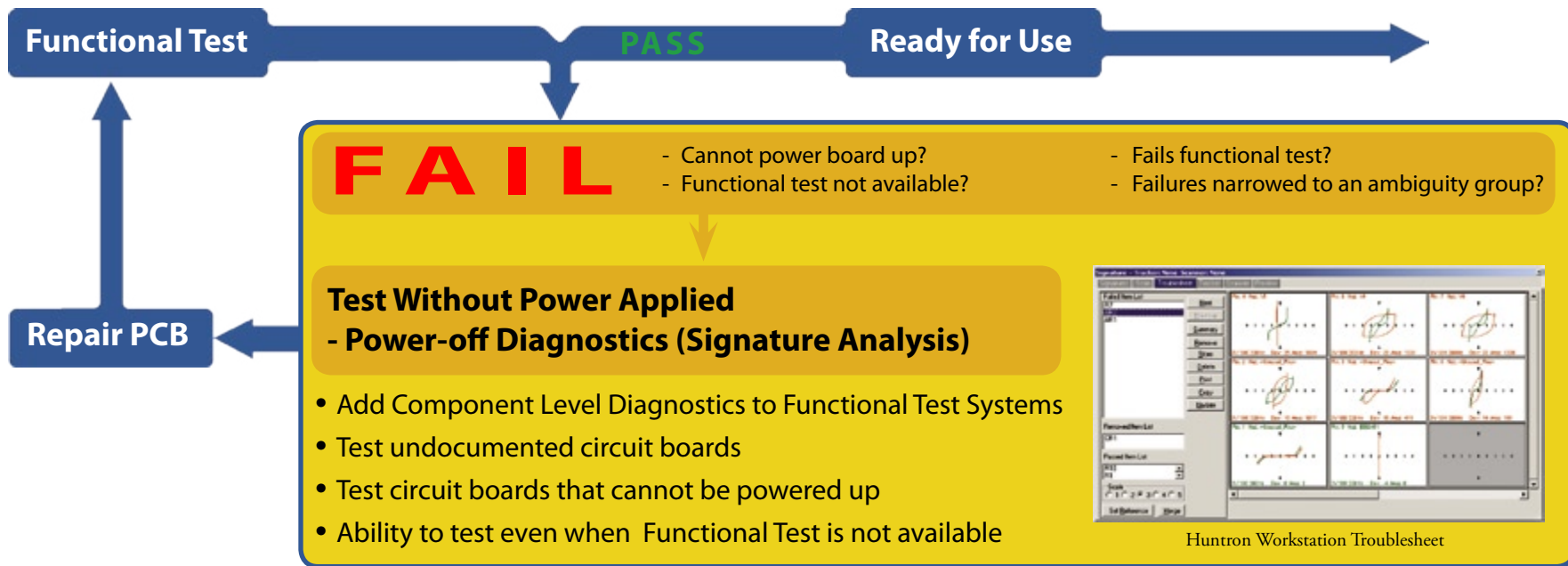




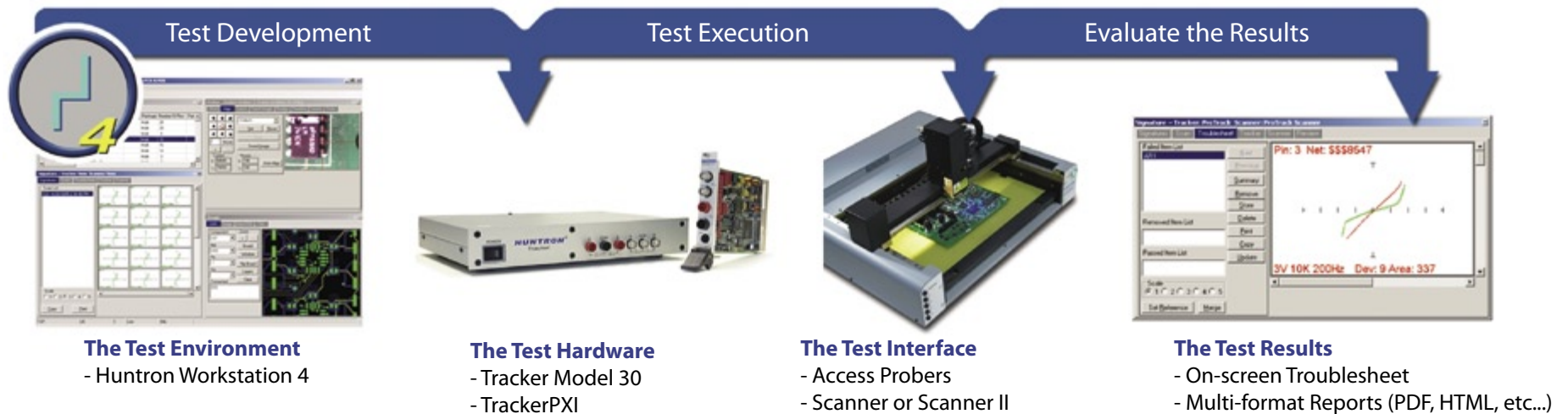
Huntron Access Diagnostic System...
20 seconds... Exact center of 25 points...
How fast can you touch each point?

