



electron plus ASA200 Analog Signature Analyser Software User Manual

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Notices

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The latest version of this document can be found on our website: www.electron.plus

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Stutton
Suffolk
IP9 2TD
UK

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 0.0A

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

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 recognise 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 screen-shots, 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.

Earthing for function and safety

For functional and/or safety reasons you may wish to EARTH the casing of your Electron Plus instrument. This is not necessary under most normal operating conditions.

In this case, we recommend loosening (and re-tightening) the M3 stainless steel chassis screw (2mm HEX drive) and fitting an earthing wire using either ring terminal or spade terminal.

If in doubt please contact Electron Plus for further details.

Caution

USB 0V, rear panel, front panel, casing and any external power supply 0V are all the same potential and connected via low impedances (PCB, metalwork, etc.) – Avoid creating 'ground loops' with your setup!

Note

Some earlier production ASA100 units may have a TORX T10 headed stainless steel earthing screw fitted instead of the 2mm HEX drive type. If you would like a 2mm HEX drive screw (our part# SCREW014), please contact the factory and we will supply one free-of-charge.

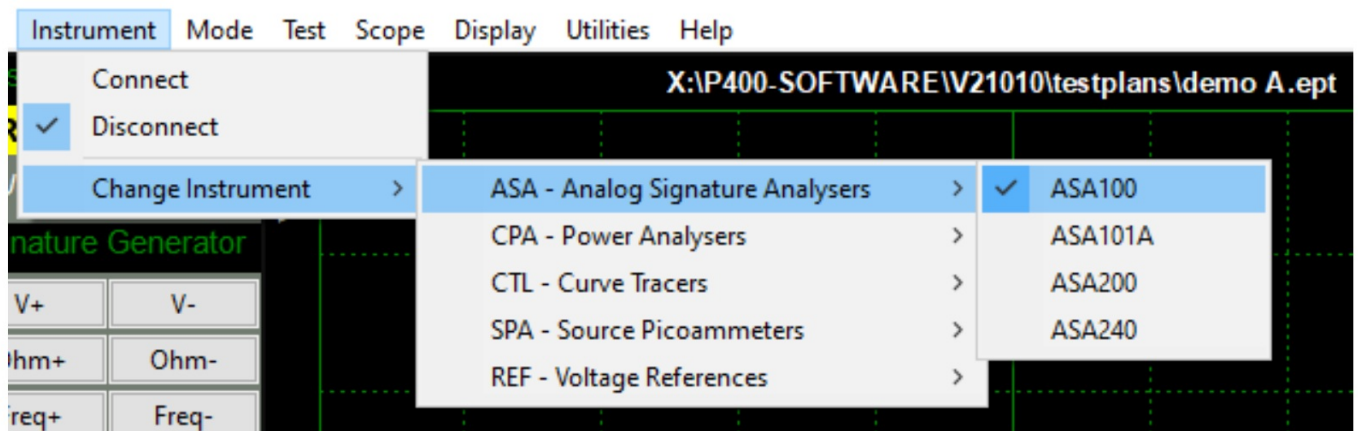
Operation

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.



