PicoSource® AS108

Agile Synthesizer

QUICK START GUIDE

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Introduction

Thank you for purchasing a PicoSource AS108 Agile Synthesizer. The instrument is a synthesized source of sine or modulated waveforms with adjustable, swept or stepped frequency, phase or level. This guide explains how to install the PicoSynth 2 software and connect your AS108. It also contains important safety information and advice on accessing user manuals and technical support.

We recommend that you follow Steps 1 to 3 in order:

Step 1:   Install the PicoSynth 2 software
Step 2:   Read the AS108 safety information
Step 3:   Connect the AS108

Step 1: Installing the PicoSynth 2 software

1.1   System requirements

To ensure that PicoSynth 2 operates correctly, you must use a computer with the system requirements shown in the table below.

Item	Specifications
Operating system	Microsoft Windows 7, 8 or 10, 32-bit and 64-bit versions
Processor, Memory, Free disk space	As required by the operating system
Ports	USB 2 or 3

1.2   Installing the software

1.   Go to www.picotech.com/downloads, select the PicoSource AS108 from the list, then select the latest **PicoSynth 2** software. Download and run the installer.

2.   Follow the on-screen instructions to install the software. Do not connect the AS108 until the installation is complete.

3.   You can try out the software by clicking the new **PicoSynth 2** icon on your desktop and then selecting and connecting the demo device.

For more information on the software, please refer to the built-in help.

Step 2: Safety information

To prevent possible electrical shock, fire, personal injury, or damage to the product, carefully read this safety information before attempting to install or use the product. In addition, follow all generally accepted safety practices and procedures for working with and near electricity.

The product has been designed and tested in accordance with the European standard publication EN 61010-1: 2010 (Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use) and and EN61010-2-30: 2010 (Requirements for Testing and Measuring Circuits). The product left the factory in a safe condition.

The following safety descriptions are found throughout this guide:

A **WARNING** identifies conditions or practices that could result in injury or death.

A **CAUTION** identifies conditions or practices that could result in damage to the product or equipment to which it is connected.

2.1   Symbols

These safety and electrical symbols may appear on the product or in this guide.

Symbol	Description
	Chassis terminal
	Possibility of electric shock
	Caution
	Do not dispose of this product as unsorted municipal waste

Appearance on the product indicates a need to read these safety and operation instructions.

⚠ WARNING

To prevent injury or death, use the product only as instructed and use only the accessories that have been supplied or recommended. Protection provided by the product may be impaired if used in a manner not specified by the manufacturer.

2.2   Maximum input and output ranges

Observe all terminal ratings and warnings marked on the product.

The table below and markings on the product indicate the overvoltage protection ranges for the PicoSource AS108. These are the maximum voltages that will not damage the instrument.

⚠ WARNING

To prevent electric shock, do not attempt to connect voltages outside the overvoltage protection range.

Input/output	Overvoltage protection
Main output	25 V DC pk and 20 dBm
Trigger input	±10 V DC + AC pk
Trigger output	±4 V DC + AC pk
10 MHz reference in	±4 V pk-pk AC ± 15 V DC
10 MHz reference out	
FM/AM input	±5 V DC + AC pk

⚠ WARNING

Signals exceeding the voltage limits in the table below are defined as "hazardous live" by EN 61010. All products from Pico Technology are suitable for connection to voltages that are equal to or less than the EN 61010 limits in the table below.

Signal voltage limits of EN61010-1:2010		
±70 V DC	33 V AC RMS	±46.7 V pk max.

⚠ WARNING

To prevent injury or death, the AS108 must not be directly connected to the mains (line power).

⚠ CAUTION

Exceeding the overvoltage protection range on any cable, connector or accessory can cause permanent damage to the AS108 and other connected equipment.

2.3   Grounding

⚠ WARNING

The AS108's ground connection through the USB cable is for measurement purposes only. The AS108 does not have a protective safety ground.

Never connect the ground input (chassis) to any electrical power source. To prevent personal injury or death, use a voltmeter to check that there is no significant AC or DC voltage between the AS108 ground and the point to which you intend to connect it.

⚠ CAUTION

Applying a voltage to the ground input is likely to cause permanent damage to the AS108, the attached computer, and other equipment.

2.4   External connections

⚠ WARNING

To prevent injury or death, only use the power cord and adaptor supplied with the product. These are approved for the voltage and plug configuration in your country.

External DC power supply		
Voltage	Current	Total power
12 to 15 V DC	0.9 A peak	12 W

⚠ CAUTION

Take care to avoid mechanical stress or tight bend radii for all connected leads, including all coaxial leads and connectors. Mishandling will cause deformation of sidewalls, and will degrade performance and accuracy.

