

## HT 9460 and 9464 High Voltage Isolation Test Systems

These systems assure that the devices shipped will meet the stringent specifications of UL and VDE-0083 for isolation testing as well as the VDE-0884 partial discharge specification.

Both the 9460 and 9464 systems are available in two basic models:

- Manual model Fig.1 for sample/lab.
- Production testing Fig. 2 with interface to automatic handlers.



Fig. 1 Manual model for sample/lab testing.

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Accurate and non-destructive production testing of ac Isolation Voltage and Partial Discharge.

With over 400 systems installed worldwide the 946X series of test systems are the standard and system of choice used by the majority of semiconductor manufacturers that produce optically isolated devices.

The HT 9460 and 9464 provide a practical and automatic solution for accurate production voltage isolation testing. The systems are designed specifically to test the input to output isolation of:

- Opto-couplers
- Solid state relays
- Pulse transformers
- Photo Interrupters
- Isolation amplifiers



Fig. 2 Production testing with interface to automatic handlers

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## Product Features

- **Isolation Voltage Testing.** The HT 9460 and HT 9464 test systems detect resistive and capacitive leakage for both the UL and VDE 0883 specifications up to 7 KVA (9.99 kV peak).
- **Partial Discharge Detection.** Partial discharge activity indicates the presence of a physical insulation defect that can lead to high leakage and failures after the device is put into service. The HT 9464 is unique in its ability to detect partial discharge with a sensitivity of less than 5 pico-coulombs (pC) as specified in the VDE-0884 specification. An optional calibrator allows for 1 to 9 pico-coulomb repeatable calibration.
- **Non-Destructive Testing.** Isolation voltage testing can often destroy a device due to the discharge of stored energy. The HT 9460 and HT 9464 produces negligible stored energy and features a current limiting design that prevents additional damage to failed devices. Voltages are applied to the DUT at the AC voltage crossings. If a failure is detected a solid-state switch removes the test voltage within 0.1 milliseconds. The HT 9464 adds the unique advantage of testing for partial discharge non-destructively.
- **Complete Operator Control.** Front Panel control are provided to set test limits for device leakage, high voltage/low limit thresholds, and for the 9464 partial discharge. A digital panel meter displays actual device voltage as peak or AC, source voltage, or leakage current. The front panel also displays PASS/FAIL information.
- **Manual Configuration.** Both the HT 9460 and HT 9464 are available in manual and auto handler models. The manual version is ideal for incoming inspection, sampling and laboratory analysis of devices or assemblies where high throughput is not a priority.
- **Auto Handler Configuration.** For production applications the tester can be fully integrated with most automatic handlers. Handlers can be programmed to allow any output bin to be assigned to any sort class. Automatic re-test indicators are also included. Typical throughput is 2,000 to 2,400 units per hour with a one second specified test time.
- **Easy Safe Operation.** The HT 9460 and HT 9464 series have been designed for simple test operation. Safety locks protect the operator from contact with the high-test voltages. Setting the desired test voltage is aided by a 3-1/2 digit display of the actual voltage. A transparent hinged cover prevents inadvertent operation of the adjustment knob.

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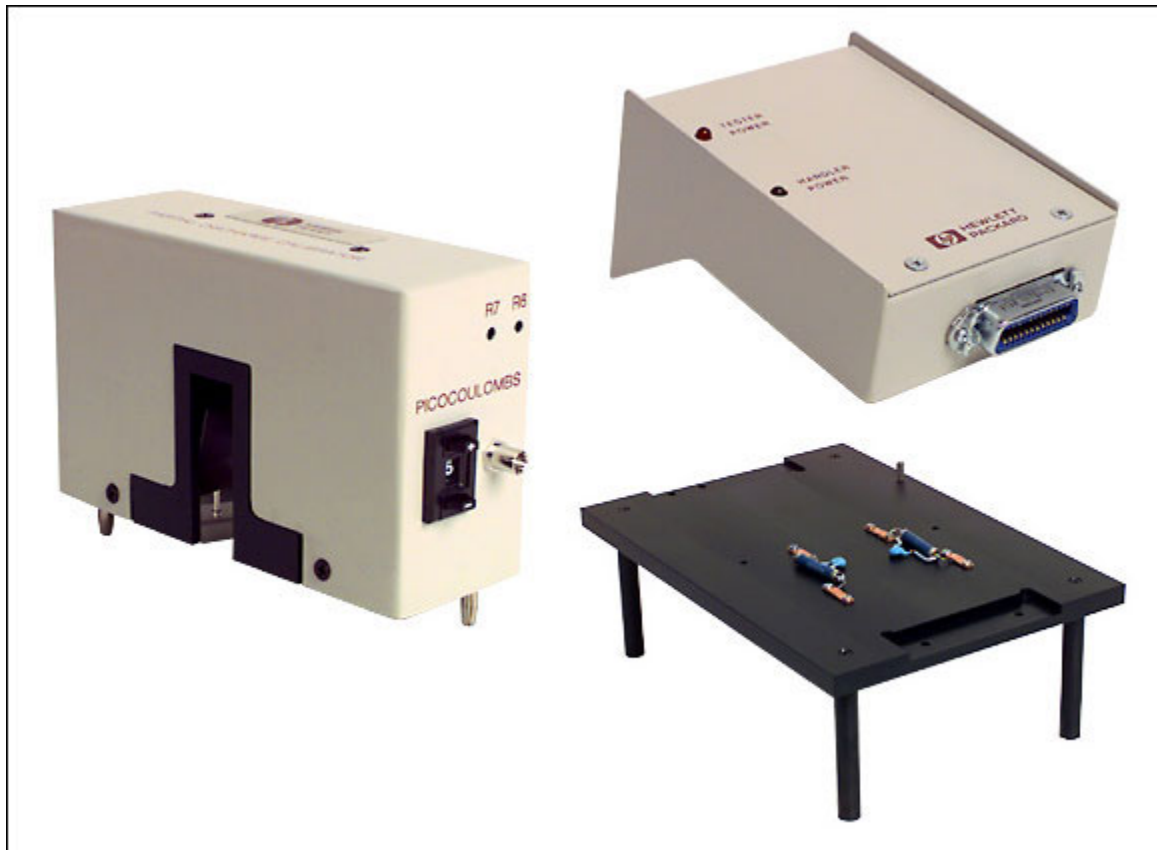
### Basic Auto handler Configuration



