

FECB

Final Electrical Calibration Bench



Application

- Electrical calibration and testing of the **CS18 hardware**
- Electrical calibration of **signal analyzer, measurement systems** and **digital voltmeters**

Range of use

- **Accredited calibration laboratories**
- **Monitoring** of measurement devices in development and industry
- **National Metrological Institutes** as highest metrological authorities (NMI)

Features

- Determination of the **complex frequency response** of the measurement channels **ICP, DIR, CHA** and **MIC**
- Determination of the electrical properties of the **PR module**
- Determination of the electrical characteristics of the **generator**
- Determination of the capacitance values of the **Q-U-ICP module**
- **Logging** of all measurement deviations
- **Guided** program flow with **connection plans**
- **Management** of CS18 hardware information
- Creation of a **calibration file** for the CS18 software, which serves as a correction table
- **Update function** for CS18 systems
- Ability to **self-adjustment** of the measuring station

Components

- **Reference-Calibrator**, SPEKTRA
 - Reference-Generator
 - Reference input channels for phase measurement
 - Control unit
- Attenuator **ATS-15**, SPEKTRA
- **Low pass filter**, SPEKTRA
- **Relaisbox**, SPEKTRA
- **Reference standard**
 - **Keysight 3458A** digital multimeter
- **Reference standard**
 - **Keysight 33220A** function / arbitrary waveform generator
- Standard-PC
- **Optional**
 - **GenRad / General Radio 1404-A** (1000 pF) primary standard capacitor
 - **GenRad / General Radio 1404-B** (100 pf) primary standard capacitor

Technical Data

General						
Frequency range	0.1 Hz to 50 kHz		(High G: 0.1 Hz to 100 kHz)			
Voltage range	700 μ V to 7 V					
Charge range	70 fC to 7 nC					
Scaling factors of the attenuator ATS-15 ¹⁾	1:1, 1:8, 1:64, 1:512					
Measurement uncertainty of FECS						
Frequency range, Hz	Generation and measurement of basic quantity, %		Transfer coefficient magnitude, %		Transfer coefficient phase angle, °	
	Voltage U_x	Charge Q_x	Voltage G_{Ux}	Charge G_{Qx}	Voltage ϕ_{Ux}	Charge ϕ_{Qx}
0.125 - < 20	0.2	0.2	0.2	0.25	0.4	0.4
20 - 20 k	0.1	0.1			0.5	0.5
> 20 k - 50 k	0.25	0.25	0.25	0.3	1.5	2.0

¹⁾Traceable to national standard

Typical setup for the determination of the frequency response