

## 25kHz LCR-Meter HM8018



HM8018

Option HZ19 SMD Test  
Tweezers



Option HZ18 Kelvin Test  
Lead



Mainframe HM8001-2  
required for Operation

- Measurement Functions: L, C, R,  $\Theta$ , Q/D, |Z|
- Basic Accuracy 0.2%
- 5 Measurement Frequencies:  
100Hz, 120Hz, 1kHz, 10kHz, 25kHz
- Max. Resolution: 0.001 $\Omega$ , 0.001pF, 0.01 $\mu$ H
- 2- and 4-Wire Measurement, parallel and serial Mode

## 25 kHz-LCR-Meter HM8018

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

### Measurement functions

|                               |  |
|-------------------------------|--|
| <b>Measuring modes:</b>       | R, L, C, $\Theta$ , Q/D,  Z  |
| <b>Equivalent circuits:</b>   | serial, parallel   |
| <b>Measuring method:</b>      | 2-wire, 4-wire   |
| <b>Measuring ranges:</b>      | R: 0.001 $\Omega$ ...99.9 M $\Omega$<br>C: 0.001 pF...99.9 mF<br>L: 0.01 $\mu$ H...9.999 H<br>Q: 0.0001...99.9<br>D: 0.0001...9.9999<br>$\Theta$ : (-180.00°)...(+180.00°) |
| <b>Basic accuracy:</b>        | 0.2%   |
| <b>Measuring frequencies:</b> | 100 Hz, 120 Hz, 1 kHz, 10 kHz, 25 kHz  |
| <b>Freq. Accuracy:</b>        | $\pm$ 100 ppm (except 120 Hz: 120.2 Hz $\pm$ 100 ppm)  |
| <b>Measuring voltage:</b>     | 0.5V <sub>rms</sub> $\pm$ 10% (unloaded)   |
| <b>Measuring rate:</b>        | 2 measurements/second  |
| <b>Range changing:</b>        | automatic, manual  |
| <b>DC Bias voltage:</b>       | 1V $\pm$ 10%   |
| <b>Zero setting:</b>          | Open/short circuit compensation  |
| <b>Compensation limits:</b>   | Short: R < 10 $\Omega$<br>Z < 15 $\Omega$<br>Open: Z > 10 k $\Omega$   |

### Measurement accuracy

|                        |  |
|------------------------|--|
| with D < 0.1 or Q > 10 | C: $A_e = A_f \times A_d (1 + C_x/C_{max} + C_{min}/C_x)$<br>L: $A_e = A_f \times A_d (1 + L_x/L_{max} + L_{min}/L_x)$<br>Z: $A_e = A_f (1 + Z_x/Z_{max} + Z_{min}/Z_x)$<br>R: $A_e = A_f \times A_d (1 + R_x/R_{max} + R_{min}/R_x)$<br>$A_d = 1$ for D < 0.1 |
| with D $\geq$ 0.1      | $A_d = \sqrt{1 + D^2}$   |
| with the parameters    | $C_x, L_x, Z_x, R_x$ = Measurement value<br>$A_f = 0.2\%$ at f = 100 Hz, 120 Hz, 1 kHz<br>$A_f = 0.3\%$ at f = 10 kHz<br>$A_f = 0.5\%$ at f = 25 kHz   |

| Parameter          | Auto Range               |
|--------------------|--------------------------|
| $C_{max}$          | 160 $\mu$ F/f (f in kHz) |
| $C_{min}$          | 53 pF/f (f in kHz)       |
| $L_{max}$          | 480 H/f (f in kHz)       |
| $L_{min}$          | 0.16 mH/f (f in kHz)     |
| $Z_{max}, R_{max}$ | 3 M $\Omega$             |
| $Z_{min}, R_{min}$ | 0.5 $\Omega$             |

|                                     |   |
|-------------------------------------|---|
| <b>Dissipation factor accuracy:</b> | $D_e = \pm \frac{A_e}{100}$                         |
| <b>Quality factor accuracy:</b>     | $Q_e = \frac{Q_x^2 \cdot D_e}{1 \pm D_x \cdot D_e}$ |
| <b>Phase angle accuracy:</b>        | $\Theta_e = \frac{180}{\pi} \cdot \frac{A_e}{100}$  |

### 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 100V<sub>dc</sub> with a maximum energy consumption of 1 J. One configuration can be saved.

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

**Operating temperature:** +5...+40 °C

**Storage temperature:** -20...+70 °C

**Rel. humidity:** 5...80% (non condensing)

**Dimensions (W x H x D)**

**(without 22-pole flat plug):** 135 x 68 x 228 mm

**Weight:** approx. 0.5 kg

**Included in delivery:** Operating manual, CD

#### Recommended 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 (4-wire) with probe tips                |
| HZ18  | Kelvin test lead (4-wire) with gold plated contacts      |
| HZ19  | Kelvin test lead (4-wire) with SMD-Test-tweezers         |