

BASIC SYSTEM

201.net Modular-in-design, the 201.net Discrete Semiconductor Test System is PC-based using a CPU-based hardware controller to control the electrical tests it performs. The system can be configured to control up to four (4) test terminals that can be configured for any use including integration with a device handler or wafer prober or manual test requirements. Each test terminal includes the Device Under Test (DUT) interface/adaptor receiver comprised of a series of eight (8) terminals for Base, Collector, Emitter, and Guard.

The standard 201.net test system is configured in a bench top enclosure approximately 20 inches wide, 22 inches deep, and 24 inches high.

Include in the Basis System is:

- Bench Top Enclosure.
- Input Source Unit 40V/20A.
- Measurement Unit.
- Output Source Unit 200V/20A.
- 3x3 System Relay Matrix.
- Microsoft Windows 7 Software Operating System.
- XTOS Network-based 201 Software Operating System.
- Build Editor to build test routines using pre-configured module templates.
- Troubleshooting Diagnostics and 0201010 and 0201063 Adapter Sets. Includes manual Verify tests for verifying the calibration of the system using an external DMM.
- Programming, Operations, and Maintenance Manuals.
- PC-based host with TMT Flat Screen Monitor, and Keyboard/Mouse.
- CPU Hardware Control Module; Main Station to Host Computer. Pier-to-pier connection.
- Free software updates for the life of the system.

TEST TERMINALS

0201295-02 The Standard Stand-alone terminal provides the Device Under Test (DUT) platform which includes test activation buttons, PASS/FAIL indicators, and binning indicator. The test terminal is approximately 20 inches wide, 12 inches deep, and 5 inches high and is provided with six (6) foot interconnect cables.

0201163 The 0201116, 5x16 Test Terminal provides the capability to test mechanical relays, opto-couplers, multiple parts in a large package, arrays, hybrid parts with logic, etc. It is configured with the standard DUT terminal access and a 37-pin connection to the 5x16 built-in matrix. The test terminal includes:

- Two programmable power sources with a voltage range of 800mV and 8.00V in current monitoring ranges of 200mA, 20mA, 2mA, 200microA, and 20microA.
- 37-pin DUT Adapter 0201024.
- Diagnostic Adapters 0201026 and 0201096.

Note: Maximum 2000V/200A at standard DUT terminal and 200V/10A using the 5x16 matrix. Both DUT terminals can be configured for 1000V/10A.

SYSTEM OPTIONS

- Computer** A credit is provided when the customer opts to purchase their own personal computer to control the system. PC must meet minimum standards as required by the 201.net System
- 0201130** Power Module. The power module extends the output capability of the Output Module to 2000V/200A under program control. Includes 0201076 Diagnostic Adapter set. Unit is installed in the Main Station and requires factory Installation.
- 0201132/
0201132M** 20nA Low Current Test Head mounted (1000V Max.). 0201132 for use with a standard test terminal and 0201132M for use with the 5x16 Matrix and built in. Provides the following add-on test ranges:
- | <u>Range</u> | <u>Resolution</u> |
|--------------|-------------------|
| 20.000nA | 1pA |
| 2.0000nA | 100femtoA |
- 0201166/
0201166M** Ton/Toff/Tr/Tf Test Head and Adapter for Optical Couplers and relays 100nSec Resolution 10A Max. 0201166 for use with a standard test terminal and 0201166M for use with the 5x16 Matrix and built in.
- 0201193** Handler/Prober Multiplexed Interface with customer-supplied mating connector and interface schematics for Logic and Analog signals. (Requires Test Terminal)
- 0201314** Calibration Test Head. The calibration test head provides a series of precision resistors calibrated and traceable to NIST standards to verify the accuracy of the 201.net system instrumentation. Verify test routines are provided to check each stimulus and measurement range of the system. Requires a Keithley Meter 2000DMM with IEEE-488 interface quoted separately.
- 0201315** Thermal Resistance Testing of die attachment for Diodes and Thyristors. Provides the following heating current ranges:
- | <u>Current</u> | <u>Max Duration</u> |
|----------------|------------------------------------|
| 2.0A | 65 sec |
| 20.0A | 100 ms |
| 20.0A | 65 sec (Requires external source.) |
- Measurement delay programmable from 3msec to 3msec.
- 0201318** I-Hold Network Test Head for Thyristors, including provision to call up various loads and networks in test program. Includes an auxiliary source for I-Hold pre-bias.
- 0201322** Inductive Load Test Head. Used to verify how much energy a component can withstand without physical damage. The energy (measured in Joules) is 200pJ to 1.5J. Generated from the following programmable stimulus:
- Current Up to 10A
 - Inductance 100uH to 204.7mH
- 0201324** Power Module to Base Adapter. Used to switch Power Module output to the Base lead of a dual diode device.
- 0201330** 20pA Low Current Test Head (200V Max). Adds low current measurement capability to the standard 201.net test system to test any device under test (DUT). Using UHF-style connectors to interface the DUT, the current is more accurately measured by making the actual measurement as close to the DUT

