

Specifications:

Sciospec ISX-3 Electrical Impedance Analyzer



Frequency

Range	100mHz to 10MHz
Resolution	5mHz, 25mHz or 100mHz (depending on the setting)
Frequency	100ppm (25°C)

Frequency-Sweep-Settings

Sweep type	linear, logarithmic, list
Points	1 to 2048
Sweep-Delay	0 μ s to 800 μ s in 1 μ s steps

Signal amplitude

Range	0.1mV to 100mV peak-amplitude 0.1mV to 250mV peak-amplitude (from revision June 2011)
Resolution	0.1 mV

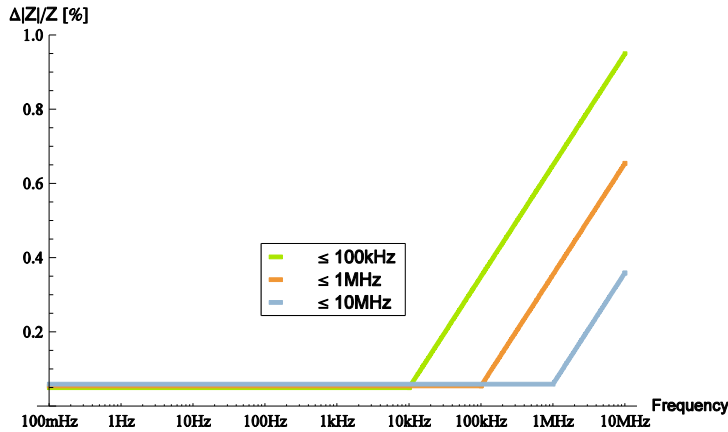
Precision settings

Range	0 fast, but less precise 1 standard configuration $\Delta Z < 0.1\%$ >1 slow, but high accuracy
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Relation between frequency range setting and frequency resolution or measurement accuracy

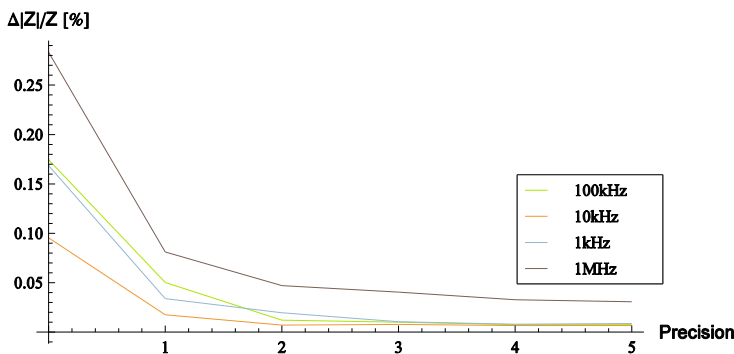
3 frequency ranges with different resolution

range	< 100kHz	< 1MHz	< 10MHz
resolution	5mHz	25mHz	100mHz



The choice of the frequency range also affects the accuracy of the impedance measurement. This relation is shown schematically for one measurement.

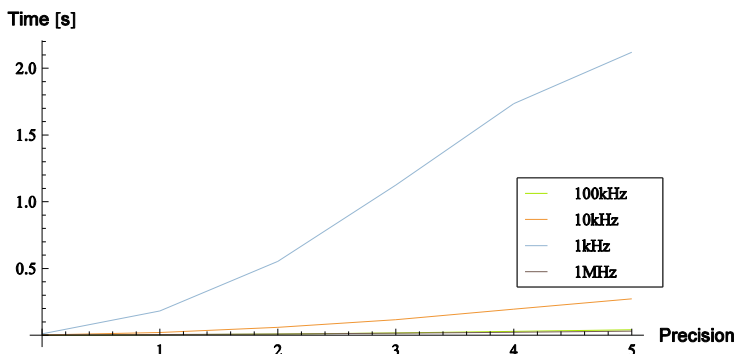
Relation between the precision setting and the measurement time or the measurement accuracy



