



Agilent Technologies

11752E

2.4 mm Connector Gage

Operating and Service
Manual

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Warranty

Custom systems are warranted by contractual agreement between Agilent Technologies and the customer.

Certification

Agilent Technologies, Inc., 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 (NIST, formerly NBS), to the extent allowed by the Institute's calibration facility, and to the calibration facilities of other International Standards Organization members.

Warranty

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

Warranty service for products installed by Agilent Technologies and certain other products designated by Agilent Technologies will be performed at Buyer's facility at no charge within Agilent Technologies service travel areas. Outside Agilent Technologies service travel areas, warranty service will be performed at Buyer's facility only upon Agilent Technologies' prior agreement and Buyer shall pay Agilent Technologies' round trip travel expenses. In all other areas, products must be returned to a service facility designated by Agilent Technologies.

For products returned to Agilent Technologies for warranty service, 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 instructions when properly 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 of the environmental specifications for the product, or improper site preparation or maintenance.

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The remedies available under this warranty will be defined in, and subject to, the terms and limitations of the warranties contained in the contract of sale. To the extent permitted by local law, this warranty applies only to branded Agilent Technologies products and not to products manufacture by others that may be sold or distributed by Agilent Technologies. Nothing in this warranty will be construed to limit any rights or remedies provided elsewhere in the contract of sale with respect to matters other than year 2000 compliance.

Assistance

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

For assistance, call your local Agilent Technologies Sales and Service Office (refer to [“Service and Support”](#) on page vi).

Service and Support

Any adjustment, maintenance, or repair of this product must be performed by qualified personnel. Contact your customer engineer through your local Agilent Technologies Service Center. You can find a list of local service representatives on the Web at: <http://www.agilent.com/find/assist>

If you do not have access to the Internet, one of these centers can direct you to your nearest representative:

United States (tel) 1 800 452 4844	Latin America (tel) (305) 269 7500 (fax) (305) 269 7599	Canada (tel) 1 877 894 4414 (fax) (905) 282-6495	Europe (tel) (+31) 20 547 2323 (fax) (+31) 20 547 2390
New Zealand (tel) 0 800 738 378 (fax) (+64) 4 495 8950	Japan (tel) (+81) 426 56 7832 (fax) (+81) 426 56 7840	Australia (tel) 1 800 629 485 (fax) (+61) 3 9210 5947	

Asia Call Center Numbers

Country	Phone Number	Fax Number
Singapore	1-800-375-8100	(65) 836-0252
Malaysia	1-800-828-848	1-800-801664
Philippines	(632) 8426802 1-800-16510170 (PLDT Subscriber Only)	(632) 8426809 1-800-16510288 (PLDT Subscriber Only)
Thailand	(088) 226-008 (outside Bangkok) (662) 661-3999 (within Bangkok)	(66) 1-661-3714
Hong Kong	800-930-871	(852) 2506 9233
Taiwan	0800-047-866	(886) 2 25456723
People's Republic of China	800-810-0189 (preferred) 10800-650-0021	10800-650-0121
India	1-600-11-2929	000-800-650-1101

Safety and Regulatory Information

Review this product and related documentation to familiarize yourself with safety markings and instructions before you operate the instrument. This product has been designed and tested in accordance with international standards.







WARNING




The **WARNING** notice denotes a hazard. It calls attention to a procedure, practice, or the like, that, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

CAUTION

The **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, 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.

Instrument Markings

	When you see this symbol on your instrument, you should refer to the instrument's instruction manual for important information.
	This symbol indicates hazardous voltages.
	This symbol indicates that the instrument requires alternating current (ac) input.
	The CE mark is a registered trademark of the European Community. If it is accompanied by a year, it indicates the year the design was proven.
 N10149	The C-Tick mark is a registered trademark of the Australian Spectrum Management Community.
	The CSA mark is a registered trademark of the Canadian Standards Association.
ISM1-A	This text indicates that the instrument is an Industrial Scientific and Medical Group 1 Class A product (CISPER 11, Clause 4).

