electron plus ASA101A Analog Signature Analyzer Software User Manual

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Contents

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Hereafter referred to as Electron Plus

Notes

- We frequently update our manuals and add new features and improvements as they available, please ensure that you check our website for an updated version of this document, especially if updating your Electron Plus software.
- We make every effort to ensure the accuracy of this manual's contents. If you find any errors, have suggestions for expanding on a feature, or feel that we can improve it's contents then please contact us at **support@electron.plus**
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Purpose of manual
The purpose of this manual is to enable you to safely setup, configure and operate your Electron Plus instrument, associated software and/or accessories.

Please pay particular attention to any section with a warning symbol.

Safety warnings

Warnings, cautions and notes are colour coded through-out this manual. These are divided into several categories and are described below:

WARNING – Pay special attention to anything written here – this is for your safety and continued protection and is critical information!

CAUTION – Damage may occur to your equipment or any DUT (device under test).

NOTE – General text, with useful information or tips.

Getting Started

System requirements

We recommend at least Windows 7 operating system. ASA is available in both 32 bit and 64 bit from the Electron Plus website.

Minimum requirement for connection to ASA device: 1x USB 2.0 type A (common) for connection to the instrument, at 0.5A.

Screen resolution of at least 1440(W) x 900(H), it will work with others, but you risk some of the CONTROL RIBBON items not being visible.

ASA uses the PC sound card for various alerts, although it will operate correctly without sound.

Technical Note
We test EPIC builds mainly on Windows 10/64 bit machines with 1920×1080 monitors.

Getting help

Help is available by email: support@electron.plus

If you are experiencing an issue with EPIC, please email a copy of the following files (see below) found in the EPIC installation folder along with a description of the problem.

log.txt
bugreport.txt

This will help us understand your problem and provide a quicker fix.

Introduction

Welcome

Congratulations and thank you for purchasing an Electron Plus product.

Please take a few minutes to read the ‘Before you start’ section of this manual, especially as misusing this product can result in damage to it, your device-under-test or potentially place you in-danger.

Before you start

The supplied metal spike is SHARP. When you have finished using the ASA101A, unscrew the spike, turn it round and screw it lightly back into the ASA101A.

Ensure that all DUT* capacitors and energy storage devices are fully discharged before using the ASA101A.

The SIGNAL connection is protected by a large ‘transzorb’ style device, but damage WILL occur if the ASA101A is placed across a fully charged DCLINK capacitor.

The COMMON connection is connected directly to the chassis of the instrument and therefore the USB 0V and shell.

Before connecting your device, please ensure you have installed the USB driver.

DUT* – device under test

New in software

ASA covers most Electron Plus instruments and not all instruments are updated between versions:

V24.001
Bug fixes
Various small tweaks

V22.001
Change of name to ASA from EPIC
Bug fixes

V21.012
Bug fixes
ASA – addition of manual mode

V21.011
Bug fixes
CTL503 – Vgs vs Id (at fixed Vds) mode added
CTL503 – updates to status display
CTL503 – removal of DEVTEST button/function.

V21.010
Bug fixes
Addition of version compiled for 32 bit systems
CTL503 added to EPIC
ASA200/240 – addition of SIGNAL/COMMON to EDIT page
V21.009

Bug fixes
SPA100 added to EPIC
REF50X added to EPIC

V21.008
Bug fixes

Installation sequence

Please install the ASA software and the associated USB driver software BEFORE connecting your device to a computer.

You do not need to remove a previous copy of ASA, the new copy will overwrite the necessary existing file(s). The “settings.txt” file will only be created if it is not present.

When ASA is first started, it will build a number of files (unless they are already there from a previous installation)

in the installation directory.

If upgrading from EPIC V21.009 or earlier please be aware that the new program EXE is called either ASA32.EXE or ASA64.EXE and that previous shortcuts might not work or will link to previous copy.

Installing the Software

Electron Plus products require a USB connection to a PC running ASA (our proprietary software) in order to function.

ASA now comes in two compiled versions (since version 21.010):

ASA64 – for 64 bit Windows installations & PC's (we recommend this).
ASA32 – for 32 bit legacy Windows machines.

You can download the latest copy of ASA for free from **www.electron.plus/pages/software**, ASA is being constantly revised with new features, updates and bug fixes.

1. Select which variant you wish to use go ahead and download it (typically by double clicking on the ZIP file named something like: Install_ASA24001_64.ZIP)
2. Open the downloaded file (typically Windows will recognize the ZIP format and open the file and display the contents like a folder), double click the EXE file – typically called Install_ASA24001_64.exe)
3. Follow the on screen instructions to complete the installation. Before starting ASA, we recommend installing any USB drivers, see next section for details.

This manual MAY NOT represent the most up-to-date features and screenshots, if something is unclear, please contact **support@electron.plus** and we will promptly try to assist you.

Installing the USB driver

The product covered in this document communicates with the host PC via USB using an FTDI FT230X bridge IC.

A copy of the official FTDI device driver is available from the SOFTWARE section of our website (**www.electron.plus/pages/software**), device drivers can also be downloaded directly from FTDI's website (**www.ftdichip.com/drivers**).

Download the FTDI driver (CDM21228_Setup), open the ZIP file and run CDM21228_Setup.EXE, this will install the D2XX drivers necessary.

It is possible that you already have this FTDI device driver installed, however we still recommend following this procedure.

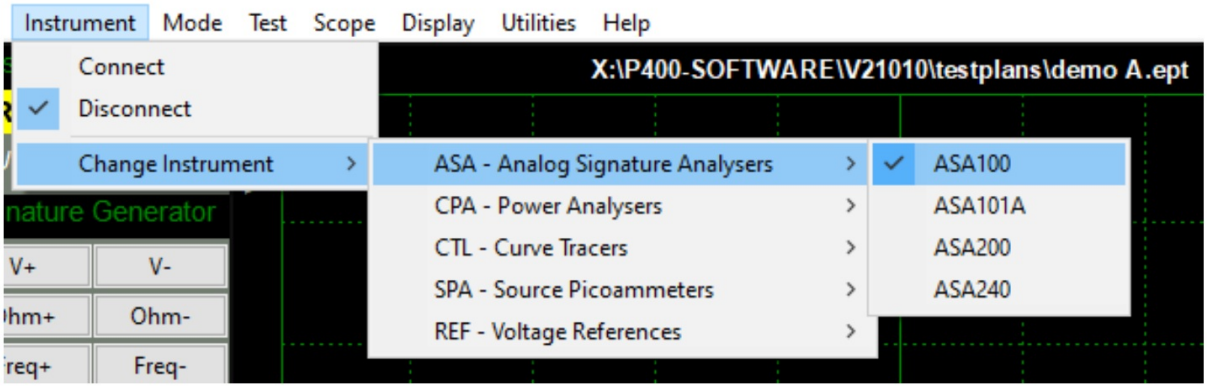
Operation

Selecting Instrument

When ASA is first installed it will initially start in ASA100 mode.

To change this:

INSTRUMENT > CHANGE INSTRUMENT and select the actual instrument you wish to use, you will then have to close and reopen ASA for this to take effect.

