

# MODEL 9250

## 40Vp-p Differential / Dual Channel Signal Amplifier



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- Large signal bandwidth to 15MHz
- Small signal bandwidth to 30MHz
- High amplitude to 40Vp-p (into high impedance)
- Slew rate to 500V/μs
- Low distortion
- Custom Configuration of:
  - Gain
  - Input impedance
  - Output impedance
  - Output configuration

The 9250 is a bench-top, 2U, half 19" rack size, fully metal case dual channel amplifier. The instrument can be configured to be used as two, single-ended independent channels, or as a one input with two differential outputs.

#### **Input Characteristics**

The inputs to the amplifiers can be configured to match different source impedances such as 50Ω, 75Ω, or 1MΩ and the outputs can be configured to match different load impedances such as 50Ω, 75Ω, or 600Ω.

There are three inputs for each channel:

1. Main input. This input is located on the front panel and is normally used for signal inputs.
2. Auxiliary input. This input is located on the rear panel and can be used as a summing input.
3. DC Offset input. This input is also located on the rear panel and can be used for offsetting the signal level within the specified output level window.

#### **Output Characteristics**

The outputs are located on the front panel. There are two outputs, one for each channel. When the 9250 is configured as two separate amplifiers, the outputs generate amplified signals within the range of 40Vp-p into open circuit or 20Vp-p into matching load impedance. The bandwidth of the outputs is around 15MHz for large signals. Small signal bandwidth can reach 30MHz.

#### **Instrument Configuration**

The 9250 can be configured as a differential amplifier. In this case, the channel 2 input is disabled and channel 1 input is amplified and distributed differentially to both outputs. In this case, channel 1 output generates in-phase signal while channel 2 outputs an inverted signal that has exactly 180 phase offset to the normal output. Full amplitude and bandwidth is preserved when the 9250 operates in differential mode. The output impedance of the differential outputs is modified to 25Ω, 37.5Ω, or 300Ω for differential drive of 50Ω, 75Ω, or 600Ω loads. Using the differential mode, the 9250 does not sacrifice accuracy, nor does it sacrifice bandwidth.

#### **Auxiliaries**

The 9250 has two additional inputs for each channel allowing summation of two signals and providing an external control of DC level offset. These inputs are accessible from the rear panel only.

#### **Target Applications**

The amplifier case was designed to stack on top or below other Tabor products. It can also be mounted alongside a Tabor generator in a standard 19" rack. The waveform-amplifier combo is an ideal solution for virtually any high-voltage, wide bandwidth application.

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### Specification

#### CONFIGURATION

**Channels:** 2 with single-ended outputs;  
1 with differential outputs

#### INPUT CHARACTERISTICS

**Connector:** Front panel BNCs  
**Impedance:** 50Ω, 75Ω or 1MΩ  
**Coupling** DC or AC  
**Damage Level:** 12Vp-p (-6V to +6V peaks)  
**Frequency Range:**  
DC to 15MHz DC coupled, 50Ω  
40kHz to 15MHz AC coupled, 50Ω /75Ω  
20Hz to 15MHz AC coupled, 1MΩ

#### OUTPUT CHARACTERISTICS

##### GENERAL

**Connector:** Front panel BNC  
**Impedance:**  
Single-Ended 50Ω, 75Ω, or 600Ω  
Differential 600Ω  
**Coupling:** DC or AC  
**Protection:** Short-circuit, 10 seconds  
**Gain:** x10<sup>(2)</sup>, fixed  
**Polarity:** Normal  
**Amplitude:** 0 to 20Vp-p into matching  
impedance  
0 to 40Vp-p into high  
impedance

**Max. Output Current:** 200mA into 50Ω

##### SQUARE WAVE CHARACTERISTICS

**Transition Time:** <22ns  
**Aberrations:** <7%

##### SINE WAVE CHARACTERISTICS

**Bandwidth:** -3dB  
Small Signal 30MHz, at 2Vp-p  
Large Signal 15MHz, at 20Vp-p  
**Accuracy:** ±(3% of full-scale amplitude  
range + 25mV), Square wave  
at 1KHz

##### Flatness (10Vp-p):

DC to 1MHz 5%  
1MHz to 15MHz 10%

**THD:** 0.1%, 10Hz to 100kHz

##### Harmonics (10Vp-p):

100kHz to 5MHz <-50dBc  
5MHz to 15MHz <-40dBc

#### GENERAL

**Voltage Range:** 85VAC to 265VAC  
**Frequency Range:** 47Hz to 63Hz  
**Power Consumption:** 25W  
**Signal Ground:** Grounded to case ground  
**Dimensions:**  
With Feet 315 x 102 x 395 mm (WxHxD)  
Without Feet 315 x 88 x 395 mm (WxHxD)  
**Weight:**  
Without Package 3.5kg  
Shipping Weight 4kg  
**Temperature:**  
Operating 0°C to 50°C  
Storage -40°C to 70°C  
**Humidity:** 80% RH, non condensing  
**Safety:** CE Marked, IEC61010-1  
**Calibration:** 1 year  
**Warranty <sup>(1)</sup>:** 3 years standard

#### ORDERING INFORMATION

40Vp-p Differential / Dual-Channel Signal Amplifier

**MODEL** 9250-10-50-50-D-S<sup>(1)</sup>

**Gain:** 10, 15 or 20, fixed<sup>(2)</sup>

**Input Impedance:** 50 = 50Ω  
75 = 75Ω  
1M = 1MΩ

**Output Impedance:** 50 = 50Ω  
75 = 75Ω  
600 = 600Ω

**Coupling:** D = DC  
A = AC

##### Output

**Configuration:** S = Two separated channels  
D = Single channel with  
differential outputs<sup>(3)</sup>

<sup>(1)</sup> Standard Configuration

<sup>(2)</sup> Custom gain from x10 to x20 can be ordered  
however, bandwidth may change.

<sup>(3)</sup> Output impedance for differential drive is 600Ω  
only.

<sup>(4)</sup> Specification is given for the standard  
configuration only

<sup>(1)</sup> Standard warranty in India is 1 year.