurement control and in-depth evaluation included

Details and Technical Specifications

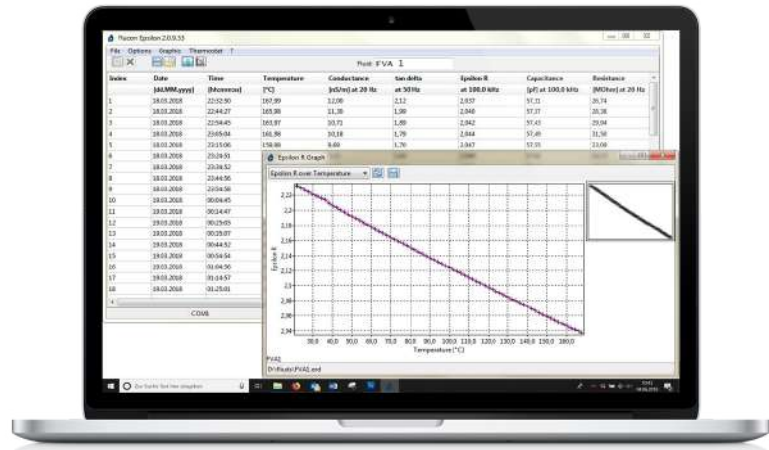
// MEASUREMENT

For measurement of the dielectric properties, only 8 ml of sample size are needed. The sample is filled into the supplied stainless steel vessel and heated to the desired temperature using a thermostat (optional). Depending on the setting made, a temperature curve can also be automatically executed by the system according to the respective limit values. The properties of the test fluid are then determined at short intervals.



// OPERATING MODES

The EPSILON+ is designed for stand-alone operation. The LCD allows the user to read the measured values and access an intuitive menu. In addition, the connection to a Windows PC is possible via RS-232 (adaptable to USB). The full range of functions is available once the corresponding thermostat has been integrated in the measuring set-up. Due to the supplied software, the analyses for the determination of the dielectric fluid properties can be conveniently carried out, recorded and evaluated in the specified temperature range. By means of the analog interface of the EPSILON+ , the output of the measured values over 0-10 V or 4-20 mA is also possible.



PC software flucon EPSILON+

// CLEANING

The measuring cell consists of a core sensor and a screw-on vessel which is the sample container. Both elements can easily be cleaned with the help of a suitable cleaning fluid (e.g. ethanol or cleaning solvent).

Sensor and Measuring Cup
of the EPSILON+ system



Video:
Visit our homepage for a look at the
EPSILON+.

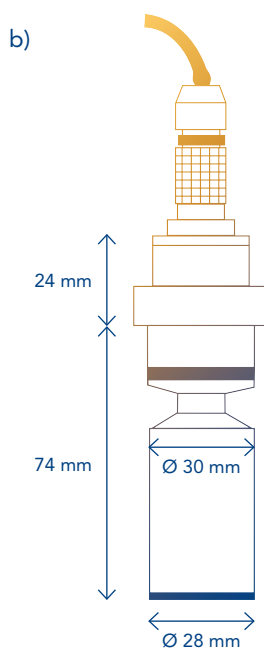
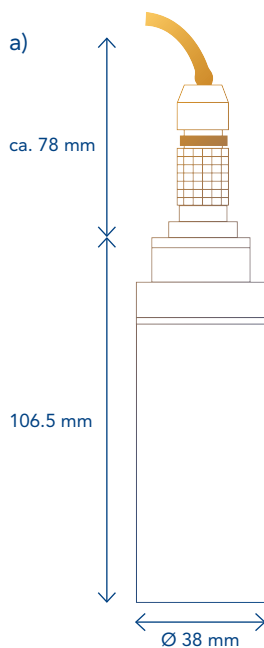


Video-Link:
youtu.be/Wi-Nus_Jd_U

// DIMENSIONS

Exact dimensions of the
EPSILON+ sensor

- a) with and
b) without the Measuring Cup.



// TECHNICAL SPECIFICATIONS

Sensor

Dimensions – sensor	D = 38 mm, H = 115 mm
Sample quantity	8 ml
Materials	Stainless steel, polyether ether ketone (PEEK), polyimide (Vespel)
Temperature – measurement	PT 100, ±0.1°C deviation
Temperature – range	–20°C to 180°C
Sample temperature control	electric thermostat optionally available (controlled by EPSILON+)

Measurement

Electrical conductivity – measuring range	0 nS/m to 600 µS/m (resolution: 0.02 nS/m)
Relative permittivity – measuring range	1 to 10
Dielectric loss factor – measuring range	0.3 to 10,000
Measuring time	approx. 15s
Accuracy	±1%

Electronic Unit

Power supply	110-240 VAC
Energy consumption	max. 30W
Dimensions – aluminum housing (WxHxD)	235 x 150 x 370 mm
Display	blue LCD, 4 x 16 digits
Data communication (PC)	RS-232 (adaptable to USB), EPSILON+ software for Windows included

Dry-block Thermostat
for sample temperature control

