

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Keysight / Agilent 16048A* at our website: ***Click HERE***

Agilent 16048E Test Leads

Operation and Service Manual

Fourth Edition

Agilent Technologies Japan, Ltd.

Agilent PN 16048-90041



Agilent Technologies

March 2000

Printed in: Japan

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Notices

The information contained in this document is subject to change without notice.

This document contains proprietary information that is protected by copyright.All rights are reserved. No part of this document may be photocopied, reproduced, or translated to another language without the prior written consent of the Agilent Technologies.

Agilent Technologies Japan, Ltd.

Component Test PGU-Kobe

1-3-2, Murotani, Nishi-Ku, Kobe-shi, Hyogo, 651-2241 Japan

Copyright © 1992, 1998, 1999, 2000 Agilent Technologies Japan, Ltd.

Manual Printing History

The manual's printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections and updates that are incorporated at reprint do not cause the date to change.) The manual part number changes when extensive technical changes are incorporated.

1992	First Edition (part number: 16048-90040)
November 1998	Second Edition (part number: 16048-90041)
July 1999	Third Edition (part number: 16048-90041)
March 2000	Fourth Edition (part number: 16048-90041)

Safety Summary

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific WARNINGS elsewhere in this manual may impair the protection provided by the equipment. In addition it violates safety standards of design, manufacture, and intended use of the instrument.

Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

- Ground The Instrument

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

To avoid electric shock hazard, the instrument chassis and cabinet must be connected to a safety earth ground by the supplied power cable with earth blade.

- DO NOT Operate In An Explosive Atmosphere

  Do not operate the instrument in the presence of flammable gasses or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.

- Keep Away From Live Circuits

  Operating personnel must not remove instrument covers. Component replacement and internal adjustments must be made by qualified maintenance personnel. Do not replace components with the power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.

- DO NOT Service Or Adjust Alone

  Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.

- DO NOT Substitute Parts Or Modify Instrument

  Because of the danger of introducing additional hazards, do not install substitute parts or perform unauthorized modifications to the instrument. Return the instrument to a Agilent Technologies Sales and Service Office for service and repair to ensure that safety features are maintained.

- Dangerous Procedure Warnings

  Warnings, such as the example below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed.

WARNING **Dangerous voltages, capable of causing death, are presenting this instrument. Use extreme caution when handling, testing, and adjusting this instrument.**

Certification

Agilent Technologies certifies that this product met its published specifications at the time of shipment from the factory. Agilent Technologies further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology, to the extent allowed by the Institution’s calibration facility, or to the calibration facilities of other International Standards Organization members.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Warranty

This Agilent Technologies instrument product is warranted against defects in material and workmanship for a period corresponding to the individual warranty periods of its component products. Instruments are warranted for a period of one year. Fixtures and adapters are warranted for a period of 90 days. During the warranty period, Agilent Technologies Company will, at its option, either repair or replace products that prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by Agilent Technologies. Buyer shall prepay shipping charges to Agilent Technologies and Agilent Technologies shall pay shipping charges to return the product to Buyer. However, Buyer shall pay all shipping charges, duties, and taxes for products returned to Agilent Technologies from another country.

Agilent Technologies warrants that its software and firmware designated by Agilent Technologies for use with an instrument will execute its programming instruction when property installed on that instrument. Agilent Technologies does not warrant that the operation of the instrument, or software, or firmware will be uninterrupted or error free.

Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside the environmental specifications for the product, or improper site preparation or maintenance.

IMPORTANT

No other warranty is expressed or implied. Agilent Technologies specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

Exclusive Remedies

The remedies provided herein are buyer’s sole and exclusive remedies. Agilent Technologies shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Assistance

Product maintenance agreements and other customer assistance agreements are available for Agilent Technologies products.

For any assistance, contact your nearest Agilent Technologies Sales and Service Office. Addresses are provided at the back of this manual.

