

## **Huntron Access DH**

**Open Architecture Dual Head Prober for Fixtureless Diagnostic Testing**

## Productivity Challenges of Manually Probing High Density Circuits

Vision, Dexterity and Distractions continually limit the effectiveness and reliability of diagnostic measurements. Technicians and engineers equipped with the most advanced test instruments still have to locate the test point, place the probe and take the measurement.

### Vision Factor:

High density circuit components are difficult to see and often require magnification devices.

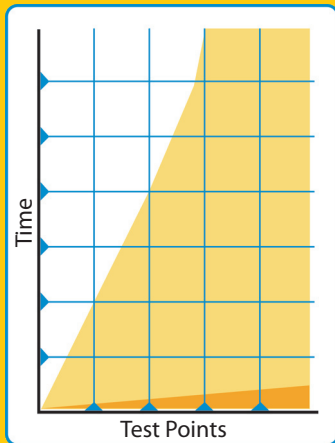
### Dexterity Factor:

Measurement points can be small and close together. Accurate probe placement and repeatable measurements can be difficult.

### Distraction Factor:

Interruptions by telephones, coworkers, pages and meetings can take their toll on completing a test procedure.

Time per Test Point  
Manual versus Automated Probing

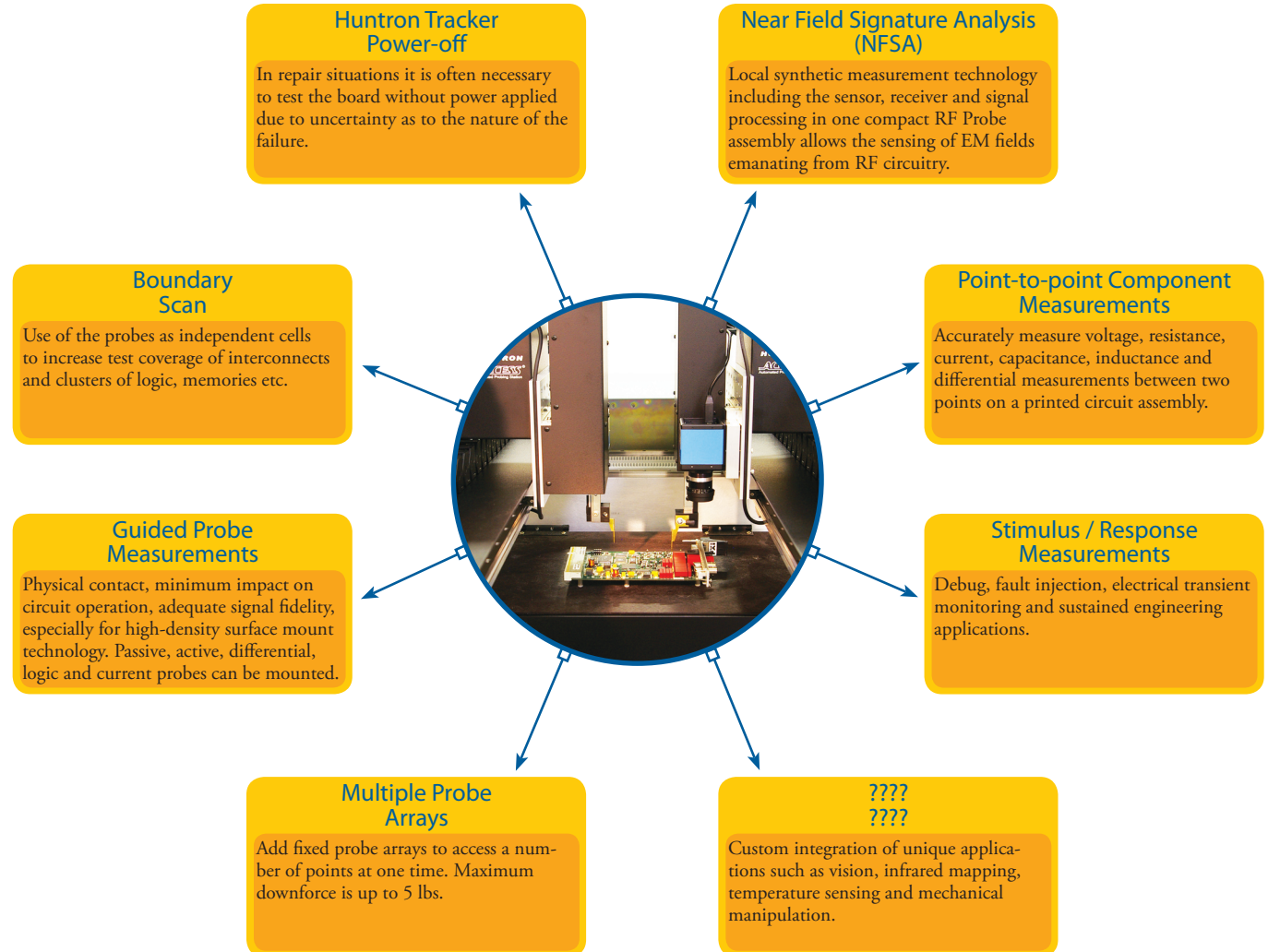


Manual Probing

Automated Probing

## Observation of Constantly Varying Events

Huntron Access Probers have provided economical, automated single point (probe) diagnostics of densely packed surface-mount circuit cards assemblies (CCA) since the early 1990's. Surface mount technology has made the observation of constantly varying events a challenge when manual measurements are needed. The Huntron Access DH (dual head) Automatic Probing Station opens the measurement spectrum to fixtureless diagnostic robotic probing. The addition of a second point provides accurate automation of a two point measurement therefore reducing the manual dexterity limits when an event needs to be captured. The Huntron Access DH can be configured to work with almost any standard measurement instrument such as Huntron Trackers, multimeters, oscilloscopes, spectrum analyzers...



