Analog V/I Vectorless Testing

Providing a power-off test of devices and networks, the V/I (Voltage / Current) analysis technique is a powerful and rapid way to compare signatures learnt from a known good PCB with those on a faulty PCB.

The technique is ideal for testing networks with passive components such as resistors, inductors, capacitors and semiconductor junctions. However, it can also be applied to test the input and output stages of active devices e.g. ICs, FPGAs etc. providing a rapid indication of possible damage e.g. static damage destroying the protection diodes or damage to output/input transistors.

The technique applies an AC signal to a network and by measuring the voltage and current relationship can display a four quadrant trace signature. The TestVue software automatically compares a learnt signature with the one being measured and will make a pass or fail decision based on a user programmable tolerance envelope.

The technique can also be used in a virtual instrument mode where the real-time signature is displayed and analysed by the user. This will give an experienced user an indication of the likely cause of a failure eg damaged semiconductor junction, incorrect resistance, incorrect capacitance.

The TestVue software will automatically determine the best frequency and voltage to apply to a network and then takes three readings, one above, one below and one in the middle to ensure stability and repeatability of the diagnostics.

A user defined tolerance is then applied to each measurement on the trace to provide a tapered tolerance envelope to give a sound basis for meaningful diagnostic decisions.

Devices made by different manufacturers can cause different signatures (e.g. different input/output stages affecting the analog signature) even though the device is functioning correctly. To cater for these situations the TestVue software allows the user to learn alternative signatures for a network and will then automatically compare the measured signature with all allowed alternatives. This feature gives you the benefit of more reliable and accurate diagnostics with the subsequent reduction in re-work and repair time.

A typical signature is shown in the diagram on the inside page. The Green trace is the stored signature with a programmed tolerance band around it, the red trace is the measured trace and in this case is clearly outside the acceptable tolerance band showing a failure.

When the AutoPoint DT is integrated with the PinPoint system far more extensive testing can be applied to a circuit.

The user can select any or all of the following for a device:

- Dynamic digital tests to assure the correct functionality
- TestVue TrakTest software to check for Open/Short circuits
- V/I signature to check the presence and operation of analog devices, e.g. pull-up, pull-down resistors, internal semiconductor junctions, external junctions etc

The PinPoint system has a comprehensive range of diagnostic tools available for the user to apply and thereby identify and diagnose the cause of failures, reliably, accurately and repeatedly. Combining a PinPoint with the AutoPoint DT system removes the necessity for manual probing and ensures error free testing; this combination provides an excellent and flexible diagnostic test solution for any circuit.

Keeping your electronics fully operational

AutoPoint DT

- Automatic diagnostics and probing
- Power-off test techniques for safe testing
- No knowledge of board required so can be used on all circuits
- Error-free probing for accurate and fast diagnostics
- Powerful and intuitive TestVue software for ease-of-use
- Standalone or Integrated implementation for scaleable levels of test
- Small desk-top footprint for minimum space impact
- Rapid introduction for fast returns on investment

AutoPoint DT Specifications:

Parameter:	AutoPoint DT	AutoPoint DT Plus
Maximum Board-Under-Test Size:	19.4" x 14" (49.3cm x 35.6cm)	22" x 23" (56cm x 58cm)
Maximum Board-Probing Area:	15.3" x 12.9 " (38.9cm x 33.8cm)	18.2" x 22.4" (46.2cm x 56.9cm)
Maximum Allowable Component Height on Board Under Test:	2.375" (6cm)	4" (10cm)
Prober Dimensions:	26.5" W x 13" H x 24.5" D (67.31cm W x 33.02cm H x 62.3cm D)	36" W x 15.7" H x 29" D (91.44cm W x 39.88cm H x 73.66cm D)
Accuracy:	0.0007874" (±20 microns)	0.0007874" (±20 microns)
Minimum Resolution:	0.0003937" (10 microns)	0.0003937" (10 microns)
Maximum Z Travel:	2.21" (5.6cm)	4.2" (10.6cm)
Camera:	Colour CCD 811 x 508 pixels	Colour CCD 811 x 508 pixels
Power Requirements:	115VAC or 230VAC 100W	115VAC or 230VAC 100W
PC Interfaces:	USB	USB
Certifications:	CE and ETL listed	CE and ETL listed
Warranty:	1 year limited	1 year limited

