

# Operating and Service Guide

**Agilent Technologies**  
**11850C**  
**50 Ohm**  
**Three-Way Power Splitter**



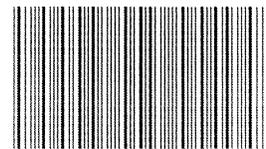
**Agilent Technologies**

**Manufacturing Part Number: 11850-90019**

**Printed in USA**

**Print Date: March 1986**

© Agilent Technologies, Inc. 1986



11850-90019

---

## Hewlett-Packard to Agilent Technologies Transition

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. To reduce potential confusion, the only change to product numbers and names has been in the company name prefix: where a product number/name was HP XXXX the current name/number is now Agilent XXXX. For example, model number HP 11850C is now model number Agilent 11850C.

---

## Documentation Warranty

THE MATERIAL CONTAINED IN THIS DOCUMENT IS PROVIDED "AS IS," AND IS SUBJECT TO BEING CHANGED, WITHOUT NOTICE, IN FUTURE EDITIONS. FURTHER, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, AGILENT DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED WITH REGARD TO THIS MANUAL AND ANY INFORMATION CONTAINED HEREIN, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. AGILENT SHALL NOT BE LIABLE FOR ERRORS OR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE FURNISHING, USE, OR PERFORMANCE OF THIS DOCUMENT OR ANY INFORMATION CONTAINED HEREIN. SHOULD AGILENT AND THE USER HAVE A SEPARATE WRITTEN AGREEMENT WITH WARRANTY TERMS COVERING THE MATERIAL IN THIS DOCUMENT THAT CONFLICT WITH THESE TERMS, THE WARRANTY TERMS IN THE SEPARATE AGREEMENT WILL CONTROL.

---

## DFARS/Restricted Rights Notice

If software is for use in the performance of a U.S. Government prime contract or subcontract, Software is delivered and licensed as "Commercial computer software" as defined in DFAR 252.227-7014 (June 1995), or as a "commercial item" as defined in FAR 2.101(a) or as "Restricted computer software" as defined in FAR 52.227-19 (June 1987) or any equivalent agency regulation or contract clause. Use, duplication or disclosure of Software is subject to Agilent Technologies' standard commercial license terms, and non-DOD Departments and Agencies of the U.S. Government will receive no greater than Restricted Rights as defined in FAR 52.227-19(c)(1-2) (June 1987). U.S. Government users will receive no greater than Limited Rights as defined in FAR 52.227-14 (June 1987) or DFAR 252.227-7015 (b)(2) (November 1995), as applicable in any technical data.

---

---

## Printing Copies of Documentation from the Web

To print copies of documentation from the Web, download the PDF file from the Agilent web site:

- Go to <http://www.agilent.com>.
  - Enter the document's part number (located on the title page) in the **Quick Search** box.
  - Click GO.
  - Click on the hyperlink for the document.
  - Click the printer icon located in the tool bar.
-