	This symbol indicates that the power line switch is ON.
	This symbol indicates that the power line switch is in STANDBY position.
	This symbol indicates that the power line switch is OFF

Safety Earth Ground



This is a Safety Class I product (provided with a protective earthing terminal). An uninterruptible safety earth ground must be provided from the main power source to the product input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, the product must be made inoperative and secured against any unintended operation.

Before Applying Power

Verify that the product is configured to match the available main power source as described in the input power configuration instructions in this manual. If this product is to be powered by autotransformer, make sure the common terminal is connected to the neutral (grounded) side of the ac power supply.

Overview

This Operating Note contains information about initial inspection, performance tests, adjustments, operation, and troubleshooting of the Agilent 11752E connector gage.

Description

The Agilent 11752E connector gage is used to measure connector pin depth of 2.4 mm connectors. The connector gage kit contains the following.

- 2.4 mm connector gage (male)
- 2.4 mm connector gage (female)
- 2.4 mm gage master (male)
- 2.4 mm gage master (female)
- Protective caps

Instruments Covered by Manual

This instrument has a two-part serial number. The first four digits and tile letter comprise the serial number prefix. The last five digits form a sequential suffix which is unique to each instrument. The contents of this manual apply directly to instruments having the serial number prefixed 2827A.

Manual changes Supplement

A gage set manufactured after the printing of this manual may have a serial number prefix that is not listed on the title page. If your gage set has a prefix number not listed on the title page look for a yellow Manual Changes supplement that documents the differences.

In addition to change information, the supplement may contain information for correcting errors in the manual. To keep this manual as current and accurate as possible, Agilent recommends that you periodically request the latest Manual Changes supplement. The supplement is keyed to the manual print date and part number, both of which appear on the title page.

Copies of the supplement are available on request from your nearest Agilent Technologies office.

For information concerning a serial number prefix not listed on the title page or in the Manual Changes supplement, contact your nearest Agilent Technologies office.

Specifications

The specifications listed in [Table 1](#) are the performance standards or limits against which the connector gage kit is tested.

Each calibration device is mechanically measured at the factory. These factory measurements are traceable to the U.S.A. National Institute of Standards and Technology (NIST) through mechanical paths. For more information on NIST traceability, contact your nearest Agilent Technologies office.

NOTE

Gage resolution depends on your ability to discern the position of the gage needle between divisions. The specification for this characteristic is based on tests of many people making the same measurement and independently indicating their readings.

Table 1 *Specifications*

Characteristics and Conditions	Typical Limits	Comments
Measurement range	-0.005 in (-0.127 mm) to +0.005 in (+0.127 mm)	In 0.0001 in. (0.00254 mm) increments.
Gage resolution	0.00002 in (0.00051 mm)	Fifth of an increment
Gage calibration accuracy	0.00004 in (0.00102 mm)	
Gage repeatability	0.000025 in (0.00064 mm)	Quarter of an increment.
Master accuracy	0.00004 in (0.00102 mm)	
Total Uncertainty		
Worst Case	0.000125 in (0.00318 mm)	Add resolution, repeat-ability, Gage and master accuracy limits.
RSS	0.000062 in (0.00157 mm)	Root sum of the squares.
Operating environment:		
Temperature range	20° to 26 °C	No temperature fluctuations greater than 1 °C.
Humidity (at 26°C maximum dry bulb)	0 to 80%	
Maximum altitude	4.5 km (15,000 ft)	
Net weight	1 kg (2 lb 3 oz)	

Installation

Initial Inspection

Inspect the shipping container for damage. If the shipping container or packaging material is damaged, it should be kept until the contents of the shipment have been checked. If there is mechanical damage or if the gages do not pass the performance tests, notify the nearest Agilent Technologies office. Keep the damaged shipping materials (if any) for inspection by the carrier and a Agilent representative.

Storage and Shipment Environment

The gage kit should be stored in a clean, dry environment. The following limitations apply to both storage and shipment.