Safety Symbol

General definitions of safety symbols used on the instrument or in manuals are listed below.



Instruction Manual symbol: the product is marked with this symbol when it is necessary for the user to refer to the instrument manual.

WARNING	**This warning sign denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in injury or death to personnel.**
CAUTION	This Caution sign denotes a hazard. It calls attention to a procedure, practice, condition or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product.
NOTE	Note denotes important information. It calls attention to a procedure, practice, condition or the like, which is essential to highlight.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Contents

1. Operation

Product Description 10
Specifications 11
Compensation for Fixture Residual Impedance Error 12
Operation 13
Setup and Measurement Procedure. 13
BNC Bracket. 13

2. Service

Maintenance 16

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Contents

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

1 Operation

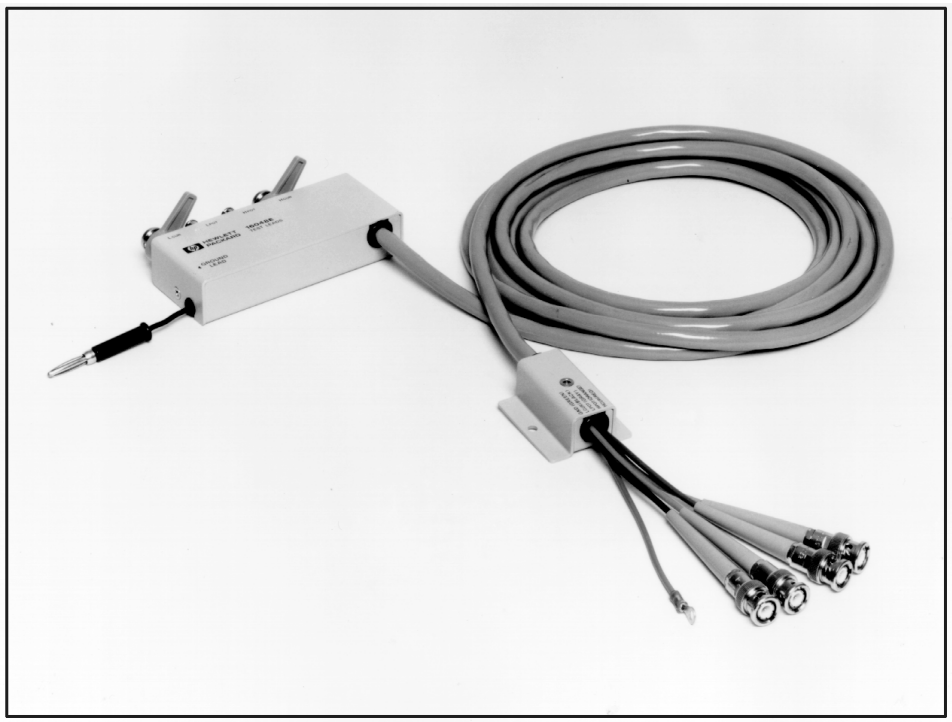
This operating note provides complete information on the 16048E Test Leads. The 16048E is shown in Figure 1-1, its physical dimensions are given in Table 1-1. To order additional copies of this operating note, use the part number listed on the rear cover.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Product Description

The 16048E consists of a direct attachment, 4-terminal pair type fixture which is equipped with four BNC (m) terminated-coaxial test leads. These test leads are used to attach user-fabricated test fixtures. Cable length is 4 meter. The 16048E is shown in Figure 1-1.