Circuit Board Test Strategy



Power-off Diagnostics - Signature Analysis

Signature Analysis is a power-off test method that is used to troubleshoot circuit boards. A current-limited sinewave is applied across two points of an electronic component or circuit. The resulting waveform or “signature” is displayed using vertical deflection for current and horizontal deflection for voltage. This unique signature represents the overall health of the part being analyzed. By comparing the signatures of known good circuit boards to those of suspect boards, faulty nets and components can be quickly identified.



Huntron Workstation Overview

Tree Pane

Development and editing of test database

Prober Pane

Access Prober controls - PCB Alignment, Component Location teaching



Signature Pane

Test execution, display of signatures and Test Results

Image Pane

Display of CAD, Board overview and Test Point images and Probe Tip Camera Video

Huntron Workstation Software

The Huntron Workstation Software is designed to bring a high level of efficiency and flexibility to board test creation and troubleshooting. The multiple pane layout of Huntron Workstation allows for fast test creation, quick viewing of component signatures, control of robotic probers and CAD viewing tools that update on the fly.

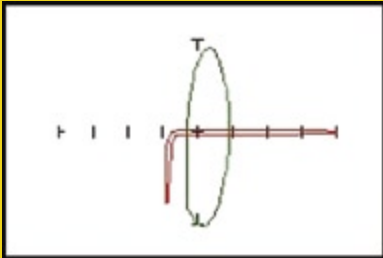
Huntron Workstation Features

- Create custom test routines for low volume manufacturing, repair and rework applications
- Optional test creation using PCB ASCII CAD data; many popular CAD packages are supported
- Easily create, modify and save Microsoft Access based test databases
- View, print and store test results immediately in formats such as PDF and HTML
- Optional Remote Control feature allows control from test executives such as NI TestStand
- Includes an easy to use Test Only pane better suited to test execution in a production environment
- Auto Align feature performs the Prober board alignment automatically
- Panes can be “undocked” to take advantage of large or multiple monitors
- Toolbar buttons allow for quick access to common functions
- User created Toolbar buttons can be used to control other Windows based programs such as a browser or PDF viewer

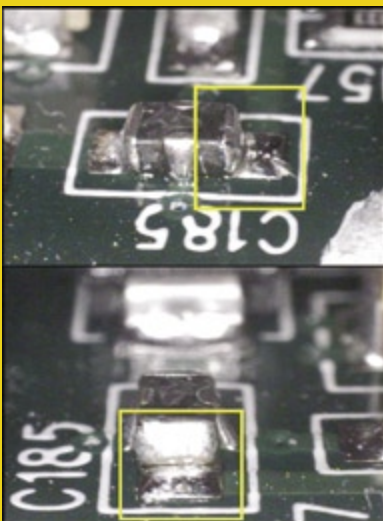
Detecting faults with Signature Analysis

Signature Analysis relies on a change in electrical characteristics to detect problems on a circuit board. The types of changes can be related to causes such as component failures and PCB process errors such as bad soldering.

In this actual example, signatures from a known good PCB were stored into a Huntron Workstation database. When the suspect PCB was scanned, the signatures indicated a difference (a loss of capacitance) at one of the surface mounted capacitors.