## Contacting Agilent

This information supersedes all prior HP contact information.			
<b>Online assistance:</b> <a href="http://www.agilent.com/find/assist">www.agilent.com/find/assist</a>			
<b>Americas</b>			
<b>Brazil</b> <i>(tel)</i> (+55) 11 3351 7012 <i>(fax)</i> (+55) 11 3351 7024	<b>Canada</b> <i>(tel)</i> +1 877 894 4414 <i>(alt)</i> +1 303 662 3369 <i>(fax)</i> +1 800 746 4866	<b>Mexico</b> <i>(tel)</i> 1800 254 2440 Ext 2703 <i>(alt) from USA</i> 18008374039 <i>(fax)</i> 1 800 254 422	<b>United States</b> <i>(tel)</i> 800 829 4444 <i>(alt)</i> (+1) 303 662 3998 <i>(fax)</i> 800 829 4433
<b>Asia Pacific and Japan</b>			
<b>Australia</b> <i>(tel)</i> 1 800 225 574 <i>(fax)</i> 1 800 681 776 <i>(fax)</i> 1 800 225 539	<b>China</b> <i>(tel)</i> 800 810 0189 <i>(fax)</i> 800 820 2816	<b>Hong Kong</b> <i>(tel)</i> 800 933 229 <i>(fax)</i> 800 900 701	<b>India</b> <i>(tel)</i> 1600 112 626 <i>(alt)</i> +65 6275 0800 <i>(fax)</i> 1600 113 040
<b>Japan (Bench)</b> <i>(tel)</i> 0120 421 345 <i>(alt)</i> (+81) 426 56 7832 <i>(fax)</i> 0120 01 2144	<b>Japan (On-Site)</b> <i>(tel)</i> 0120 421 345 <i>(alt)</i> (+81) 426 56 7832 <i>(fax)</i> 0120 012 114	<b>Malaysia</b> <i>(tel)</i> 1800 880 399 <i>(fax)</i> 1800 801 054	<b>New Zealand</b> <i>(tel)</i> +64 4 939 0635 <i>(alt)</i> 0800 738 378 <i>(fax)</i> +64 4 972 5364
<b>Singapore</b> <i>(tel)</i> 1 800 275 0880 <i>(fax)</i> (+65) 6755 1214	<b>South Korea</b> <i>(tel)</i> 080 778 0011 <i>(fax)</i> 080 778 0013	<b>Taiwan</b> <i>(tel)</i> 0800 047 669 <i>(fax)</i> 0800 047 667 <i>(fax)</i> +886 3492 0779	<b>Thailand</b> <i>(tel)</i> +66 2 267 5913 <i>(tel)</i> 1 800 2758 5822 <i>(fax)</i> 1 800 653 336
<b>Europe</b>			
<b>Austria</b> <i>(tel)</i> 0820 87 44 11* <i>(fax)</i> 0820 87 44 22	<b>Belgium</b> <i>(tel)</i> (+32) (0)2 404 9340 <i>(fax)</i> (+32) (0)2 404 9395	<b>Denmark</b> <i>(tel)</i> (+45) 7013 1515 <i>(fax)</i> (+45) 7013 1555	<b>Finland</b> <i>(tel)</i> (+358) (0) 10 855 2100 <i>(fax)</i> (+358) (0) 10 855 2923
<b>France</b> <i>(tel)</i> 0825 010 700* <i>(fax)</i> 0825 010 701*	<b>Germany</b> <i>(tel)</i> 01805 24 6333* <i>(fax)</i> 01805 24 6336*	<b>Ireland</b> <i>(tel)</i> (+353) 1 890 924 204 <i>(fax)</i> 1 890 924 024	<b>Israel</b> <i>(tel)</i> (+972) 3 9288 504 <i>(alt)</i> (+972) 3 9288 544 <i>(fax)</i> (+972) 3 9288 520
<b>Italy</b> <i>(tel)</i> (+39) (0)2 9260 8484 <i>(fax)</i> (+39) (0)2 9544 1175	<b>Luxemburg</b> <i>(tel)</i> (+32) (0)2 404 9340 <i>(fax)</i> (+32) (0)2 404 9395	<b>Netherlands</b> <i>(tel)</i> (+31) (0)20 547 2111 <i>(fax)</i> (+31) (0)20 547 2190	<b>Russia</b> <i>(tel)</i> (+7) 095 797 3963 <i>(alt)</i> (+7) 095 797 3900 <i>(fax)</i> (+7) 095 797 3901
<b>Spain</b> <i>(tel)</i> (+34) 91 631 3300 <i>(fax)</i> (+34) 91 631 3301	<b>Sweden</b> <i>(tel)</i> 0200 88 22 55* <i>(alt)</i> (+46) (0)8 5064 8686 <i>(fax)</i> 020 120 2266*	<b>Switzerland (French)</b> <i>(tel)</i> 0800 80 5353 opt. 2* <i>(fax)</i> (0) 22 567 5313	<b>Switzerland (German)</b> <i>(tel)</i> 0800 80 5353 opt. 1* <i>(fax)</i> 0 44 272 7373
<b>Switzerland (Italian)</b> <i>(tel)</i> 0800 80 5353 opt. 3* <i>(fax)</i> (0) 22 567 5314	<b>United Kingdom</b> <i>(tel)</i> (+44) (0)7004 666666 <i>(fax)</i> (+44) (0)7004 444555		
<i>(tel)</i> = primary telephone number; <i>(alt)</i> = alternate telephone number; <i>(fax)</i> = FAX number; * = in country number 8/10/05			