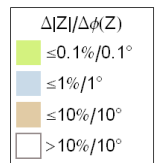
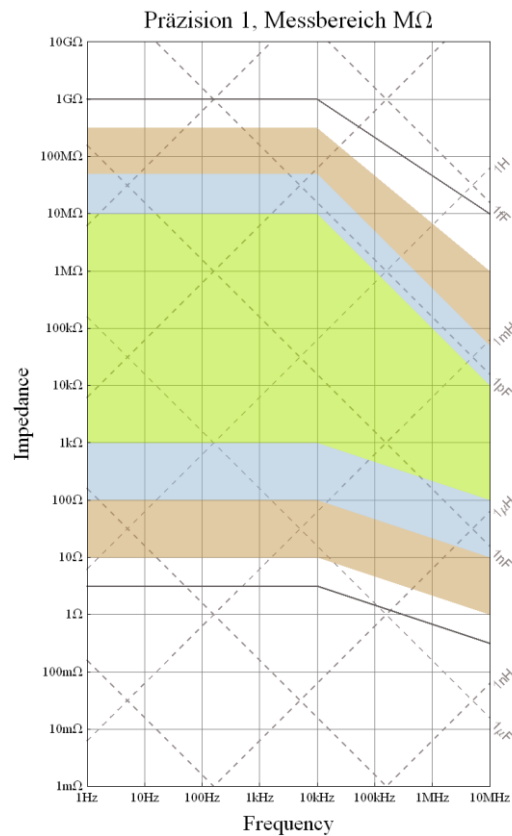
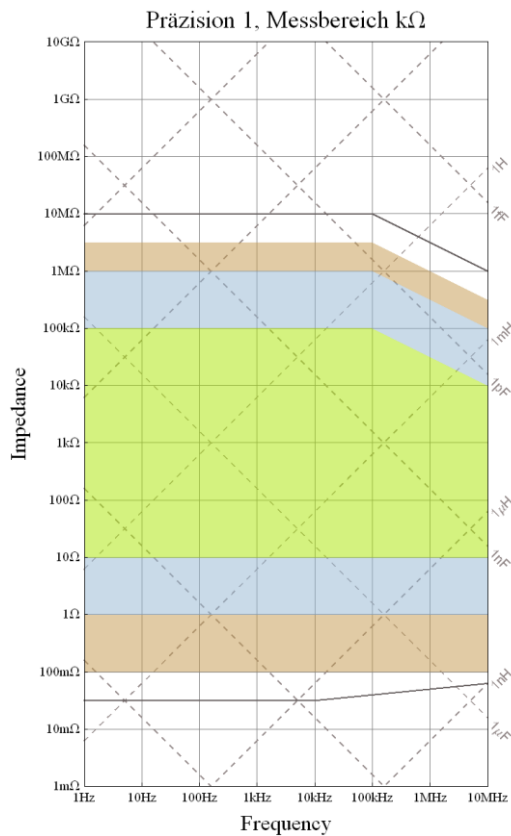
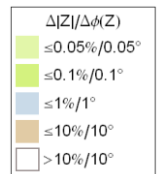
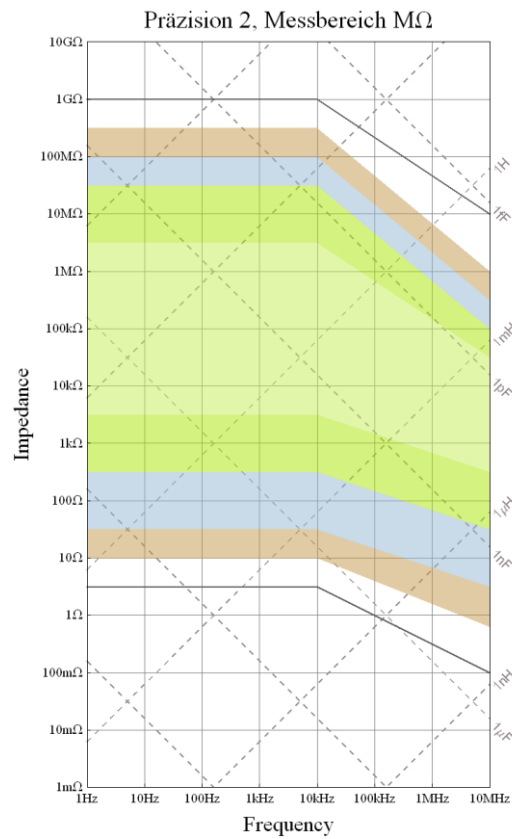
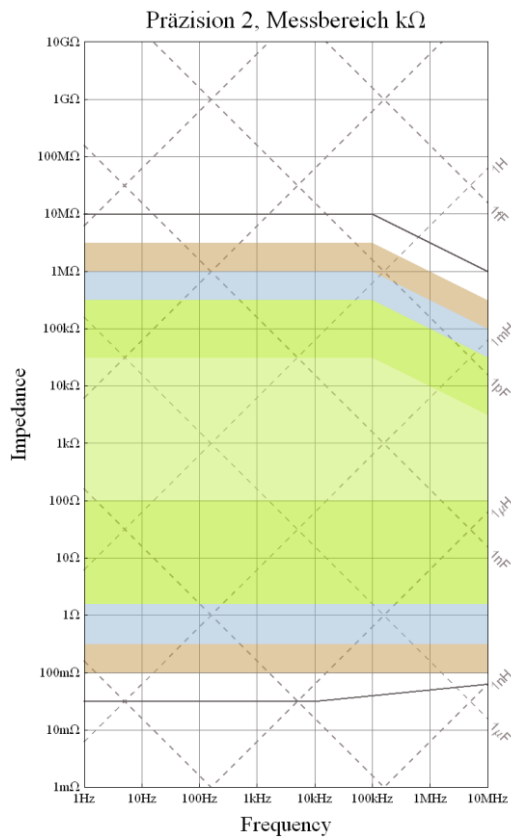
The diagram on the left shows the influence of the precision settings on the accuracy and time for the measurement of an impedance value at the specified frequency.