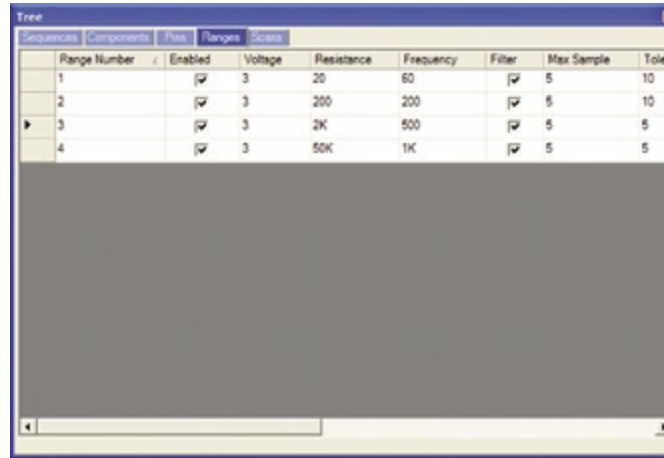
Further inspection of the device on the PCB showed a bad solder joint at one end of the capacitor.



Huntron Workstation Overview

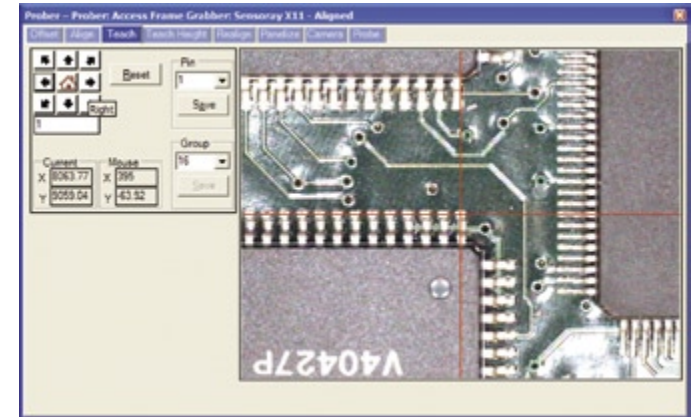
The design of the Huntron Workstation software places most functions only one click away avoiding unnecessary sub-menus. This makes for efficient editing and modifying of your test sequences. The Workstation software takes advantage of today's large or dual monitor systems. Each of the panes can be "undocked" and enlarged for better viewing.

Huntron Workstation supports Windows 2000, XP and Vista.



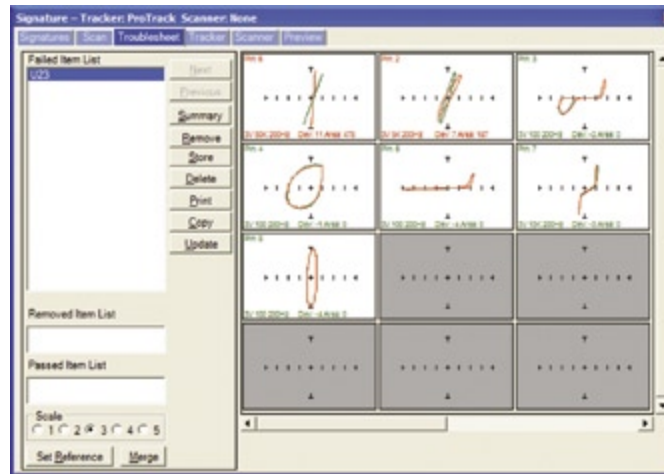
Tree Pane - Ranges Tab

Easily add and modify test ranges used during the test.



Prober Pane - Teach Tab

Teaching test point locations is accomplished with the built-in color camera.



Signatures Pane - Troubleshoot Tab

The test results are displayed in the Troubleshoot Tab. The failed signatures (red) are displayed on top of the stored signatures (green).