For your local office details please visit our web site: www.diagnosys.com

Diagnosys

AutoPoint DT

Automatic Probe System for Fault Finding

diagnosys.com

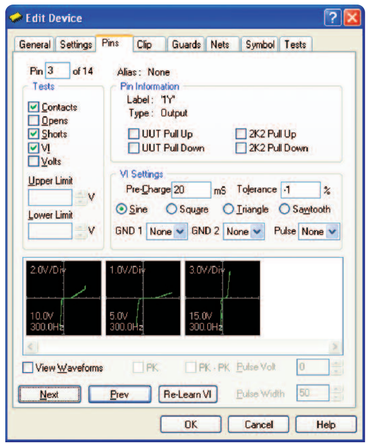
A compact, fully automatic electronic circuit diagnostic and probing system

AutoPoint DT

The AutoPoint DT system is a small desk-top flying probe system that provides automatic probing of an electronic circuit. Powered by TestVue software for ease-of-use and an intuitive graphical programming interface, the AutoPoint DT rapidly probes required networks on a circuit.

By measuring analog signatures on each network and comparing them with previously learnt and stored signatures, the AutoPoint can identify causes of failure in a circuit on a single pass.

Using a single probe for access to difficult board topography the system is fast to program and quick to analyse a network. The AutoPoint DT can be applied to any circuit removing the physical restraints of test fixtures and enabling error-free probing of analog components such as resistors, diodes etc for complete and accurate diagnosis of fault causes.



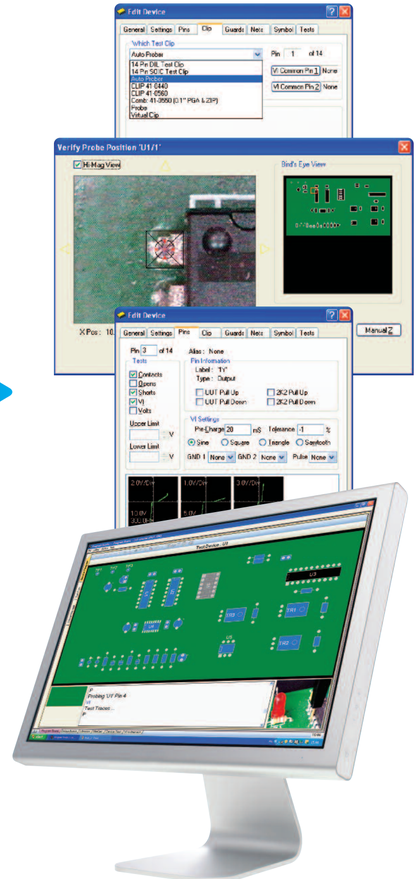
Programming the AutoPoint DT

The AutoPoint DT is powered by TestVue Software and therefore will be immediately familiar to any existing PinPoint user.

The programming process starts by identifying two fiducials (reference points) on the circuit board. These fiducials are used to give the AutoPoint DT a physical X-Y datum (reference point) and to remove the skew on the placement of the board in the system. Using the built-in camera mounted on the AutoPoint probe tower, the user directs the probe to the exact points used for the references.

Having programmed the fiducials the next step is to train the system to probe each required device. Again the camera is used to locate and identify 2 corner pins of a device and from the user selected package information the system will determine the position of all the intermediate pins.

Once the device pins are know the AutoPoint can start to automatically learn the signatures from a good board and store these in a test program. The system is now ready to start testing boards.



Configurations

The AutoPoint DT can be implemented in 2 ways:

Connected to a standalone PC (supplied) for an automatic flying probe tester: PC + FF PCI card + Video card + AutoPoint + accessory pack + TestVue software

This provides a low cost and very effective test and diagnostic system for any type of circuit. This system uses the analog signature technique to identify causes of failures.

Integrated with PinPoint or UDA systems. PinPoint or UDA with Vectorless test card + Video Card + accessory pack

By integrating the AutoPoint DT with a PinPoint or UDA system the necessity to manually probe networks, e.g. for large devices or analog components, is completely removed.

By simply selecting the 'AutoPoint DT' from a device 'properties' menu, the device will be automatically identified for test on the AutoPoint DT. By structuring the test program with the TestFlow tool, all the devices requiring probing can be tested automatically in one pass.

The powerful test and diagnostic facilities of the PinPoint system can also be applied to the circuit to provide a thorough test of the circuit that includes power-on, dynamic tests of digital, analog and mixed-signal components.