This includes: High Voltage Test Head, Controller and Line Filter. The controller front panel is reversible to allow for either horizontal or vertical installation.

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### Add on Options



Shown above are the options available for the basic HT 9460 or HT 9464 auto handler configuration (from left to right) Verification Stand, Opto-isolated handler or robotics interface, and PDC 710V Partial Discharge Calibrator. The Verification Stand is used in conjunction with the High Voltage Test Head to calibrate/set-up the system off-line in a simulated environment without the handler interfaced. The opto-isolator is only required for handlers that do not have their own optically isolated buss. The PDC 710V injects a selected known charge (1 to 9 pC) into the Device Under Test (DUT) contacts. This calibration technique simulates an actual devices partial discharge, which allows all stray capacitances to be calibrated.

## HT 9464 and HT 9460 Comparison

	HT 9464 Specifications	HT 9460 Specifications
Voltage Range	0 to 7.00 kVac or 0 to 9.99 Kv peak with 10 Volts resolution. Accuracy of 2% +/- one digit. 0 to 4.0 kVac or 5.66 volts peak for handler configuration of partial discharge testing at 5 pC.	0 to 7.00 kVac, or 9.99 peak volts, 10 Vac resolution. Accuracy of 2% +/- one digit.
Test Voltage Duration	T1 and T2 from 0.2 to 99.9 seconds. 200 seconds max total.	0.2 to 99.9 seconds.
Programmable Leakage Test Threshold	0 to 99 micro-amps in 0.1 micro-amp steps, 100 meg ohm in parallel with 10 pF current limit. Accuracy of 2% +/- one digit.	0 to 50 micro-amps in 0.1 micro-amp steps, 150 Meg ohm current limiting resistor. Accuracy of 2% +/- one digit.
Partial Discharge Test Detection	Single event or digitally multiple events.	
Partial Discharge Test Threshold and Delay	0 to 50 picocoulombs in 0.1 pC steps with 0.0 to 9.9 second delay.	
Display Mode and 3-1/2 Digit Panel Meter	Source or Device Voltage (kVac or kV peak), Leakage Current (micro-amps)	Source or device Voltage (kVac), Leakage Current (micro-amps) or blank display.
High Voltage	0 to 7.0 kVac or 0 to 9.99 kV peak, accuracy 2% +/- one digit.	0 to 7.0 kVac or 0 to 9.99 kV peak, accuracy 2% +/- one digit.
Low Limit Threshold	Ensures that the actual device voltage is not below requirement.	Ensures that the actual device voltage is not below requirement.
LED Indicators	Testing, Pass, Fail High Voltage, Fail Leakage and Fail Corona.	Testing, Pass, Fail High Voltage, Fail Leakage and Fail Corona.
Audible Alarm.	100 ms alarm for each device fail, disable through panel switch.	100 ms alarm for each device fail, disable through panel switch.
Test Counter	6 Digit Counter for total number of devices passed.	6 Digit Counter for total number of devices passed.
Failure Counter	6 Digit Counter for total number of device failures.	6 Digit Counter for total number of device failures.
Output Signals	Handler Interface, Half Signal Marker, Test-in-Progress, Leakage monitor (1 micro-amp = 100 mv), Half Cycle with Corona.	Handler Interface, Half Signal Marker, Test-in-Progress, Leakage Monitor (1 micro-amp=100 mv), Half Cycle with Corona.
Safety Interlocks	Test Voltage Circuitry is automatically interrupted on opening handler device test area or removal of high voltage assembly.	Test Voltage Circuitry is automatically interrupted on opening handler device test area or removal of high voltage assembly.
Operating Environment	15 to 35 deg. C; 35% to 75% relative humidity, non-condensing.	15 to 35 deg. C; 35% to 75% relative humidity, non-condensing.
Dimensions and Weight	Manual version is 38.1 cm (15 inches) high, 30.5 cm (12 inches) wide, 81.2 cm (32 inches) long and weighs 31.8 kg (70 lbs). Auto version weight 31.8 kg (70lbs), size consult factory.	Manual version is 38.1 cm (15 inches) high, 30.5 cm (12 inches) wide, 81.2 cm (32 inches) long and weighs 31.8 kg (70 lbs). Auto version weight 31.8 kg (70lbs), size consult factory.