# Huntron Access DH

Huntron Access Prober DH is a fixtureless platform designed for economical, automated testing of CCAs. The open architecture platform combined with the dual heads provides a flexible solution for accessing densely packed surface-mount components as well as through-hole devices on the most complex boards.

The Access DH can be used with traditional Huntron Tracker products or can be configured to work with conventional test instruments, (Oscilloscopes, Spectrum Analyzers, etc.) or specialized test cards such as Boundary Scan. The Access DH design allows a plug and play approach to automating manual guided probe applications.



## Features

- High Resolution USB color cameras provide a clear view of the unit under test (UUT) for optimal test point positioning. The Cameras are used for UUT alignment and teaching XY pin positions.
- Linear encoding on the X and Y axis ensures precise accuracy and movement resolution.
- Fast and accurate rotary encoded motors control the up and down of the Z axis.
- Standard spring probes (bed of nails style) can easily be interchanged depending on the application.
- The Z probe can be customized to accommodate unique probes or custom probe arrays.
- Each probing test head is equipped with USB, Ethernet, and Firewire interface connections. Included are a number of supply voltages (3.3V to 12V) wired in for powering test cards that may be mounted to the heads. 5V and 24V drive lines can be used for switching relays or control of external needs.

Huntron Access DH (Dual Head) Automated Probing Station

## Huntron Engineering

For more than 20 years, Huntron engineers have been developing and building Robotic Probers. All of our Access Probers are designed for years of use and require little maintenance other than basic cleaning and lubrication.

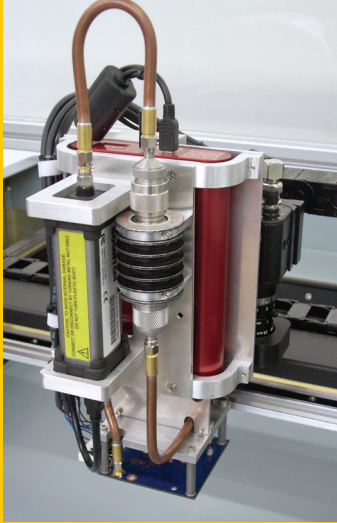
### Huntron Access DH Prober Specifications