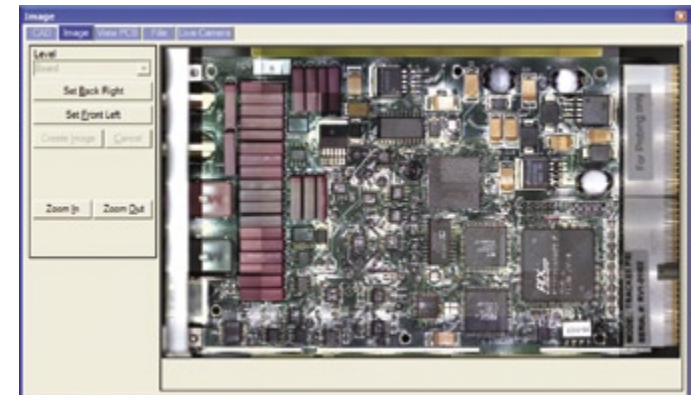


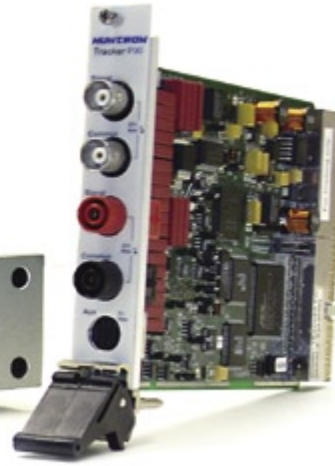
Image Pane - Image Tab

The board image is created by stitching captured images together. Clicking a point in the image will drive the Access Prober camera to that point.

The Test Hardware



Huntron Tracker Model 30



Huntron TrackerPXI

Huntron Hardware

Huntron makes Trackers to fit your needs and test platform. The Tracker is the actual test instrument that generates the test signal that is applied to the circuit board under test. The parameters of the test signal such as voltage, frequency and source (internal) resistance can be varied allowing you to obtain optimum analog signatures.

Choose from the stand-alone Tracker Model 30 or add a TrackerPXI into your existing PXI based test system. Both Trackers can be connected to accessories such as Scanners, PXI switch cards and Access Probers.

You can also order a Huntron Access Prober with the Tracker Model 30 built-in making for an "All-in-One" test system.

Huntron Trackers

Huntron Tracker Model 30 (99-0392)

- USB instrument designed for software control
- Available Accessories include: Scanners and Access Probers



Huntron TrackerPXI (99-0390)

- PXI-based instrument designed for adding power-off signature analysis to existing PXI test platforms
- Available Accessories include: Access Probers, Third party switch cards



Huntron Access Probers

Huntron Access USB Prober (99-0395)

- USB connected Robotic Prober for small and medium sized circuit boards

Huntron Access USB Prober with Tracker (99-0396)

- USB connected Robotic Prober for small and medium sized circuit boards
- Tracker Model 30 is built into the chassis for an "All-in-One" test system

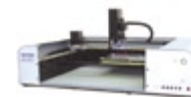


Huntron Access USB 2 Prober (99-0395)

- USB connected Robotic Prober for small to large sized circuit boards

Huntron Access USB 2 Prober with Tracker (99-0397)

- USB connected Robotic Prober for small to large sized circuit boards
- Tracker Model 30 is built into the chassis for an "All-in-One" test system



Huntron Scanners

Huntron Scanner II Model 30S (99-0393)

- Scanning accessory for the Tracker Model 30 for connection of cable interfaces
- Two channels with 64 pins each
- Up to 8 Scanner IIs and be "daisy chained" to increase the available number of test pins



Huntron Scanner Model 31S (99-0399)

- Basic scanning accessory for the Tracker Model 30 for connection of cable interfaces
- Single channel of 64 pins



The Tracker Model 30, Scanner II and Scanner Model 31S can be configured to be rack-mounted (19").

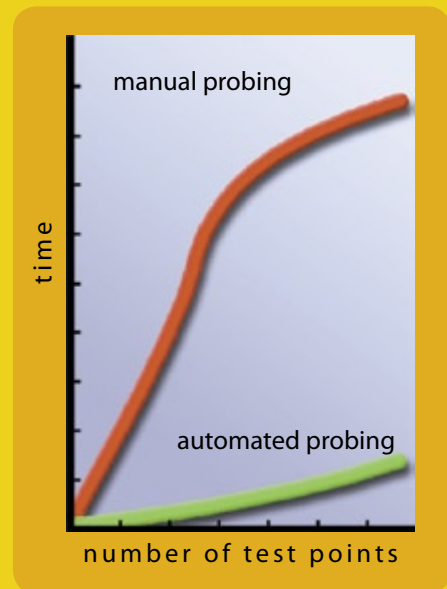
The Scanner II can be used in conjunction with an Access Prober to increase the number of Common reference connections used for the circuit board under test.