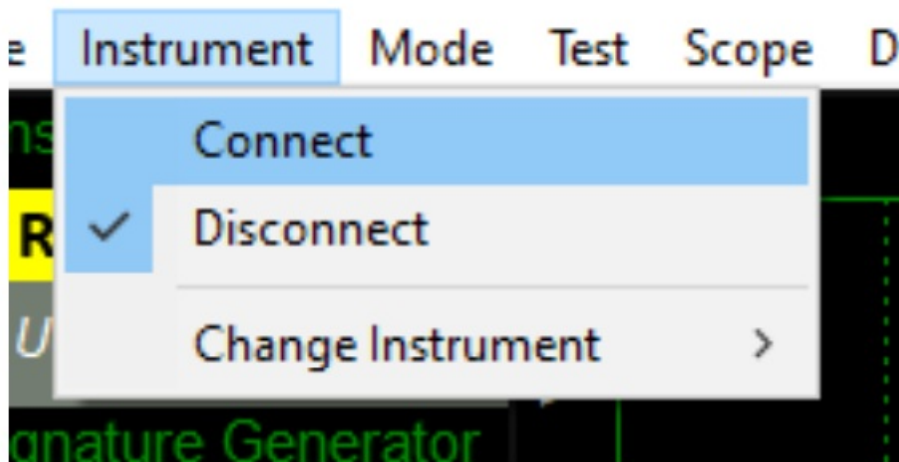
Technical Note

Variable used in settings.txt: Active Instrument=ASA100

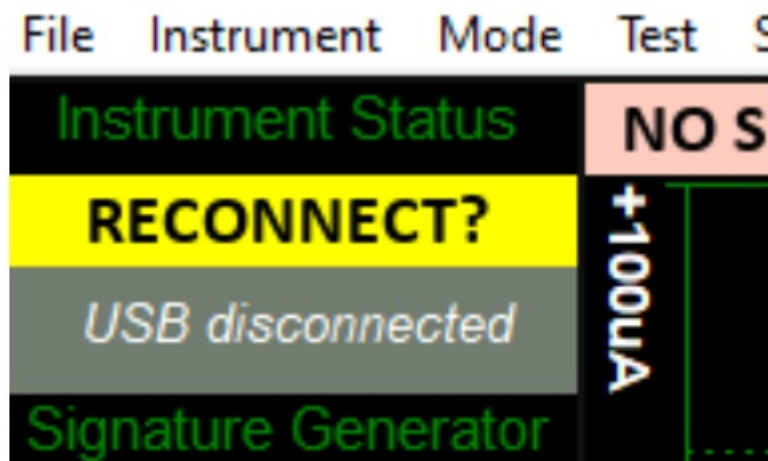
Connecting Instrument

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

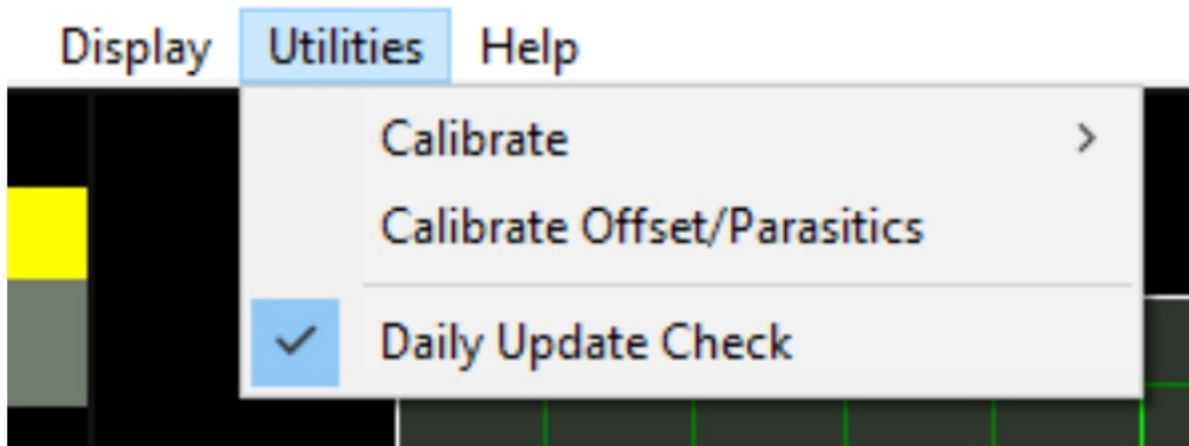
Upon successful connection, ASA will download the calibration coefficients file from the USB bridge IC. These are then stored in the EPIC folder as "ASA_cal.txt"

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": CheckWebsiteForUpdate=1 or 0 determines if this function is enabled/disabled.

DateOfLastUpdateCheck=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

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).



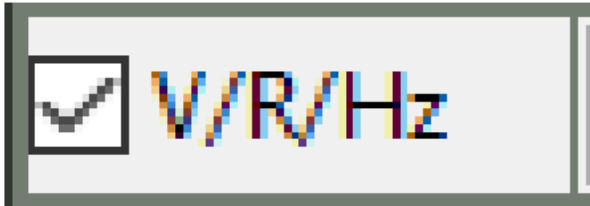
These buttons (above) will increment/decrement through the individual Pin/records – using the controls below will increment/decrement through entire components at a time.



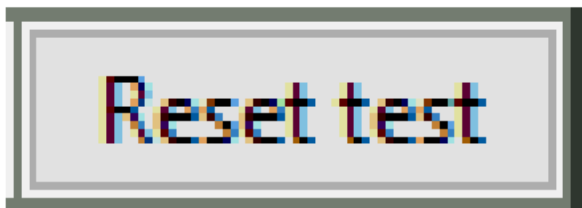
Skipping straight to the first* record or the last press one of the buttons below.



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).

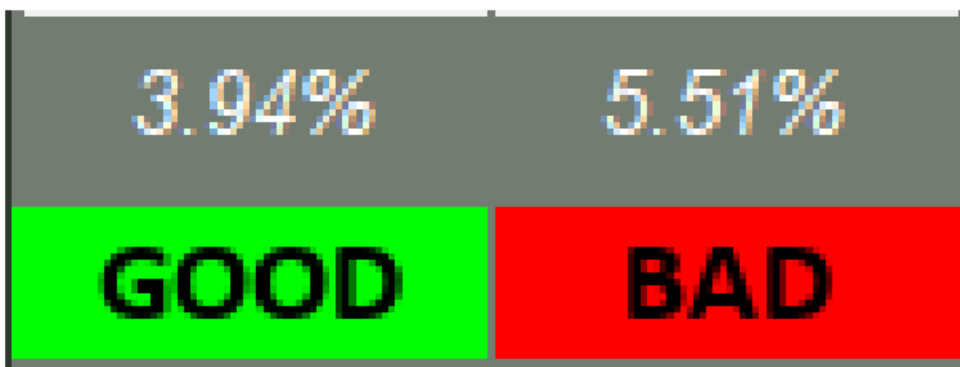
Note

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:



AUTO TEST

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 may be resumed by pressing the button again.



AUTO TEST

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 may be resumed by pressing the button again.



TEST IN PROGRESS

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



6.30%

7.87%

SINGLE CAPTURE

AUTO CAPTURE

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:



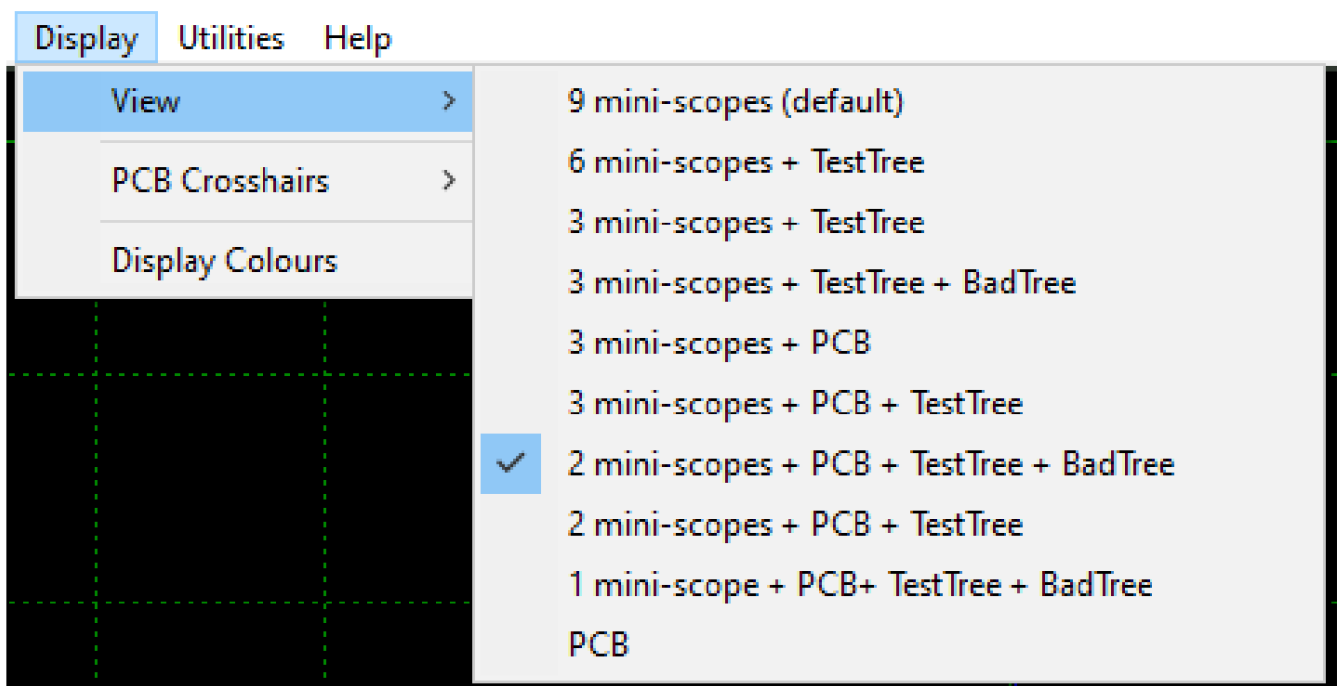
Pressing CAPT IN PROGRESS button will stop the automatic capture.

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.



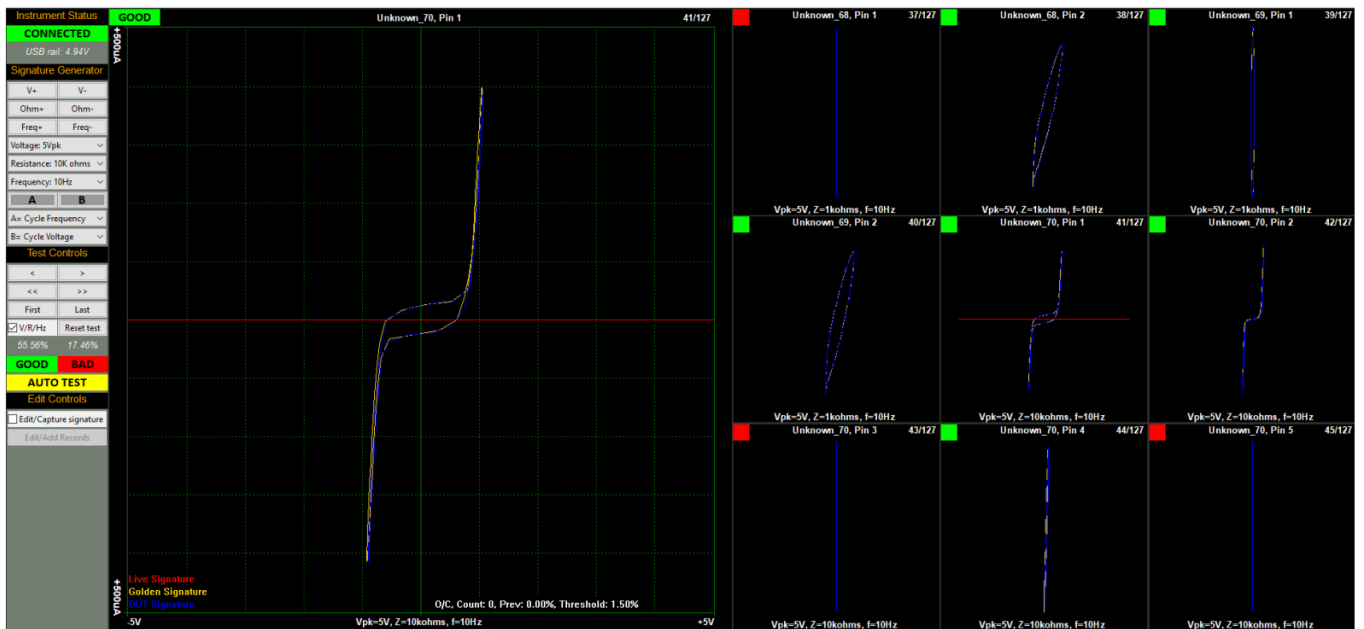
The mini-scopes are useful to see a previous test or the next test.



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

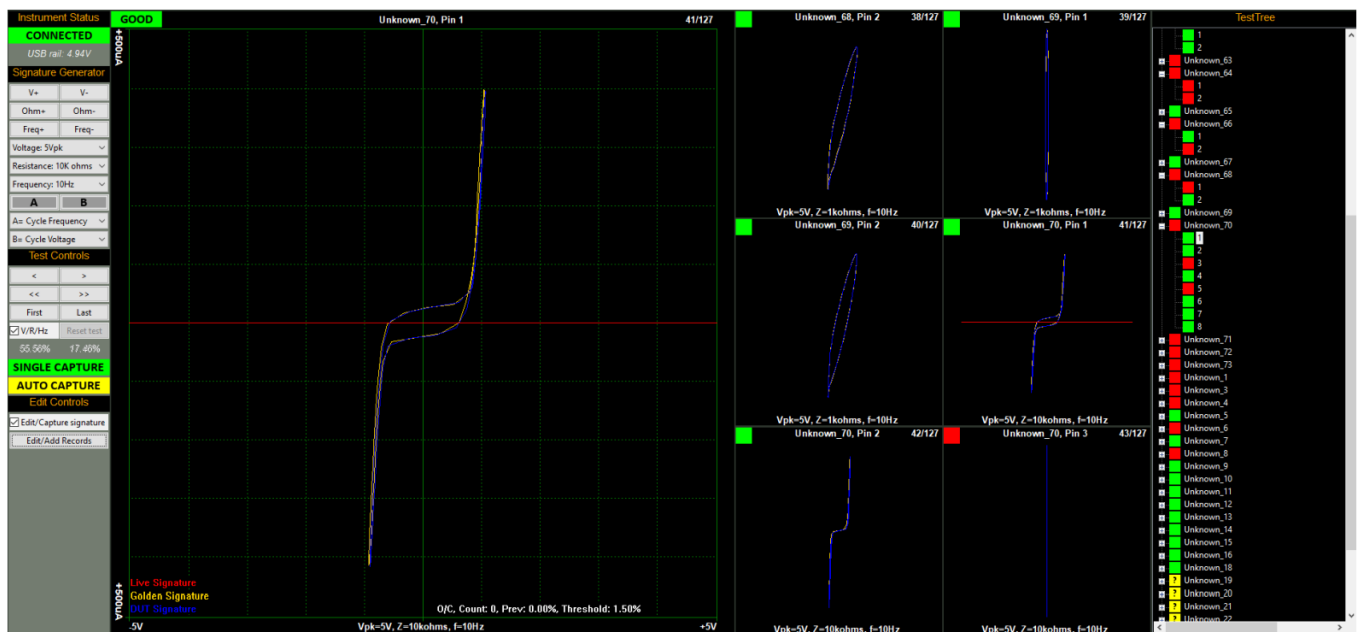
GREEN – good signature, RED – bad signature, YELLOW – untested (no DUT signature captured), PINK – no Golden signature recorded yet.

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.

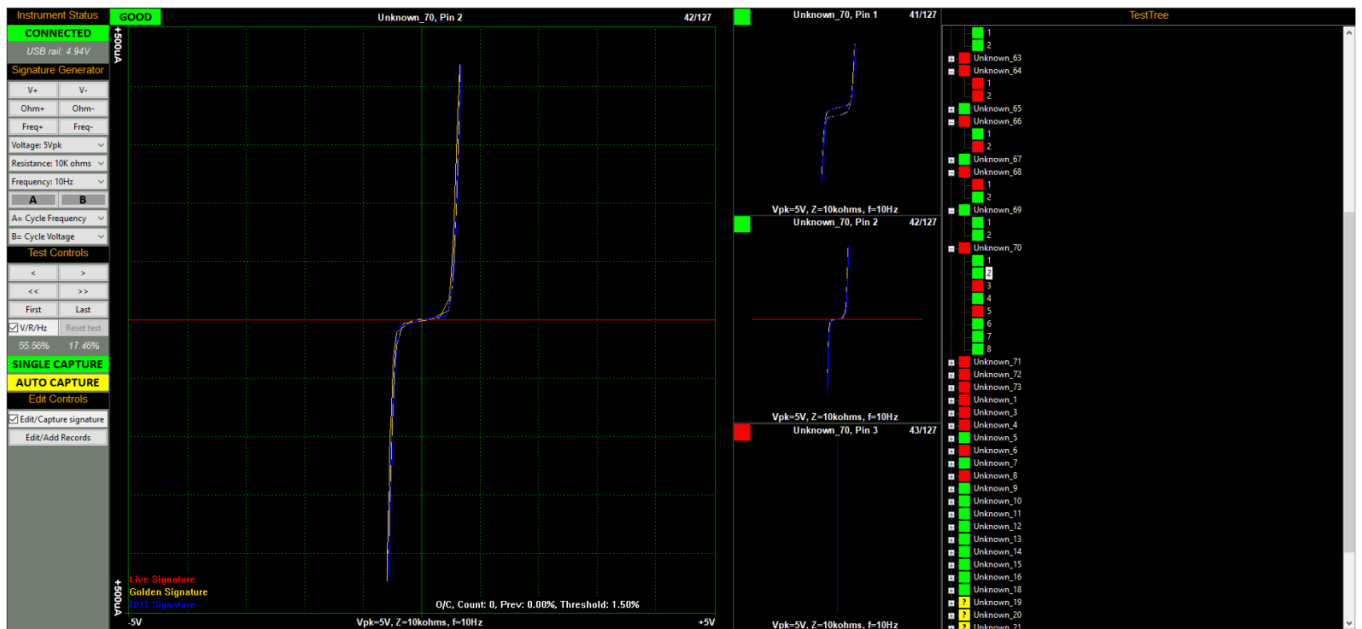
6 mini-scopes + TestTree



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.

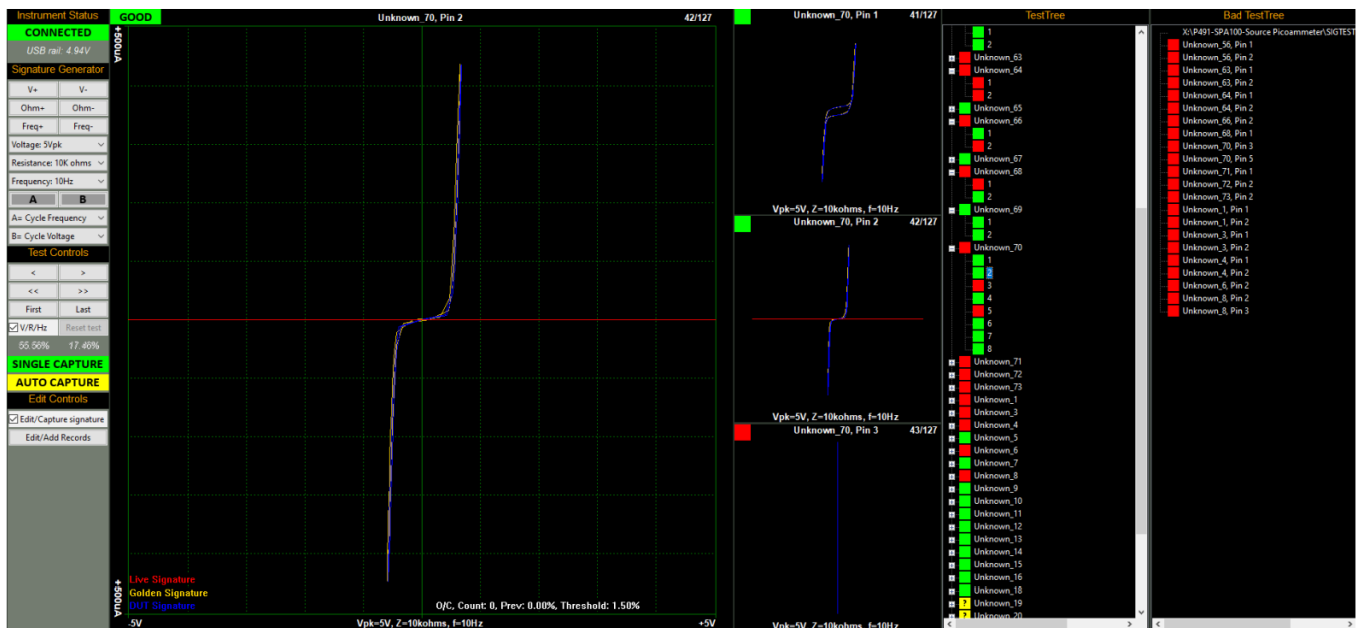
3 mini-scopes + TestTree



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.

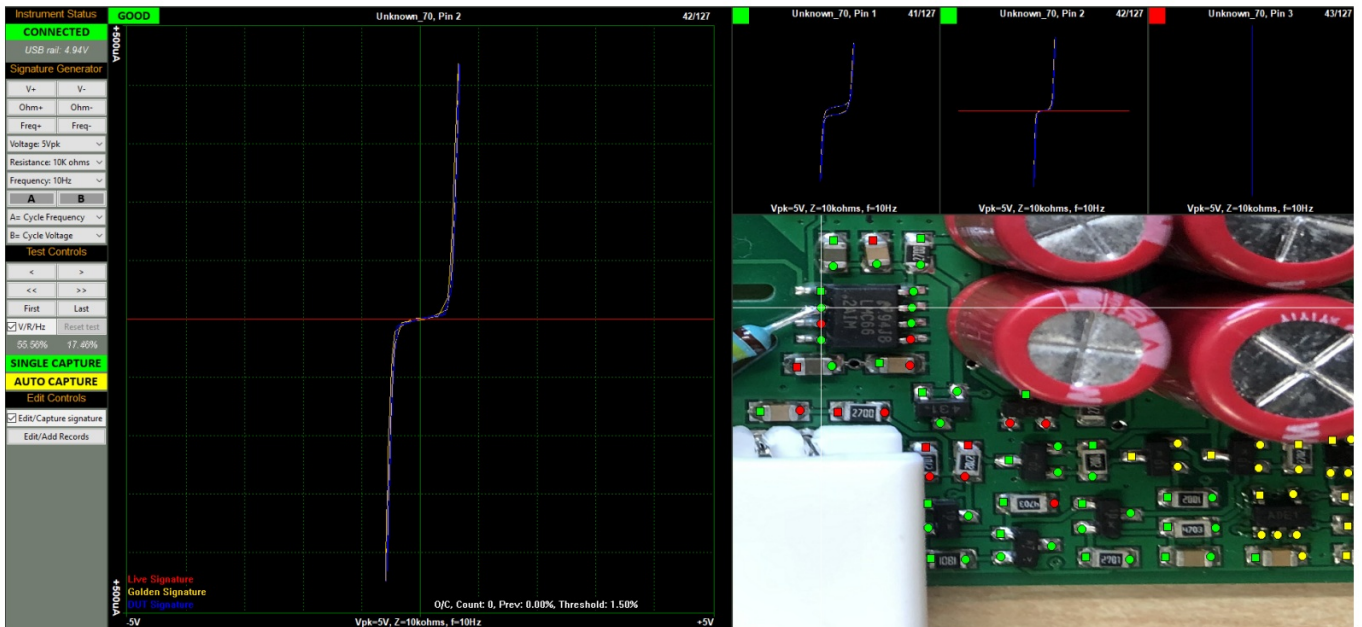
3 mini-scopes + TestTree + BadTree



The centre mini-scope of the 3 is the current Pin/record (same image as the main scope).

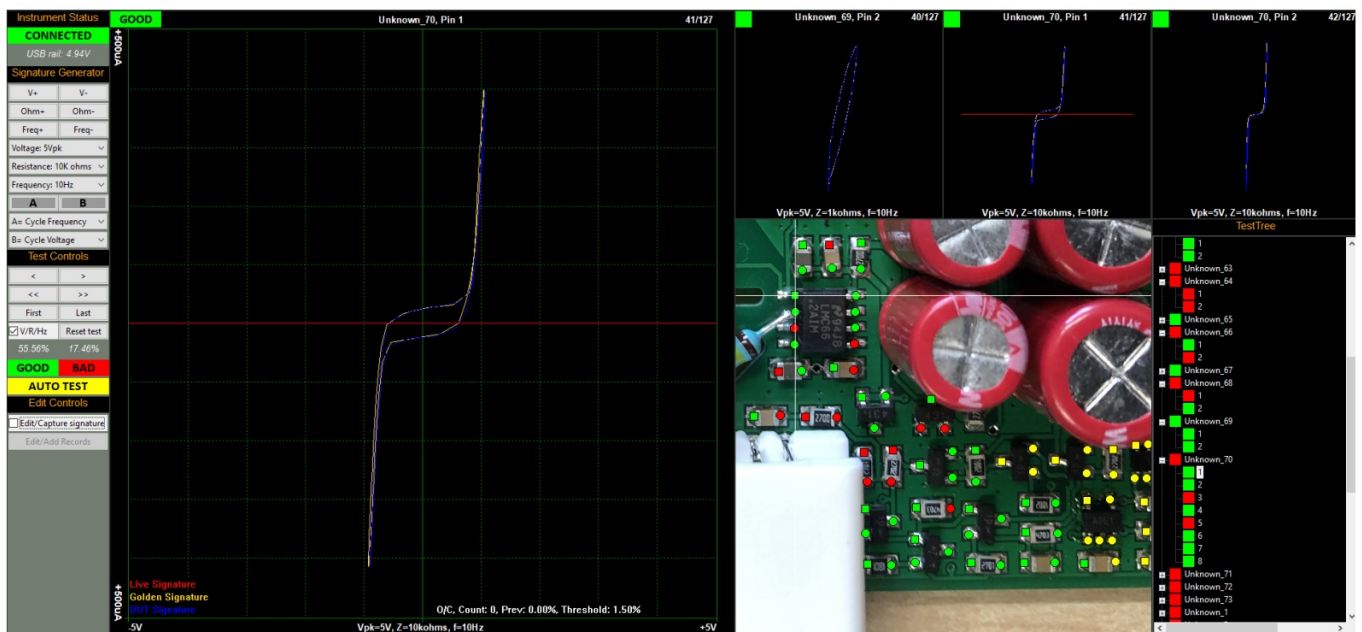
Clicking on any of the mini-scopes, TestTree or BadTree points will select that Pin/record as the main scope image.

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.

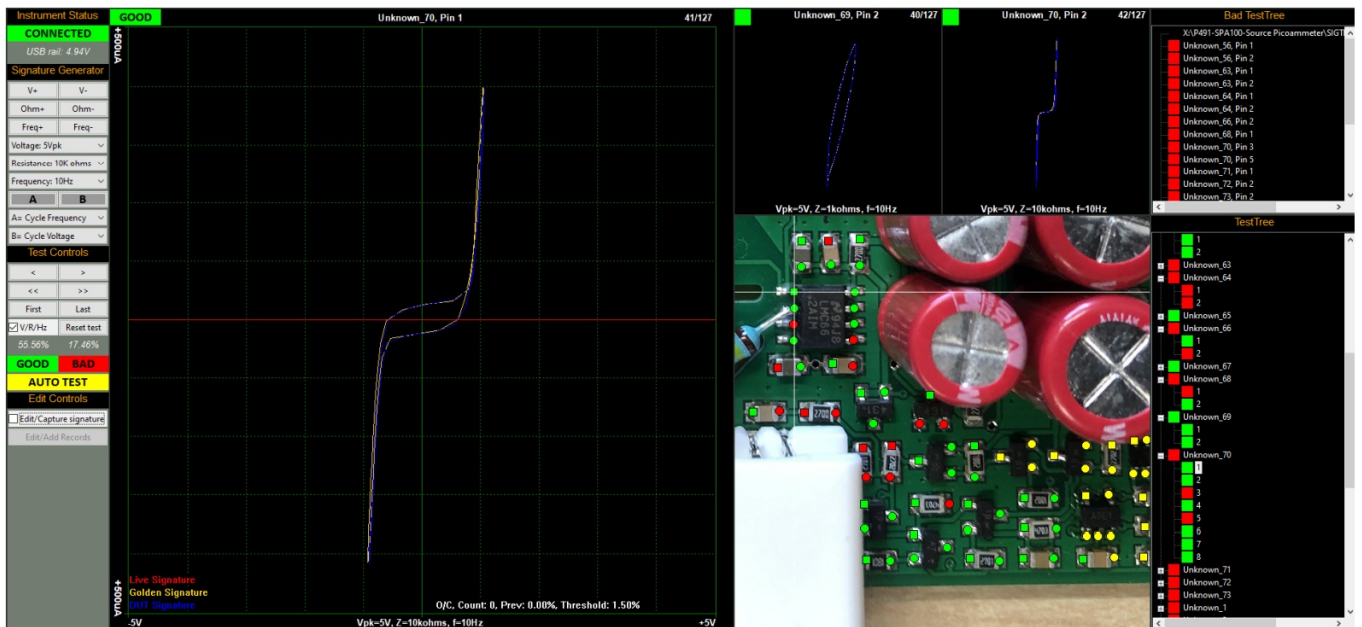
3 mini-scopes + PCB + TestTree



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.

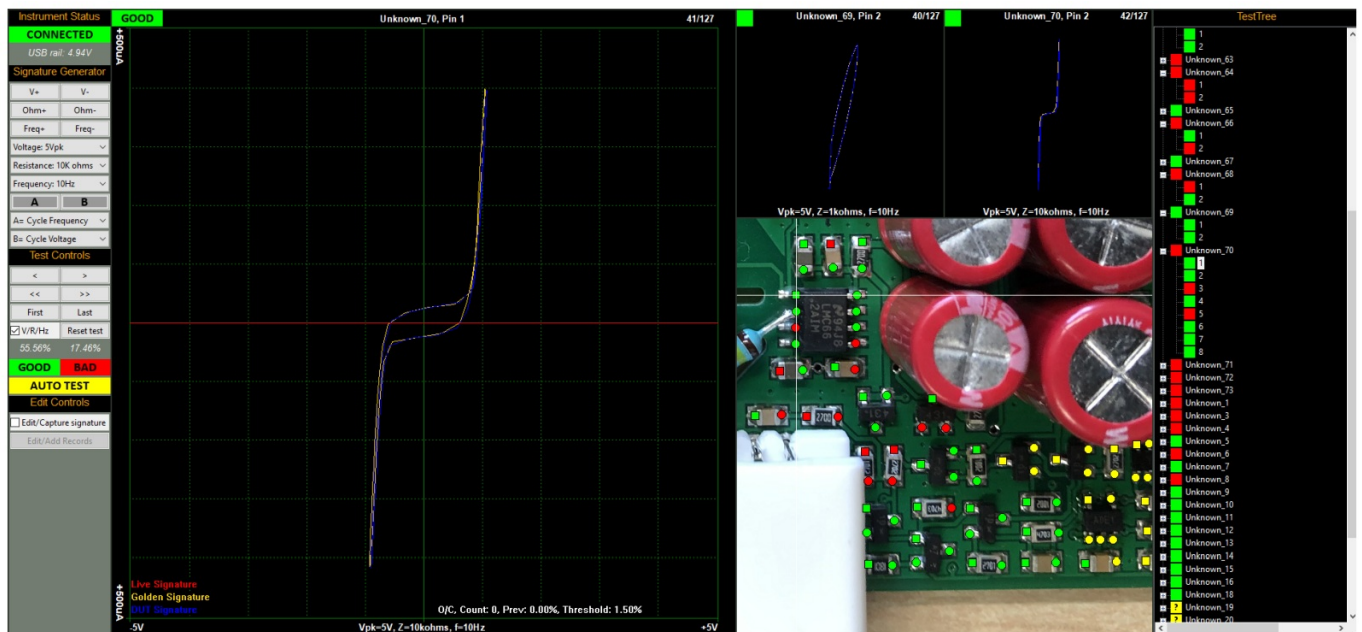
Clicking on any area of the PCB image (but not on a test point) will toggle the image from the selected view to the overall PCB image and back – this function is useful if you need to see where you are on the larger board.

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.

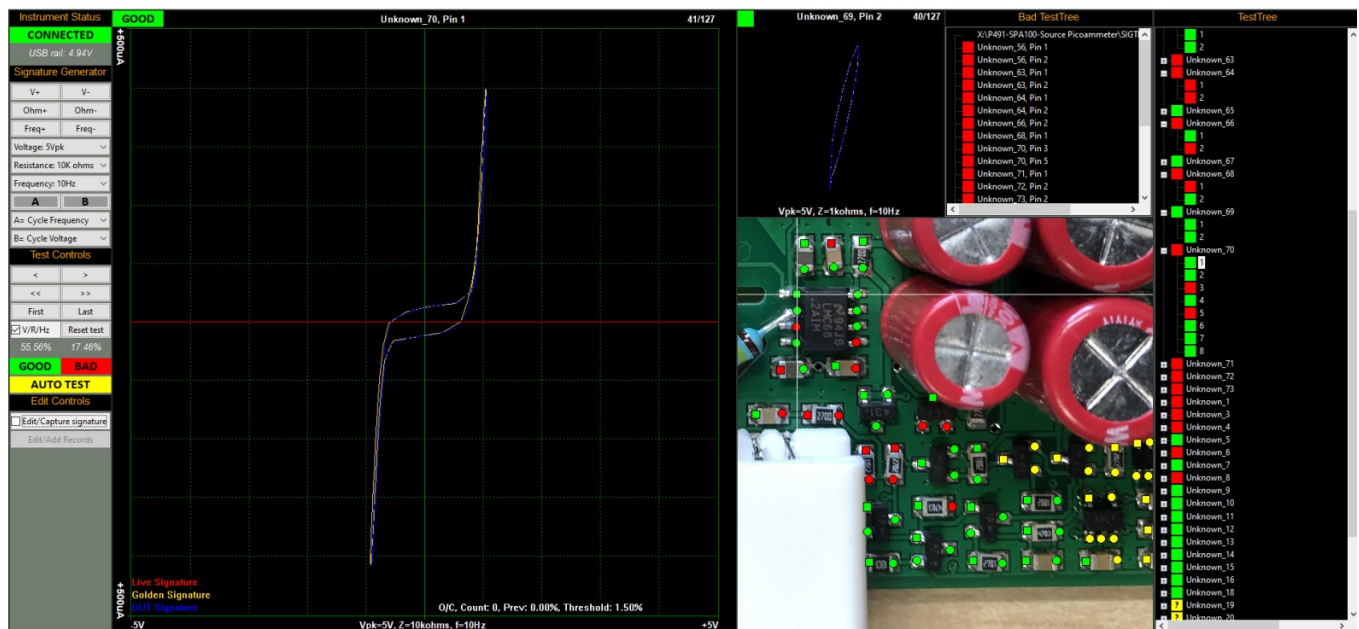
2 mini-scopes + PCB + TestTree



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.

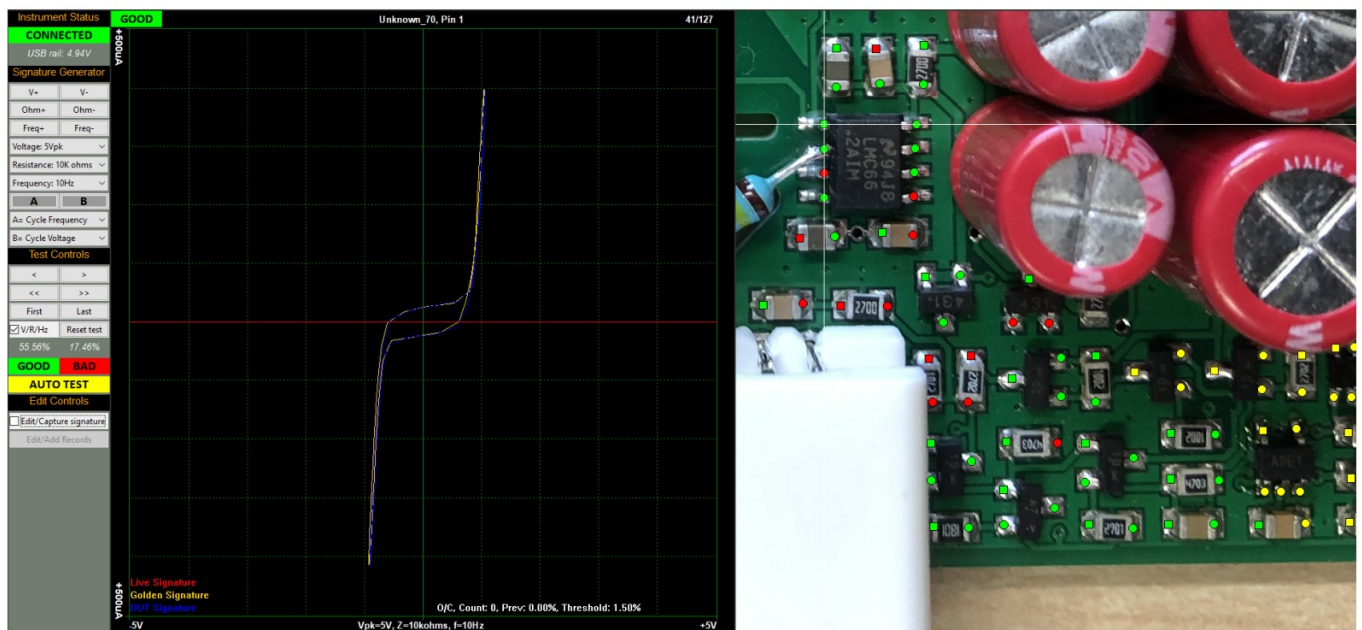
Clicking on any area of the PCB image (but not on a test point) will toggle the image from the selected view to the overall PCB image and back – this function is useful if you need to see where you are on the larger board.

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.

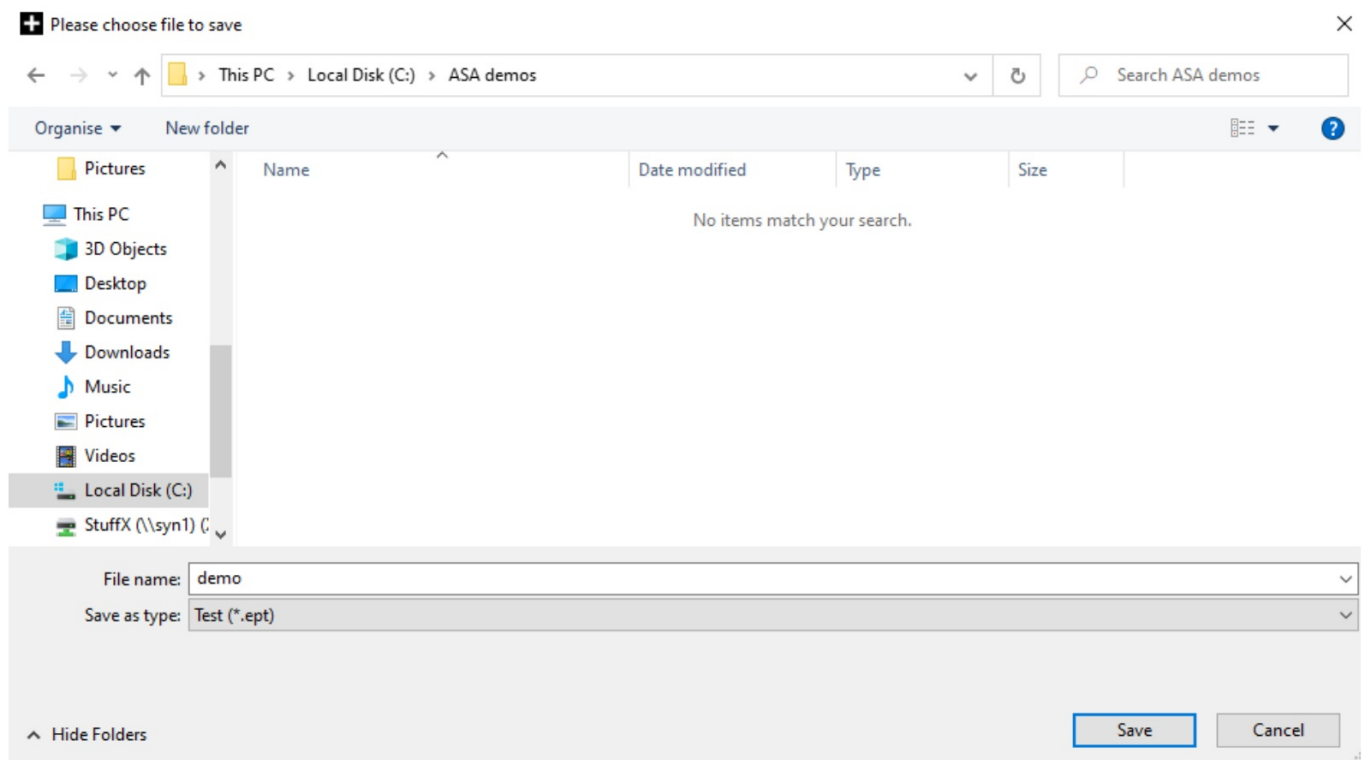
Setting up a test

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

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References

- [🔴 Drivers - FTDI](#)
- [User Manual](#)

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