Quick Start Guide

Model A10160

45MHz, 34Vp-p Single Channel Wideband Amplifier

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A10160 Feature Highlights

- 45MHz bandwidth
- High amplitude to 34Vp-p into 50Ω
- High output current drive to 1A
- Fast transition time of <10ns
- Small footprint, all metal case
- Custom gain configuration
- Low distortion

Figure 1, Model A10160

Introduction

Model A10160 is an ultra-small footprint, wideband, DC coupled amplifier designed for high frequency, high current, signal amplification. With a high bandwidth of 45MHz, 34Vp-p into 50 ohms and up to 10W output power, the A10160 is the ideal complimentary amplifier to any signal source that needs a supporting power boost for demanding applications.

The A10160 was designed as a “Snap-On” accessory for the Tabor WaveXciter series and models WS8351/2, both having a maximum amplitude of 4Vp-p, which can be limiting for some applications, requiring higher voltage and current to drive their UUT. Combined with the A10160 the WX and WS models will now offer even higher abilities to solve demanding application requiring up to 45MHz signals at 34Vp-p into 50 ohms loads, without compromising their signal integrity.

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 A10160's standard configuration enables a maximum output voltage of 34Vp-p into 50 ohms and a gain of x10. Custom gain of x15 or x20 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 A10160 has two front panel SMA input connectors, normal and complement, which match the Tabor's WX series and WX8351/2 outputs locations. The A10160 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 A10160 complement output does not have to be connected. At the rear panel, the A10160 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 A10160 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 A10160 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 A10160 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 A10160 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 A10160 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 A10160 is supplied with a power supply, power cord, two SMA/M to SMA/M connectors to tie the A10160 to the instrument, and in some cases, a “Y” splitter cable to connect two A10160 to the same power supply mains.

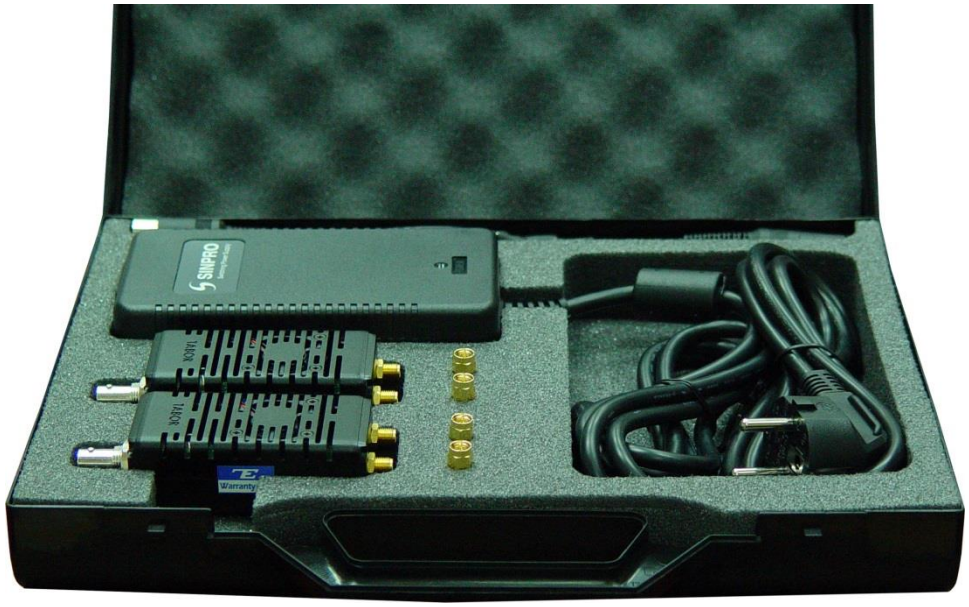

Figure 3, 2 x A10160 kit for dual channel unit

Long Term Storage or Repackaging for Shipment

If the A10160 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 A10160 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 A10160. The following procedure is recommended for proper installation of the A10160 with the Tabor WX series and WS8351/2 models, however, model A10160 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 A10160 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 A10160.

Figure 2, Connecting the A10160 to Tabor WX or WS8351/2 unit

Electrical Specifications

Input Characteristics

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

Output Characteristics

Characteristics	Description
No. of Channels	1
Coupling	DC coupled
Connector	Front panel BNC
Gain (load 50Ω)	X10, fixed (X15 or X20 gain optional)
Polarity	Normal
Impedance	2.5Ω ± 5%
Protection	Short Circuit to Case Ground & Thermal protection
Amplitude	
Peak	34Vpp into 50Ω
Continuous	30Vpp into 50Ω
Max. Output Current	
Peak	1A
Continuous	750mA
Rise/Fall Time	
30V step	<10ns (typ.)
Aberration	
10Vpp	<5%
30Vpp	<10%

Frequency

Characteristics	Description	
Frequency Range	DC to 45MHz	
Bandwidth (-3dB)		
50Ω Load		
<10Vpp	45MHz (typ.)	
<34Vpp	30MHz (typ.)	
Harmonics & Non-Harmonic Distortion (typ.)	**10Vpp**	**25Vpp**
1MHz	<-58dBc	<-54dBc
10MHz	<-45dBc	<-45dBc
30MHz	<-42dBc	<-30dBc

Mechanical, Environmental and Maintenance Specifications

Power supply

Characteristics	Description
Power Supply	±20VDC
Power Consumption	20W
Signal Ground	Grounded to case ground

Mechanical

Characteristics	Description
Dimensions	40 x 30 x 110 mm (W x H x D)
Weight	
Without package	115 g
Shipping weight 1 kit	1.25 Kg
Shipping weight 2 kit	1.45 Kg

Environmental

Characteristics	Description
Temperature	
Operating	0°C to 50°C
Storage	-40°C to 70°C
Humidity	85% 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