Maximum Board Probing Area	12" x 19" (30.5cm x 48.3cm)
XY Accuracy (Top slot - 6" above plate)	± 0.00079" (±20 microns)
Minimum XY Resolution	0.00002" (0.4 microns)
Z Accuracy	± 0.005" (± 127 microns)
Minimum Z Resolution	0.001" (25.4 microns)
Maximum Z Travel	5.5" (14cm)
Maximum Probe Weight/Down force	5lbs. (2.27Kg)
Maximum Head Weight	15lbs. (6.8Kg)
Probe to probe minimum spacing	0.1" (2.54mm)
Vision System	One Color CCD camera per head; 1024 x 768 pixels
Physical dimensions	39" W x 61" H x 53" D (99.1cm W x 154.9cm H x 134.5cm D)
Weight	710 lbs. (322.1Kg)
Line Voltage	100/115VAC or 230VAC
Maximum Current (Prober only)	1.5 amps
PC Control Interface	USB
Certifications	CE and ETL
Warranty	1 Year Limited

These specifications are subject to change without notice. Contact Huntron for the latest information.

## Custom Z Application Examples

**Application:** Functional test of all parameters of an unpackaged RF FET. This requires precise placement of eight pins and executing the test.



Custom multi-pin probe head for point-to-point RF measurements

**Solution:** Custom Z axis head assembly with Aeroflex fixed coaxial attenuator, Holsworth RF synthesizer, Boonton RF power sensor meter and Multiple spring probe assembly.

**Application:** High density circuit card, approximately 20 test points, each test point has a series of state measurements, the state changes are operated by a control box. Currently each measurement is made by hand.

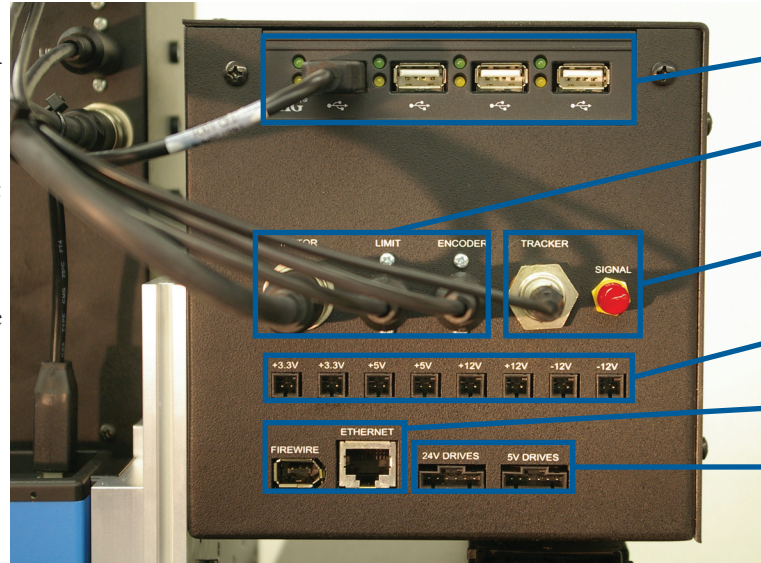
**Solution:** Embedding and controlling the total test within the Huntron Workstation Software. The unit under test will be placed powered on in a custom fixture state. Software will control all state instruments (PXI oscilloscope, power supply and DIO). The Huntron software runs the test capture, compares to the expected sample and reports results.

## Huntron Access Offers Ease of Customization and Integration

The ability to customize the Access DH probe head assemblies combined with software created using the Huntron Workstation SDK provides many integration and customization opportunities for this platform. The robust probe head design includes pre-wired interconnections that open up many possibilities for adding built-in USB, Firewire or Ethernet instrumentation at the head.

Power and drive voltage connections allow for custom hardware to be powered and mounted directly on the probe head assembly for unique measurement needs.

The Access DH is an adaptable solution for many difficult measurement applications where the challenge of SMT technology makes repeatable and accurate probe placement of paramount importance.



