Agilent 16710/11/12A Logic Analyzer

Service Guide

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For Safety information, Warranties, and Regulatory information, see the pages at the end of the book.

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Agilent Technologies

The Agilent Technologies 16710A, 16711A, and 16712A are 100-MHz state/500-MHz timing logic analyzer modules for the Agilent Technologies 16700-series logic analysis systems. These modules offer high performance measurement capability.

Features

Some of the main features of the 16710A/11A/12A are as follows:

- 96 data channels
- 6 clock/data channels
- 8K memory depth per channel (16710A)
  32K memory depth per channel (16711A)
  128K memory depth per channel (16712A)
- 100-MHz maximum state acquisition speed
- 500-MHz maximum timing acquisition speed
- Expandable to 204 channels

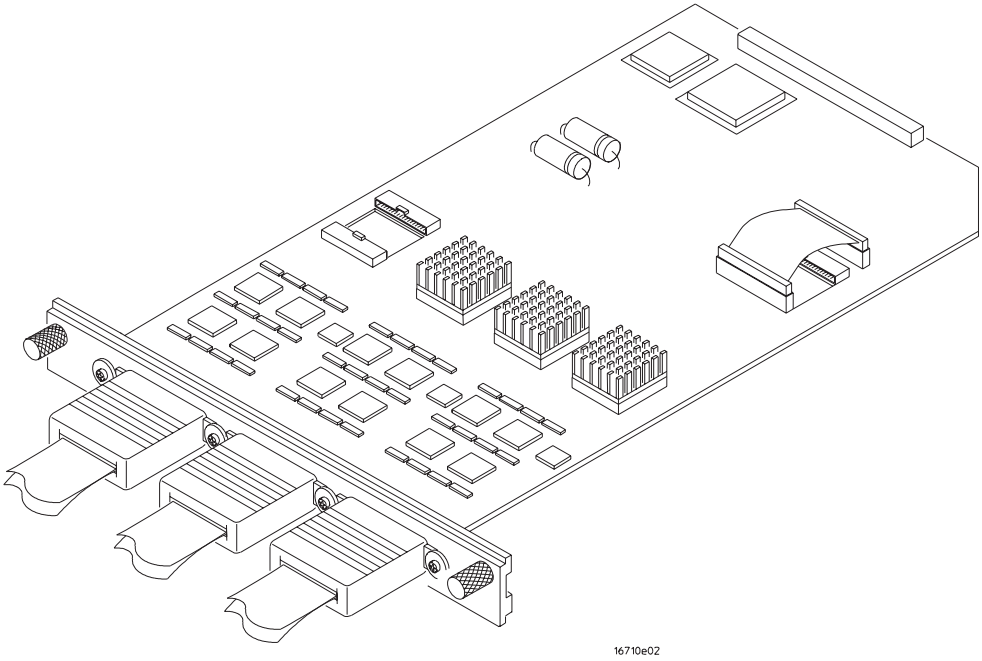
Service Strategy

The service strategy for this instrument is the replacement of defective assemblies. This service guide contains information for finding a defective assembly by testing and servicing the logic analyzer module.

This module can be returned to Agilent Technologies for all service work, including troubleshooting. Contact your nearest Agilent Technologies Sales Office for more details.

Application

This service guide applies to an 16710/11/12A module installed in the 16700-series logic analysis mainframes. The 16710/11/12A uses operating system version A.02.00 or higher. Agilent Technologies 16700-series mainframes with serial number prefix lower than US4019 are factory installed with older operating system versions. If your mainframe operating system is older than the required version, contact your Agilent Technologies Service Center for newer software before attempting the performance verification procedures in chapter 3.



The 16710A/11A/12A Logic Analyzer

In This Book

This book is the service guide for the 16710A/11A/12A 100-MHz state/500-MHz timing logic analyzer module. Place this service guide in the 3-ring binder supplied with your *Agilent Technologies 16700-Series Logic Analysis System Service Manual*.

This service guide is divided into eight chapters.

Chapter 1 contains information about the module and includes accessories for the module, specifications and characteristics of the module, and a list of the equipment required for servicing the module.

Chapter 2 tells how to prepare the module for use.

Chapter 3 gives instructions on how to test the performance of the module.

Chapter 4 contains calibration instructions for the module.

Chapter 5 contains self-tests and flowcharts for troubleshooting the module.

Chapter 6 tells how to replace the module and assemblies of the module and how to return them to Agilent Technologies.

Chapter 7 lists replaceable parts, shows an exploded view, and gives ordering information.

Chapter 8 explains how the analyzer works and what the self-tests are checking.

Contents

1

General Information

This chapter lists the accessories, the specifications and characteristics, and the recommended test equipment.

Accessories

The following accessories are supplied with the Agilent Technologies 16710A/11A/12A Logic Analyzer.

Accessories Supplied	Agilent Part Number
Probe Tip Assembly, Qty 6	01650-61608
Grabbers, Qty 6 packages	5090-4356
Extra Probe Leads, Qty 1 package	5959-9333
Extra Probe Grounds, Qty 6 packages	5959-9334
Probe Cable and Pod Labels, Qty 1	01650-94312
Master/Expander Interconnect Cable	16555-61601

Mainframe and Operating System

The 16710A/11A/12A Logic Analyzer requires an Agilent Technologies 16700-series logic analysis system with operating system version A.01.20.00 or higher.

The 16700-series logic analysis system supports a one- or two-card 16710A/11A/12A module. With five slots, the 16700-series logic analysis system can support two two-card modules and a one-card module.

Specifications

The specifications are the performance standards against which the product is tested.

Threshold Accuracy	± (100 mV + 3% of threshold setting)
Maximum State Speed	100 MHz
Minimum Master-to-Master Clock Time *	10.000 ns
Setup/Hold Time for Different Clock Schemes: *	
Single Clock, Single Edge:	0.0/4.0 ns through 4.0/0.0 ns, adjustable in 500-ps increments
Single Clock, Multiple Edges:	0.0/4.5 ns through 4.5/0.0 ns, adjustable in 500-ps increments
Multiple Clocks, Multiple Edges:	0.0/5.0 ns through 5.0/0.0 ns, adjustable in 500-ps increments

* Specified for an input signal VH = -0.9 V, VL = -1.7 V, and threshold = -1.3 V.

Environmental Characteristics

Probes	
Maximum Input Voltage	± 40 V, CAT I
Auxiliary Power	
Power Through Cables	1/3 amp at 5 V maximum per cable.
Operating Power	
Supplied by mainframe	
Operating Environment	
Temperature	Instrument, 0 °C to 55 °C (+32 °F to 131 °F). Probe lead sets and cables, 0 °C to 65 °C (+32 °F to 149 °F).
Humidity	Instrument, probe lead sets, and cables, up to 95% relative humidity at +40 °C (+122 °F).
Altitude	To 4600 m (15,000 ft).
Vibration	Operating: Random vibration 5 to 500 Hz, 10 minutes per axis, ≈0.3 g (rms).
	Non-operating: Random vibration 5 to 500 Hz, 10 minutes per axis, ≈2.41 g (rms); and swept sine resonant search, 5 to 500 Hz, 0.75 g (0-peak), 5 minute resonant dwell at 4 resonances per axis.
	Operating power supplied by mainframe
	Indoor use only
	Pollution Degree 2