Symmetricom

5087B

Wideband Distribution Amplifier

KEY FEATURES

- 12 Channel Wideband Sine Wave Distribution
- +13 dBm to +22.5 dBm Adjustable Output Power
- Accepts +3 to +22.5 dBm Inputs
- Input AGC Maintains Output Level with Varying Input Level
- High Isolation/Low Cross-talk Between Outputs
- Low Additive Phase Noise
- Front Panel Status Indicators for Health Monitoring at a Glance
- Ethernet Port for Remote Control and Monitoring
- Fault Alarm Output

INTRODUCTION

The 5087B Wideband Distribution amplifier is an economical solution for distributing signals from various frequency standards such as Caesium, Rubidium, Quartz or GPS receivers.

APPLICATIONS

Frequency standards typically have few outputs, each of which drives one load over short distances. When you have many devices requiring frequency reference inputs, or you need to deliver the frequency standard output from one building to another, the 5087B is the right choice.

- **Standards lab** – simultaneous calibration of multiple test equipment.
- **Manufacturing and R&D** – connecting all test equipment in a rack to the same frequency source.
- **Intra-building distribution** – distributing frequency standards from the cal lab to manufacturing and R&D.

High output-to-output isolation and output-to-input isolation keeps the effects of "accidents" from propagating to other channels or upstream to the frequency standard. For example, if an output is accidentally shorted or someone connects an active signal to the output of the distribution amplifier, the effect is minimized on any other output.

FAULT MONITORING

Front panel lights allow you to check status of the amplifier at a glance. Indicators are provided for power, alarm, input, and all 12 outputs.

An alarm occurs whenever there is loss of input signal, or loss of any of the 12 outputs. The alarm signal can be connected to audible or visible alarms, or logically "Ored" to other alarms.

Full remote control and monitoring of the amplifier can be done through the Ethernet port, including checking status and alarm conditions.

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5087B Specifications

ELECTRICAL SPECIFICATIONS

- Inputs
  - Number of inputs: 1
  - Frequency range: 1 to 10 MHz
  - Signal type: Sine wave
  - Connector: Rear panel BNC (female)
    Shield is chassis (earth) ground
  - Amplitude: 0.3 Vrms to 3 Vrms Automatic Level Control
  - Impedance: 50Ω nominal
  - Input status[1]: Front panel indicator
  - Damage level: +24 dBm
  - VSWR: <1.5:1
- Frequency outputs[2] (into 50Ω)
  - Number of outputs: 12
  - Frequency range: 1 to 10 MHz
  - Signal type: Sine wave
  - Connector type: Rear panel BNC (female)
    Shield is chassis (earth) ground
  - Amplitude[3]: 1 Vrms to 3 Vrms adjustable
  - Impedance: 50Ω nominal
  - Harmonics[4]: <-40 dBc
  - Spurious 10 Hz - 50 kHz: <-80 dBc
  - Channel status[5]: Front panel indicator
  - Single sideband additive phase noise (1 Hz bandwidth) 10MHz carrier

Offset frequency	Phase Noise (dBc/Hz)
1 Hz	-110
10 Hz	-123
100 Hz	-128
1 kHz	-144
10 kHz	-150

  - Isolation[6]
    - Output to output: <-104 dBc (typical)
    - Output to input: <-100 dBc
  - VSWR: < 1.5:1
- Alarm port
  - Connector type: BNC
  - Normal state: TTL high
  - Alarm state: TTL low
  - Output configuration: Open-collector, 10k Ohm pull-up to 5 Vdc
  - Alarm conditions: Loss of input signal, activation of input alarm, loss of any of 12 frequency outputs.
  - Status: Front panel LED
- Remote interface
  - Data communications: Ethernet (10 Base T)
  - Connector type: RJ-45

ENVIRONMENTAL SPECIFICATIONS

- Temperature
  - Operating: 0°C to +50°C
  - Non-operating: -62°C to + 75°C
- Humidity
  - Operating: 95% non-condensing, 40°C
- Altitude
  - Operating: 15,000 ft
- Shock: Meets IEC 60068-2-27 requirements
- Vibration: Meets IEC 60068-2-6 for sinusoidal vibration and IEC 60068-2-64 for random vibration requirements.
- EMC: Meets EN61326-1:2001
  Electrical Requirements for Electrical Equipment for Measurement, Control and Laboratory use- Part 1: General Requirements
  EN 55011 Class A, Radiated Emissions.
- Safety: Meets EN61010-1:2001
  Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory use- Part 1: General Requirements.
  UL/CSA Certified product

SUPPLEMENTAL CHARACTERISTICS

- Mechanical characteristics
  - Net weight: 6.2 kg
  - Shipping weight: 10 kg
  - Dimensions
    - Height: 90 mm (2U rack)
    - Width: 426 mm (standard 19-inch rack)
    - Depth: 320 mm
- Power requirements
  - AC input[7]: 100-240 VAC; 50 to 60 Hz
- Warranty: 1 year, return to Symmetricom

NOTES

1. Input status indicates if input amplitude drops below 0.3 Vrms. It does not indicate signal quality (frequency accuracy or stability) nor wave shape.
2. All outputs are always active. To reduce noise, connect a 50Ω terminator (not supplied with unit) on unused outputs.
3. An ALC circuit on the input amplifier assures output amplitude consistent with desired setting in the range 1 to 3 Vrms, into 50Ω.
4. Assumes harmonic distortion of <-50dBc of input signal.
5. Output channel status indicates if output drops below 0.3 Vrms (+2.6 dBm) at the output BNC connector, not at the end of the attached cable.
6. Output isolation is measured by injecting 900 Hz signal (0.5Vpp about 20us wide) into an output port and measuring the associated phase noise spur at 900 Hz offset on adjacent output ports and input port.
7. Auto sensing AC mains supply. A "power on" LED is located on the front panel.

Rear view

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