Tracker Model 30 and TrackerPXI Specifications

Open Circuit Voltage (Vs)	200mV, 400mV, 600mV, 800mV, 1V to 20V in 1V steps, 10V (Low), 15V (Med1), 20V (Med2)
Source Resistance (Rs)	10Ω, 20Ω, 50Ω, 100Ω, 200Ω, 500Ω, 1KΩ, 2KΩ, 5KΩ, 10KΩ, 20KΩ, 50KΩ, 100KΩ, 54Ω (Low), 1.2KΩ (Med1), 26.7KΩ (Med2)
Frequencies (Fs)	20Hz to 190Hz in 10Hz steps; 200Hz to 1.9KHz in 100Hz steps; 2KHz to 5KHz in 1KHz steps
Connections	BNC (Signal and Common); Banana (Signal and Common)
Aux. Connections	9 pin mini jack with ground, Trigger IN, Trigger OUT, Calibration TP, Signal ON, Sinewave zero crossing, Line IN, Line OUT
Warranty	1 Year Limited
Part Numbers	99-0392 (Model 30) 99-0390 (TrackerPXI)

Automate Testing with Huntron Robotic Probers

Placing a test probe on a powered printed circuit board assembly has traditionally been performed by hand. Taking test measurements such as voltage, frequency and resistance was simply a matter of connecting the appropriate test instrument to the test point and noting indicated values. With the advent of modern surface-mounted technology, interfacing to these test points has become increasingly difficult. Test points are smaller and closer together making the task of locating the test point accurately a more complicated procedure. The possibility of probing the wrong test point and the risk of PCA damage due to accidental misprobing becomes a test of manual dexterity. Additionally, the time needed to manually test specific points on a PCA with surface-mounted technology can become a serious burden on human resources.



Huntron Test Interface - Robotics



High resolution color camera provides a clear view of the PCA for optimal test point positioning. The camera is used for PCA alignment and teaching XY pin positions.



Laser encoding on the X and Y axes ensures precise 20 micron accuracy and 10 micron movement resolution.



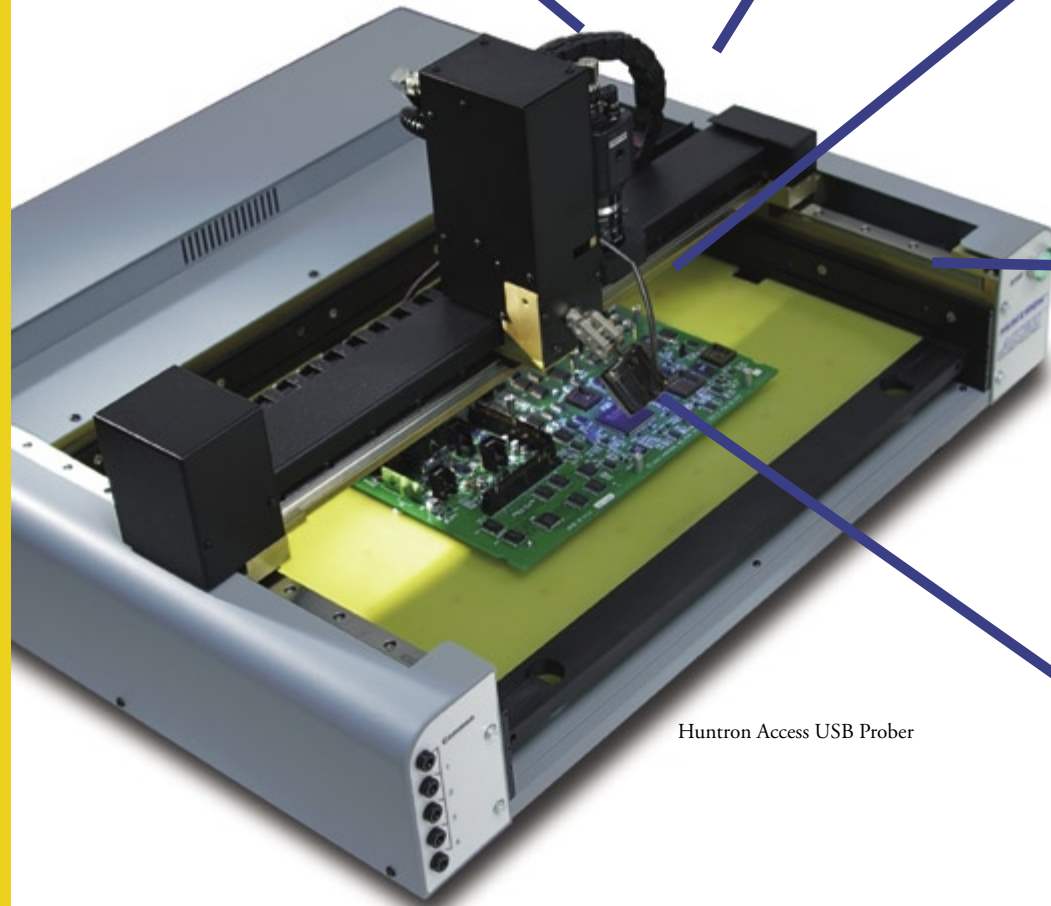
Standard bed-of-nails style test probes can easily be interchanged depending on your application.