Temperature	–55× to +75 °C
Relative Humidity	less than 95% at 40 °C
Altitude	less than 15.3 km (50,000 ft)

Original Packaging

Containers and materials identical to those used in factory packaging are available through Agilent Technologies offices. If the gage kit is being returned to Agilent for calibration or service, attach a tag indicating the type of service required, return address, model number, and serial number. Also, mark the container *FRAGILE* to assure careful handling. In any correspondence, refer to the instrument by model number and serial number.

Operation

Operating Environment

Device dimensions change with temperature. Therefore, the temperature of the gages and all connectors must be stable (within ± 1 °C) before calibration.

The operating environment for the connector gage should be within the following limits.

Temperature	+20 to 26 \pm 1°C
Relative Humidity	less than 80% at 26 °C dry bulb
Altitude	less than 4550 meters (15,000 ft)

NOTE

Your fingers are a heat source; handle the devices as little as possible during calibration.

Operating Precautions

CAUTION

To protect the sensitive microcircuits that may be connected to the connectors you are calibrating, always wear an electrostatic discharge-grounding strap connected to a conductive bench mat when working near sensitive equipment.

CAUTION

Do not use hydrocarbons such as acetone, trichlorethylene, carbon tetrachloride or benzene to clean connector or Gage surfaces. (See "Inspecting and Cleaning the Gages" on the next page.)

CAUTION

Do not spray any liquid solvent directly onto connector or gage surfaces.

Connector wear eventually degrades performance. To prolong the life of your gages:

1. Clean all surfaces that come in contact during calibration.
2. Do not measure a damaged connector; doing so could damage the gage. Replace damaged connectors.
3. Keep the protector caps on the gages and masters when not in use to prevent contamination.

4. Turn only the connector nut (not the gage itself) when making connection to avoid damage to the connector and gage.

Using Connector Gages

Before using the connector gages, they must be inspected, cleaned, and zeroed.

Inspecting and Cleaning the Gages

Using an illuminated magnifying glass, inspect the connector gage and the gage master carefully as well as the connector you are about to measure. Foreign material on the gage, gage master or connector will make the measurement inaccurate.

To clean connector surfaces we recommend using compressed air, directing the air where it is needed through a plastic (not metal) nozzle.

If the compressed air does not remove the foreign material, use a cotton swab (or if the swab is too large a round wooden toothpick (do not use metal) wrapped in a single layer of lint-free cleaning cloth) soaked in isopropyl alcohol.

Dry the connector and gage surfaces with a brief blast of the compressed air.

Table 2 *Recommended Cleaning Supplies*

Part Number	Description
8500-0559	Isopropyl alcohol
5080-5400	Cotton swabs
9310-4242	Lint-free cleaning cloth

Zeroing the Gage

Connect the gage to the appropriate gage master and tighten only the connecting nut (do not turn gage or master) until finger tight. Then torque the connecting nut to 90 N-cm (8 lb-in). Turn the zero set knob ([Figure 1](#)) until the indicator is lined up with the zero indicator on the dial.

