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Tektronix®

AWG5012B Option 09 and AWG50BUP Option S39
TTL Event to TekLink LVDS Connector Adapter

User Manual



071-2674-00

Tektronix®

AWG5012B Option 09 and AWG50BUP Option S39 TTL Event to TekLink LVDS Connector Adapter

User Manual

www.tek.com

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For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit www.tek.com to find contacts in your area.

Warranty

Tektronix warrants that this product will be free from defects in materials and workmanship for a period of one (1) year from the date of shipment. If any such product proves defective during this warranty period, Tektronix, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product. Parts, modules and replacement products used by Tektronix for warranty work may be new or reconditioned to like new performance. All replaced parts, modules and products become the property of Tektronix.

In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Tektronix, with shipping charges prepaid. Tektronix shall pay for the return of the product to Customer if the shipment is to a location within the country in which the Tektronix service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Tektronix shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than Tektronix representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non-Tektronix supplies; or d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

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General safety summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it.

To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of a larger system. Read the safety sections of the other component manuals for warnings and cautions related to operating the system.

To avoid fire or personal injury

Observe all terminal ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

The inputs are not rated for connection to mains or Category II, III, or IV circuits.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

Do not operate without covers. Do not operate this product with covers or panels removed.

Do not operate with suspected failures. If you suspect that there is damage to this product, have it inspected by qualified service personnel.

Avoid exposed circuitry. Do not touch exposed connections and components when power is present.

Do not operate in wet/damp conditions.

Do not operate in an explosive atmosphere.

Keep product surfaces clean and dry.

Terms in this manual

These terms may appear in this manual:



WARNING. *Warning statements identify conditions or practices that could result in injury or loss of life.*



CAUTION. *Caution statements identify conditions or practices that could result in damage to this product or other property.*

Symbols and terms on the product

These terms may appear on the product:

- DANGER indicates an injury hazard immediately accessible as you read the marking.
- WARNING indicates an injury hazard not immediately accessible as you read the marking.
- CAUTION indicates a hazard to property including the product.

The following symbol(s) may appear on the product:



CAUTION
Refer to Manual

Compliance Information

This section lists the EMC (electromagnetic compliance), safety, and environmental standards with which the instrument complies.

EMC Compliance

EC Declaration of Conformity – EMC

Meets intent of Directive 2004/108/EC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities:

EN 61326-1: 2006. EMC requirements for electrical equipment for measurement, control, and laboratory use. [1] [2]

- CISPR 11:2003. Radiated and conducted emissions, Group 1, Class A
- IEC 61000-4-2:2001. Electrostatic discharge immunity
- IEC 61000-4-3:2002. RF electromagnetic field immunity
- IEC 61000-4-4:2004. Electrical fast transient / burst immunity
- IEC 61000-4-5:2001. Power line surge immunity
- IEC 61000-4-6:2003. Conducted RF immunity
- IEC 61000-4-11:2004. Voltage dips and interruptions immunity [3]

EN 61000-3-2:2006. AC power line harmonic emissions

EN 61000-3-3:1995. Voltage changes, fluctuations, and flicker

European Contact.

Tektronix UK, Ltd.
Western Peninsula
Western Road
Bracknell, RG12 1RF
United Kingdom

1 **This product is intended for use in nonresidential areas only. Use in residential areas may cause electromagnetic interference.**

2 **To ensure compliance with the EMC standards listed here, high-quality shielded interface cables should be used.**

3 **Performance Criterion C applied at the 70%/25 cycle Voltage-Dip and the 0%/250 cycle Voltage-Interruption test levels (IEC 61000-4-11).**

Australia / New Zealand Declaration of Conformity – EMC

Complies with the EMC provision of the Radiocommunications Act per the following standard, in accordance with ACMA:

- CISPR 11:2003. Radiated and Conducted Emissions, Group 1, Class A, in accordance with EN 61326-1:2006.

Environmental Considerations

This section provides information about the environmental impact of the product.

Product End-of-Life Handling

Observe the following guidelines when recycling an instrument or component:

Equipment Recycling. Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. In order to avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.



This symbol indicates that this product complies with the applicable European Union requirements according to Directives 2002/96/EC and 2006/66/EC on waste electrical and electronic equipment (WEEE) and batteries. For information about recycling options, check the Support/Service section of the Tektronix Web site (www.tektronix.com).

Restriction of Hazardous Substances

This product has been classified as Monitoring and Control equipment, and is outside the scope of the 2002/95/EC RoHS Directive.

Preface

This manual describes the installation and operation of the TTL Event to TekLink LVDS Connector Adapter. The connector adapter converts a TTL signal to an event signal for the AWG5012B arbitrary waveform generator.