⚠ WARNING

Containment of radio frequencies
The instrument incorporates a swept or CW radio frequency signal source (300 kHz to 8.192 GHz at 15 dBm max.). The instrument and supplied accessories are designed to contain and not radiate radio frequencies that could interfere with the operation of other equipment or radio control and communications. To prevent injury or death, connect only to appropriately specified connectors, cables, accessories and test devices, and do not connect to an antenna except within approved test facilities or under otherwise controlled conditions.

2.5   Environment

⚠ WARNING

To prevent injury or death, do not use in wet or damp conditions, or near explosive gas or vapor.

⚠ CAUTION

To prevent damage, always use and store your AS108 in appropriate environments.

Temperature		Humidity (RH, non-condensing)	
Storage	Operating	Storage	Operating
−20°C to +50°C	+5°C to +40°C	80 %rh	80 %rh
Altitude		Pollution degree	
2000 m		Pollution degree 2	

2.6   Care of the product

The product contains no user-serviceable parts. Repair, servicing and adjustment require specialized test equipment and must only be performed by Pico Technology or an approved service provider. There may be a charge for these services unless covered by the Pico three-year warranty.

Inspect the instrument and all probes, connectors, cables and accessories before use for signs of damage.

⚠ WARNING

To prevent injury or death, do not use the product if it appears to be damaged in any way, and stop use immediately if you are concerned by any abnormal operations.

To prevent electric shock do not tamper with or disassemble the AS108, case parts, connectors or accessories.

When cleaning the AS108, use a soft cloth and a solution of mild soap or detergent in water. To prevent electric shock, do not allow water to enter the casing, as this will compromise the electronics or insulation inside.

⚠ CAUTION

Do not block the air vents at the back of the AS108 as overheating will damage the instrument.

Do not insert any objects through the air vents as internal interference will cause damage to the instrument.

To prevent dirt ingress, fit dust caps to all unmated connectors and remove them only during connection.

Step 3: Connecting your AS108 Agile Synthesizer

1.   Make sure that you have installed the PicoSynth 2 software. You will not be able to configure the AS108 without it.

2.   If the software is running in demo mode, close it before you connect the AS108.

3.   Connect the AS108 to your PC using the USB cable supplied. See the diagram below.

a.   PicoSource device
b.   PicoSource USB port
c.   Pico USB cable
d.   PC USB port
e.   PC
f.   PicoSource RF output

4.   Wait for your computer to install the device. While doing so it will display a message or icon in the taskbar telling you it has found the device.

5.   Run the software by clicking the new **PicoSynth 2** icon on your desktop. PicoSynth 2 will automatically detect and identify your AS108.

6.   In the **Connect Device** dialog that appears, select the AS108 and click **Connect Device**. You are now ready to set up the synthesizer.

For more detailed instructions on setting up your PicoSource device, see the *User's Guide* and *Data Sheet*.

Input and output connections

The *PicoSource AS108 User's Guide* contains a complete description of input and output connections.

Additional information

Documentation

The *Data Sheet* contains the latest specifications for your PicoSource device. We recommend that you print a copy and keep it for easy reference. For detailed information on operating and installing your product, you should consult its *User's Guide*. You can download PDF copies of all documentation relevant to your synthesizer, including the *Programmer's Guide*, from www.picotech.com/downloads.

Software updates and replacement

You can download the latest versions of the PicoSynth 2 software free of charge from www.picotech.com/downloads.

Writing your own software

A software development kit with all the drivers and other files you will need to develop your own custom programs is installed with the PicoSynth 2 software. Pico also maintains repositories of examples in various programming languages on GitHub, at github.com/picotech.

Technical support

Regularly updated technical support information can be found on the Pico Technology technical support web page and users' forum at www.picotech.com/tech-support.

Warranty and returns

Your Agile Synthesizer is supplied with a three-year return-to-manufacturer warranty. All accessories are guaranteed for one year from the date of purchase. You may also return your AS108 for any reason within 14 days of purchase for a refund. For terms and conditions, visit www.picotech.com/about.

Free newsletter

Pico Technology sends out a free monthly newsletter by email. This gives news of product launches, software upgrades and application notes as well as hints and advice. We treat your email details as confidential and will not pass them on to any third party. To subscribe, visit www.picotech.com/signup.

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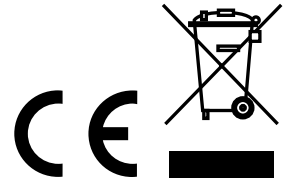PR China

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