

HP 58502A

- 12-Channel broadband (0.1 to 10 MHz) sine wave distribution
- Low output phase noise and spurious signals
- High isolation/low cross-talk between output channels
- Available internal oscillator for standalone operation or backup
- Autoswitching between two inputs
- Easy-to-read front panel status lights
- Channel fault alarm



HP 58502A

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 and exceedingly low spurious signal content help maintain signal integrity.

Continuous Availability of Critical Frequencies

The following features ensure your critical frequencies are always present, 1) When the unit detects one of its inputs is removed or the amplitude of the input is greatly reduced, it will automatically switch (autoswitch) to the other input; 2) The HP 58502B is compatible with the alarm signals from the HP 58503B 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 unit's RS-232C interface.

Great Flexibility

Flexibility of the HP 58502A is enhanced when purchased with its optional internal oscillator. With this option, the HP 58502A can be used as a high quality quartz reference source with 12 outputs. Or, if operated with one external source, the HP 58502A will switch to its optional internal oscillator should the external source fail.

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 or B GPS Time and Frequency Reference Receiver or the HP 5071A Primary Frequency Standard. Combined, with these products, the HP 58502A provides you a very clean, stable, redundant frequency reference.

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: \leq 32 dBc

(for Option 010): \leq 20 dBc

Spurious: \leq 110 dBc, \leq 113 typical

(for Option 010): \leq 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 \leq 127 dBc/Hz

1 kHz \leq 142 dBc/Hz

10 kHz \leq 148 dBc/Hz

Port-to-Port Isolation: \leq 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 Communicators: 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, 10 k Ω pull-up to 5 Vdc

Power Requirements

ac input: 100-132 or 175-240 Vac; 47-63 Hz; 80 VA Max

Stability:

Temperature Stability: 6×10^{-8} (0 to +55° C)

Aging/Day: 5×10^{-10}

Aging/Year: 1×10^{-7}

Tuning Range: 7×10^{-7} (minimum)

Ordering Information

HP 58502A Broadband Distribution Amplifier

Opt 010 Internal Backup Oscillator

Opt AX4 Rack Mount Kit

Contact factory for dc option