

Intepro 9000 Series

Intepro 9000S

- High speed cost-effective test of Power Supplies and Converters
- Modular and expandable
- PowerStar 5 Test Software for quick, easy & comprehensive test program generation
- World-wide support

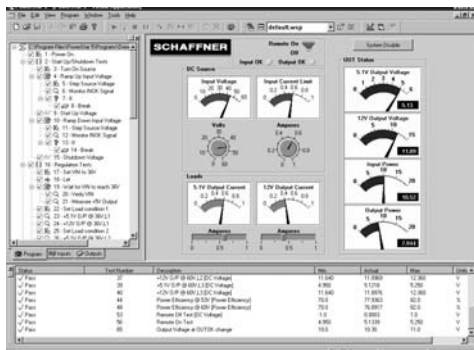
The Intepro 9000S is a fully pre-configured 30U cabinet-based power supply ATE system comprising a 700W DC source, OVP source, four programmable DC loads and a comprehensive measurement and control system. The system's built-in Virginia Panel interface provides high current-carrying capacity with minimal noise and signal loss.

Capable of testing a wide range of DC/DC converters, the Intepro 9000S system is suitable for use in design characterisation, high-volume production-test and repair or rework of power supplies. An AC/DC option can also be integrated on request.

The Intepro 9000S system has been specifically developed to deliver comprehensive test coverage in today's high-volume power supply test environment. Its modular construction means the Intepro 9000S system can be easily expanded in the future.

Key features of Intepro 9000S include:

- PowerStar 5, flexible test executive
- 50W or 200W Load options
- IEEE 488 and CANbus for speed and flexibility
- Multi-purpose module for popular measurements



PowerStar 5 Workspace



Intepro 9000S System

PowerStar 5

The system runs under complete control of PowerStar 5's test routines which are optimised to ensure that test times are kept to a minimum. The standard test library already includes over 100 tests covering the vast majority of common requirements in power electronics testing.

Key features of PowerStar 5 include:

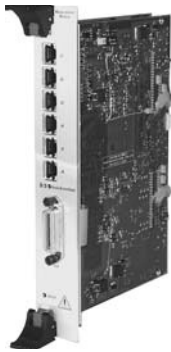
- Dedicated PSU test library
- Database-driven family testing
- Supports variables and expressions
- Drag and drop test program generation
- Comprehensive flow control for structuring test sequences
- Integrated VBA for custom interface or test development
- TCP/IP support for results logging and remote debug
- SQL compatible
- Microsoft Access™ results logging

This integrated solution ensures high speed test with a low cost investment. The software and system are easy to use, which enables on-site installation by the end-user. Alternatively, if required, systems can be installed and commissioned by Intepro engineers. Full system training and support is always available.

Overall the main objective of this pre-configured system is to provide an economically viable system for any test environment.

Measurement Module

The newly developed Measurement Module combines many of the instruments commonly required for PSU functional testing. The DVM measures DC and low frequency AC voltages, while the Interval Timer measures rise/fall times, inter-rail timing, programmable thresholds and slopes on two channels. Also included is a ripple/noise meter which measures RMS and peak-to-peak ripple/noise on the outputs of the UUT. The Measurement Module is fully equipped with a 10 channel internal scanning feature and can now achieve higher speeds with increased measurement accuracy.



Measurement Module

Universal Driver

The Intepro 9000S DC Universal Driver provides a means of driving multiple DC sources and or high power OEM loads. The modular construction comprises a motherboard and plug-on daughter cards. Further expansion is simply a matter of installing additional daughter cards. System calibration times are significantly reduced as the calibration constants for the module are stored in EEPROM, and travel with each module.



Universal Driver Module

Relay Scanner

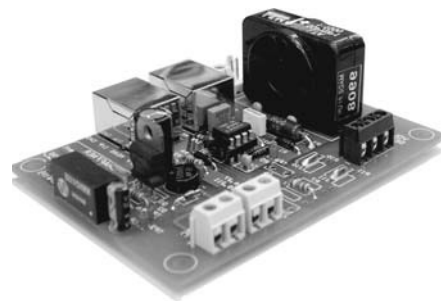
Multi-purpose module consisting of 14 scanner relays and 10 free relays for general purpose control and switching. This card is also part of the optional Selftest subsystem in combination with a Selftest fixture and software.



Relay Scanner Module

Current Measurement Card

Provides highly accurate measurements of current and voltage from DC sources. Capable of handling up to 500VDC the standard current rating is 25Amps. Other ratings are also available on request.



Current Measurement Card

DC Loads

Developed for high slew-rate performance, Intepro 9000S Loads have built-in intelligence for more efficient operation. Constant current, voltage, and resistance modes allow multiple Load profiles to be programmed. 200W and 50W Loads are available and these can be paralleled for higher power requirements.