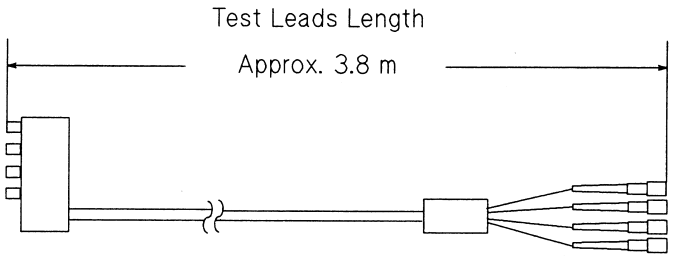
Figure 1-1 **Product overview**



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Specifications

Table 1-1 **Specifications of the 16048E**

Function:	4-terminal pair type fixture which is equipped with four BNC (m) terminated-coaxial test leads.
Connector Type:	BNC male
Cable Length:	Approximately 4 m
Test Leads Length:	Approximately 3.8 m 
Maximum Voltage:	± 40 V peak max. (AC+DC)
Weight:	690 g

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Compensation for Fixture Residual Impedance Error

The 16048E has inherent stray capacitance, residual inductance, and residual resistance that affect the accuracy of measured values. To compensate for, or negate, these residuals to minimize measurement error, the instrument's Open/Short compensation procedure should be performed. The procedure is given in the instrument's operating manual.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Operation

Setup and Measurement Procedure

Setup and measurement procedure is as follows:

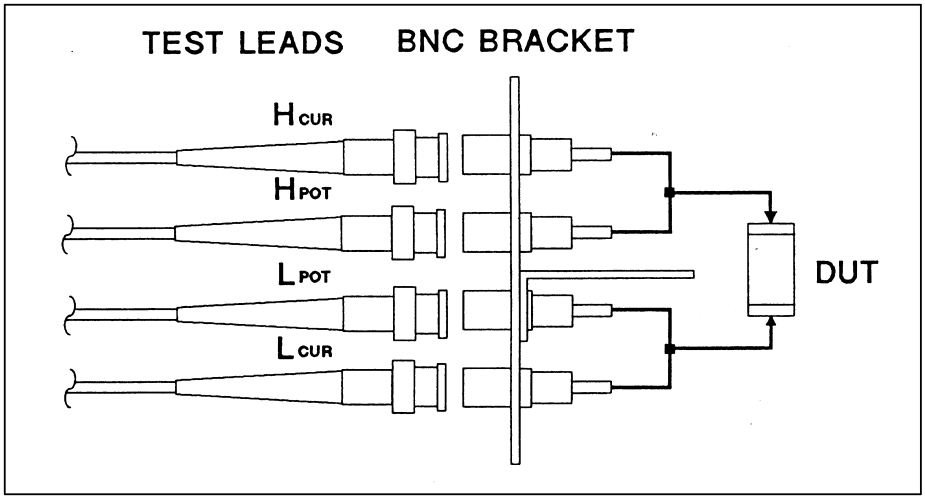
1. Connect the 16048E directly to the UNKNOWN terminals and GUARD terminal of the instrument.
2. Connect the user-fabricated test fixture to the test leads.
3. Perform Open/Short compensation as described in the instrument's operation manual.
4. Connect the DUT to the 16048E test fixture.

NOTE Connect the green lead to the chassis or grounded part on the test fixture to reduce the effects of stray capacitance between the DUT and the test fixture.

BNC Bracket

A BNC bracket (Agilent PN 16032-60001) is furnished with the 16048E. Figure 1-2 shows an example for using the BNC bracket with the 16048E. By connecting the 16048E to the BNC bracket, the 16048E's outer shield conductors are connected together to construct the four-terminal pair measurement circuit configuration. For further details about the four-terminal pair measurement refer to the instrument's Operation Manual.

