

## LCR-Meter HM8018

HM8018



HZ19 SMD Test Tweezers



Option HZ18 Kelvin test lead



Mainframe HM8001-2  
required for operation

Measurement functions: L, C, R,  $\Theta$ , D, |Z|

Basic accuracy 0.2 %

5 measurement frequencies: 100 Hz, 120 Hz, 1 kHz, 10 kHz, 25 kHz

Max. Resolution: 0.001  $\Omega$ , 0.001 pF, 0.01  $\mu$ H

2- and 4-wire measurement, parallel and series mode

## LCR-Meter HM8018

Valid at 23 °C after a 30 minute warm-up period

### Measurement functions

Measuring modes:	R, L, C, $\Theta$ , Q/D,  Z
Equivalent circuits:	serial, parallel
Measuring method:	2-wire, 4-wire
Measuring ranges:	R: 0.001 $\Omega$ – 99.9 M $\Omega$ C: 0.001 pF – 99.9 mF L: 0.01 $\mu$ H – 9999 H Q: 0.0001 – 99.9 D: 0.0001 – 9.9999 $\Theta$ : -180.00° – +180.00°
Basic accuracy:	0.2%
Measuring frequencies:	100 Hz, 120 Hz, 1 kHz, 10 kHz, 25 kHz
Freq. Accuracy:	$\pm 100$ ppm (except 120 Hz: 120.2 Hz $\pm 100$ ppm)
Measuring voltage:	0.5 V <sub>eff</sub> $\pm 10$ % (unloaded)
Measuring rate:	2 measurements/second
Range changing:	automatic, manual
DC Bias voltage:	1 V $\pm 10$ %
Zero setting:	Open/short circuit compensation
Compensation limits:	Short: R < 10 $\Omega$ Z < 15 $\Omega$ Open: Z > 10 k $\Omega$

### Measurement accuracy

with  $D < 0.1$  or  $Q > 10$ :

$$C: A_e = A_f (1 + C_x / C_{max} + C_{min} / C_x)$$

$$L: A_e = A_f (1 + L_x / L_{max} + L_{min} / L_x)$$

$$Z: A_e = A_f (1 + Z_x / Z_{max} + Z_{min} / Z_x)$$

$$R: A_e = A_f (1 + R_x / R_{max} + R_{min} / R_x)$$

with  $D \geq 0.1$ :  $A_e = \sqrt{1 + D_x^2}$

with the parameters:

$C_x$  = Measurement value  
 $A_f$  = 0.2% at  $f = 100$  Hz, 120 Hz, 1 kHz  
 $A_f$  = 0.3% at  $f = 10$  kHz  
 $A_f$  = 0.5% at  $f = 25$  kHz

Parameter	Auto Range
$C_{max}$	160 $\mu$ F/f
$C_{min}$	53 pF/f
$L_{max}$	480 H/f
$Z_{max}, R_{max}$	3 M $\Omega$
$Z_{min}, R_{min}$	1 m $\Omega$

Dissipation factor accuracy:  $D_e = \pm \frac{A_e}{100}$

Quality factor accuracy:  $Q_e = \frac{Q_x^2 \cdot D_e}{1 \pm D_x \cdot D_e}$

Phase angle accuracy:  $\Theta_e = \frac{180}{\pi} \cdot \frac{A_e}{100}$

### Display

5-digits 7-Segment LEDs with sign

Display Parameters:

Value	} Calculation from measurement value and reference value stored
% Value	
% Deviation	
% Offset	

### Miscellaneous

The inputs are short-circuit-proof and overvoltage protected up to 100 V<sub>DC</sub> with a maximum energy consumption of 1 J.

One configuration can be saved.

Operating temperature: +10 °C ... 40 °C

Max. relative humidity: 80 %

Power supply  
(from mainframe): +5 V/300 mA  
+5.2 V/50 mA  
-5.2 V/50 mA  
( $\Sigma = 2$  W)

Dimensions (W x H x D) (without 22-pole flat plug):

135 x 68 x 228 mm

Weight: approx. 0.5 g

Included in delivery: Operator's Manual

Optional accessories: HZ18 Kelvin test lead, HZ10S/R Silicone test lead

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