

# Frequency Distribution Amplifier

5 to 100 MHz, Triple Chain: 1 Input to 4 Outputs each

Part No: 10219



## Key features:

- Compact design (1HU), rack mountable
- Extremely low phase noise
- High isolation
- Excellent input and output match
- Excellent for high precision frequency references
- 3 chains with one input and four outputs each.

# Frequency Distributor

**Part No: 10219**

Multiple Modules, 5 to 100 MHz, Triple Chain: 1 Input to 4 Outputs each

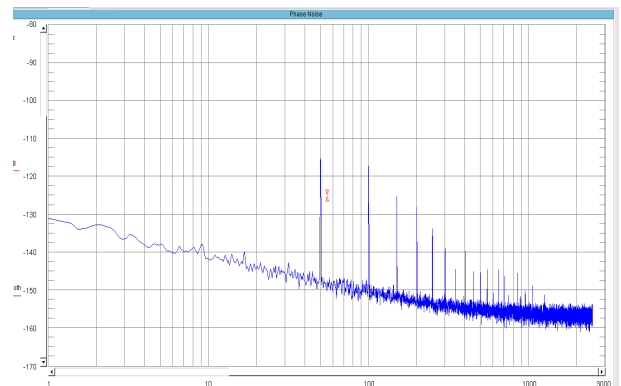
The Frequency Distributor is a one height unit rack mountable unit. The units allow a cost and space efficient way to distribute reference frequencies throughout a system without any loss or degradation.

The Distribution Amplifier is optimised for very low phase noise, very good input and output match to 50  $\Omega$  and for excellent isolation – this is for output to output, output to input, and input to input.

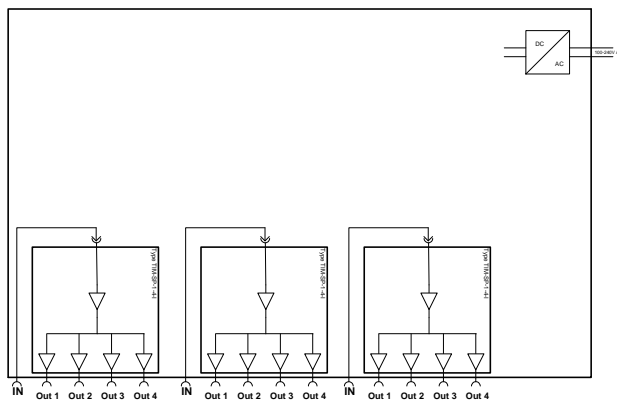
The Distribution Amplifier provides very high stability of signal delay so that it can be used with high precision frequency sources such as caesium clocks or masers.

The unit exhibits the following performance, valid for laboratory environment, temperature +18 .. +24°C, controlled to 1K pp with maximum slopes of 0.5K/h:

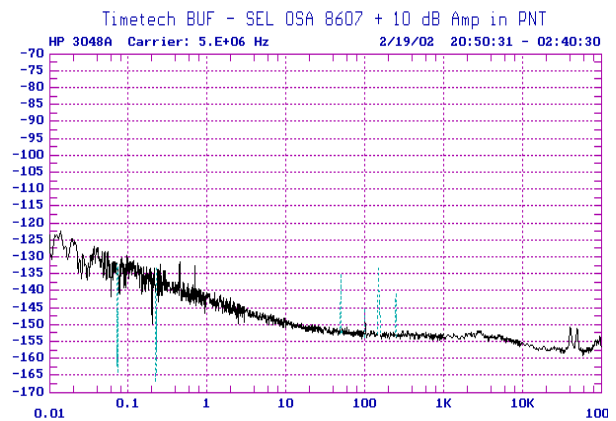
Freq. Offset	Phase Noise [dBc]		
	5 MHz	10 MHz	100 MHz
0.1 Hz	-132		
1 Hz	-142	-141	-131
10 Hz	-149	-148	-140
100 Hz	-152	-152	-150
1000 Hz	-153	-153	-153
10000 Hz	-153	-153	-153



Phase noise at 100 MHz, +8 dBm



Block diagram of frequency distribution unit



Phase noise at 5 MHz, +13 dBm

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## Specification

### Signal Inputs

Number of inputs 1 per chain (total 3 inputs)  
Frequency 5 to 100 MHz, sine wave  
Input impedance 50  $\Omega$   
Input level to +12 dBm (+11 dBm @ 100 MHz)  
Input return loss >40 dB (> 45 dB typ.) @ 10MHz  
Connectors SMA, BNC option via adaptors

### Signal Outputs

Number of outputs 4 per chain (total 12 outputs)  
Gain +0.1  $\pm$  0.2 dB @10 MHz when loaded with 50  $\Omega$   
Gain variation 0.5 dB, one channel, 5 to 100MHz  
Group delay (absolute) 4.3  $\pm$  0.2 ns  
Output return loss > 40 dB (> 45 dB typ.) @10MHz  
Output impedance 50  $\Omega$   
Connectors SMA, BNC option via adaptors

	5 MHz	10 MHz	100 MHz
Gain compression (-1 dB) at Pout = + 12 dBm	+ 12 dBm	+ 12 dBm	+ 11 dBm
Reverse Isolation [dB]	> 140	> 130	> 120
Output / Output Isolation [dB]	> 120 (128 typ)	>110 (118 typ)	> 85 (91 typ)
Harmonics @ +10 dBm [dBc]	60	53	53

Group delay vs frequency 0.4 ns pp one channel 5 to 100 MHz  
Group delay vs temperature 4 ps / K versus temperature  
Noise figure 24 dB, 21.5 dB typ.

### Electrical interface

Supply voltage AC 95 to 265 V AC, 47 to 65 Hz (standard)  
Power Consumption < 15 Watts

### Mechanical

Outline 19 inch, 1 height unit (448.8 mm \* 44 mm)  
depth 448 mm  
Weight 1.5 kg

### Environmental

#### Transportation and Storage

Temperature. -20°C to +75°C  
Humidity 10% to 90% (non condensing)  
Altitude < 20 000 m  
Shock max 10g acceleration for 11 ms  
Vibration max. 0.15 mm at 5 to 8 Hz, max 1g acceleration at 8 to 500 Hz

#### Operation

Temperature -10°C to +50°C  
Humidity 20% to 90% (non condensing)  
Altitude < 3 000 m

### Option

BNC adapter for all connectors