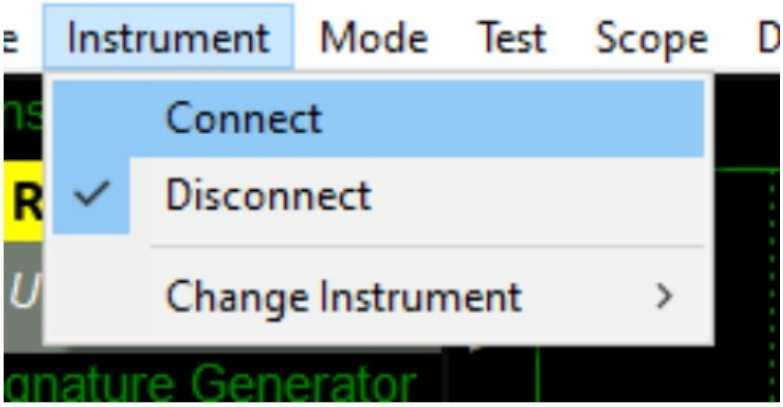


Technical Note
Variable used in settings.txt: ACTIVE Instrument=ASA100

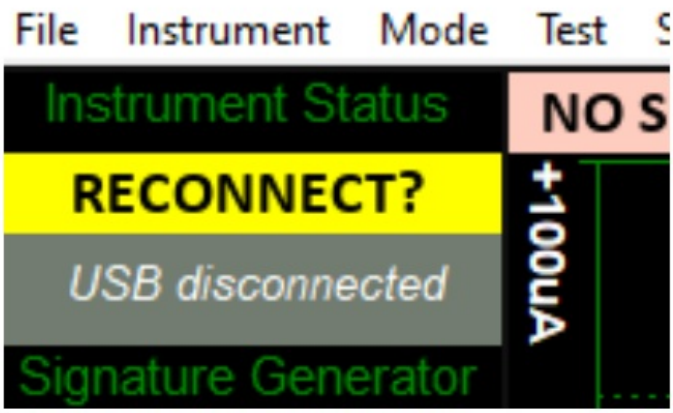
Connecting Instrument

To connect to the instrument you can use the options in the MENU or the button on the Control Ribbon.

INSTRUMENT > CONNECT to connect, or DISCONNECT to disconnect.



or



Before the instrument connects it will check the identification in the FTDI USB bridge IC, an error message will be shown if the instrument selected is not the same as the instrument connected.

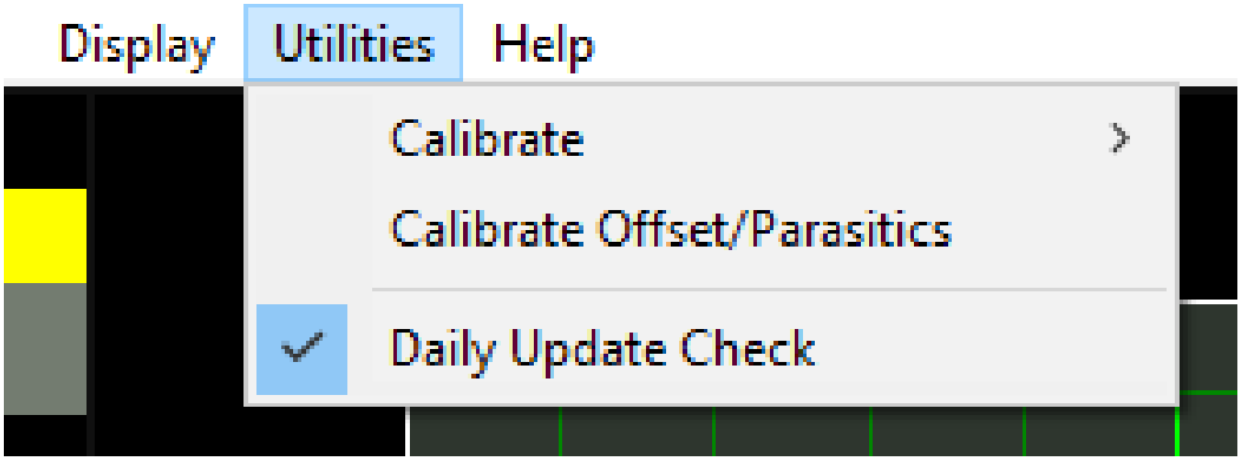
Technical Note
Upon successful connection, ASA will download the calibration coefficients file from the USB bridge IC. These are then stored in the EPIC folder as “ASA_cal.txt”

Check for updates

Once per day ASA will check if there is a newer version available. This feature maybe disabled or re-enabled here:

UTILITIES > DAILY UPDATE CHECK

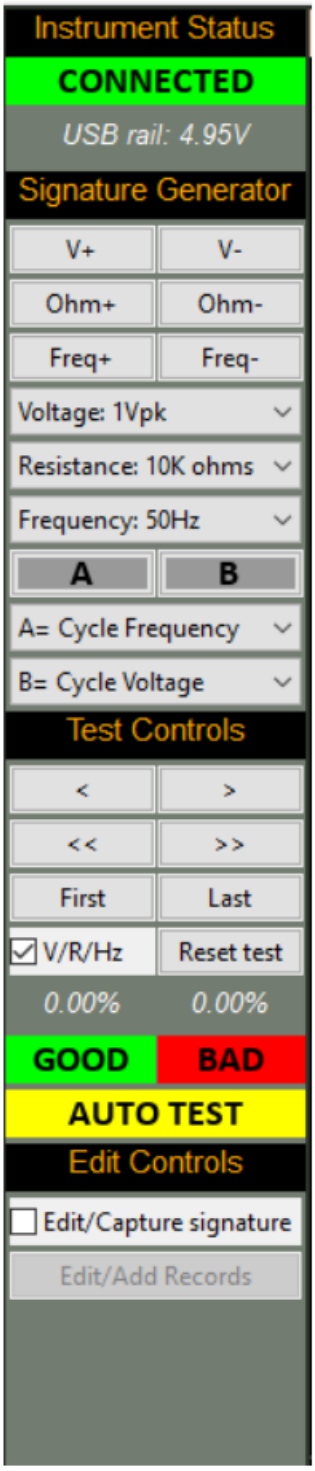
Tick will enable EPIC to perform the daily update check, unticking will prevent EPIC from performing the daily update check.



Technical Note

In “settings.txt”: Check Website For Update=1 or 0 determines if this function is enabled/disabled. Date Of Last Update Check=04/11/2021 is self-explanatory.
If function is enabled and date <> today a small file called “version.txt” is downloaded from “http://www.electron.plus/wpcontent/“. This contains the current revision of EPIC also the current revision for each product where a change/update has been made.

Control Ribbon
The Control Ribbon has most of the functions necessary for the operation of the instrument.



The following sections are descriptions of Instrument Status, Signature Generator, Test Controls and Edit Controls and their functions

Instrument Status

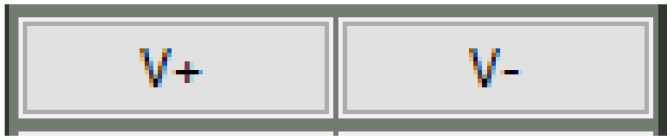
Reconnect/Connected button shows the status of the connection between the instrument and EPIC:

Pressing this button will connect or disconnect the instrument to EPIC. Should the instrument be disconnected, the status of this button will automatically change.

Below the connection button is a text display that shows (typically) the voltage of the USB connection at the input to the instrument. This is useful in diagnosing problems with the USB cable, or the computer port. This voltage will dip a small amount when the instrument is generating signals in the 100 ohm setting.

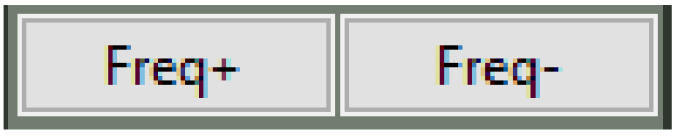
Signature Generator

This section of the Control Ribbon selects the output voltage, resistance and frequency of the test waveform generated by the ASA.



