PTS PRECISION TEST SYSTEMS

DA101010: 10 MHz Distribution Amplifier

Key Features

- 10 MHz Main Input
- AGC Level Controlled
- 10 sinewave outputs
- 2 squarewave outputs
- High channel isolation
- Low Phase Noise
- Optional second 10 MHz "Back-up" input
- Optional internal 10 MHz back-up oscillator
- Above two options automatically switched in
- Optional Alarm Relay, enabled on alarm condition
- Optional Redundancy (two units with automatic switchover)
- Available in other frequencies from 1 to 100 MHz.

General Description

The DA101010 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 the same as the input. The DA101010 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 DA101010 to work in the most demanding applications.

Outputs

There are ten, 10 MHz, sinewave outputs. Each 10 MHz output is isolated from the input and each other. Therefore the reference oscillator connected to the DA101010 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 10 MHz, 5 MHz, 2 MHz, 1 MHz, 100 kHz and 1 pps. These outputs are ideal for instruments that do not use a 10 MHz timebase. A rear slave output can be connected to a second DA101010 (or more) to give up to twenty-four outputs (or more). See "Applications" below.

Applications

The DA101010 10 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 DA101010's can be connected together to give multiple outputs

Miscellaneous Information

The DA101010 is a highly reliable unit with an MTBF of over 30 years. The DA101010 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 DA101010 is CE marked for sale within the EEC.

Options

Various options for the DA101010 are shown below. Note that not all options can be fitted at the same time. Consult Precision Test Systems for more details.

The DA series can be modified upon special request to work at different frequencies than 10 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 DA101010's to be operated together giving a fully redundant output. If one unit fails, the outputs will be sourced from the second unit. The option includes a second DA101010.

Option 03 is an internal 10 MHz back up oscillator. Should the input 10 MHz fail, the internal oscillator switches in.

Option 04 deletes five sinewave outputs and one squarewave output (negative option). This option reduces the price

Option 05 converts five of the outputs to 5 MHz. So with a 10 MHz input, there are five outputs at 5 MHz and five outputs at 10 MHz. The squarewave outputs remain switchable from 10, 5, 2, 1, 0.1 MHz and 1 pps.

Option 06 adds a second 10 MHz "back-up" input. Normally the first input is ised as the reference for all the outputs. If this first input fails, the second "back-up" input is automatically switched in and used as the reference.

Other models in the series include:

DA050510:	5 MHz input with 10 x 5 MHz outputs and 2 x squarewave outputs
DA051010	5 MHz input with 10 x 10MHz outputs and 2 x squarewave outputs
DA101010-05	10 MHz input with 5 x 10 MHz outputs and 5 x 5 MHz outputs, plus 2 x squarewave outputs
DA101030	10 MHz input with 25 sinewave outputs and 5 x squarewave outputs
DA101530	10 MHz input with 25 x 15 MHz outputs and 5 x squarewave outputs
DA1-100-4	0.5 MHz to 100 MHz wideband input. Four outputs same frequency as the input
DA1-100-8	0.5 MHz to 100 MHz wideband input. Eight outputs same frequency as the input
DA1-100-12	0.5 MHz to 100 MHz wideband input. Twelve outputs same frequency as the input

Special Modification

The DA101010 can be modified to customer's specific requirements. If the customer requires a feature not already mentioned in this brochure, then the customer should consult Precision Test Systems to see whether that feature can be added for a nominal charge. Many of the existing options where initially customers specific requests. These "specials" have now become standard options.

DA101010 Specifications

The specifications for the DA101010 are shown on the next page.

DA101010 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	< 1.30 @ 10 MHz for option 03
Input Level	+20 dBm to -10 dBm	Output Changes by < 0.4 dB
Sinewave Outputs		
Output Waveform	Sinewave	50 Ω BNC Connector on rear panel
Output Frequency	Exactly the same as the input frequency	Subject to the DA101010's jitter spec
Output VSWR	< 1.5: 1 @ 10 MHz	
Output level	From 0 dBm to > +13 dBm Factory default setting is +10 dBm	Each output factory adjustable. Specify output level when ordering
Harmonic Distortion at 10 MHz	-65 dBc	Output set to +10 dBm
Jitter (1 second, Allan Variance)	< 2 ps rms	
Channel to channel isolation	> 40 dB	Varies, typical 45 to 60 dB
Input to Output Isolation	> 85 dB	Varies, typical 86 to 105 dB
Squarewave Outputs		
Output Waveform	Squarewave	50 Ω BNC Connector on rear panel
Level	0 - 5V (open circuit) 0 - 2.7 V (50 Ω)	TTL Compatible
Frequency	10, 5, 2, 1, 0.1 MHz, and 1 pps	1 pps = 1 pulse per second (1 Hz)
Risetime	< 30 ns	At 1 MHz
Slave Output		
Output Waveform	Sinewave @ > -5 dBm	50 Ω BNC Connector on rear panel
Phase Noise (Typical)		
At 1 / 10 / 100 / 100000 Hz Offset	-105 / -131 / -146 / -161 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
Option 04	Delete five sinewave outputs	Negative option, reduces price
Option 05	Convert five outputs to 5 MHz	Remaining 5 outputs remain 10 MHz
Option 06	Second "back-up" 10 MHz input	Automatically switched in

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Full specifications available from www.ptsyst.com. Specifications and features subject to change without notice (17406)