Circuit boards are mounted at different slot levels using standard mounting accessories or custom board holders. The bottom plate can be removed for access from underneath.



Probe camera shows probe position in the Live Camera Pane



Huntron Access USB Prober

Huntron Test Interface - Robotics



Huntron Access 2 USB Prober



Huntron Access USB Prober

The precision robotic movement of a Huntron Access Prober lets you probe points on the high density chips, such as PLCCs, SOICs, PGAs, SSOPs, QFPs and others, without any expensive fixtures or programming required.

Huntron Access Prober systems come with a no charge 3 day training class for two people at the Huntron factory.

The Huntron® Access Probers are designed to accurately access test points on printed circuit assemblies (PCAs). It's 20 micron accuracy achieved by micro-stepping and linear encoding ensures reliable probing of the smallest surface mounted components. By using either the standard built-in test probe or a custom test probe, the Huntron Access Prober adds flying probe technology to your new or existing equipment. The high-resolution color camera ensures correct probe placement and provides a clear view of the PCA under test.

The open design of the Huntron Access Prober and it's software drivers allow you to design and implement your own custom test stations.

Huntron Access 2 USB Prober	
Maximum Board-under-test size	22" x 23" (56cm x 58cm)
Maximum Board Probing Area	18.2" x 22.4" (46.2 cm x 56.9cm)
Maximum Component Height	4" (10cm)
Accuracy	± 20 microns
Minimum Resolution	0.0003937" (10 microns)
Maximum Z Travel	4.2" (10.6cm)
Vision System	Color CCD 811 x 508 pixels
Line Voltage	115VAC or 230VAC
PC Interface	USB
Certifications	CE and ETL
Warranty	1 Year Limited
Part Numbers	99-0394 99-0397 (with Tracker Model 30 inside)

Huntron Access USB Prober	
Maximum Board-under-test size	19.4" x 14" (49.3cm x 35.6cm)
Maximum Board Probing Area	15.3" x 12.9" (38.9 cm x 33.8cm)
Maximum Component Height	2.375" (6cm)
Accuracy	± 20 microns
Minimum Resolution	0.0003937" (10 microns)
Maximum Z Travel	2.21" (5.6cm)
Vision System	Color CCD 811 x 508 pixels
Line Voltage	115VAC or 230VAC
PC Interface	USB
Certifications	CE and ETL
Warranty	1 Year Limited
Part Numbers	99-0395 99-0396 (with Tracker Model 30 inside)

Analog signature analysis is better than ever

Huntron Access Probers connect to the Tracker Model 30 or TrackerPXI and allow economical, automated testing of densely packed surface-mount and other devices on the most complex boards from the smallest to the largest systems.

