



DA100510 10 / 5 MHz Distribution Amplifier



General Description

The DA100510 can be used to synchronize up to twelve instruments to a frequency reference input. The reference input frequency is 10 MHz and the output frequency is exactly half the input frequency, i.e 5 MHz. The DA100510 incorporates AGC (automatic gain control) so that a 10 MHz input can be varied from -10 dBm to +20 dBm without the outputs changing by more than 0.4 dB. Inputs as low as -30 dBm still produce a useable output. The pure sinewave output (harmonics are 65 dB down) enables the DA100510 to work in the most demanding applications.

Outputs

There are ten, 5 MHz, sinewave outputs. Each 5 MHz output is isolated from the input and each other. Therefore the reference oscillator connected to the DA100510 input is protected against load variations, short circuits etc. that may be applied to the outputs. Two additional squarewave outputs can be switched in frequency from 5 MHz, 2.5 MHz, 1 MHz, 500 kHz, 100 kHz and 1 pps. These outputs are ideal for instruments that do not use a 5 MHz timebase. A rear slave output can be connected to a second DA100510 (or more) to give up to twenty-four outputs (or more). See "Applications" below.

Applications

The DA100510 10 / 5 MHz Distribution Amplifier is ideal for use in calibration or standard laboratories, radio repair workshops or production facilities. By using the rear slave output, many DA100510's can be connected together to give multiple outputs

Miscellaneous Information

The DA100510 is a highly reliable unit with an MTBF of over 30 years. The DA100510 is housed in a fully screened 19" rack mount case and operates from a 115 VAC or 230 VAC supply or external 12 V DC. The DA100510 is CE marked for sale within the EEC.

Options

The DA series can be modified upon special request to work at different frequencies than 10 / 5 MHz. For example the DA151510 accepts a 15 MHz input and has 15 MHz outputs. Other frequencies to 20 MHz can also be accommodated.

Option 01 is an Alarm Relay that is activated when the 10 MHz input signal is present. Two changeover relay contacts can be used to raise an alarm should the input signal or power be lost. Two logic outputs also show the alarm status.

Option 02 is a redundancy option allowing two DA100510's to be operated in parallel giving a fully redundant output. A typical system consists of two Frequency Standards ("A" and "B") and two DA100510 distribution amplifiers ("A" and "B"). The system would have twenty redundant outputs. Normally the "A" pair will provide the 5 MHz output. In the event of a failure of the Frequency Standard ("A") or DA100510 ("A"), the "B" system would automatically switch in and provide the 5 MHz output.

DA100510 SPECIFICATIONS

Specification Parameter	Specification	Comments	
Input			
Frequency	10.000000 MHz	50 Ω BNC Connector on rear panel	
Bandwidth (-3 dB)	250 kHz		
Impedance	50 Ω		
Input VSWR	< 1.15 @ 10 MHz		
Input Level	+20 dBm to -10 dBm	Output Changes by < 0.4 dB	
Outputs 4 to 13			
Output Waveform	Sinewave	50 Ω BNC Connector on rear panel	
Output Frequency	5 MHz (Exactly half the input frequency)	Subject to the DA100510's jitter spec	
Output VSWR	< 1.5: 1 @ 5 MHz		
Output level	From 0 dBm to > +12 dBm	Each output internal adjustable	
Harmonic Distortion at 5 MHz	-65 dBc	Output set to +10 dBm	
Jitter (1 second, Allan Variance)	< 2 ps rms		
Input to Output Isolation	> 100 dB	Typical	
Output 2 to 3			
Output Waveform	Squarewave	50 Ω BNC Connector on rear panel	
Level	0 - 5V (open circuit) 0 - 2.7 V (50 Ω)	TTL Compatible	
Frequency	5, 2.5, 1, 0.1 MHz, and 1 pps	1 pps = 1 pulse per second (1 Hz)	
Risetime	< 30 ns	At 1 MHz	
Output 1 (Slave Output)			
Output Waveform	Sinewave @ > -5 dBm	50 Ω BNC Connector on rear panel	
Phase Noise (Typical)			
At 10 Hz Offset	-127 dBc/Hz	Measurement uncertainty ± 4 dB	
General			
Power (AC)	115 VAC or 230 VAC ± 10%	30 Watts max	
Power (DC)	11-13 VDC @ 1.3 Amps		
Size and weight	483 x 300 x 44 mm and 4.6 kg	Width x Depth x Height	
Ambient Operating Temperature	-10°C to +50 °C		
Options			
Option 01	Dual changeover alarm relay contacts	Plus two 8V logic alarm outputs	
Option 02	Redundancy	Requires two units	
Option 03	Internal Backup 10 MHz oscillator	Activated if input signal/power is lost	
Precision Test Systems			
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Full specifications available from www.ptsyst.com. Specifications and features subject to change without notice (180205)