



Top Class Broadband Dielectric Spectrometers:

- Turnkey broadband dielectric spectrometers (DETA test method) with temperature control and data acquisition system
- Broadest frequency range: 3 μ Hz ... 3 GHz
- Highest accuracy based on high resolution ALPHA-A dielectric analyzer and frequency material analyzer
- Data acquisition system with IEEE 488 interface
- Software package includes:
 - DETACHEM for automatic measurements 2D/3D data presentation
 - WinTEMP for automatic temperature control
 - WinFIT for analysis of measured data
- Choice of 3 temperature control systems:
 - QUATRO Cryosystem: -160°C to +400°C
 - NOVOCOOL Cryosystem: -100°C to +250°C
 - NOVOTHERM System: +25°C to +400°C



Novocontrol Technologies
 GmbH & Co. KG
 Aubachstr. 1
 56410 Montabaur
 Germany
 Phone: +49 2602 9196690
 Fax: +49 2602 91966933
 e-mail: novo@novocontrol.de
 web: <http://www.novocontrol.de>

Concept Systems



	Frequency Range	Temperature range	Temperature stability	Maximum heat/cool rate	Sample cell
Concept 10	3 μ Hz - 300 kHz	-160 $^{\circ}$ C ... 400 $^{\circ}$ C	0.01 $^{\circ}$ C	20 $^{\circ}$ C/min	BDS 1200
Concept 20	3 μ Hz - 3 MHz	-160 $^{\circ}$ C ... 400 $^{\circ}$ C	0.01 $^{\circ}$ C	20 $^{\circ}$ C/min	BDS 1200
Concept 40	3 μ Hz - 20 MHz	-160 $^{\circ}$ C ... 400 $^{\circ}$ C	0.01 $^{\circ}$ C	20 $^{\circ}$ C/min	ZGS
Concept 50	3 μ Hz - 40 MHz	-160 $^{\circ}$ C ... 400 $^{\circ}$ C	0.01 $^{\circ}$ C	20 $^{\circ}$ C/min	ZGS
Concept 70	1 MHz - 3 GHz	-160 $^{\circ}$ C ... 400 $^{\circ}$ C	0.01 $^{\circ}$ C	20 $^{\circ}$ C/min	BDS 2200
Concept 80	3 μ Hz - 3 GHz	-160 $^{\circ}$ C ... 400 $^{\circ}$ C	0.01 $^{\circ}$ C	20 $^{\circ}$ C/min	ZGS + BDS 2200
Concept 11	3 μ Hz - 300 kHz	-100 $^{\circ}$ C ... 250 $^{\circ}$ C	0.1 $^{\circ}$ C	20 $^{\circ}$ C/min	BDS 1200
Concept 21	3 μ Hz - 3 MHz	-100 $^{\circ}$ C ... 250 $^{\circ}$ C	0.1 $^{\circ}$ C	20 $^{\circ}$ C/min	BDS 1200
Concept 41	3 μ Hz - 20 MHz	-100 $^{\circ}$ C ... 250 $^{\circ}$ C	0.1 $^{\circ}$ C	20 $^{\circ}$ C/min	ZGS
Concept 51	3 μ Hz - 40 MHz	-100 $^{\circ}$ C ... 250 $^{\circ}$ C	0.1 $^{\circ}$ C	20 $^{\circ}$ C/min	ZGS
Concept 71	1 MHz - 3 GHz	-100 $^{\circ}$ C ... 250 $^{\circ}$ C	0.1 $^{\circ}$ C	20 $^{\circ}$ C/min	BDS 2200
Concept 81	3 μ Hz - 3 GHz	-100 $^{\circ}$ C ... 250 $^{\circ}$ C	0.1 $^{\circ}$ C	20 $^{\circ}$ C/min	ZGS + BDS 2200
Concept 12	3 μ Hz - 300 kHz	+25 $^{\circ}$ C ... 400 $^{\circ}$ C	0.1 $^{\circ}$ C	30 $^{\circ}$ C/min	BDS 1200
Concept 22	3 μ Hz - 3 MHz	+25 $^{\circ}$ C ... 400 $^{\circ}$ C	0.1 $^{\circ}$ C	30 $^{\circ}$ C/min	BDS 1200
Concept 42	3 μ Hz - 20 MHz	+25 $^{\circ}$ C ... 400 $^{\circ}$ C	0.1 $^{\circ}$ C	30 $^{\circ}$ C/min	ZGS
Concept 52	3 μ Hz - 40 MHz	+25 $^{\circ}$ C ... 400 $^{\circ}$ C	0.1 $^{\circ}$ C	30 $^{\circ}$ C/min	ZGS
Concept 72	1 MHz - 3 GHz	+25 $^{\circ}$ C ... 400 $^{\circ}$ C	0.1 $^{\circ}$ C	30 $^{\circ}$ C/min	BDS 2200
Concept 82	3 μ Hz - 3 GHz	+25 $^{\circ}$ C ... 400 $^{\circ}$ C	0.1 $^{\circ}$ C	30 $^{\circ}$ C/min	ZGS + BDS 2200

All measuring systems up to 40 MHz include the high resolution frequency analyzer ALPHA-A or Alpha, providing the highest accuracy in generated voltage, frequency and measured complex impedance. The resolution in $\tan \delta$ in this frequency range is 10^{-5} . Access to higher harmonics components is included.

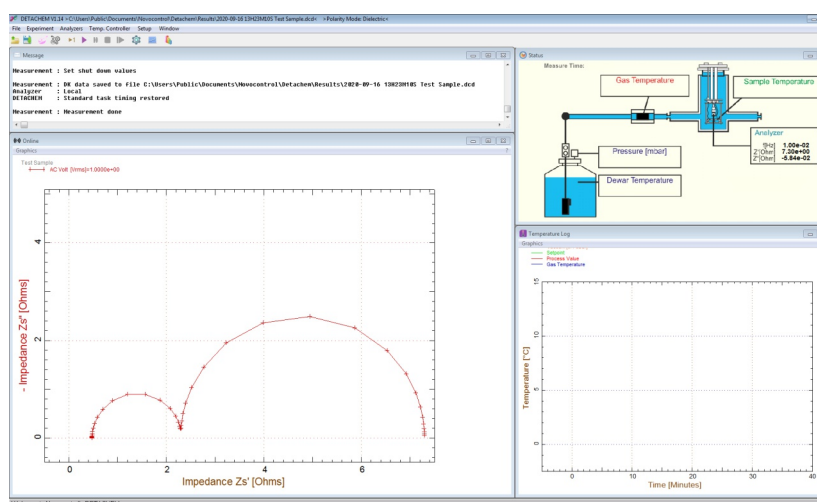
Measuring systems up to 3 GHz provide an additional RF material analyzer with RF test station, precision extension line and RF sample cell. The RF test station with extension line and sample cell is mounted into the sample position of the temperature control system by a high-precision motor-driven top-loading mechanism. The resolution in $\tan \delta$ in this frequency range is 10^{-3} .

NOVOCONTROL Technologies sets a new standard in accuracy and functionality by launching turnkey analytical instrumentation for materials research.

All measuring systems mentioned above include sophisticated Windows-based DETACHEM soft-

were including the analysis of higher harmonics measurements.

Each measuring system is verified to meet its specification and ready for turnkey operation.



NOVOCONTROL Technologies offers installation, training, and application support by factory-trained engineers.