Quick Start Guide

Model A10150

150MHz, 16Vp-p Single Channel Wideband Amplifier

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A10150 Feature Highlights

- 150MHz bandwidth
- High amplitude to 20Vp-p into 50Ω
- Low distortion
- Small footprint, all metal case
- Fast transition time of <1.8ns
- Custom Configuration of:

  Gain (x5 or x10)
  Maximum output (16Vp-p or 20Vp-p)

Figure 1, Model A10150

Introduction

The A10150 is a wideband DC coupled amplifier that combines high output drive and low distortion. At an output of +24dBm (10Vp-p into 50Ω), the -3dB bandwidth is 150MHz. With the output current internally limited to 250mA, the A10150 is fully protected against shorts to ground.

The A10150's small footprint box is especially designed to fit on Tabor's WX series and models WS8351/2, as an add-on option, to boost their power performance above the internal capabilities of 4Vp-p, and amplify them to a maximum of 20Vp-p into 50 ohms, using a fixed gain of x5. 32Vp-p is the maximum amplitude level this amplifier can produce however, only into high impedance loads.

Tip

Knowing your source impedance is very important, because the output gain accuracy is calibrated to specific source impedance and therefore, any unmatched load impedance may have an affect on output level accuracy.

CAUTION

Applying the output signal on inductive or capacitive loads may damage the amplifier.

Configuration Options

The A10150's standard configuration enables a maximum output voltage of 16Vp-p into 50 ohms and a gain of x5. Custom gain of x10 and maximum voltage of 20Vp-p into 50 ohms options can be ordered.

WARNING

This manual has no schematics and no instructions how to modify the amplifier for other configurations as any configuration change, without full engineering supervision, may affect the performance of the amplifier. All options must be specified at the time of your purchase. Reconfiguration of fielded instruments can be done by qualified and trained persons only.

Connectors

The A10150 has two front panel SMA input connectors, normal and complement, which match the Tabor's WX series and WX8351/2 outputs locations. The A10150 normal input should be connected to the normal output of the signal source. The complement input should be connected to the complement output of the signal source as it is terminated to 50 ohms, in order to prevent undesired aberrations from the differential signal source. However, if the signal source does not have a differential output the A10150 complement output does not have to be connected. At the rear panel, the A10150 has one BNC output connector, which outputs the amplified signals and the power DIN-5 input connector, which is fed from a factory supplied power supply.

Power Supply

The A10150 comes with a factory supplied power supply, which accepts any voltage from 100 to 240Vac and there is no need to select the voltage range between different countries. To avoid potentially hazardous situations, always connect the center pin of the power supply plug to mains ground using the line cord that is supplied with the instrument.

Specifications

The specifications listed in this guide represent the performance standards or limits against which the A10150 is tested. Specifications apply under the following conditions: output terminated into 50 ohms impedance, after 30 minutes of warm up time, and within a temperature range of 20°C to 30°C. Specifications outside of the temperature range are degraded by 0.1% per °C.

Operating Environment

The A10150 is intended for indoor use only and should be operated in a clean, dry environment with an ambient temperature within the range of 0 °C to 40 °C.

WARNING

The A10150 must not be operated in explosive, dusty, or wet atmospheres. Avoid installation of the module close to strong magnetic fields.

Performance Checks

The instrument has been inspected for mechanical and electrical performance before shipment from the factory. It is free of physical defects and in perfect electrical order. Check the instrument for damage in transit and perform the electrical procedures outlined in the section entitled Unpacking and Initial Inspection.

Safety Considerations

The Model A10150 has been manufactured according to international safety standards. The instrument meets EN61010-1 standards for safety of commercial electronic measuring and test equipment for instruments with an exposed metal chassis that is directly connected to earth via the chassis power supply cable.

WARNING

Do not remove instrument covers when operating the instrument or when the power cord is connected to the mains.

Any adjustment, maintenance and repair of an opened, powered-on instrument should be avoided as much as possible, but when necessary, should be carried out only by a skilled person who is aware of the hazard involved.

Supplied Accessories

The A10150 is supplied with a power supply, power cord, two SMA/M to SMA/M connectors to tie the A10150 to the instrument, and in some cases, a “Y” splitter cable to connect two A10150 to the same power supply mains.