as possible. Test signals are multiplexed through the test head's 6x2 relay matrix to test dual device package types. The test head is fully programmable and adds the following measurable current ranges:

Range Resolution

- 20.000nA 1pA
- 2.0000nA 100femtoA
- 200.00pA 10femtoA
- 20.000pA 1femtoA

0201333 20mV Low Voltage Measurement. Extends the Output Source to include milliohm measurement ranges of RDSon in Fets and relay contact resistance.

Range Resolution

- 200.00mV 10mV
- 20.000mV 1mV

0201337 Three Phase Bridge Diode Rectifier Switch Matrix Test Head. The Test Head provides an external matrix to multiplex the 201C test system resources to test a bridge rectifier. It tests the Forward and Reverse characteristics of each individual diode within a bridge while using a proprietary guard circuit to eliminate any parallel electrical leakage paths.

0201357 Sidac Test Head. Provides firing current to 10A to 20A at 100V/us. Measures peak switching voltage (up to 600V), forward voltage drop (up To 20V at up to 2A), and holding current.

0201630 3x6 Matrix Test Head. Used to connect dual 3-leaded packaged devices using the 0201295-02 test terminal.

0201361 External Scope Timing Test Head for measuring Ton, Toff, Trr etc. 1nSec resolution for devices such as diodes, transistors and FETs. Used to measure switching times for small-signal discrete semiconductor devices, such as FETs, Bipolar, and Diode devices in accordance with MIL-STD-750, Paragraph 4.1. This general-purpose test head is used with an external oscilloscope and designed primarily for use in receiving inspection and some production applications. The following tests may be performed and are fully programmable, within the specifications listed below:

Device	Bipolar-ON	Bipolar-OFF	FET-ON	FET-OFF	DIODE
Test	Ton	Toff	Ton	Toff	trr
	Td	Ts	Td(on)	Td(off)	
	Tr	Tf	Tr	Tf	

- Pass-through Mode
 - Current: 0 to 20A
 - Voltage: 0 to 1000V
- Timing Mode
 - Collector/Drain Current 0 to 10A
 - Collector/Drain Voltage 0 to 200V at 200mA
 - Collector/Drain Voltage 0 to 20V at 10A
 - Base/Gate Current (pulse) 0 to 1A
 - Base/Gate Voltage (pulse) 0 to 20V
 - Trr Current (pulse) 0 to 1A

Requires 0201361 Series DUT adapters. Digital Storage Oscilloscope quoted separately.

- 0201362** Test Terminal Multiplexer – The Terminal Multiplexer multiplexes the control and signal buss of the 201 and allows multiple terminals to be controlled by a single Main Station. One multiplexer is required for every two or more detached test terminals.
- 0201365** Quad Parametric/20nA Low Current Test Head. Provides four (4) active multiplexed test sites to switch tests leads. Each site is addressable under program control and limited to one test routine at a time. Test Head also provides the following add-on test ranges for each site:
- | <u>Range</u> | <u>Resolution</u> |
|--------------|-------------------|
| 20.000nA | 1pA |
| 2.0000nA | 100femtoA |
- 0201366** RDSon Prober Matrix System Module. Used to test the low milliohm RDSon of a single MOSFET device on a wafer when access to the bottom-side Drain is not directly available. Under program control and using the 0201365 Quad Parametric/20nA Low Current Test Head, the RDSon Prober Matrix Module provides a matrix and 4-wire top-side access of the bottom-side Drain through the Source contact of an adjacent device. Requires 0201365 Quad Parametric/20nA Low Current Test Head.
- 0201368** Capacitance/Inductance Measurement Test Head. Provides the capability to test capacitance and inductance using an external meter. Results are integrated with the standard results output of the 201.net system. External meter not included and manufacturer and model are subject to review.