Operation

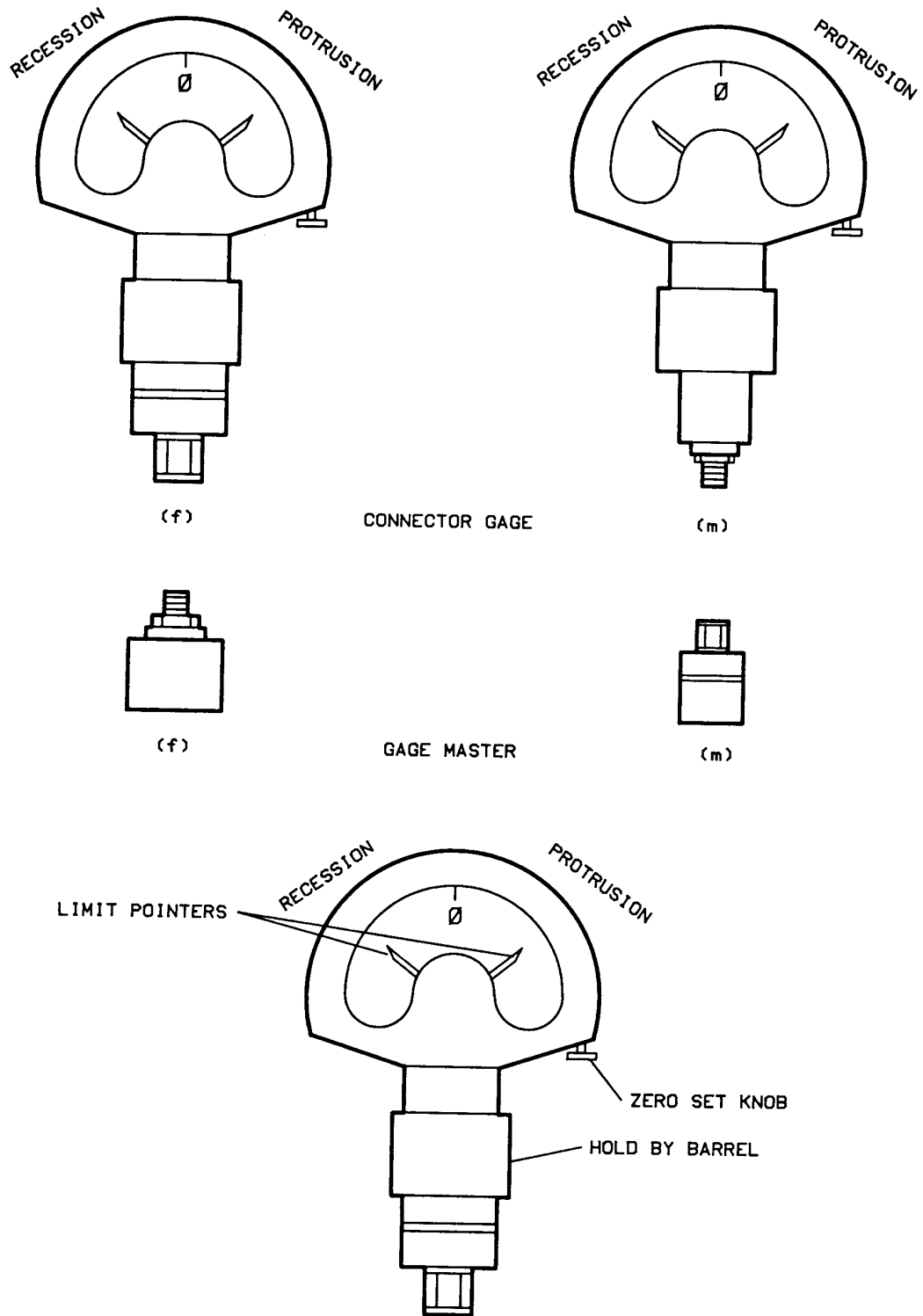


Figure 1 Agilent 1175E Connector Gage Features

Gages should be checked often, to make sure that the zero setting has not changed. Generally, when the gage pointer on a gage that has been recently zeroed does not line up exactly with the zero mark, the gage or calibration block needs cleaning.

Measuring Connectors

Measuring the recession of the center conductor behind the outer conductor mating plane in a connector is done in exactly the same way as zeroing the gage, except of course that the zero set knob is not re-set when the measurement, is made.

Hold the gage by the barrel only and tighten only the connecting nut (do not turn the gage or the device) until finger tight. Recession or protrusion will show as a reading either counterclockwise or clockwise from zero. (See Figure 1)

Protrusion of center conductor shoulder (male pin and end of female center pin) is not allowable on any 2.4 mm connector.

For maximum accuracy, measure the connector several times and take an average of the readings.

Replaceable Parts

All replaceable parts are shown in Figure 2. There are no internal replaceable parts within the Gages themselves.

