

HM8018

LCR-Meter

Technical Data



Key facts

- Measurement functions: L, C, R, θ , Q, D, |Z|
- Basic accuracy 0.2%
- 5 measurement frequencies: 100 Hz, 120 Hz, 1 kHz, 10 kHz, 25 kHz
- Max. Resolution: 0.001 Ω , 0.001 pF, 0.01 μ H
- 2- and 4-wire measurement
- Measurement of serial and parallel components
- Bias voltage for electrolyt capacitors
- Mainframe HM8001-2 required for operation

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

Measuring functions and -conditions

Measuring modes:	R, L, C, Θ , O/D, Z
Equivalent circuits:	serial, parallel
Measuring method:	2-wire, 4-wire
Measuring ranges:	R: 0,001 Ω ... 99,9 M Ω C: 0,001 pF ... 99,9 mF L: 0,01 μ H ... 9999 H Q: 0,0001 ... 99,9 D: 0,0001 ... 9,9999 Θ : -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 Vrms \pm 10% (unloaded))
Measuring rate:	2 measurements/second
Range selectable:	automatic, manual
DC Bias voltage:	1 V \pm 10%
Zero setting:	Open/short circuit compensation
Compensation limits:	
Short:	R < 10 Ω Z < 15 Ω
Open:	Z > 10 k Ω

Measurement accuracy

with D<0,1 or Q>10: (Ad = 1 if D<0,1)	C: Ae = Af x Ad (1 + Cx/Cmax + Cmin/Cx) L: Ae = Af x Ad (1 + Lx/Lmax + Lmin/Lx) Z: Ae = Af (1 + Zx/Zmax + Zmin/Zx) R: Ae = Af x Ad (1 + Rx/Rmax + Rmin/Rx)
with D \geq 0,1:	Ae = $\sqrt{1 + Dx^2}$
with the parameters:	Cx, Lx, Zx, Rx = measurement value
Af = 0,2%	at f = 100 Hz, 120 Hz, 1 kHz
Af = 0,3%	at f = 10 kHz
Af = 0,5%	at f = 25 kHz

Parameter	Auto Range
Cmax	160 μ F/f (f in kHz)
Cmin	53 pF/f (f in kHz)
Lmax	480 H/f (f in kHz)
Lmin	0,16 mH/f (f in kHz)
Zmax, Rmax	3 M Ω
Zmin, Rmin	0,5 Ω
Dissipation factor accuracy:	$D_e = \pm \frac{A_e}{100}$
Quality factor accuracy:	$Q_e = \frac{Q_x^2 \cdot D_e}{1 \pm Q_x \cdot D_e}$
Phase angle accuracy:	$\Theta = \frac{180}{\pi} \cdot \frac{A_e}{100}$

Display

5-digits 7 segment LEDs with sign

Display parameters:

Value	} Calculation from measurement value and reference value stored
% value	
Offset	
rel. Offset	

Miscellaneous

The inputs are short-circuit-proof and overvoltage protected up to 100 VDC with a maximum energy consumption of 1J.

One configuration can be stored.

Operating temperature:	+5°C ... +40°C
Storage temperature	-20°C ... +70°C
Max. relative humidity:	5%... 80% (without condensation)
Supply voltages (from HM8001-2):	+5 V/300 mA +5,2 V/50 mA -5,2 V/50 mA (Σ = 2 W)
Dimensions (without connector) W x H x D:	135 x 68 x 228 mm
Weight:	approx. 500 g

Included in delivery:

LCR Meter HM8018, Operating manual

Optional accessories:

- HZ10S 5 x silicone test lead
(measurement connection in black)
- HZ10R 5 x silicone test lead
(measurement connection in red)
- HZ10B 5 x silicone test lead
(measurement connection in blue)
- HZ17 Kelvin test lead (4wire) with probe tips
- HZ18 Kelvin test lead (4wire) with gold plated contacts
- HZ19 Kelvin test lead (4wire) with SMD-Test-tweezers