

# Измеритель иммитанса LCR-метр HM8118



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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- $\theta$ , Y- $\theta$ , R-X, G-B, N- $\theta$ , 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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<b>Impedance:</b> 100 M $\Omega$				
4 M $\Omega$	0.2% + $ Z /1.5 G\Omega$		0.5% + $ Z /100 M\Omega$	
1 M $\Omega$	0.05% + $ Z /2 G\Omega$	0.1% + $ Z /1.5 G\Omega$		
25 k $\Omega$			0.2% + $ Z /100 M\Omega$	0.5% + $5 m\Omega /  Z $
100 $\Omega$	0.1% + $1 m\Omega /  Z $		0.2% + $2 m\Omega /  Z $	+ $ Z /10 M\Omega$
2.5 $\Omega$			0.5% + $2 m\Omega /  Z $	
0,01 m $\Omega$				
	20 Hz	1 kHz	10 kHz	100 kHz

### Secondary parameters

Basic accuracy D, Q	$\pm 0,0001$ if $f = 1$ kHz
Phase angle	$\pm 0,005^\circ$ if $f = 1$ kHz

### Ranges

Z , R, X	0,01 m $\Omega$ to 100 M $\Omega$
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
$\theta$	-180° to +180°
$\Delta$	-999,99 to 999,99%
M	1 $\mu$ H to 100 H
N	0,95 to 500

### Measurement conditions and functions

Test frequency	20 Hz to 200 kHz (69 steps)
Frequency accuracy	$\pm 100$ 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	$\pm(5\% + 5$ 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 ( $f \geq 1$ 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 $\Omega$ source)	
Temperature effects R, L or C	$\pm 5$ ppm/ $^\circ$ 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	110 V to 230 V $\pm 10\%$ , 50 to 60 Hz, CAT II
Power consumption	approx. 20 W
Operating temperature	+5 $^\circ$ C to +40 $^\circ$ C
Storage temperature	-20 $^\circ$ C to +70 $^\circ$ 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

Key specifications	
Test frequencies	20 Hz to 200 kHz
Basic accuracy	0.05 %
Measurement functions	L, C, R,  Z , X,  Y , G, B, D, Q, φ, Δ, M, N
Internal bias voltage	0 V to +5 V
Internal bias current	0 mA to 200 mA
External bias voltage	0 V to +40 V

## Key features

- ▶ Basic accuracy: 0.05 %
- ▶ Up to 12 measurements per second
- ▶ Parallel and serial mode
- ▶ Internal programmable voltage and current bias
- ▶ Kelvin cable and four-terminal SMD test adapter included
- ▶ R&S®HO118 binning interface (optional) for automatic sorting of components

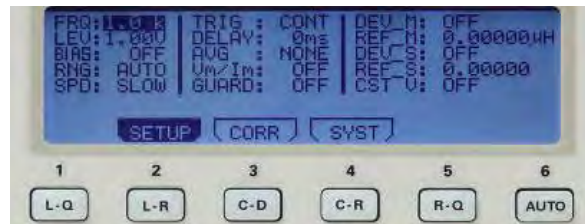
Your benefit	Features
Versatile functionality, all usually needed measurements included	The R&S®HM8118 provides the full range of measurements to characterize resistors, capacitors and inductors; results are displayed in absolute, relative or average values
Easy to use	Frequently used functions are directly accessible via front panel keys
Easy to interface for remote control	RS-232/USB interface; optional GPIB
Quiet on the bench	Fanless design

Ordering information	
<b>Base unit</b>	<b>Item</b>
200 kHz LCR bridge	R&S®HM8118
<b>Options/accessories/system components</b>	<b>Item</b>
Binning interface (service center installation only)	R&S®HO118
Four-terminal test fixture including shorting plate	R&S®HZ181
Four-terminal transformer test cable	R&S®HZ186
Interface IEEE-488 (GPIB)	R&S®HO880
19" rackmount kit, 2 HU	R&S®HZ42

### Included accessories:

The R&S®HM8118 LCR bridge includes R&S®HZ184 four-terminal Kelvin test cable, R&S®HZ188 four-terminal SMD component test fixture, operating manual, power cable and three-year warranty.

## Direct control



The most important parameters are adjustable with the push of a button.

## Ease of use



Activation and deactivation of OPEN, SHORT and LOAD correction.



R&S®HZ181 4-terminal test fixture including shorting plate.



R&S®HZ186 4-terminal transformer test cable.

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