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Symmetricom

# 58502A

## Broadband Distribution Amplifier

### KEY FEATURES

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

- **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.

- **Alarm-inputs feature** The 58502A is compatible with the alarm signals from the 58503A GPS Time and Frequency Reference Receiver and the 5071A Primary Frequency Standard. If the alarm of one of these sources is active, and this source is driving the distribution amplifier outputs, the 58502A will automatically switch to a backup source. In addition, this change will be reflected in the 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.



58502A Broadband Distribution Amplifier

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## 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 58502A has an internal automatic gain control that ensures extremely low AM-to-PM conversion.

## SYMMETRICOM'S COMPLETE SOLUTION

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

## 58502A Specifications

### ELECTRICAL SPECIFICATIONS

- Input, A or B
  - Frequency range: 0.1 MHz to 10 MHz
  - Impedance: 50Ω nominal; SWR <1.5
  - Amplitude: +15dBm maximum; +7dBm minimum
  - Connector: BNC (female)
- Outputs (Into 50Ω)
  - Amplitude: +13dBm, +1dB/–3dB
  - Harmonics: <–32dBc
  - (for Option 010) <–20dBc
  - Spurious: <–110dBc, <–113 typical
  - (for Option 010) <–80dBc
  - Connectors: BNC (female)
- Mechanical specifications
  - Weight: 2.95 kg
  - Shipping weight: 6.35 kg
  - Dimensions: 45 mm H × 426 mm W × 344 mm D

### SUPPLEMENTAL CHARACTERISTICS

- Outputs: Single sideband phase noise (1 Hz bandwidth)
- Offset frequency — Phase noise
  - 100 Hz <–127dBc/Hz
  - 1 kHz <–142dBc/Hz
  - 10 kHz <–148dBc/Hz
- Port-to-port isolation: <–100dBc typical (measured by switching between open and short loads on output port and measuring associated phase noise on adjacent output port)

### ENVIRONMENTAL SPECIFICATIONS

- Temperature
  - Operating: 0°C to +55°C
  - Non-operating: 40°C to +70°C
  - EMI: CISPR 11, Group 1, Class c
- 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
- Power requirements
  - AC input: 100 to 132 or 175 to 240 Vac; 47 to 63 Hz; 80 VA Max
- Warranty: 12 months

### AVAILABLE OPTIONS

- Option 010: Internal backup oscillator (10 MHz Precision oven controlled quartz crystal) – replaces Input B
- Stability
  - Temperature stability $6 \times 10^{-9}$ (0° C to +55° C)
  - Aging/day $5 \times 1^{-10}$
  - Aging/year $1 \times 10^{-7}$
  - Tuning range $7 \times 10^{-7}$ (minimum)
- Option: AX4: rack mount kit

| ORDERING INFORMATION | Part No. |
|---|---|
| 58502A Broadband Distribution Amplifier | 58502A |
| Option 010 Backup Oscillator | 58502A-010 |
| Rack Mount Kit | 58502A-AX4 |

Symmetricom

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