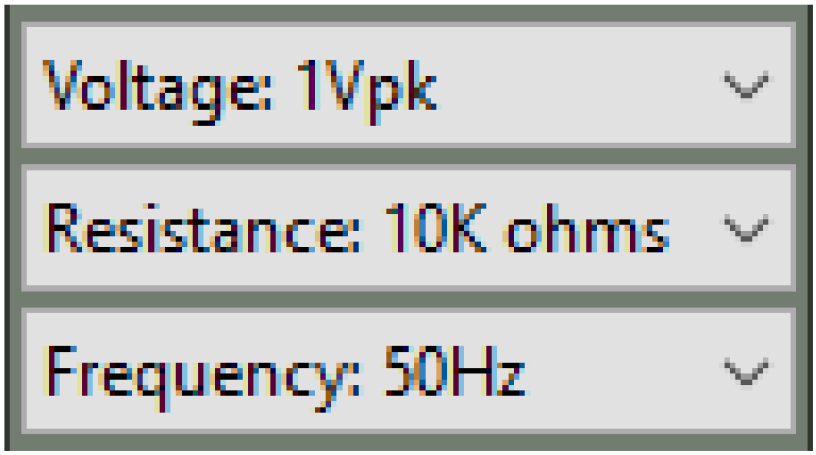
Pressing the V+ or V- button will increase or decrease the output voltage from the instrument, this is in steps, and ranges from 0.2Vpk to 10Vpk. These steps are 0.2Vpk, 0.4Vpk, 0.6Vpk, 0.8Vpk, 1Vpk, 2Vpk, 3Vpk, 4Vpk, 5Vpk and 10Vpk.

Pressing the Ohm+ or Ohm- button will increase or decrease the output resistance from the instrument, this is in steps, and ranges from 100 ohms to 10K ohms (10,000 ohms).
These steps are 100 ohms, 1K ohms and 10K ohms.



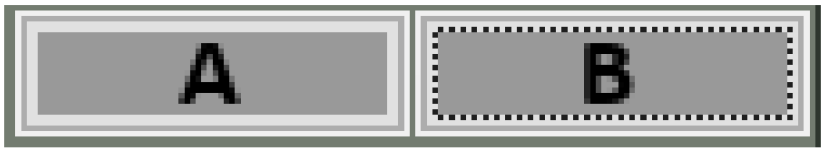
Pressing the Freq+ or Freq- button will increase or decrease the output frequency the instrument, this is in steps, and ranges from 10Hz to 1KHz (1000Hz). These steps are 10Hz, 20Hz, 50Hz, 100Hz, 200Hz, 500Hz and 1KHz.

Voltage, resistance and frequency settings may also be set directly from the drop down boxes shown below.



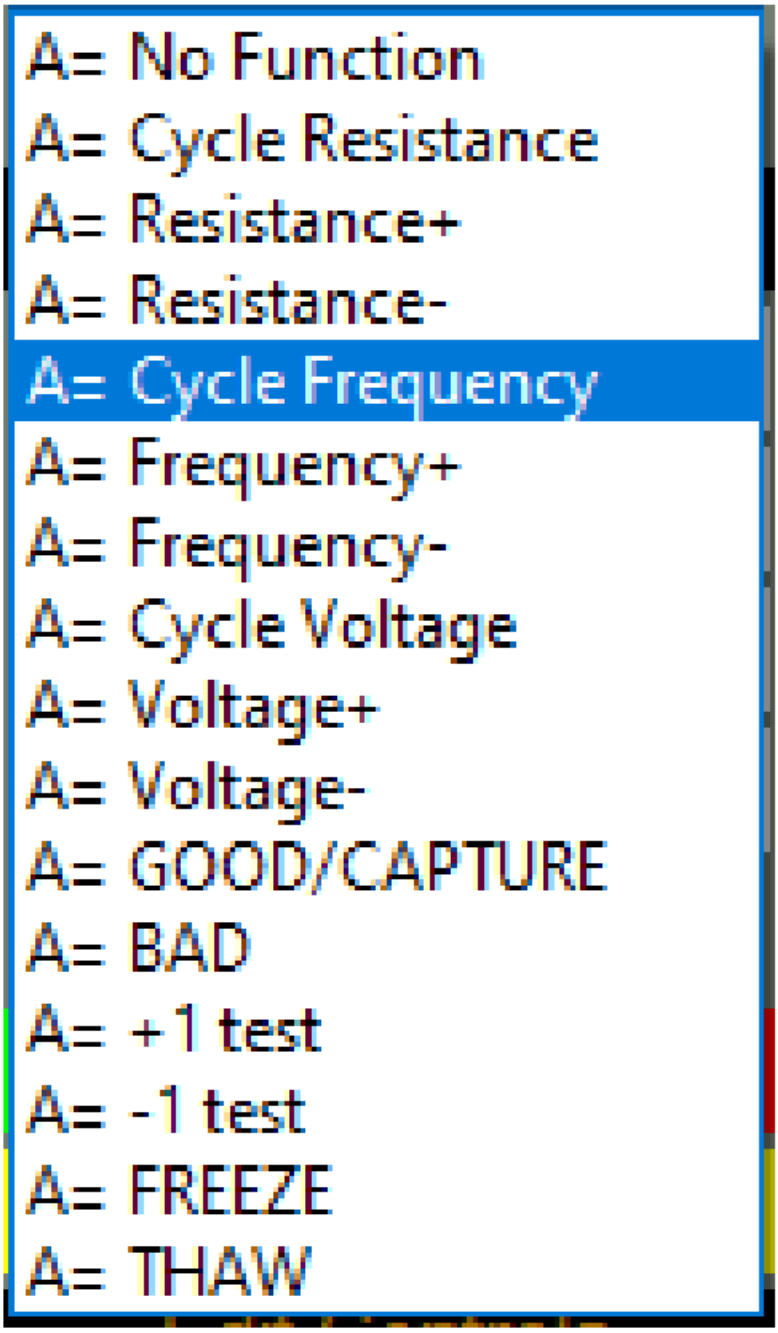
These also show the current setting of the voltage, resistance and frequency.

Buttons **A** and **B** (as shown below) can be used to quickly access a Favorite or much used function.



The two push-buttons on the ASA101A (also labelled A and B) map directly to these two on-screen buttons, and when pressed the on-screen buttons will go yellow.

Two drop down lists below enable the user to select the function associated with each button (list shown below, with button A assigned to cycle frequency):



The cycle function (i.e. Cycle Frequency) will go up relevant function and 'roll-over' to the minimum setting (e.g. 200Hz, 500Hz, 1KHz, 10Hz, 20Hz….), this function is useful if you are perhaps testing electrolytic capacitors and only want to assign a single button to the finding the best signature.

+1 / -1 test will increment or decrement the test number (equivalent to pressing the left/right arrow under Test Controls.

GOOD/CAPTURE and BAD are equivalents to the same named buttons under Test Controls.

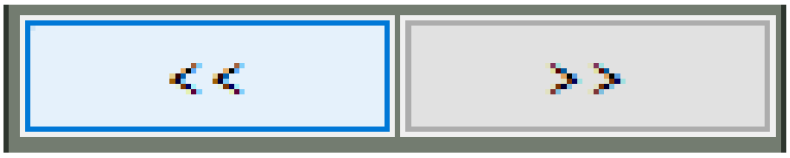
FREEZE/THAW currently have no function in EPIC 20.012

Note
1Vpk means that the output voltage of the instrument has a peak voltage of +/-1Vpk, this would be equivalent of 2Vpk-pk (peak to peak) or 0.707Vrms.

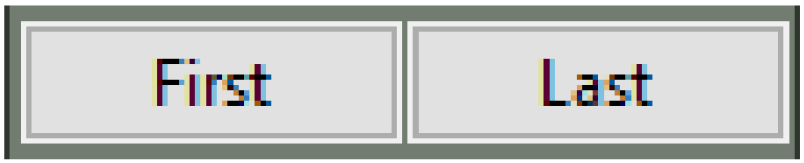
Test Controls

The Pin/record selected is incremented/decremented manually (using the buttons below) or advanced automatically (when in Auto Test, Auto Capture or Single Capture).

These buttons (above) will increment/decrement through the individual Pin/records – using the controls below will increment/decrement through entire components at a time.

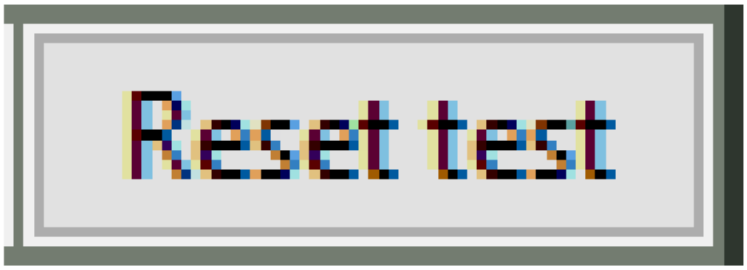


Skipping straight to the first* record or the last press one of the buttons below.



When changing to a different record, the instruments output voltage/resistance/frequency settings are automatically set to those of the new record (if a golden signature has been captured, if no signature has been captured they remain as before). This feature is enabled by default (see below), uncheck the box to disable.

To clear all DUT Signatures (GOOD and BAD) and reset to the first record, press the button below. Before the reset, a pop-up window will be ask if you really want to do this.



The above function will not reset captured Golden Signatures (make sure you save the .EPT file at regular intervals).

Note
Floating the mouse over one of the buttons above will bring up a small text description of the button function.

Note
*The first usable record is #2, as record #1 is reserved for other (historic) functions.

During a test, the percentage of pins that test GOOD and BAD is calculated and displayed (see image below).

GOOD and BAD buttons (above) will mark each record as either GOOD or BAD – typically this is used when overriding automatically tested signature results.

The next button has several different functions depending on which mode is being used. Default state is manual testing (use GOOD/BAD buttons to register the results of a signature test), pressing the button (below) will start an automatic test (AUTO TEST) at the current Pin/record:

When the AUTO TEST is running, the button will show TEST IN PROGRESS (see below). Pressing the button will stop the automatic test. The test maybe resumed by pressing the button again.

If the Edit/Capture signature tick box (see Edit Controls) is ticked, then capture mode is selected and there will now be two buttons (see below) instead of the three before:

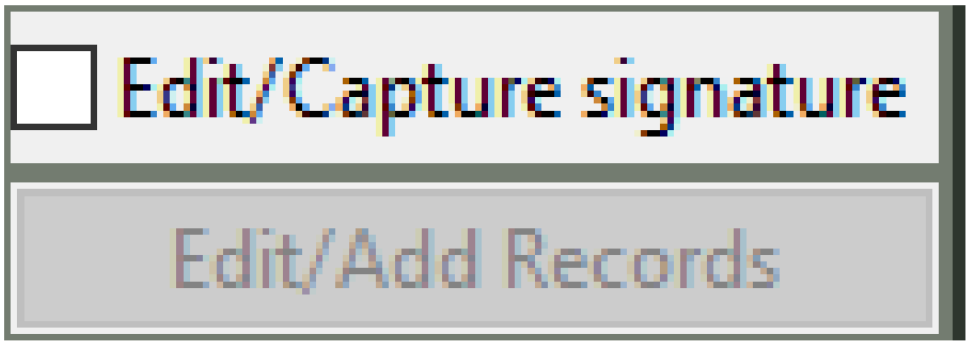
The SINGLE CAPTURE button will capture the Live Signature and it's associated voltage/resistance/frequency settings and store it as the Golden Signature for that Pin/record, once done, it will automatically advance to the next Pin/record (ready for another capture).

The AUTO CAPTURE button will start the automatic capturing of Golden Signatures (see Auto Capture). When AUTO CAPTURE is running, the buttons will look like:

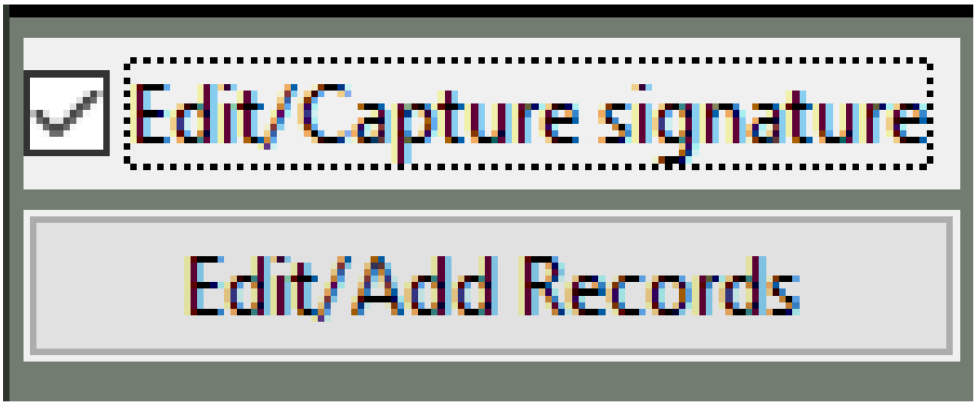
Pressing CAPT IN PROGRESS button will stop the automatic capture.

Edit Controls

The default condition is Manual Test (Edit/Capture signature unticked).



To enter Capture signature mode, tick the box (see below).



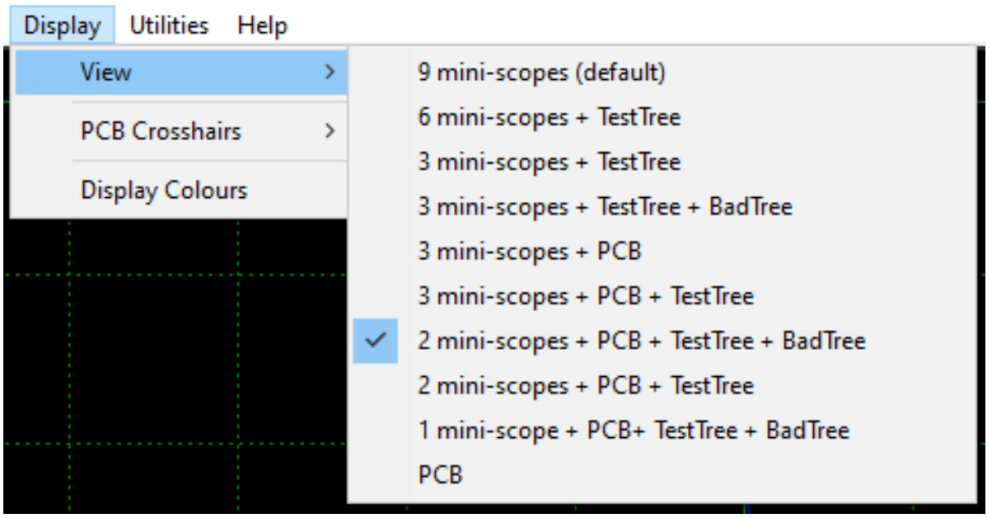
Pressing the Edit/Add Records button (see above) will open a new window (see Edit/Add Records & Images).

Views

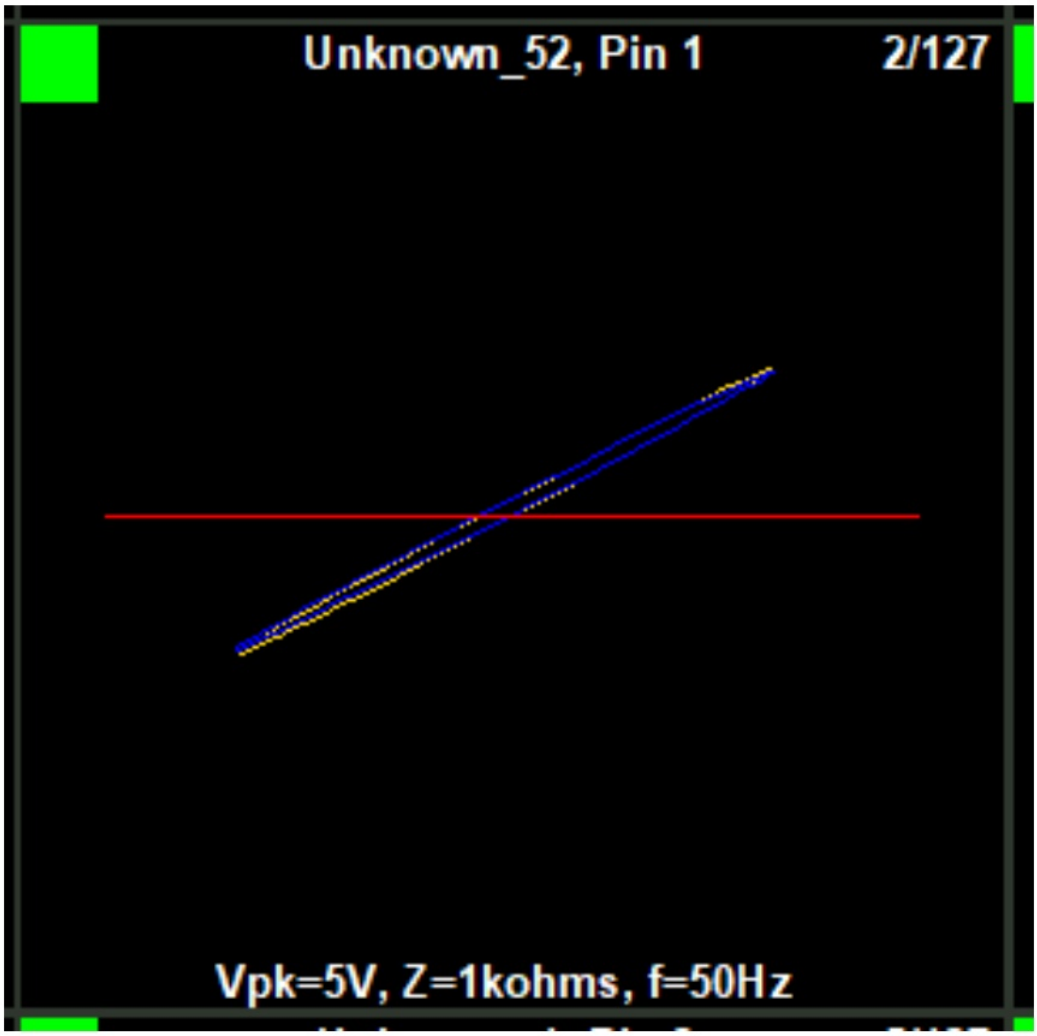
There are multiple ‘view’ configurations that can be selected. Users will often prefer one style (research has shown this to be: 2 mini-scopes + PCB + TestTree+ BadTree), however we encourage testing alternate ‘views’ as they may be better suited to your testing.

To select a different view: DISPLAY > VIEW

The options are shown below – on the following pages are examples of the same Pin/record (41/127) viewed in different configurations.



The mini-scopes are useful to see a previous test or the next test.

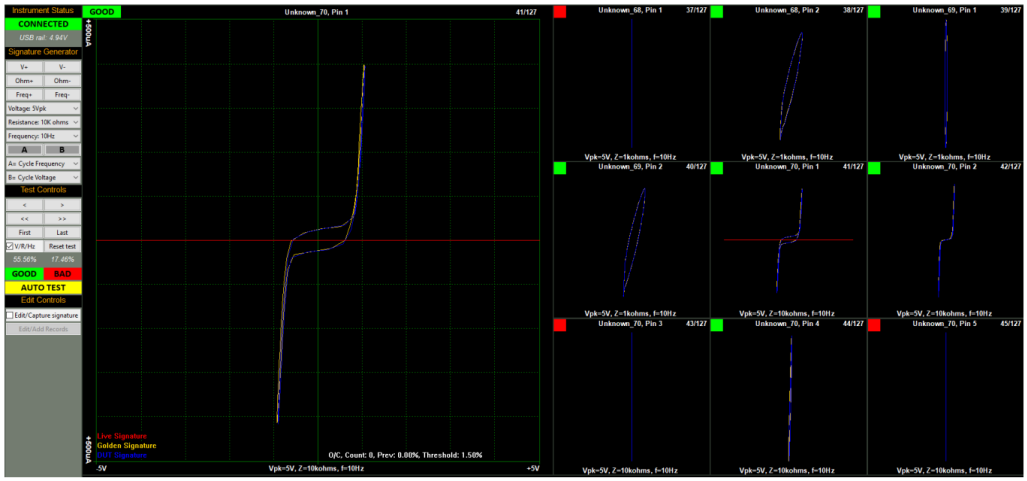


The coloured square in the top-left corner of a mini-scope is the test status of that Pin/record, and follows the convention:

GREEN – good signature, RED – bad signature, YELLOW – untested (no DUT signature captured), PINK – no Golden signature recorded yet.

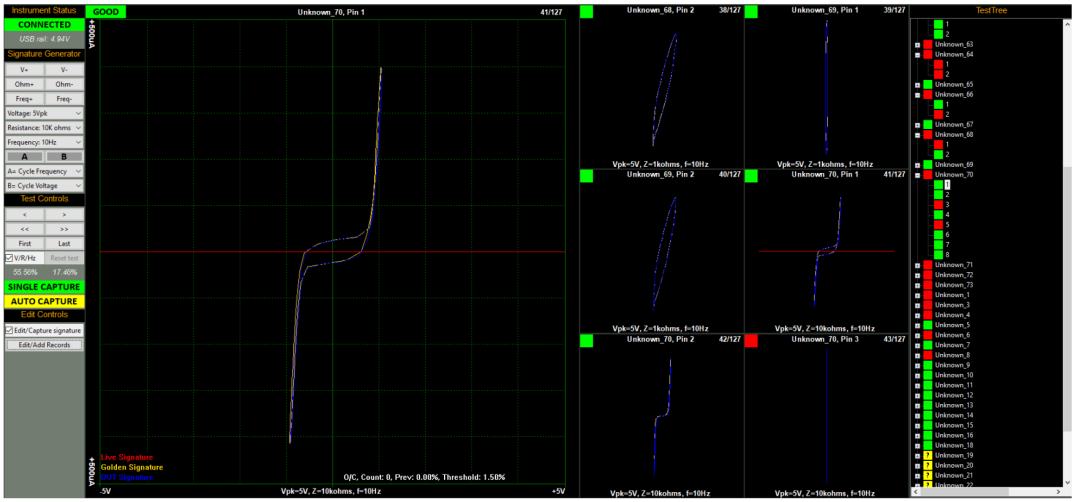
9 mini-scopes

The centre mini-scope of the 9 is the current Pin/record (same image as the main scope).
Clicking on any of the mini-scopes will select that Pin/record as the main scope image.



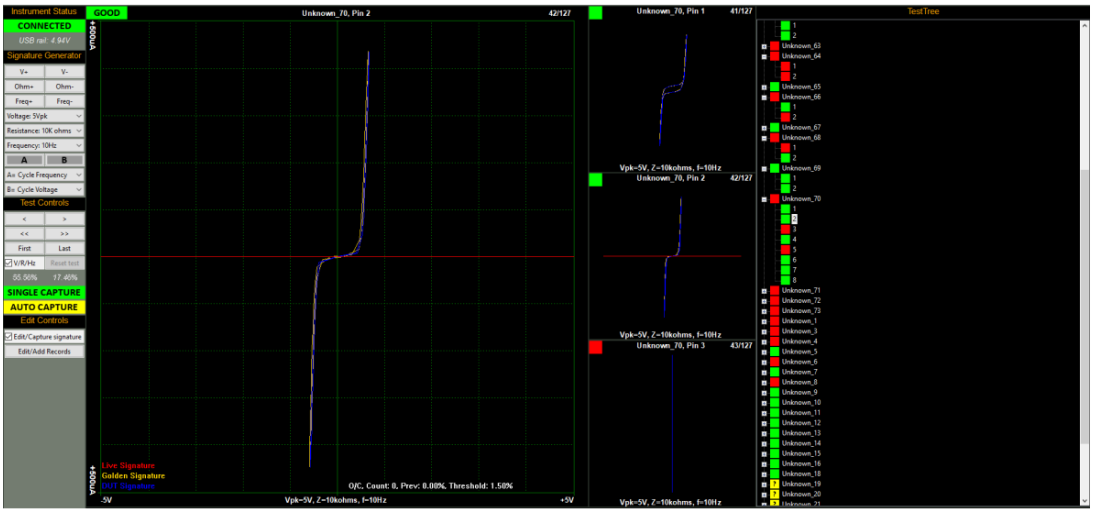
6 mini-scopes + TestTree

The centre-right mini-scope of the 6 is the current Pin/record (same image as the main scope).
Clicking on any of the mini-scopes or TestTree points will select that Pin/record as the main scope image.



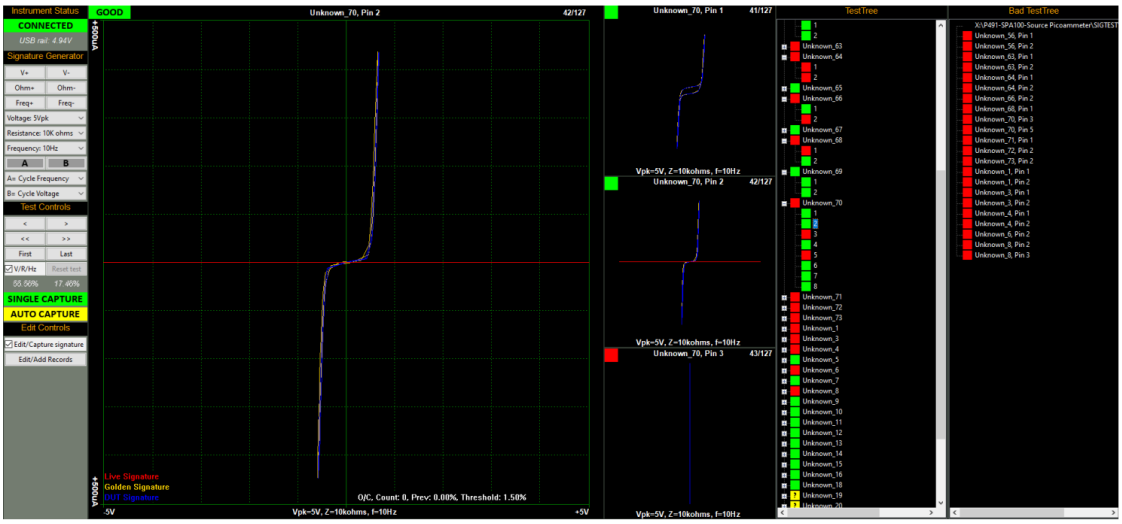
3 mini-scopes + TestTree

The centre mini-scope of the 3 is the current Pin/record (same image as the main scope).
Clicking on any of the mini-scopes or TestTree points will select that Pin/record as the main scope image.



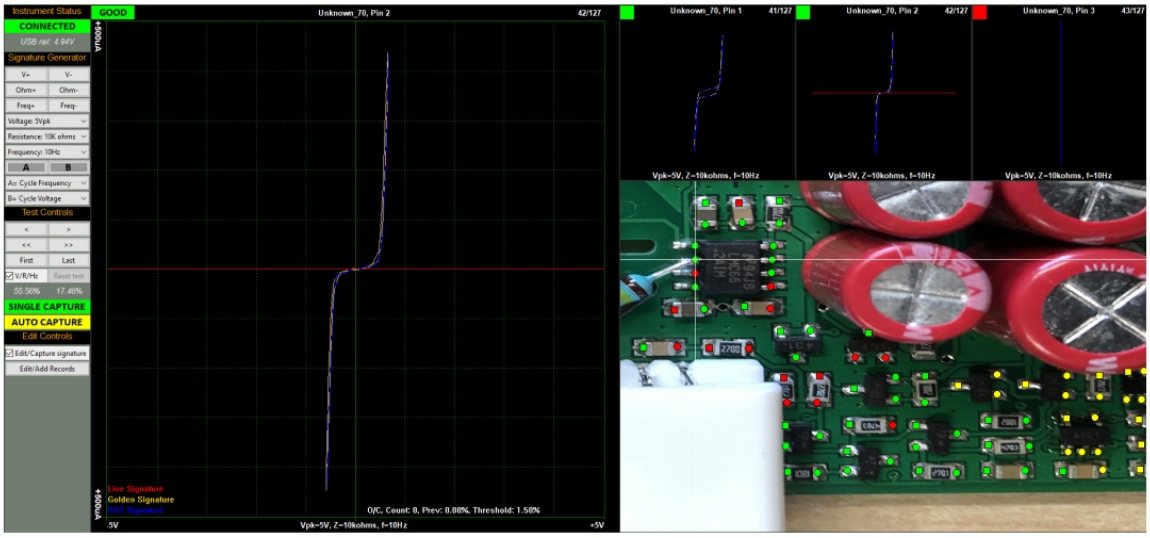
3 mini-scopes + TestTree + BadTree

The centre mini-scope of the 3 is the current Pin/record (same image as the main scope).
Clicking on any of the mini-scopes, TestTree or BadTree points will select that Pin/record as the main scope image.



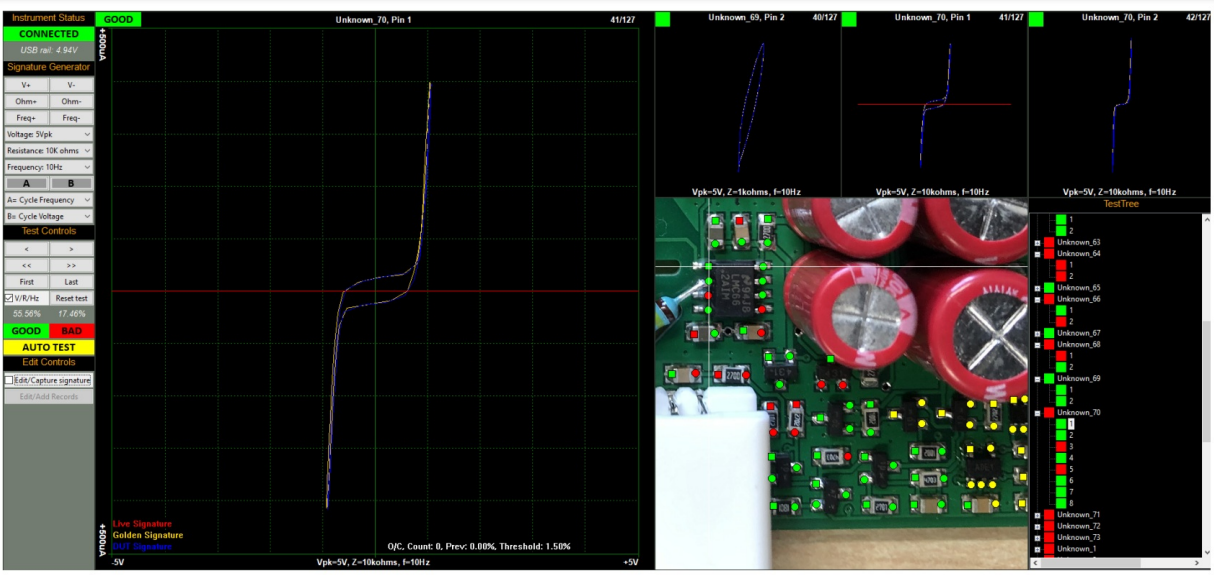
3 mini-scopes + PCB

The middle mini-scope of the 3 is the current Pin/record (same image as the main scope).
Clicking on any of the mini-scopes or test points (on the PCB image) will select that Pin/record as the main scope image.