Key Features

The AWG5012B Option 09 supports the following features:

- Subsequence
- Table jump

NOTE. *The AWG software must be version 3.3 or later to enable the Option 09 features. To check the software version of your AWG5012B, select Help > About Tektronix AWG... from the menu bar.*

Software Upgrades

Software upgrades are available. Occasionally new versions of software for your instrument may become available on the Tektronix Web site. To check for upgrades:

1. Use your Web browser to go to **www.tektronix.com/software**.
2. Enter the product name (AWG5012B) to find available software upgrades.

If you purchased the AWG50BUP Option S39 Field Upgrade Kit, you can use the Product SW CD (that came with the kit) to upgrade your AWG5012B.

Related Documents

Review the following for the location of related information for your instrument.

To read about	Use these documents
Installation and operation (overviews)	Quick Start User Manual. Provides general operating information.
In-depth operation and user interface help	User online help. Provides detailed instructions for using instrument functions. Access the user online help from the Help button or Help menu for information on controls and elements on screen.
Programmer commands	Programmer online help. Includes the syntax of GPIB commands. Access the programmer online help from the Help menu. The programmer PDF manual is also available on the document CD.
Service information	Service manual. The service manual is a PDF only manual and it is available on the Tektronix Web site at www.tektronix.com/manuals.

Installation

Unpack the connector adapter and check that you received all of the items listed below as parts list. Check the Tektronix Web site (www.tektronix.com) for the most current information.

Products

The TTL Event to LVDS Connector Adapter can be used only with the AWG5012B.

- AWG5012B Option 09, Subsequence and Table Jump
- AWG50BUP Option S39, Upgrade to Option 09 for the AWG5012B

Parts List

Table 1: AWG5012B Option 09

Description	Part number	Quantity
Converter Box, TTL Event to LVDS TekLink Connector Adapter	850-0108-xx	1 each
TekLink Cable, 200 cm	174-5019-xx	1 each
User Manual, printed	071-2674-xx	1 each

Table 2: AWG50BUP Option S39

Description	Part number	Quantity
Converter Box, TTL Event to LVDS TekLink Connector Adapter	850-0108-xx	1 each
AWG5000B and AWG7000B Series Product Software CD	020-2945-xx	1 each
TekLink Cable, 200 cm	174-5019-xx	1 each
User Manual, printed	071-2674-xx	1 each

Controls and Connectors

1. Table Event Input connector. (See page 3, *Table Event Input Connector*.)
2. TekLink connector.

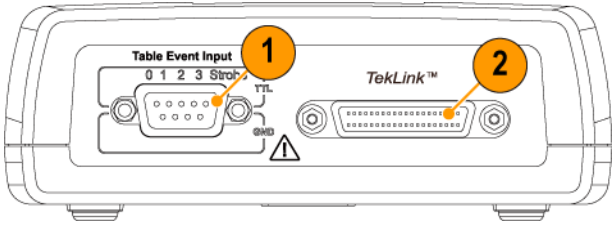


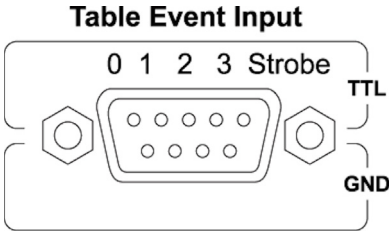
Table Event Input Connector

Connect an event signal to the Table Event Input connector.

The Table Event Input connector accepts TTL-level signals from 0.0 V to 5.0 V (DC + Peak AC). The connector is a standard 9-pin D type.

By connecting the connector adapter to your AWG5012B, the instrument can accept four bit Table Jump signals.

The Table Jump can define up to 16 possible logic levels of the Event Input lines.



Pin NO.	Signal	Direction
1	STROBE	INPUT
2	EVENT Bit3	INPUT
3	EVENT Bit2	INPUT
4	EVENT Bit1	INPUT
5	EVENT Bit0	INPUT
6	GND	
7	GND	
8	GND	
9	GND	

Strobe Signal

You can input one strobe signal in addition to the four event signals. The strobe signal controls the timing of reading the event signals.

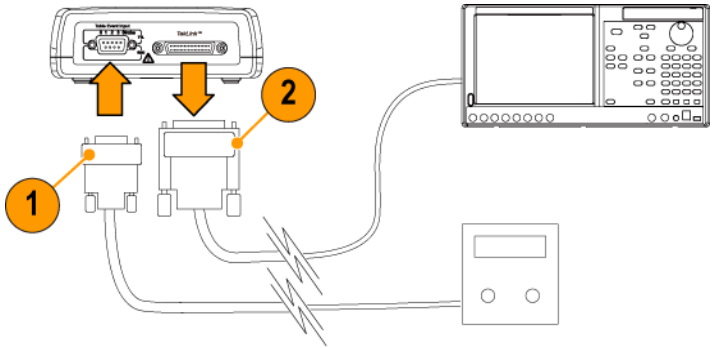
- When Strobe is set to Off, the instrument reads the event signals at the timing of every two internal clock cycles, and updates the event value if a state transition in the event signals are found.
- When Strobe is set to On, the instrument reads the event signals when the strobe signal goes to low state (Enable), and updates the event value if a state transition in the event signals are found.