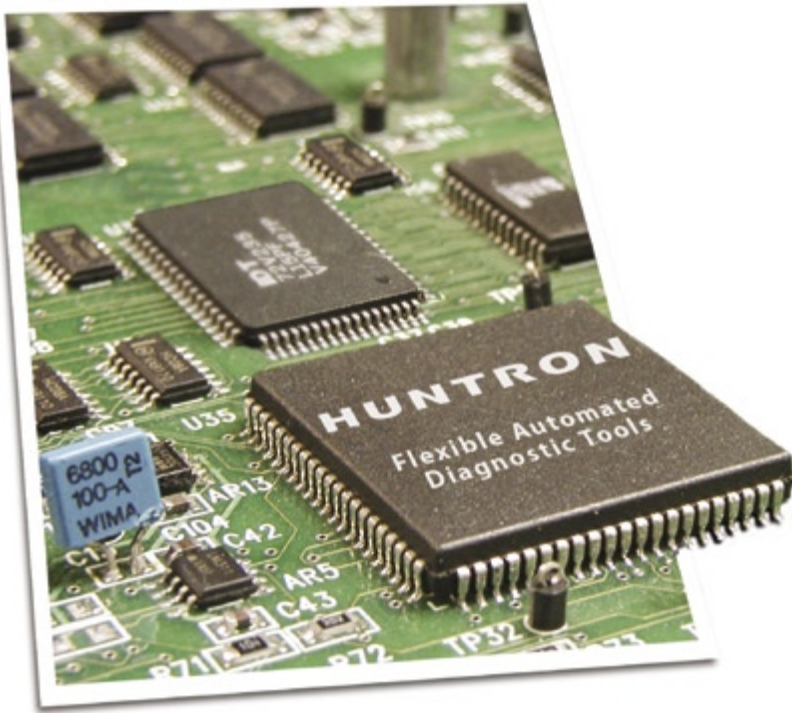
Huntron Access Probers Maximum Board-under-test Size:

Access USB Prober
19.4" x 14" (49.3cm x 35.6cm)

Access 2 USB Prober
22" x 23" (56cm x 58cm)

The Huntron Access Probers can be customized for your own application by developing application software using the optional Huntron Software Development Kit (SDK). Some examples are:

- Automatic guided probe to measure voltages or waveforms on specific points of a PCA
- Automatic stimulus and fault injection to a specific point on a PCA
- Automate monitoring of temperature or EMI on a PCA in a non-invasive way
- Use as a guided camera for basic automated optical inspection applications



Adding Component Level Diagnostics to Function Test Systems

Adding Power-off diagnostics allows for the detection and isolation of faulty components on boards beyond power-on functional testing. The detailed diagnostic portion of the power-on test can be either supplemented or replaced with Power-off Diagnostics to achieve better fault isolation and reduce costs. This allows the power-on test to provide the Go/No-Go and Ready For Issue (RFI) testing capabilities for which it was designed. Huntron Trackers combined with Huntron Access Probers and the Workstation software are easily integrated into functional test system.

Repairing Undocumented Boards

Repair of old or unknown circuit assemblies is a challenge when documentation is not available. Many of the test systems on the market today are ineffective in this situation as they require information that assumes a documentation package is available for the circuit card to be tested. Huntron Trackers can be very effective in these situations.

Testing Without Power Applied

In repair situations it is often necessary to test the board without power applied due to uncertainty as to the nature of the failure. When this condition occurs it is necessary to use nondestructive test equipment to safely examine component signatures and validate good from bad. Huntron Trackers test boards without applying power.

Diagnose to Component Level

Huntron Trackers, advanced software and Access Probers provide the cost effective integrated solution that compliments functional tests systems.

- Card level repair, automating (manual guided) probing during diagnostics increases productivity and accuracy either with the Huntron Tracker test or any other measurement tool (multimeter, oscilloscopes...)
- Precision probing allows access to fine pitch ICs without expensive fixtures
- Once the test is established, the need for documentation to locate probe points and to reliably make contact without error is eliminated

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31-0087 Rev. E 9/2007

About Huntron

Huntron, Inc. has been in the business of helping people solve circuit card problems since 1976. Efficient and knowledgeable customer service and technical support are always a primary goal.

Huntron products are supported worldwide through our network of sales service partners.

Contact us for assistance or ask about our services such as factory training and customer test development.

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