Multiple USB ports

Z Motor, Z Axis Limit and Encoder connections

Huntron Tracker and SMA coax connections

+3.3V, -3.3V, +5V, -5V, +12V and -12V Power connections

Firewire and Ethernet ports

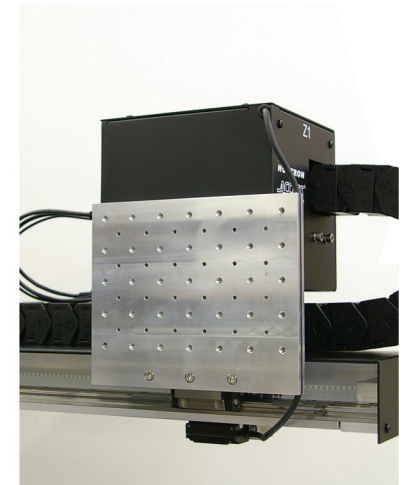
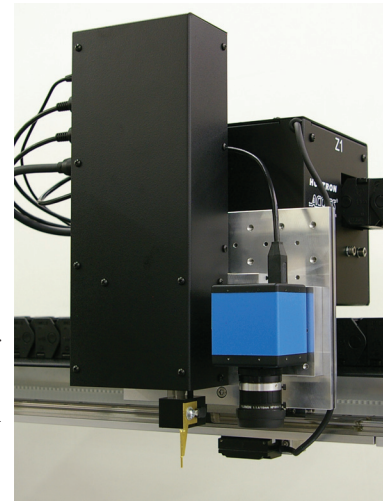
24V and 5V Drive Voltage connections

## Automate Your Instrumentation

The Access DH includes standard Z axis probe heads that use a common spring loaded probe for general purpose testing needs but they are built to be reconfigured. Special adapter plates with pre-drilled mounting holes will accommodate instrument clusters weighing up to 15 lbs.

The encoded Z axis motors have a 5 lbs weight potential and are capable of up to 5 lbs. of downward force that will compress a large array of spring loaded pins if needed.

High resolution, digital USB cameras are also included for functions such as PCB position alignment and test point targeting.



Left image - probe head assembly with Z axis probe head and camera mounted  
Right Image - special adapter plate that allows for complete head customization

# Designed to Fit Your Needs

## Accommodating Circuit Card Assemblies of All Sizes and Shapes

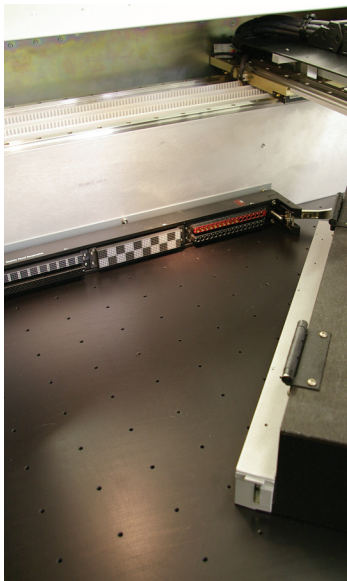
The footprint of circuit card assemblies (CCA) are often irregular in shape and have various sizes and densities (SMT). This creates physical challenges for probing or testing. The Huntron Access DH open platform and base plate grid design provides a wide range of CCA mounting options. Ease of preparing the CCA for test provides added benefits of increased test speed, repeatability, accountability, decreased operator error and reduced risk to the device under test.

The Huntron Access DH makes it possible to complement traditional fixtures (mechanical, pneumatic, electromechanical or vacuum) by allowing access to additional points during test. Another factor to consider is the overall cost savings when faced with low volume and a wide varieties of CCAs.

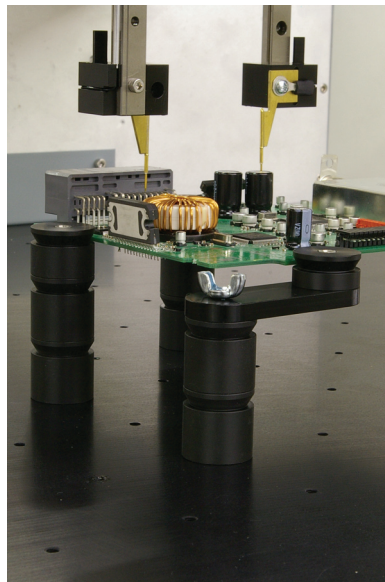


The Access DH provides ample space for large CCAs and assemblies such as CCA fixtures, Interface Test Adapters and more.

