

## **Why buy our distribution amplifiers?**

Precision Test Systems manufacture a wide range of distribution amplifiers operating from < 1 Hz to > 1 GHz.

We believe our amplifiers out-perform most other competitive units and often cost less as well.

### Warranty

First of all, our amplifiers are reliable. Having a MTBF of over 600,000 hours we are confident that they will work for years. So we offer a 3-year warranty on all our distribution amplifiers that we manufacture.

### Gain and Stable Outputs. The advantages of AGC.

The amplifiers that we manufacture all have AGC (automatic gain control). This is quite unique in the industry as most other competitors have a gain of 1.

Having a gain of 1 means the output amplitude will be the same as the input amplitude. So the output levels will not be constant should the input level vary. Also the output level is more likely to vary with temperature changes. This can affect the timing of the frequency distribution system.

AGC circuits can often introduce noise and this is often why they are not included by designers of distribution amplifiers.

Precision Test Systems has designed a very low noise AGC system that does not introduce any additional noise. The advantages of an AGC system are many, including:

- The output level will remain stable should the input level vary.
- Different references can be used without modification to the system.
- The output level will not vary over temperature, as any gain changes in the components are automatically adjusted for by the AGC system.
- Any AM modulation on the input is stripped away by the AGC.

### Low phase noise

It is essential that any distribution amplifier does not increase the phase noise of the reference input.

Our DA1-100-10 high performance distribution amplifier is one of the lowest phase noise amplifiers available on the market.

The phase noise is typically  $< -130$  dBc @ 1 Hz offset with a floor noise of less than  $-165$  dBc/Hz. The floor noise can even be improved further by careful selection of amplifier gains.

This low phase noise is achieved even though the DA1-100-10 has a automatic gain control system. The advantages of AGC has already been mentioned above.

### Channel to channel and reverse isolation

It's important that a distribution amplifier protects the reference oscillator connected to it. Any shorts or noise applied to an output should not interfere with any other output or the reference input.

Our DA1-100-10 has over 90 dB of channel to channel isolation and over 130 dB reverse isolation (at 10 MHz).

### Individual output level adjustment

The gain of our amplifiers can easily be changed by the user. Moreover, each output channel can have its gain *individually* adjusted. This is ideal when different equipment, connected to the distribution amplifier, have different level requirements.

Typically, each channel of our distribution amplifiers can be set from 0 dB to over 13 dBm.

### Options

We offer many options for our distribution amplifier range. Options include:

- Internal back-up oscillator. Automatically switched in should the input fail.
- 2nd reference input. Normally the outputs are derived from the main reference input. However, if that fails, the outputs are switched over to the second reference.
- Dual frequencies. One box can have two inputs operating at different frequencies.
- Redundancy. Two or more units operating in parallel. If one unit fails, the second unit takes over.
- Wide frequency range. We make products that operate from 1 Hz to over 1 GHz.
- Different gains. Our amplifiers can operate with input levels as low as  $-60$  dBm and as high at  $+30$  dBm (1 watt).
- Higher output levels. We offer output levels to  $+20$  dBm, or even more with separate amplifiers.

- Different output types. We can supply sinewave, squarewave, pulse outputs at any type of output level.
- Different Impedance. Our units are normally 50 ohm but we can offer units at other impedances such as 75 ohm.
- Battery back-up.
- Multiplied or divided outputs. E.G. 10 MHz input, 5 MHz output. 10 MHz input, 2.048 MHz output. Any type of multiplication or divided can be made.

Your option is not listed here? We will design a unit to your special instructions. We normally don't charge much more for specials.

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