Figure 1-2 BNC bracket application



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

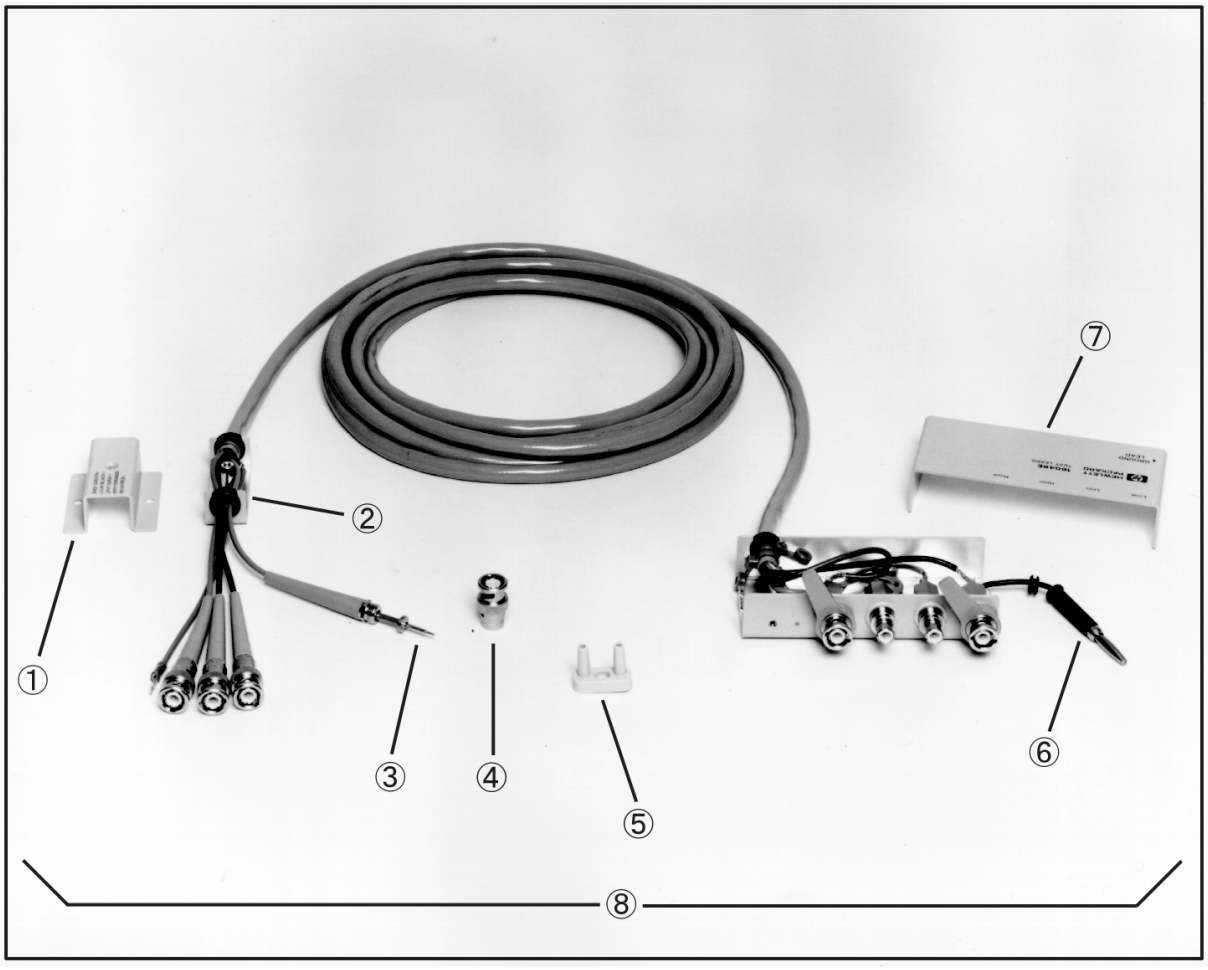
2 Service

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Maintenance

An exploded view of the 16048E (for parts identification) is shown in Figure 2-1 and Figure 2-2. Do not disassemble any further than shown. Maintenance consists principally of cleaning contacts and replacing worn or damaged parts. Take special care when cleaning contacts. To order parts, use the Agilent Technologies part numbers listed in Table 2-1 and Table 2-2. If a faulty part is located in an assembly that cannot be disassembled, order the next higher assembly or return the whole device to the nearest Agilent Technologies Sales/Service Office for repair or replacement.