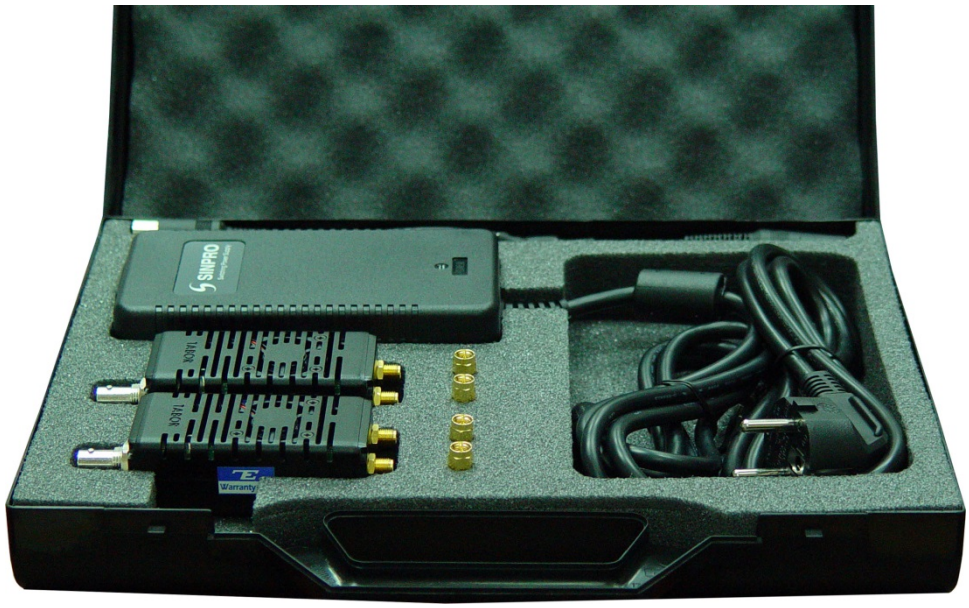

Figure 3, 2 x A10150 kit for dual channel unit

Long Term Storage or Repackaging for Shipment

If the A10150 is to be stored for a long period of time or shipped to a service center, proceed as directed below. If repacking procedures are not clear to you or, if you have questions, contact your nearest Tabor Electronics Representative, or the Tabor Electronics Customer Service Department.

1. Repack the instrument using the wrappings, packing material and accessories originally shipped with the unit. If the original container is not available, purchase replacement materials.
2. Be sure the carton is well sealed with strong tape or metal straps.
3. Mark the carton with the model and serial number. If it is to be shipped, show sending and return address on two sides of the box.

NOTE

If the instrument is to be shipped to Tabor Electronics for calibration or repair, attach a tag to the instrument identifying the owner. Note the problem, symptoms, and service or repair desired. Record the model and serial number of the instrument. Show the RMA (Returned Materials Authorization) order as well as the date and method of shipment. ALWAYS OBTAIN AN RMA NUMBER FROM THE FACTORY BEFORE SHIPPING THE UNIT TO TABOR ELECTRONICS.

Unpacking and Initial Inspection

Unpacking and handling of the A10150 requires normal precautions and procedures applicable to handling of sensitive electronic equipment. The contents of all shipping containers should be checked for included accessories and certified against the packing slip to determine that the shipment is complete.

Installation & Operating Instructions

Being a passive device, there are no controls, nor computer programming required to operate the A10150. The following procedure is recommended for proper installation of the A10150 with the Tabor WX series and WS8351/2 models, however, model A10150 can be used in conjunction with any signal source, simply by using cables to connect to the amplifier:

1. Connect the input terminals to your source, using the supplied SMA/M to SMA/M connectors, as shown in figure 2.
2. Connect the output terminal to your load
3. Connect the power input terminal to the supplied power supply

WARNING

There is no switch control to turn A10150 amplification on and off and therefore, the amplifier is active immediately after you power it up. Always make sure your load is protected from inadvertent power up conditions before you turn on your A10150.

Figure 2, Connecting the A10150 to Tabor WX or WS8351/2 unit

Electrical Specifications

Input Characteristics

Characteristics	Description
No. of Channels	1, (Differential; normal and inverted)
Connector	Front panel SMA
Impedance	50Ω
Coupling	DC
Damage Level	6Vp-p (-3V to +3V peaks)

Output Characteristics

Characteristics	Description
No. of Channels	1
Coupling	DC coupled
Connector	Rear panel BNC
Gain	x5, fixed (x10 gain optional)
Polarity	Normal
Max. Output Current	250mA
Impedance	50Ω ±1%
Protection	Short Circuit to Case Ground, 10s max

Amplitude

Characteristics	Description
Amplitude	16Vp-p into 50Ω (20Vp-p optional)
Rise/Fall Time	
2V step	<1.8ns (typ.)
10V step	<2.6ns (typ.)
Aberration	
2Vpp	<5%
10Vpp	<10%

Frequency

Characteristics	Description		
Frequency Range	DC to 150MHz		
Bandwidth (-3dB)			
<2Vpp	200MHz (typ.)		
<10Vpp	150MHz (typ.)		
Harmonics & Non-Harmonic Distortion (typ.)	**2Vpp**	**5Vpp**	**10Vpp**
20MHz	<-59dBc	<-52dBc	<-50dBc
50MHz	<-52dBc	<-45dBc	<-36dBc
100MHz	<-35dBc	<-30dBc	<-40dBc

Mechanical, Environmental and Maintenance Specifications

Power feed

Characteristics	Description
Voltage Requirement	±15VDC
Power Consumption	7W
Signal Ground	Grounded to case ground

Mechanical

Characteristics	Description
Dimensions	45 x 30 x 85 mm (W x H x D)
Weight	
Without package	115 g (Standalone)
Shipping weight	
1 x A10150 Kit	1.25 Kg
2 x A10150 Kit	1.45 Kg

Environmental

Characteristics	Description
Temperature	
Operating	0°C to 40°C
Storage	-40°C to 70°C
Humidity	80% RH, non-condensing

Certifications and compliances

Characteristics	Description
Safety	IEC61010-1
EMC	IEC 61326-1:2006

Maintenance

Characteristics	Description
Warranty	1 year
Recalibration Period	2 years