NOTE. *You cannot toggle the Strobe signal on and off using the screen interface or remote commands. The Strobe definition in the sequence file can control the strobe signal input. For more information about Strobe Signal and Sequence file, refer to the user online help.*

Connecting Cables

NOTE. Before connecting the following cables, power off your instrument. The power is supplied from your AWG5012B through a TekLink cable.

1. Connect a TTL-level signal to the Table Event Input connector.
2. Use a TekLink cable to connect the connector adapter and your AWG5012B.



Mounting the Connector Adapter

You can mount the connector adapter to a surface, such as an existing rackmount tray, or to a bracket of your design, by doing the following:

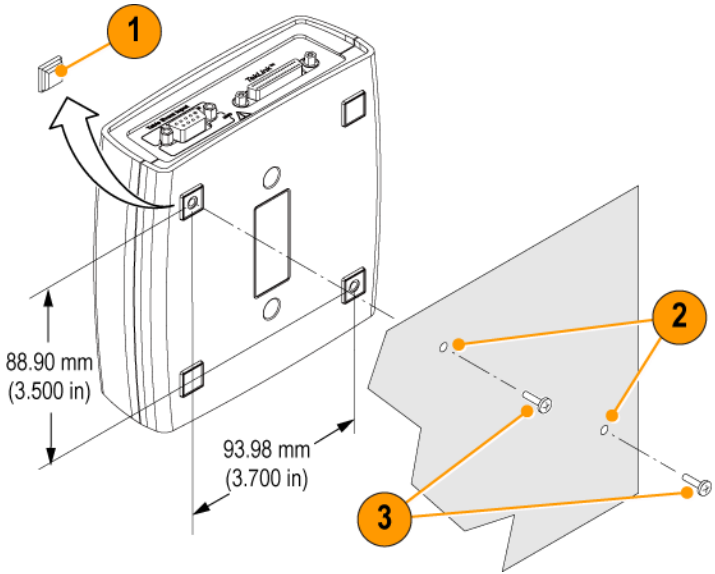
1. Remove the four adhesive-backed, plastic feet from the connector adapter.

2. Refer to the dimensions shown in the illustration, and drill holes in the mounting surface for two screws.

CAUTION. *Using screws that are too long will damage the internal circuitry. Screws should enter the chassis ≤0.4 in. (1.03 cm).*

3. Mount the connector adapter using two 6-32 screws of appropriate length.

NOTE. *Some rackmount kits have provisions for mounting accessories, such as the connector adapter.*

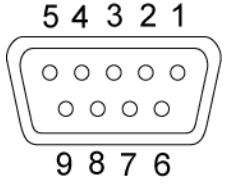


Specifications

Table Event Input (AWG5012B option 09)

Characteristic	Description
Number of Event Jump destination	Up to 16
Strobe	On/Off selectable
Minimum pulse width	64 ns
Latency to analog output, typical	Max 650 ns @1.2 Gsps Max 1300 ns @650 Msps From D-type connector on the TTL to LVDS converter to Analog output when Asynchronous Jump is selected
Hold off time, typical	Maximum 500 sample clock cycles (when Asynchronous Jump is selected)

TTL Event to LVDS TekLink Converter

Characteristic	Description
Input connector type	9 pin, D-sub female
Input signals and pin assignment	 1 STROBE 2 3 (Event signal) 3 2 (Event signal) 4 1 (Event signal) 5 0 (Event signal) 6 Signal ground (GND) 7 Signal ground (GND) 8 Signal ground (GND) 9 Signal ground (GND)
Input level	TTL level ■ Input voltage range 0 V to 5 V ■ High-level input voltage 2 V to 5 V ■ Low-level input voltage 0 V to 0.8 V
Input impedance	Pull up to 4.5 V by 2.2 kΩ register
Output connector type	40-pin TekLink connector
Output level	LVDS

Atmospherics

Characteristic	Description
Temperature	Operating: +10 °C to +40 °C Nonoperating: -20 °C to +60 °C
Relative humidity	Operating: 5% to 80% (no condensation), maximum wet-bulb temperature 29 °C Nonoperating: 5% to 90% (no condensation), maximum wet-bulb temperature 29 °C
Altitude	Operating: Up to 3,000 m (approximately 10,000 feet) Maximum operating temperature decreases 1 °C each 300 m above 1.5 km Nonoperating: Up to 12,000 m (approximately 40,000 feet)

Physical characteristics

Characteristic	Description
Height, typical	47.8 mm (1.882 in)
Width, typical	134.4 mm (5.291 in)
Depth, typical	134.0 mm (5.275 in)
Weight, typical	600 g (1.32 lb)

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