Figure 2-1 Parts Identification 1/2



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Table 2-1 **Parts Identification 1/2**

Reference	Agilent Part No.	Qty.	Description
1	16048-04013	1	COVER TOP
	2360-0192	1	SCREW
2	16048-04014	1	COVER BOTTOM
3	1250-0089	4	CONTACT
4	1250-0052	4	CONNECTOR BNC
5	16047-40000	1	STOPPER
	2190-0260	1	WASHER
	2200-0013	1	SCREW
6	16048-61612	1	CABLE ASSEMBLY
	0400-0203	1	GROMET
7	16048-04015	1	COVER TOP
	2360-0192	2	SCREW
8	16048-60002[a]	1	TEST LEAD (1 through 7)

a. Agilent internal-only part number.

Figure 2-2 **Parts Identifications 2/2**

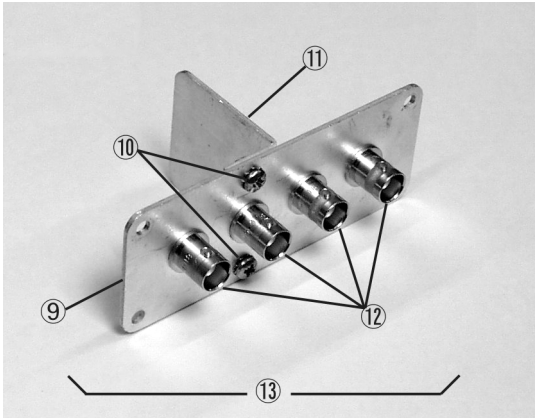


Table 2-2 **Parts Identification 2/2**

Reference	Agilent Part No.	Qty.	Description
9	16032-10021	1	PLATE
10	2360-0115	2	SCREW
11	16032-10022	1	PLATE

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Reference	Agilent Part No.	Qty.	Description
12	1250-0188	4	CONNECTOR BNC
	2190-0016	4	WASHER
	2950-0001	4	NUT
13	16032-60001	1	BNC BRACKET (9 through 12)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

REGIONAL SALES AND SUPPORT OFFICES

For more information about Agilent Technologies test and measurement products, applications, services, and for a current sales office listing, visit our web site: http://www.agilent.com/find/tmdir. You can also contact one of the following centers and ask for a test and measurement sales representative. *11/29/99*

United States:
Agilent Technologies
Test and Measurement Call Center
P.O.Box 4026
Englewood, CO 80155-4026
(tel) 1 800 452 4844

Canada:
Agilent Technologies Canada Inc.
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
(tel) 1 877 894 4414

Europe:
Agilent Technologies
Test & Measurement
European Marketing Organization
P.O.Box 999
1180 AZ Amstelveen
The Netherlands
(tel) (31 20) 547 9999

Japan:
Agilent Technologies Japan Ltd.
Call Center
9-1, Takakura-Cho, Hachioji-Shi,
Tokyo 192-8510, Japan
(tel) (81) 426 56 7832
(fax) (81) 426 56 7840

Latin America:
Agilent Technologies
Latin American Region Headquarters
5200 Blue Lagoon Drive, Suite #950
Miami, Florida 33126
U.S.A.
(tel) (305) 267 4245
(fax) (305) 267 4286

Australia/New Zealand:
Agilent Technologies Australia Pty Ltd
347 Burwood Highway
Forest Hill, Victoria 3131
(tel) 1-800 629 485 (Australia)
(fax) (61 3) 9272 0749
(tel) 0 800 738 378 (New Zealand)
(fax) (64 4) 802 6881

Asia Pacific:
Agilent Technologies
24/F, Cityplaza One, 1111 King's Road,
Taikoo Shing, Hong Kong
(tel) (852)-3197-7777
(fax) (852)-2506-9284

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP