

# R&S®HM8118

## LCR-Bridge

### Technical Data



#### Key facts

- Basic Accuracy 0.05 %
- Measurement Functions L, C, R, |Z|, X, |Y|, G, B, D, Q,  $\theta$ ,  $\Delta$ , M, N
- Test Frequencies 20 Hz...200 kHz
- Up to 12 Measurements per Second
- Parallel and Serial Mode
- Binning Interface HO118 (optional) for automatic Sorting of Components
- Internal programmable Voltage and Current Bias
- Transformer Parameter Measurement
- External Capacitor Bias up to 40 V
- Kelvin Cable and 4-Terminal SMD Test Adapter included
- Galvanically isolated USB/RS-232 Dual-Interface, optional IEEE-488 (GPIB)

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Test & Measurement

Technical Data

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# Technical Data

## 200 kHz LCR-Bridge R&S®HM8118

All data valid at 23°C after 30 minutes warm-up.

### Conditions

Test signal voltage	1 V
Open and short corrections performed	
Measurement time	SLOW

### Display

Measurement modes	Auto, L-Q, L-R, C-D, C-R, R-Q, Z-θ, Y-θ, R-X, G-B, N-θ, M
Equivalent circuits	auto, series or parallel
Parameters displayed	Value, deviation or % deviation
Averaging	2 to 99 measurements

### Accuracy

Primary parameters	Basic accuracy (Test voltage: 1.0V, measurement SLOW/MEDIUM, autoranging mode, constant voltage OFF, bias off). For FAST mode double the basic accuracy values
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Impedance: 100 MΩ 4 MΩ 1 MΩ 25 kΩ 100 Ω 2.5 Ω 0,01 mΩ	0.2% + $I_Z/1.5 G\Omega$		0.5% + $I_Z/100 M\Omega$	
	0.05% + $I_Z/2 G\Omega$	0.1% + $I_Z/1.5 G\Omega$		
	0.1% + $1 m\Omega / I_Z$		0.2% + $I_Z/100 M\Omega$	0.5% + $5 m\Omega / I_Z$
	0.3% + $1 m\Omega / I_Z$		0.2% + $2 m\Omega / I_Z$	0.5% + $I_Z/10 M\Omega$
	20 Hz	1 kHz	10 kHz	100 kHz

### Secondary parameters

Basic accuracy D, Q	±0,0001 if f = 1 kHz
Phase angle	±0,005° if f = 1 kHz

### Ranges

Z , R, X	0,01 mΩ to 100 MΩ
Y , G, B	10 nS to 1,000 S
C	0,01 pF to 100 mF
L	10 nH to 100 kH
D	0,0001 to 9,9999
Q	0,1 to 9,999,9
θ	-180° to +180°
Δ	-999,99 to 999,99%
M	1 μH to 100 H
N	0,95 to 500

### Measurement conditions and functions

Test frequency	20 Hz to 200 kHz (69 steps)
Frequency accuracy	±100 ppm
AC test signal level	50 mV <sub>rms</sub> to 1.5 V <sub>rms</sub>
Resolution	10 mV <sub>rms</sub>

Drive level accuracy	±(5% + 5 mV)
Internal bias voltage	0 V <sub>DC</sub> to +5,00 V <sub>DC</sub>
Resolution	10 mV
External bias voltage	0 V <sub>DC</sub> to +40 V <sub>DC</sub> (fused 0.5 A)
Internal bias current	0 mA to +200 mA
Resolution	1 mA
Range selection	Auto and Hold
Trigger	Continuous, manual or external (via interface, binning interface or trigger input)
Trigger delay time	0 ms to 999 ms in 1 ms steps
Measurement time (f ≥ 1 kHz)	
FAST	70 ms
MEDIUM	125 ms
SLOW	0.7 s
<b>Miscellaneous</b>	
Test signal level monitor	Voltage, current
Error correction	Open, short, load
Save/Recall	9 instrument settings
Front-end protection	$V_{max} < \sqrt{2} C @ V_{max} < 200 V, C$ in Farads (1 Joule of stored energy)
Low potential and low current guarding	Ground, driven guard or auto (fused)
Constant voltage mode (25 Ω source)	
Temperature effects R, L or C	±5 ppm/°C
Interface	Dual interface USB/RS-232 (R&S®HO820), optional R&S®HO880 IEEE-488 (GPIB)
Safety	Safety class I (EN61010-1)
Power supply	110V to 230V ±10%, 50 to 60 Hz, CAT II
Power consumption	approx. 20 W
Operating temperature	+5°C to +40°C
Storage temperature	-20°C to +70°C
Rel. humidity	5% to 80% (non condensing)
Dimensions (W x H x D)	285 x 75 x 365 mm
Weight	approx. 4 kg

**Accessories supplied:** Line cord, operating manual, R&S®HZ184 4-terminal kelvin test cable, R&S®HZ188 4-terminal SMD component test fixture

### Recommended accessories:

R&S®HO118	Binning interface
R&S®HO880	Interface IEEE-488 (GPIB), galvanically isolated
R&S®HZ42	19" rackmount kit 2RU
R&S®HZ72	GPIB-cable 2 m
R&S®HZ181	4-terminal test fixture including shorting plate
R&S®HZ186	4-terminal transformer test cable

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