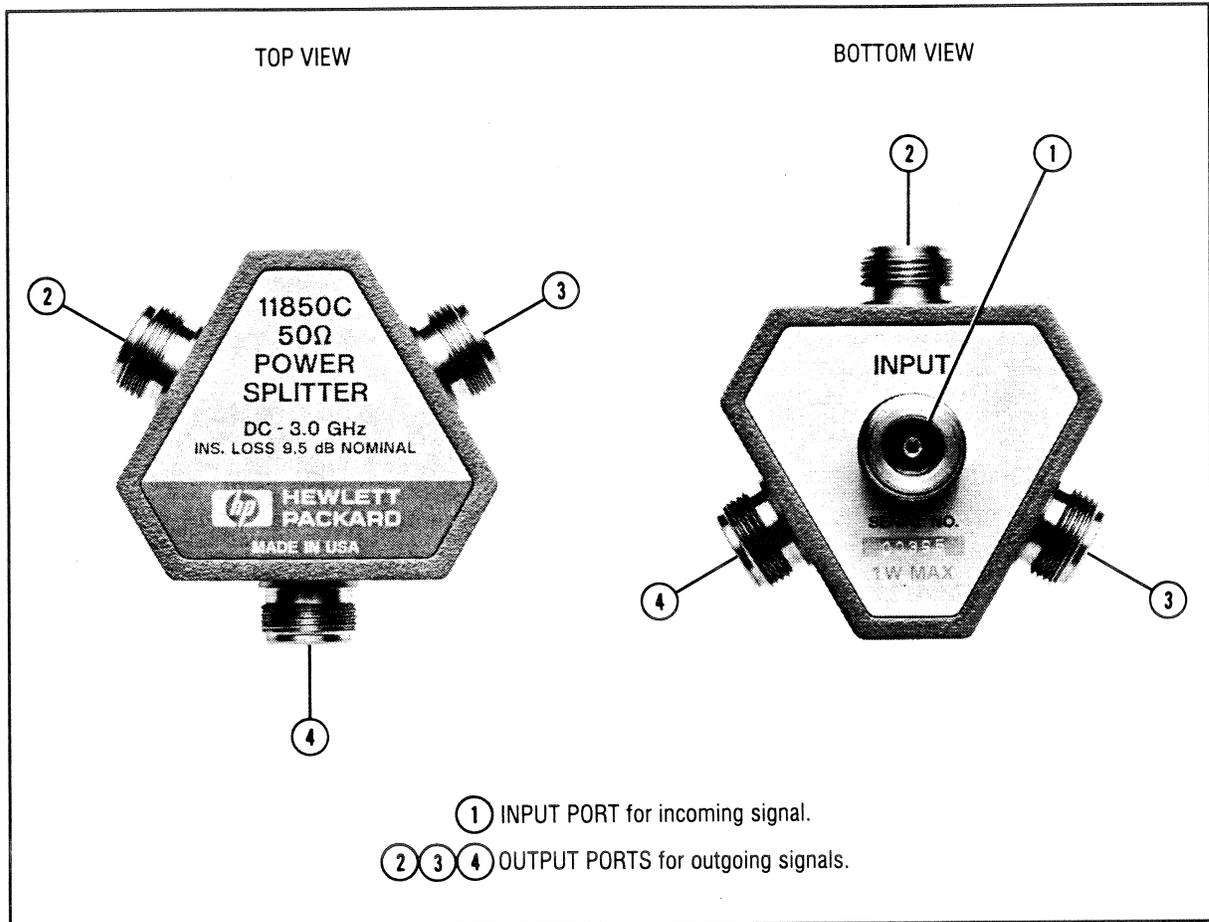
## GENERAL INFORMATION

To obtain optimum performance from this power splitter, observe these simple precautions:

- Make connections carefully to avoid misalignment and connector damage or inaccurate measurements.
- Keep the connectors free of dirt and metallic particles.
- If you must clean the connectors, try clean compressed air first. Do not use abrasives. With a plastic swab, apply **only** liquid Freon (trichlorotrifluoroethane) as a solvent.
- For more information, refer to the Microwave Connector Care manual (HP part number 08510-90064) or application note 326, Principles of Microwave Connector Care (literature number 5954-1566).
- Type-N(f) center conductor protrusion: 0.204 to 0.207 inch.

## INSPECTION

To confirm the proper operation of this device, first visually inspect its connectors for signs of wear or damage. Then check its electrical operation by observing how closely the three output ports track each other. For example, connect the RF output of an HP 8753A network analyzer to the power splitter's input port. Connect one output port of the power splitter to input R of the HP 8753A and terminate the other two output ports with  $50\Omega$  loads. Center the trace on the CRT and set the scale to 0.2 dB/division. Store the trace in memory. Connect the cable from input R to a different power splitter output port and terminate the other two. Compare the two traces in the "Display: Data and Memory" mode. The two traces should not vary by more than 0.3 dB at any frequency between 300 kHz and 3 GHz.



## DESCRIPTION

The HP 11850C, illustrated above, is a 50Ω three-way power splitter for use in network measurements where one arm of the power splitter is used to supply a reference signal for leveling or ratio measurements.

## OPERATING CHARACTERISTICS

Impedance (nominal):	50Ω
Frequency range:	DC to 3 GHz
Tracking (between any two output ports):	±0.3 dB, ±3.5 degrees
Equivalent source match (ratio or leveling):	26 dB, DC to 1.3 GHz; 20 dB, 1.3 to 3 GHz
Input port match:	20 dB, DC to 1.3 GHz; 10 dB, 1.3 to 3 GHz
Insertion loss (nominal):	9.5 dB +0.5 dB/GHz, 300 kHz to 3 GHz
Maximum operating level:	+20 dB
Damage level:	+30 dB

## PHYSICAL CHARACTERISTICS

Input and output connectors:	50Ω type-N (f)
Dimensions:	67 mm by 46 mm by 67 mm (2.6 in by 1.9 in by 2.6 in)
Weight, net:	1.8 kg (4 lb) shipping: 3.1 kg (7 lb)



Customer Order Number

For Agilent Internal Reference Only  
Manufacturing Part Number



11850-90019

Printed in USA

March 1986