

MODEL E5000
Low Noise Distribution Amplifier
USER'S HANDBOOK

Contents

Safety Considerations	2
Voltage, Frequency and Power Characteristics.....	3
Environmental Conditions.....	3
Replaceable Fusing Characteristics.....	3
Cleaning Instructions.....	3
Operating Procedure	4
Front panel LED Indicator and Status.....	4
Specification	5
Enclosure dimensions: 1U 19 inch rack mount enclosure	6

Safety Considerations

General

This product and related documentation must be reviewed for familiarisation before operation. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the instrument may be impaired.

Before Applying Power

Verify that the product is set to match the available line voltage and the correct fuse is installed.

Before Cleaning

Disconnect the product from operating power before cleaning.

WARNING

Bodily injury or death may result from failure to heed a warning. Do not proceed beyond a warning until the indicated conditions are fully understood and met.

CAUTION

Damage to equipment, or incorrect measurement data, may result from failure to heed a caution. Do not proceed beyond a caution until the indicated conditions are fully understood and met.

This equipment must be earthed

An uninterruptible safety earth ground must be maintained from the mains power source to the product's ground circuitry.

WARNING

When measuring power line signals, be extremely careful and use a step down isolation transformer whose output is compatible with the input measurement capabilities of this product. The product's front and rear panels are typically at earth ground. Thus, never try to measure AC power line signals without an isolation transformer.

WARNING

Instructions for adjustments when covers are removed and for servicing are for use by service-trained personnel only. To avoid dangerous electrical shock, do not perform such adjustments or servicing unless qualified to do so.

WARNING

Any interruption of the protective grounding conductor (inside or outside the instrument) or disconnecting of the protective earth terminal will cause a potential shock hazard that could result in personal injury. Grounding one conductor of a two conductor out-let is not sufficient protection.

Whenever it is likely that the protection has been impaired, the instrument must be made inoperative and be secured against any unintended operation.

If the instrument is to be energised via an autotransformer (for voltage reduction) make sure the common terminal is connected to the earthed pole terminal (neutral) of the power source.

Instructions for adjustments while the covers are removed and for servicing are for use by service-trained personnel only. To avoid dangerous electrical shock, do not perform such adjustments or servicing unless qualified to do so.

For continued protections against fire, replace the line fuse(s) with fuses of the same current rating and type (for example, normal blow time delay). Do not use repaired fuses of short-circuited fuse holders.

Voltage, Frequency and Power Characteristics

Voltage 90-240VAC

Frequency 40-50Hz

Power characteristics 500mA Max

Environmental Conditions

Temperature

Operating (ambient) -20°C to +60°C

Storage -40°C to +85°C

Replaceable Fusing Characteristics

800mA time-lag HBC

Cleaning Instructions

To ensure long and trouble operation, keep the unit free from dust and use care with liquids around the unit.

Be careful not to spill liquids onto the unit. If the unit does get wet, turn the power off immediately and let the unit dry completely before turning it on again.

Clean with a damp (with water) cloth.

Never spray cleaner directly onto the unit or let liquid run into any part of it. Never use harsh or caustic products to clean the unit.

Operating Procedure

Introduction

The Quartzlock model E5000 is a distribution amplifier designed for standard frequency distribution between 1 MHz and 100 MHz.

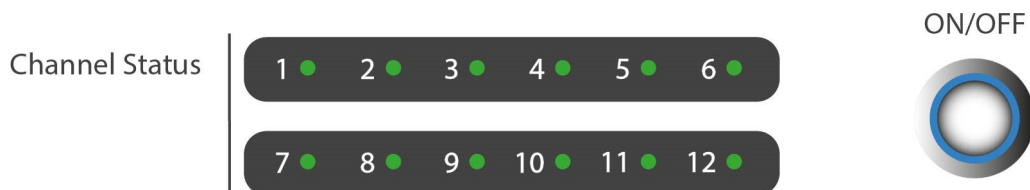
Input

One input is provided. This has input impedance of 50 Ohms. The input level can be between -5dBm and +13 dBm.

Outputs

The E5000 configurable up to 24 outputs. These have source impedance of 50 Ohms, and will provide between +5 and +13 dBm (MAX) into a 50 Ohms load.

Front panel LED Indicator and Status



Blue LED: Power ON/OFF switch

Green LEDs: **ON:** Input signal is present and channel is operating correctly.
OFF: Input signal is not present, or channel has failed.

Specification

1. No of Outputs:

12 or 24

2. No of Inputs:

1 or 2

3. Input Characteristics:

- a. Impedance: 50 Ohms nominal
- b. Level: +10dBm nominal
0 dBm to +12 dBm sine wave
- c. Input SWR: <1.2:1 at 10MHz

4. Output Characteristics:

- a. Impedance: 50 Ohms nominal
- b. Level: +12 dBm nominal into 50 Ohms at 10MHz
- c. Output SWR: <1.2:1
- d. Maximum Output: +13dBm into 50 Ohms at 10MHz typical

5. Frequency Response:

- a. 1MHz to 20MHz: ± 1.0 dB
- b. 1MHz to 110MHz: ± 3.0 dB

6. Harmonics:

- (at rated output, 10MHz) (source harmonics less than -60dBc)
- a. Second Harmonic <-50dBc
 - b. Third Harmonic <-35dBc