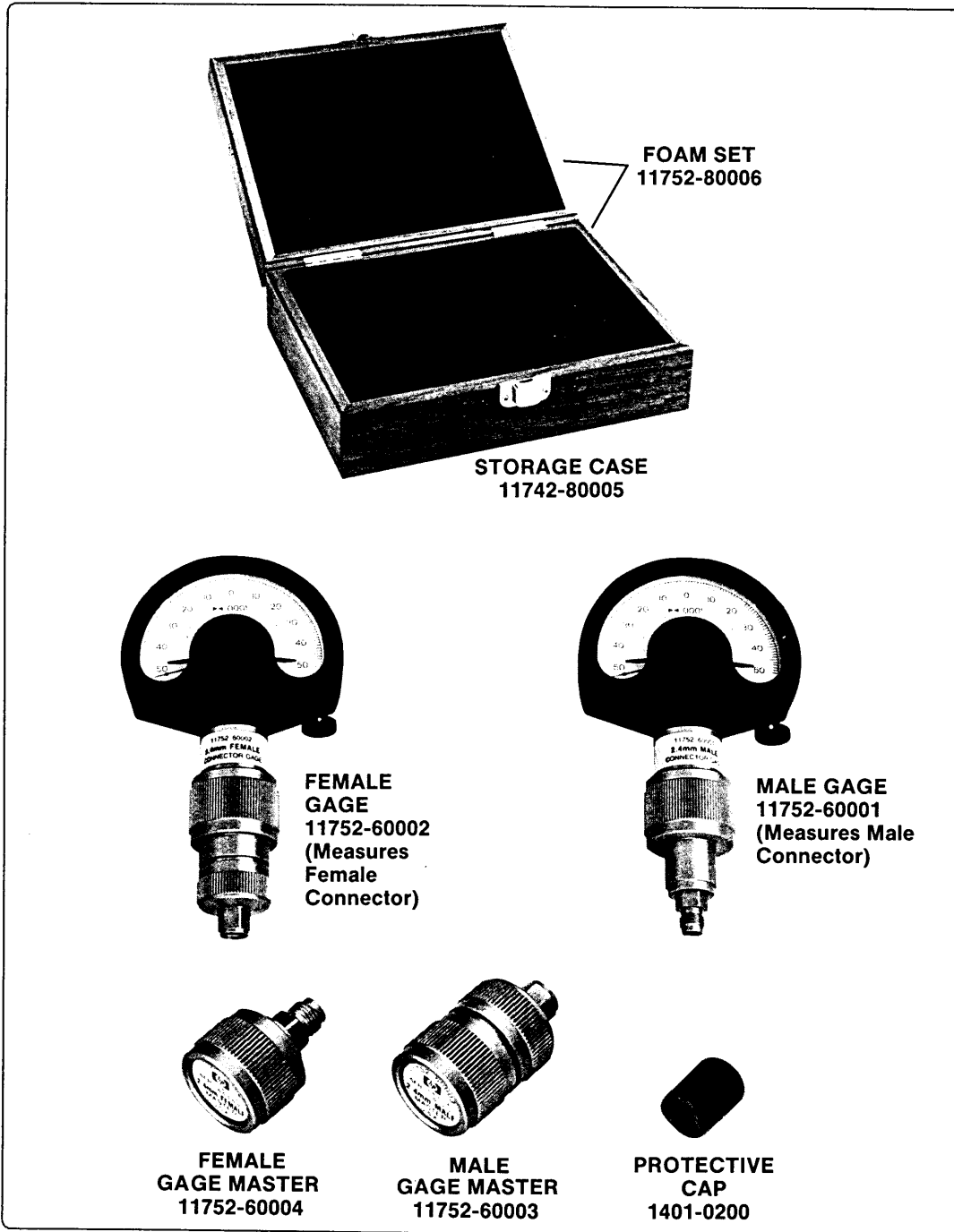


Figure 2 Agilent 11752E Connector Gage with Accessories

Service Do not attempt to repair the gage or gage master. Any attempt to do so will void warranty.

Calibration We recommend the gages be calibrated annually at an Agilent Technologies service office.