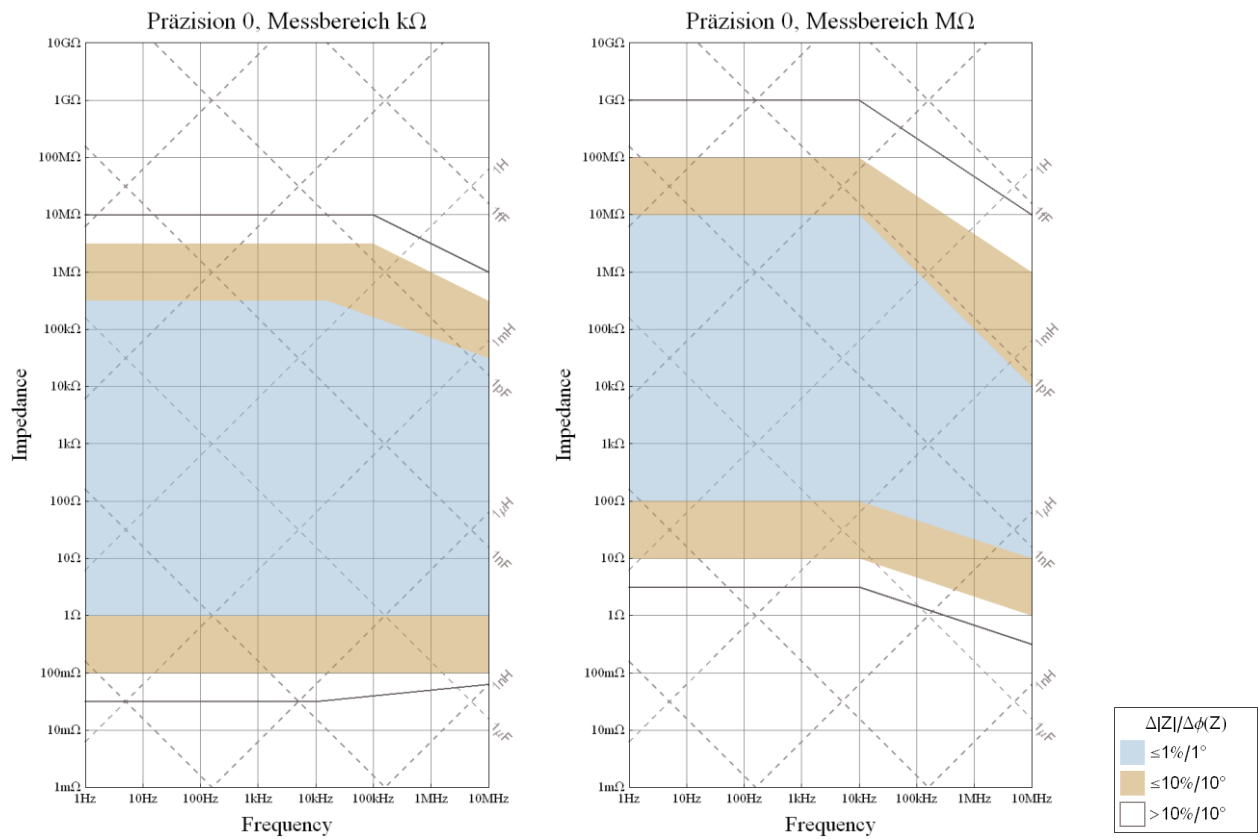
Low precision settings correspond to fast measurements with lower accuracy.

High precision settings correspond to greater accuracy at longer measurement times.



Overview of the different range and precision settings





All specifications refer to measurements done with a Sciospec ISX-3 in combination with the Sciospec MEArack. The signal amplitude is set to 100mV and the frequency range to „<10MHz“. Measurements done, using the BNC connectors show very similar results.

Example measurement:

Frequency sweep: 100Hz – 1MHz, 80 logarithmic Frequency steps,
precision 1, amplitude 100mV, measurement range M Ω

Measurement instrument:

Sciospec ISX-3 with connected Sciospec MEArack

Device under test: Multielektrode array, 40 μ m electrodes, 200 μ m apart, platinum
PBS buffersolution