7. Isolation:

- a. Output to Output >80dB (adjacent outputs) at 10MHz
- b. Output to Output >80dB (non adjacent outputs) at 10MHz
- c. Output to Input >80dB at 10MHz

8. Short Term Stability:(at 10MHz)

- a. 1 Sec 1×10^{-13} tau
- b. 10 Sec 2×10^{-14} tau
- c. 100 Sec 5×10^{-15} tau

9. Phase Noise:

- Offset Typical phase Noise, dBc/Hz
- a. 1Hz <-132
 - b. 10Hz <-150
 - c. 100Hz <-160
 - d. 1KHz & 10KHz <-168

10. Noise Floor: <-168

11. Spurious Outputs: <-100dBc

12. Broadband Noise: <-145dBm/Hz

13. Delay Match between Outputs: <1ns

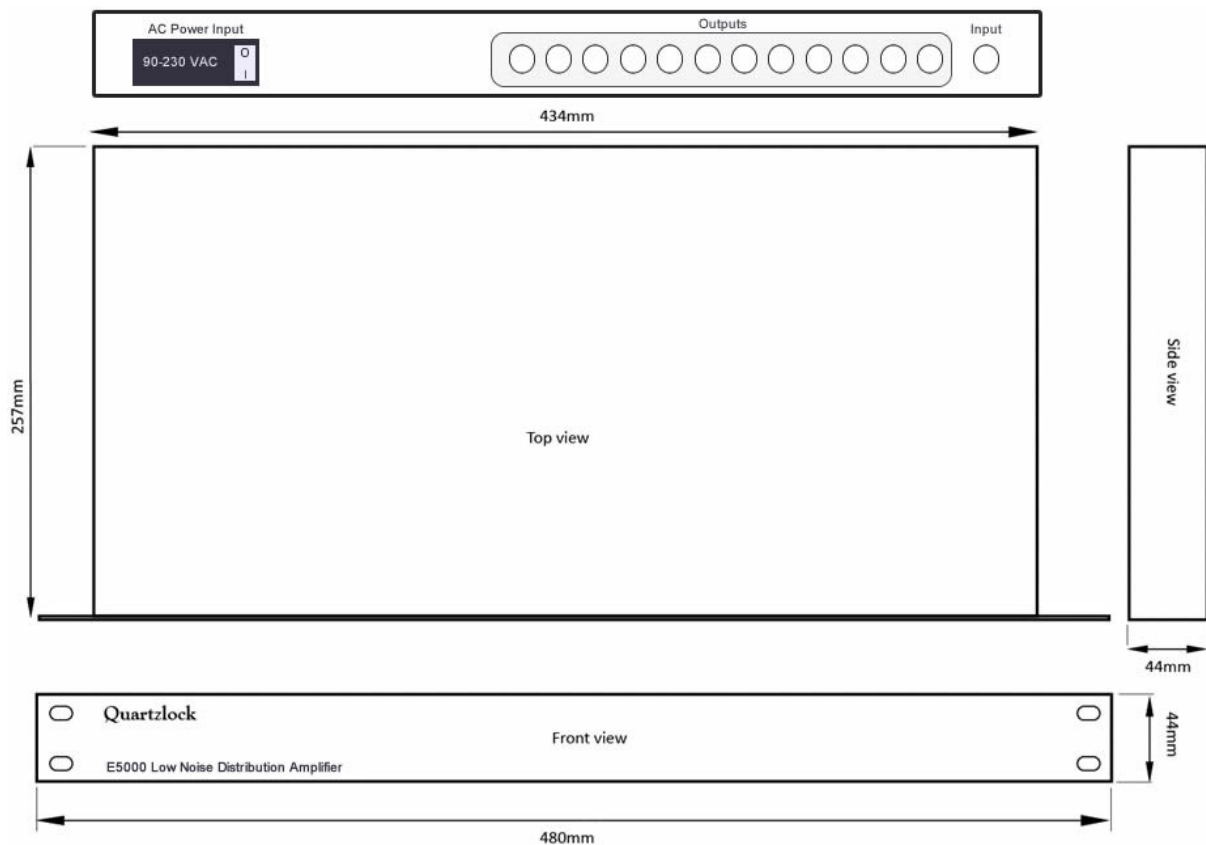
14. Delay Input to Output: <6ns

Built-in options

Contact us to configure this product to meet your requirement.

Option 00:	Redundant switchover for external power back-up
Option 11:	1 input 24/32 output
Option 12:	2 inputs 12/24 outputs
Option 13:	3 inputs 12/24/32 outputs
Option 18:	Extended warranty to 3 years
Option 51:	Rack Mount 19" 1U
Option 52:	Rack Mount 19" 2U
Option 53:	Rack Mount 19" 3U
Option 62:	AC Input 110V
Option 64:	DC input: Specify +12V, +24V, +48V or +60V
Option 75:	Add internal battery, up to 24 hours of battery life.
Option 91:	10MHz input 1MHz output
Option 92:	10MHz input 5MHz output
Option 93:	10MHz input 1PPS output
Option 94:	Add POT to adjust the gain of each channel

Enclosure dimensions: 1U 19 inch rack mount enclosure



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