DC Load

OVP Source

This 60V/1A analogue programmable DC Source is used to back drive the UUT to perform OVP testing.



DC Source

Digital Controller

The Digital Controller acts as the interface between the system architecture and the controlling PC by means of an IEEE 488bus. The module has an on-board CAN interface enabling communication with up to 100 Intepro 9000S Loads. A Schaffner TGA interface is also integrated and provides support for a maximum of 255 TGA or Micro modules.



Digital Controller Module

Virginia Panel

Connection between the UUT and the test system is achieved by means of an industry standard Virginia Panel 10 way receiver. The output of each source, the input of each load and any high or low frequency test points are wired out to the receiver, allowing a simple 1 touch connection to the UUT through the use of an ITA (Interchangeable Test Adapter). The Virginia Panel receiver incorporates a safety interlock system ensuring that dangerous voltages or currents can never be present without an ITA inserted. The UUT to be tested is connected to the ITA by a suitable adapter, thereby reducing stress on the actual receiver/ITA contacts which would otherwise occur due to repeated insertion and removal.



Virginia Panel Receiver



Virginia Panel ITA

Main DC Source

700W analogue controlled DC source providing either 70V/10A or 35V/20A to suit a wide range of DC/DC test applications.



DC Source

The ITA represented above (right) is in its basic format. This is customised by adding suitable adapters for the customers UUT.

OPTIONS

Digital I/O Module

General-purpose module containing sixteen TTL digital inputs, sixteen TTL digital outputs, four SPST power relays and 48 relay driver outputs. The module can be used to control any compatible third party device such as custom designed black boxes.



Digital I/O Module

AC Source

The ACS1008 is a 2kVA IEEE controlled AC source with a maximum output of 300V over a frequency range of 16Hz to 5kHz. On board measurements include voltage, current, power and power factor.



AC Power Source

Selftest

The Selftest option comprises the following items:

- (a) Selftest Fixture
- (b) Relay Scanner Module
- (c) Selftest Software Package

The purpose of Selftest is to perform a basic system verification check to confirm that all modules and OEM items are functional.

Typically, Selftest would be executed on a daily basis before UUT testing begins, eliminating the likelihood of false UUT failures.



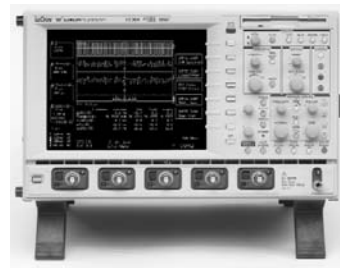
Selftest fixture

Oscilloscope

To support additional test functions such as waveform capturing, a LeCroy LT 264 digital oscilloscope can be specified as an option. PowerStar 5's integrated scope library allows full automation of the scope's setup and measurement parameters. During test execution, commands are sent to setup the scope as predefined in the program. Measurements captured by the scope are then returned to PowerStar 5 for results processing.

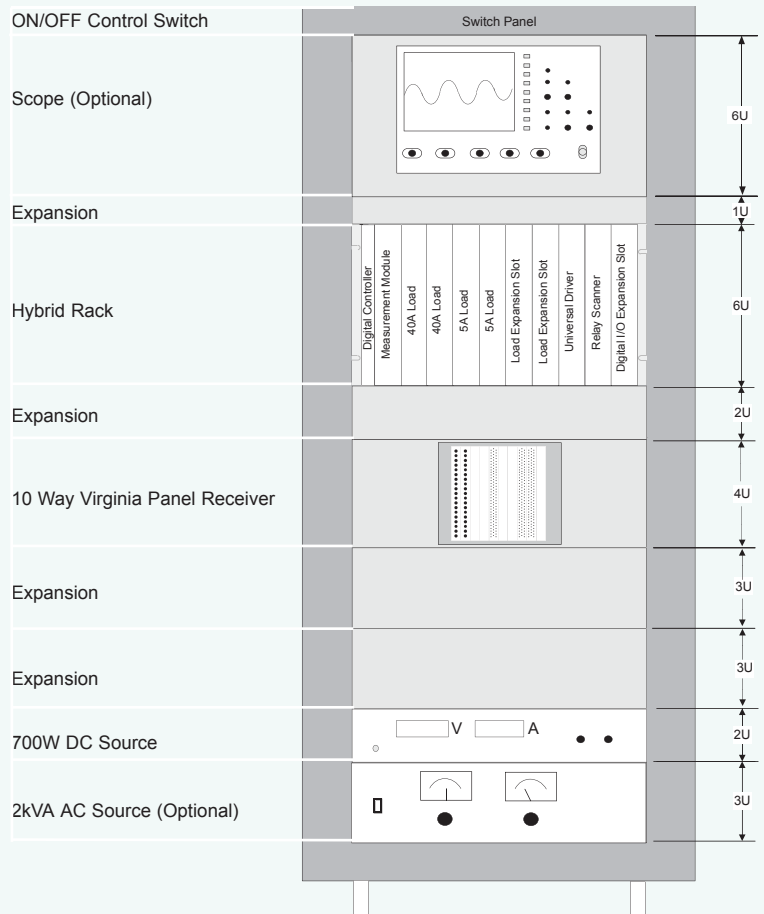
Features include:

- 350 MHz Bandwidth
- 4 Channel Colour Waveform Display
- 1GS/s Sample Rate

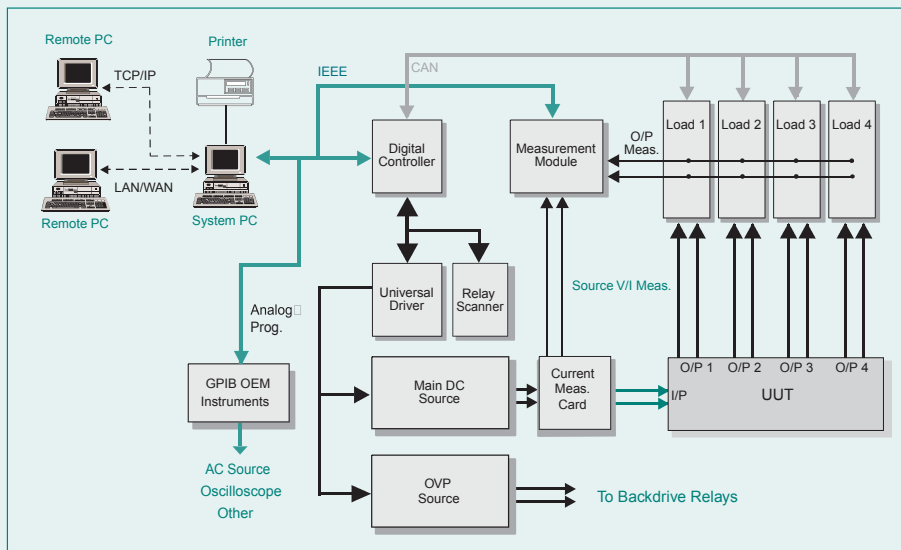


LT264 Oscilloscope

Intepro 9000S 30U System Cabinet Layout and Structure



Intepro 9000S Block Diagram



Intepro 9000S 30U System Cabinet

Hybrid Subrack	The 19" subrack includes the following specialist modules connected via a simple plug-in backplane
<i>Measurement Module</i>	DC voltage up to 100V, AC voltage up to 70V, ripple noise to 20MHz, frequency (DC to 1MHz) module including: rise/fall-times, turn-on and hold-up times. Integral 10 channel scanner for switching external test points
<i>Relay Scanner</i>	Switching module with 10 relays @ 4A and 14 relays @ 100mA. Also forms part of the Selftest subsystem along with software and fixture
<i>Universal DC Driver</i>	Drives analogue programmable DC sources or OEM loads
<i>Digital Controller</i>	Controls all system resources over a single address

Electronic DC Loads

<i>50W DC Load</i>	5Amp/75Volt/50Watt load x2
<i>200W DC Load</i>	40Amp/75Volt/200Watt load x2

Sources

<i>Main DC Source</i>	0-35V@20A/0-70V@10A
<i>OVP Source</i>	60W/60V/1A

Current Measurement Card	Up to 500VDC, standard current rating: 25Amps (other ranges available on request)
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UUT Interface	10 way Virginia Panel receiver and interchangeable test adapter prewired for AC & DC sources and 6 loads
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Options

<i>AC Source</i>	ACS 1008 2kVA -single phase, 150V/13.4Arms/44.5APk or 300V/6.75Arms/22.2APk, 16Hz-5kHz
<i>Digital I/O</i>	16 independently programmable bits with 48 relay drivers per module
<i>Oscilloscope</i>	LeCroy LT 264 (Tektronix TDS3012: contact your local sales representative for details)
<i>DC Loads</i>	2 extra DC loads can be added in any combination of 50W and 200W
<i>Selftest</i>	System module diagnostics

PC Recommendation	IBM compatible PC with Pentium III or equivalent processor running at 1GHz/ Hard disk of 20Gb /128Mb RAM. 17" Monitor with XGA resolution (1024 x 768), Mouse and Keyboard. Microsoft® Windows® 95, 98, 2000 or NT compatible
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Environmental	<i>Operating Temp:</i> 5-30°C	<i>Storage Temp:</i> 5-70°C	<i>Humidity:</i> 10% to 85% relative
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Order Information

<i>Description</i>	Intepro 9000S
<i>Job order No.</i>	35JB00085



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