
HP 58502A Broadband Distribution Amplifier

Product Overview



- 12-Channel broadband (0.1 to 10 MHz) sine wave distribution
- Low output phase noise
- High isolation/low cross-talk between output channels
- Autoswitching between two inputs
- Easy-to-read front panel status lights
- Channel fault alarm

Introduction

The HP 58502A Broadband Distribution Amplifier is the one frequency standard distribution system that provides multiple features to ensure continuous distribution of your critical signals. It is designed to meet today's demanding requirements for frequency distribution in manufacturing, R&D, and standards lab environments. It also provides economical distribution of precision signals from cesium, rubidium, quartz or GPS frequency standards.

The HP 58502A Broadband Distribution Amplifier features low signal distortion and high isolation between output channels. Low output phase noise also helps maintain signal integrity.

Continuous Availability of Critical Frequencies

The HP 58502A Broadband Distribution Amplifier has two important features that ensure your critical frequencies are always present.

- First is the autoswitch. When the unit detects one of its inputs is removed or the amplitude of the input is greatly reduced, it will automatically switch to the other input.
- Next is the alarm-inputs feature. The HP 58502A is compatible with the alarm signals from the HP 58503A GPS Time and Frequency Reference Receiver and the HP 5071A Primary Frequency Standard. If the alarm of one of these sources is active, and this source is driving the distribution amplifier outputs, the HP 58502A will automatically switch to a backup source. In addition, this

change will be reflected in the HP 58502A alarm outputs so it may be monitored by external equipment.

Autoswitching between two inputs ensures continuous availability of critical frequencies, and a fault alarm is activated when the system does not function correctly.

These alarm and switching features can also be monitored and controlled through the RS-232C interface.

Simplified Verification of System Health

The RS-232C interface allows you to query the individual distribution input and output channels for the presence or absence of a signal. Easy-to-read front panel status lights also provide you with a quick visual indication of individual channel health. These features greatly simplify monitoring the system.

Performance for Your Demanding Applications

While cost per channel has been lowered, no compromises have been made in signal distribution quality. The amplifier provides high channel-to-channel isolation and low phase noise for demanding applications. The HP 58502A has an internal automatic gain control that ensures extremely low AM-to-PM conversion.

HP's Complete Solution

The HP 58502A is an excellent companion to the HP 58503A. Combined, they give you a very stable, redundant frequency reference.

Technical Specifications

Electrical Specifications

Input, A or B

Frequency Range:	0.1 MHz to 10 MHz
Impedance:	50 Ω nominal SWR <1.5
Amplitude:	+15 dBm maximum +7 dBm minimum
Connector:	BNC (female)

Outputs (Into 50 Ω)

Amplitude:	+13 dBm, +1 dB/-3 dB
Harmonics:	<-32 dBc
(for Option 010):	<-20 dBc
Spurious:	<-110 dBc, <-113 typical
(for Option 010):	<-80 dBc
Connectors:	BNC (female)

Mechanical Specifications

Weight:	2.95 kg
Shipping weight:	6.35 kg
Dimensions:	Height: 45 mm Width: 426 mm Depth: 344 mm

Supplemental Characteristics

Outputs

Single Sideband Phase Noise
(1 Hz bandwidth)

Offset Frequency	Phase Noise
100 Hz	<-127 dBc/Hz
1 kHz	<-142 dBc/Hz
10 kHz	<-148 dBc/Hz

Port-to-Port Isolation: <-100 dBc typical
(measured by switching between open and
short loads on output port and measuring
associated phase noise on adjacent output
port)

Environmental

Temperature:

Operating:	0°C to +55°C
Non-operating:	-40°C to +70°C
EMI:	CISPR 11, Group 1, Class B

Remote System Interface and Control

Data Communications:	RS-232C, DTE
Connector:	DE-9P (male)

Alarm/Status Input and Output

Connector:	DE-9P (male)
Normal state:	TTL High
Alarm state:	TTL Low

Output Configuration:	Open-collector output, 10k Ω pull- up to 5 Vdc
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Power Requirements

ac input:	100-132 or 175-240 Vac 47-63 Hz 80 VA Max
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Warranty	12 months
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Available Options

Option 010:	Internal Backup Oscillator (10 MHz Precision Oven Controlled Quartz Crystal) – replaces Input B
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Stability:

Temperature Stability:	6×10^{-9} (0°C to +55°C)
Aging/day	5×10^{-10}
Aging/year	1×10^{-7}
Tuning Range:	7×10^{-7} (minimum)

Option AX4:	Rack Mount Kit
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Ordering Information

HP 58502A Broadband
Distribution Amplifier
Option 010 Backup Oscillator
Option AX4 Rack Mount Kit
Contact factory for dc option

Related HP Literature

HP 58503A GPS Time and Frequency Reference
Receiver – Brochure

AN 1272: GPS and Precision Timing Applications

For more information about Hewlett-Packard test and measurement products, applications, services, and for a current sales office listing, visit our web site, <http://www.hp.com/go/tmdir>. You can also contact one of the following centers and ask for a test and measurement sales representative.

United States:

Hewlett-Packard Company
Test and Measurement Call Center
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Englewood, CO 80155-4026
1 800 452 4844

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Europe:

Hewlett-Packard
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P.O. Box 999
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Japan:

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Data Subject to Change

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