## Adaptable by Design



The Access DH accepts mass interconnections such as the Virginia Panel S6



Mounting a PCB in the Access DH using the Rotating Board Holder kit. The pieces can be combined for optimum flexibility.

- Base plate grid of threaded holes and custom stacking, interchangeable board holders. A building block approach.
- Configured to accept mass interconnect solutions which enable consolidation of multiple test resources by accommodating a wide range of analog, digital, RF, fiber optic, power, thermocouple, pneumatic and vacuum connectors in a single interface.
- Use standard ITA (Interface Test Adapter) enclosures to house your unit under test (UUT). This enclosure can be customized to fit your application dependent testing requirement.
- Configured for efficient routing of cable assemblies between the UUT instrument cluster and the equipment in the cabinet below.

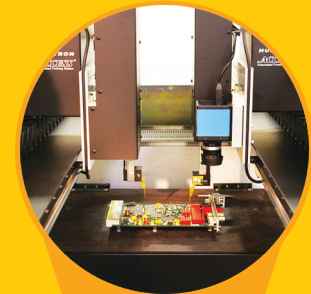
## Space for Your Test Equipment

- Standard 19" rack in base cabinet
- Included mounting bracket for monitor, keyboard and mouse arm
- Access openings for cabling to test area
- Ample space for PXI, VXI, SCXI, LXI style chassis and equipment



Access DH features a standard 19" rack for equipment placement (PC and Tracker Model 30 shown not included)

## Flexible Test Platform



- Huntron Power-off
- Near Field Signature Analysis (NFSA)
- Boundary Scan
- Guided Probe Measurements
- Point-to-point component measurements
- Stimulus/Response measurements
- Multiple probe arrays

## About Huntron Workstation

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 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 signatures or waveforms, control of robotic probers and CAD viewing tools that update on the fly.

### Huntron Workstation Features

- Create custom test routines for component pin or net node tests
- Optional test creation using PCB ASCII CAD data; many popular CAD packages are supported
- View, print and store test results immediately in formats such as PDF and HTML
- Optional Huntron Workstation SDK allows integration of other instruments such as oscilloscopes, spectrum analyzers, etc.
- Optional Remote Control feature allows control from test executives such as NI TestStand or .NET programming languages
- 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
- User created Toolbar buttons can be used to control other Windows based programs such as a browser or PDF viewer

## Huntron Workstation

### Tree Pane

Development and editing of test database

### Prober Pane

Access Prober DH controls - PCB Alignment, test point location teaching

The screenshot displays the Huntron Workstation software interface with the following panes:

- Tree Pane:** A table listing test sequences and components.
- Prober Pane:** Controls for the Sensoray X11 prober, including alignment settings and a camera image of the PCB.
- Signature Pane:** Shows a scan list and a waveform graph for Pin TP3.
- Image Pane:** Displays CAD data, board overview, and test point images.

Name	Order Number	Package	Number Of Pins	Type
Walk-in Circuit TP2	9	Probe	1	
Walk-in Circuit TP1	10	Probe	1	
Walk-in Circuit TP3 Low	11	Probe	1	
Walk-in Circuit TP3 High	12	Probe	1	
P/S Check 1	13	Probe	1	
Low V MOSFET Drive	14	Probe	2	
P/S Check 2	15	Probe	1	
Standby PWM	16	Probe	4	
PWM Fault U11	17	Probe	1	
PWM Fault TP3	18	Probe	1	
P/S Check 3	19	Probe	1	
Warmup Done	20	Probe	1	
PWM Functional	21	Probe	5	

**Signature Pane:** Scan List:  
1 - 1/28/2010 10:36:49 AM  
2 - 1/28/2010 11:15:04 AM

**Signature Pane:** Pin: TP3 R: 1  
Voltage P-P 30 12 0000000F  
11.761

### Signature Pane

Test execution, display of signatures/waveforms (oscilloscope waveform shown above) and Test Results

### Image Pane

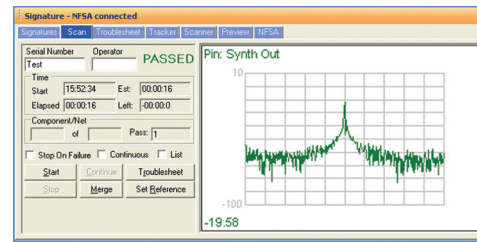
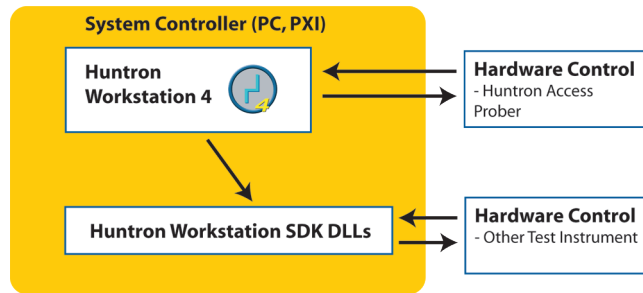
Display of CAD, Board overview and Test Point images

# Custom Control of the Access DH

## Huntron Workstation SDK

The Huntron Workstation Software Development Kit (SDK) provides a method for integrating control of instruments to the Huntron Workstation software and use with Huntron Access Probers. The Huntron Workstation software can move the prober to a location, control the instrument(s), display data, make comparisons and show results. The SDK supports numeric measurements, waveforms and images. The integration is performed creating/modifying a .NET DLL. The combination of the Huntron Workstation software, Huntron Access Probers, other instruments and the customized DLL create a fast and easy way to create effective custom prober systems.

The SDK supports 3 numeric measurements, a waveform and an image for each test range. The settings for obtaining the data are customizable windows controls consisting of 6 drop down list boxes, 6 text boxes and 6 check boxes. The text of the labels for the controls is set in the DLL. The values in the drop downs are also set in the DLL. In addition there is a delay field for delaying the measurement after the probe has made contact and +/- tolerance fields for comparison.

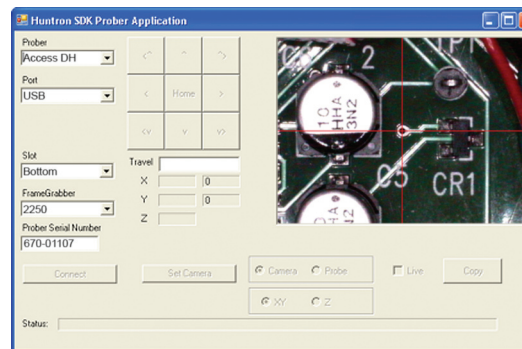
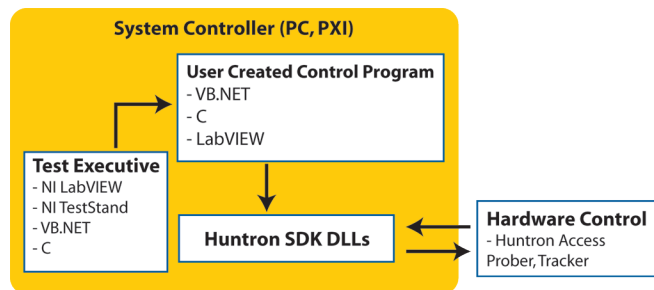


Using the Huntron Workstation SDK, this NFSA signature can be displayed in the Workstation Signature pane

## Huntron Hardware SDK

The Huntron SDK allows creation of programs that implement control of Huntron hardware products. Using in-house programming or integration services, the SDK allows the creation of custom software systems. The SDK also allows existing programs to be modified to control Huntron hardware. The SDK provides control of Huntron hardware including Trackers, Probers and Prober cameras.