3 mini-scopes + PCB + TestTree

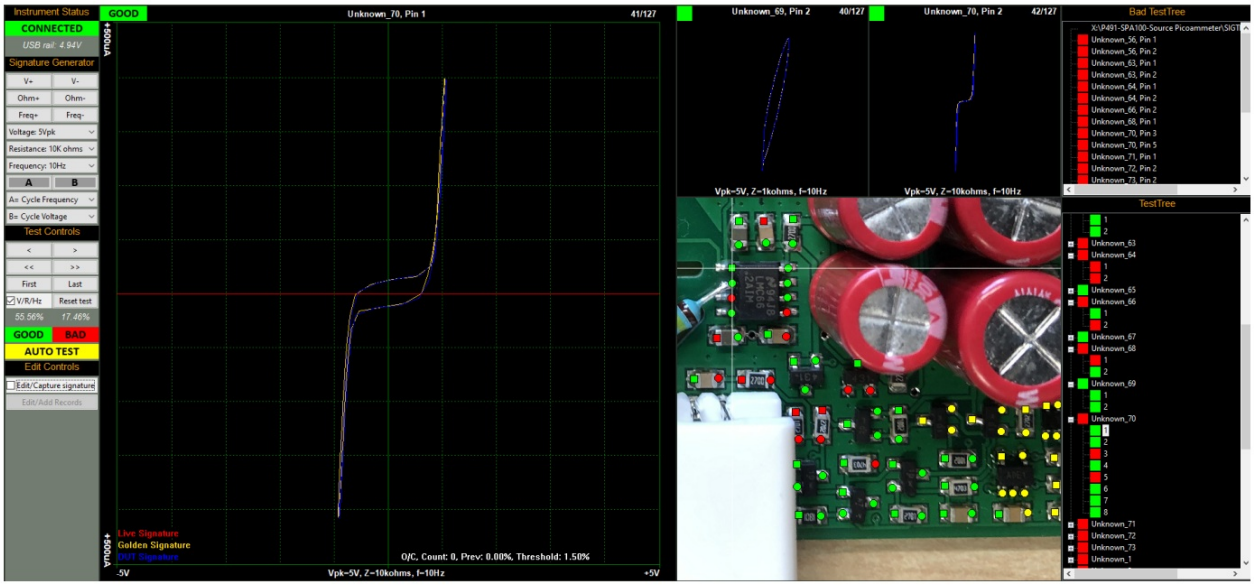
The middle mini-scope of the 3 is the current Pin/record (same image as the main scope). Clicking on any of the mini-scopes, TestTree points or test points (on the PCB image) will select that Pin/record as the main scope image.



Clicking on any area of the PCB image (but not on a test point) will toggle the image from the selected view to the overall PCB image and back – this function is useful if you need to see where you are on the larger board.

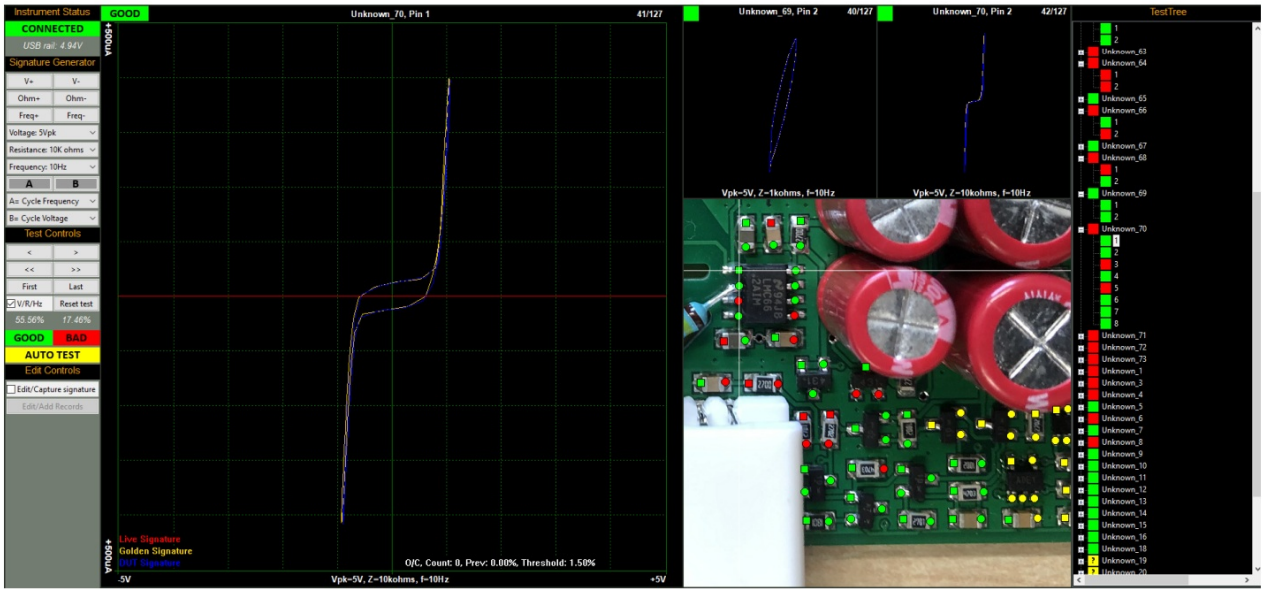
2 mini-scopes + PCB + TestTree + BadTree

The left mini-scope displays the previous Pin/record and the right mini-scope displays the next Pin/record. Clicking on any of the mini-scopes, TestTree points, BadTree points or test points (on the PCB image) will select that Pin/record as the main scope image.



2 mini-scopes + PCB + TestTree

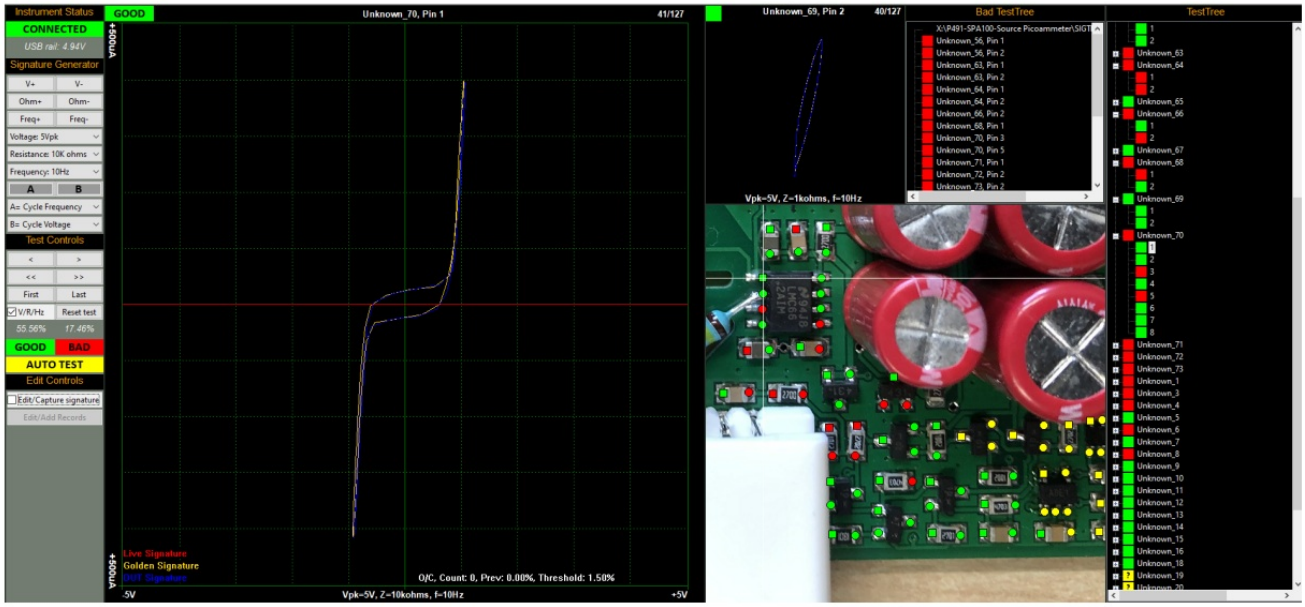
The left mini-scope displays the previous Pin/record and the right mini-scope displays the next Pin/record. Clicking on any of the mini-scopes, TestTree points or test points (on the PCB image) will select that Pin/record as the main scope image.



