Keysight 16380C Capacitance Standard Set

KEYSIGHT TECHNOLOGIES

Operating Note

Notices

Trademark Acknowledgments

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CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

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1 General Information

Description

The Keysight 16380C Capacitance Standard Set consists of three precision capacitors 0.01 µF (16385A), 0.1 µF (16386A), and 1 µF (16387A). One precision capacitor 10 µF (16388A) is available with Option 001. All four capacitors have high capacitance stabillity and are virtually unaffected by changes in environmental temperature, ensuring measurement repeatability and reliability.

The 16380C was designed for use in calibrating precision impedance measuring instruments (such as LCR meters, impedance analyzers, etc.) that have capacitance ranges between 0.01 µF and 10 µF. The 16380C can be used to verify capacitance measurement accuracy over the 0.01 µF to 10 µF range.

Contents

The 16380C contents are listed in Table 1-1.

Table 1-1

Description	Keysight Part No.	Qty.
16385A (0.01 µF)	Not Assigned	1
16386A (0.1 µF)	Not Assigned	1
16387A (1 µF)	Not Assigned	1
16388A (10 µF) (Option 001)	Not Assigned	1
BNC(f)-(f) Adapters	1250-0080	4
Case	16380-85104	1
Calibration Report	Not Assigned	1
Operating Note (This Manual)	16380-90221	1

Initial Inspection

Inspect the shipping container for damage. If the shipping container or cushioning material is damaged, it should be kept until the contents of the shipment have been checked for completeness and the instrument has been checked mechanically.The contents of the shipment should be as shown in Table 1-1 If the shipment is incomplete, or if there is mechanical damage or defects, notify the nearest Keysight office. If the shipping container is damaged, or the cushioning material shows signs of stress, notify the carrier as well as the Keysight office. Keep the shipping materials for carrier's inspection. The Keysight office will arrange for repair or replacement at Keysight Option, without waiting for claim settlement.

2 Specifications and Supplemental Performance Charateristics

Specifications

Table 2-1

Model	16385A	16386A	16387A	16388A (opt.001)
Nominal Value[1]	0.01 µF	0.1 µF	1 µF	10 µF
Nominal Accuracy[1]		±0.1%		±0.05%
Dissipation Factor[1]	$\leq 4\times10^{-4}$	$\leq 5\times10^{-4}$	$\leq 7\times10^{-4}$	$\leq 5\times10^{-4}$

1. Specified at 1 kHz under the following ambient conditions:
   Temperature: 23±5 °C

Operating Conditions

Ambient Temperature: 23±5 °C

Relative Humidity: Less than 70% RH

Dimensions

16385A, 16386A, 16387A, and 16388A (opt.001): 142(W) × 88(D) × 112(H) mm

Carrying Case: 355(W) × 340(D) × 170(H) mm

Weight

16385A, 16386A, and 16387A: approximately 1.3 kg each

16388A (opt.001): approximately 1.7 kg

Total: approximately 7.0 kg[1]/approximately 8.7 kg[2]

1. Includes three capacitance standards, a carrying case, and four BNC adapters.
2. Includes four capacitance standards, a carrying case, and four BNC adapters.

Accessories Furnished

BNC (f)-(f) Adapters, 4ea: PN 1250-0080

Carrying Case, 1ea.: PN 16380-85104

Operating Note, 1ea.: PN 16380-90221

Supplemental Performance Characteristics

Capacitance Temperature Coefficient

16385A, 16386A, 16387A, and 16388A (opt.001): –20 to 35 ppm/˚C

Capacitance Stability

16385A, 16386A, 16387A, and 16388A (opt.001): <50ppm/year @ 1 kHz, 23±5 ˚C

Maximum Allowable Voltage/Current

16385A, 16386A, 16387A, and 16388A (opt.001): 40 V peak (ac+dc)/ 100 mA rms

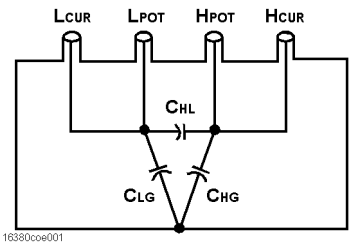
Residual Capacitance

Table 2-2

	16385A	16386A	16387A	16388A (opt.001)
C_{HG}[1]	<20 pF	<20 pF	<35 pF	<50 pF
C_{LG}[1]	<20 pF	<20 pF	<35 pF	<50 pF

1. See the figure below.

Figure 2-1



C_{HL}: 4 terminal capacitance

C_{HG}, C_{LG}: Stray capacitance to guard

Storage Conditions

Temperature: –10 ˚C to +55 ˚C

Relative Humidity: Less than 85% RH at 40 ˚C

3 Service

Calibration

Keysight will calibrate the 16380C. For complete information (price, time required, etc.) on how to have the 16380C calibrated, contact the nearest Keysight Sales and Service Office.

Recommended Calibration Cycle

The 16380C should be calibrated at least once a year. More frequent calibration may be required if the 16380C is used in very hot or very cold environments.

Repair

The 16380C contains no replaceable components. If one of the capacitors becomes damaged, or if its capacitance value is outside specified Limits, the capacitor must be replaced. For complete information on service, contact the nearest Keysight Sales and Service Office.

Service
Repair

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