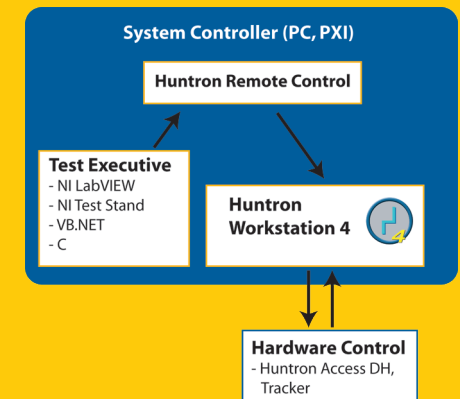
The SDK includes all DLLs needed to control the hardware and sample applications in VB.NET. Also included is C wrapper class source code for using the DLLs with C. The DLLs are .NET assemblies with built-in COM interfaces. The DLLs are documented in help files with VB.NET, VC++ and C# prototypes.



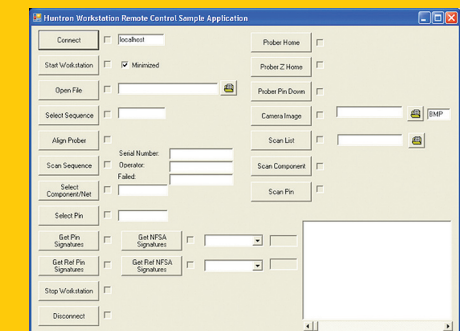
Sample application created using Huntron Hardware SDK

## Huntron Workstation Remote Control

The Huntron Workstation Remote Control feature allows control of the software from other programs. Tests are created in Huntron Workstation and then "controlled" remotely. The process of adding Huntron Prober capabilities to other programs and testers using drivers requires programming by the customer. Huntron Workstation Remote Control makes this easier by providing most of the functionality needed with minimal programming.



Remote Control is used by programs linked to the Huntron Client VB.NET DLL. The DLL provides call functions used to control the Huntron Workstation application.



Huntron Remote Control sample application

# Features and Benefits of Huntron Access DH

- Cost effective, open architecture robotic platform
- Repeatable, accurate X, Y and Z movement
- Design, manufacturing and service depot applications
- Increase operator productivity
- Optional custom integration using SDKs
- Improved testing yield
- Control Huntron Workstation from other programs using the optional Remote Control software
- Prototype and first article testing - faster time to market
- Quality construction built to last
- Optional CAD PCB Layout import for test creation
- One Year Warranty

## Test Integration Services

Today's electronic test environment demands that the equipment used for diagnosing and analyzing printed circuit boards be flexible and serve multiple functions.



Huntron can assist with design and assembly of custom test systems based on test requirements. Typical integrated systems combine test instrumentation and incorporate them with automated robotic platforms to meet specifications designated by your test engineers. The integrated test system may be simple or very complex encompassing several different testing strategies.

## Custom Test Development

Huntron offers custom test programming services to develop base line programs for your printed circuit assemblies. Our Technical Support personnel have many years of troubleshooting experience in real world applications and will provide a good starting point for your test program. All you will need to do is the final adjustments to customize the procedure thus significantly reducing your test development times.

## Support and Training

Huntron stands behind its products with industry leading technical support and training. Support is just a phone call or email away and Huntron takes pride in serving you. Our goal is to help you to get the most from your investment.

Training is available on software controlled Huntron test systems and covers all aspects of hardware and software use. Detailed software tutorials are provided as a quick reference to assist you in getting your system up and running in a minimal amount of time.

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31-0100 Rev. A 09/2010

## 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.

Today, Huntron's reputation in providing automated power-off, RF diagnostic instrumentation, open architecture robotic test platforms and software for test, inspection and repair of electronic printed circuit assemblies lets you access, explore and discover more.

### Huntron, Inc.

15720 Main Street, Suite 100  
Mill Creek, WA 98012 USA  
(425) 743-3171, FAX (425) 743-1360  
(800) 426-9265  
info@huntron.com  
www.huntron.com

Represented by:

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