Clicking on any area of the PCB image (but not on a test point) will toggle the image from the selected view to the overall PCB image and back – this function is useful if you need to see where you are on the larger board.

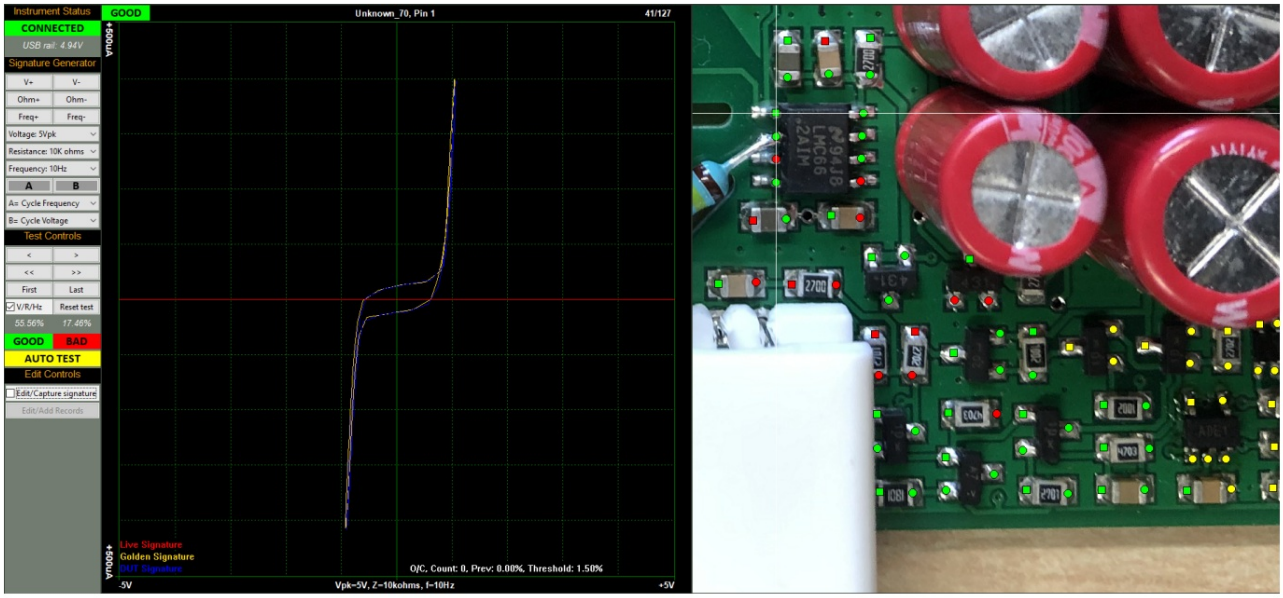
1 mini-scope + TestTree + BadTree

The mini-scope displays the previous Pin/record. Clicking on the mini-scope, TestTree points, BadTree points or test points (on the PCB image) will select that Pin/record as the main scope image.



PCB

Clicking on the test points (on the PCB image) will select that Pin/record as the main scope image.



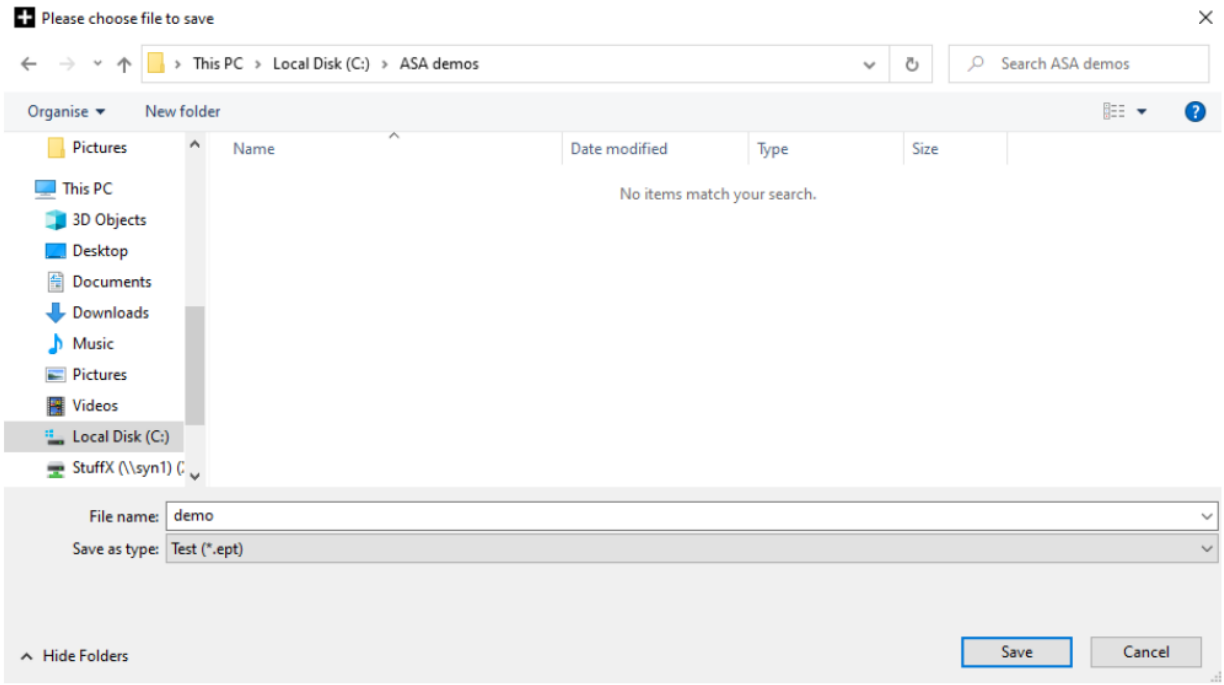
Clicking on any area of the PCB image (but not on a test point) will toggle the image from the selected view to the overall PCB image and back – this function is useful if you need to see where you are on the larger board.

Setting up a test

Creating new test file
To setup a new test you must first create a new file:

FILE > NEW

Select a location and name for the test. The file extension is .ept, and will be automatically appended when the file is saved.



Once the file has been saved it will be automatically loaded/used by the software. The file name and path will be shown on the top of the main-scope image.

Note

.ept files are essentially CSV (comma separated variables) formatted spreadsheets. Commas in text fields are automatically swapped with £ symbols.

Adding an image
One or more images can be added to the to the test file. Click

Customers Support

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Documents / Resources

	electron plus ASA101A Analog Signature Analyzer Software [pdf] User Manual ASA101A Analog Signature Analyzer Software, ASA101A, Analog Signature Analyzer Software, Signature Analyzer Software, Analyzer Software, Software

References

- Drivers - FTDI
- User Manual

Manuals+, Privacy Policy

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