# Product Datasheet - Technical Specifications



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# Keysight Technologies
# U1701B Handheld Capacitance Meter

Data Sheet

The Keysight Technologies, Inc. handheld capacitance meters expand Keysight's portfolio of handheld tools into electronics assembly and passive components troubleshooting. Keysight now offers its handheld capacitance meter, the U1701B, providing extra capabilities and functionalities.

## Features

- 11,000 counts resolution
- Dual display with backlight
- Wide range: 1000 pF to 199.99 mF
- Compare mode with 25 sets of High/Low limit settings
- Tolerance mode: 1%, 5%, 10% and 20%
- Relative mode
- Hold and Min/Max/Average recordings
- Data logging to PC with optional IR-to-USB cable

## Efficient capacitor sorting



Figure 1. Automate the recording of continuous readings when you hook the U1701B to a PC

With up to 25 sets of High/Low limits that you can store and choose from in compare mode, the U1701B lets you breeze through capacitor sorting without the need to set and reset the standard reference for different capacitors-under-test.

The U1701B also comes with other handy functions, including tolerance and relative modes, Hold, Min/Max/Average recordings, and PC data logging.

## Uncompromised quality and reliability

The handheld capacitance meter comes in a robust overmold and tested to stringent industrial standards. Each capacitance meter is sealed with the assurance that you can test your components with confidence.

# Take a Closer Look

Maximum, Minimum and Average values recording

Visible and audible tolerance mode for capacitor sorting

Backlight function to ease viewing in subdued lighting

Compare mode with up to 25 limit ranges

Secondary display

11,000 counts resolution

Measurement range up to 199.99 mF

Data Hold function to freeze measured values

Relative mode

Guard terminal to be used with SMD tweezer for better noise immunity

Figure 2. U1701B front view

# U1701B Electrical Specifications

Accuracy is given as ± (% of output + counts of least significant digit) at
23 °C ± 5 °C, with relative humidity less than 80% R.H.

For example, 1% ±10 = 1% of reading + 10 counts of least significant digit.

## Capacitance

| Range | Resolution | Accuracy* | Measuring rate (approx.) |
|---|---|---|---|
| 1000.0 pF | 0.1 pF | 1% + 10 | 5 times/s |
| 10.000 nF | 0.001 nF | 1% + 5 | 5 times/s |
| 100.00 nF | 0.01 nF | 0.5% + 3 | 5 times/s |
| 1000.0 nF | 0.1 nF | 0.5% + 3 | 5 times/s |
| 10.000 µF | 0.001µF | 0.5% + 3 | 5 times/s |
| 100.00 µF | 0.01 µF | 0.5% + 3 | 5 times/s |
| 1000.0 µF | 0.1 µF | 0.5% + 3 | 0.86 times/s |
| 10.000 mF | 0.001 mF | 1% + 5 | 0.13 times/s |
| 199.99 mF | 0.01 mF | 2% + 5 | 0.006 times/s |

\* Accuracy is specified to measure film capacitor or better. Use Relative mode to zero residual.

# General Specifications

| Parameter | U1701B |
|---|---|
| Display | 4½-digit liquid crystal display (LCD) with a maximum resolution of 11,000 counts and automatic polarity indication |
| Power supply | – 9 V Alkaline battery (ANSI/NEDA 1604A or IEC 6LR61)<br>– AC power adapter and cord available as options |
| Power consumption | 5.6 mA (on battery operation) |
| Battery life | ~80 hours without backlight and based on new alkaline |
| Operating temperature | Full accuracy at 0 °C to 50 °C |
| Operating humidity | Up to 80% relative humidity (R.H.) for temperatures up to 31 °C, decreasing linearly to 50% R.H. at 50 °C |
| Altitude | 0 to 2000 m |
| Storage temperature | –20 °C to 60 °C |
| Storage humidity | 0 to 80% R.H. non-condensing |
| Temperature coefficient | 0.1 x (specified accuracy)/ °C (from 0 °C to 18 °C or 28 °C to 50 °C) |
| Low battery indicator | ▭ will appear when the voltage drops below ~ 6.0 V |
| Weight | 320 g |
| Dimensions (H x W x D) | 184 mm x 87 mm x 41 mm |
| Safety and EMC compliance | IEC 61010-1:2001/EN 61010-1:2001 (2nd Edition) Pollution Degree 2,<br>IEC 61326-2-1:2005/EN 61326-2-1:2006, ICES-001:2004, AS/NZS CISPR11:2004 |
| Calibration | One-year calibration cycle recommended |

# Ordering Information



## Standard shipped items

Standard U1701B ordering includes:
- Quick Start Guide
- Certificate of Calibration (CoC)
- Alligator clip leads
- 9 V alkaline battery

## Recommended accessories

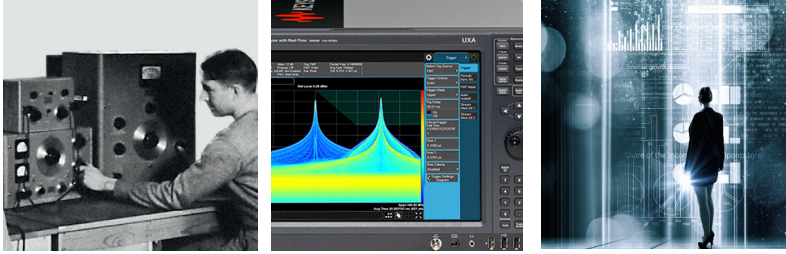| | | |
|---|---|---|
| U1174A |  | Soft carrying case |
| U5481A |  | IR-to-USB cable |
| U1782A |  | SMB tweezer |
| U1780A |  | Power adaptor and cord (according to country) |
| U1781A |  | Alligator clip leads |

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