

S500 Functional Test Solution



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Complete functional test solution

- ▶ Go/NoGo testing
- ▶ Diagnostic testing

Flexible architecture

- ▶ Application specific / general purpose
- ▶ Expandable
- ▶ Scalable

Multiple applications on a single system

- ▶ Digital application
- ▶ Analog application
- ▶ Boundary Scan
- ▶ RF
- ▶ High power

Easy-to-use

- ▶ Universal graphical interface
- ▶ On screen instructions
- ▶ Interactive user instructions for all applications
- ▶ Industry standard software tools
- ▶ LabVIEW / LabWindows / TestStand*

Long term support

- ▶ Multiyear warranty available
- ▶ Integrated system selftest
- ▶ Full calibration services
- ▶ On-site support



*LabVIEW, LabWindows and TestStand are trademarks of National Instruments Corporation

System overview

S500 is a scalable functional test solution. It is specifically designed to provide a rapid and reliable pass / fail decision on the working state of any electronic assembly or circuit board.

The S500 test system is designed to use commercially available parts where possible to provide cost effective solutions and protection from obsolescence.

The S500 test system:

- ▶ Meets or exceeds the technical requirements of the application
- ▶ Is easy to learn and operate
- ▶ Can be integrated and rapidly accepted into demanding environments
- ▶ Low maintenance / full self test capability
- ▶ Has a minimum footprint



Why S500?

Already accepted and in use, the S500 is recognized as an easy-to-use, reliable and adaptable test system.

S500 system chosen by leading companies across multiple industries:

- ▶ Major projects delivered on-time
- ▶ Quick acceptance and sign-off with end-users
- ▶ Proven reliability
- ▶ World class service available worldwide



S500 - Finding faults

S500 will give a rapid analysis on the pass / fail status of any electronic module or circuit. Utilizing an application test program that runs on an embedded computer controlling all the test capabilities of the S500 system, comprehensive fault coverage is achieved.

Application Test Programs (TPS) are written by a team of highly skilled and experienced Application Engineers. The system gives a pass / fail decision correctly and reliably. The likely area of the fault is identified to a small group of electronic components called an **ambiguity group**.

A major benefit of S500 is its unique ability to pass ambiguity group information to the leading diagnostic system in the industry - PinPoint. Widely used and accepted by all market sectors, the PinPoint system is specifically designed to rapidly identify the exact cause of a failure in any electronic circuit with compelling cost savings.

PinPoint takes the ambiguity group information and then guides the operator to use a series of powerful diagnostic tools to isolate the exact cause of a failure. This means less components are replaced, less coating has to be removed, fast diagnostic times - all leading to quicker repairs and cost saving!



Accurate fault identification:

- ▶ Less time in repair cycle
- ▶ Reduces inventory
- ▶ Faster MTTR (Mean Time To Repair)
- ▶ Removes NFF (No Fault Found) scenarios
- ▶ Less re-work of the circuit board leading to increased reliability

S500 used with PinPoint provides a unique test and fault-finding solution for your circuits.

SUMMARY	LRU		LLRU								BTE			
	DMCU	CPU	DI/DO	BACK PLANE	POWER BOARD	DC-DC 1	DC-DC 2	CAP BOARD	CHASSIS	BTE	ITA1	ITA2	ITA3	
TOTAL FAULTS INSERTED	96	70	17	16	4	13	5	6	5	4	9	7	5	5
TOTAL NON-DETECTED FAULTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL FAULTS DETECTED	96	70	17	16	4	13	5	6	5	4	9	7	5	5
FROM DETECTED FAULTS:														
TOTAL ISOLATED	94	70	17	16	4	13	5	6	5	4	9	7	4	4
TOTAL NOT ISOLATED	2	0	0	0	0	0	0	0	0	0	0	0	1	1
% OF FAULTS DETECTED	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
% OF FAULTS DETECTED & ISOLATED	97.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	80.0%	80.0%
TOTAL SCORE ACHIEVED:	286	210	51	48	12	39	15	18	15	12	27	21	14	14
OUT OF POSSIBLE TOTAL OF:	288	210	51	48	12	39	15	18	15	12	27	21	15	15

TOTAL FAULTS INSERTED IN LRU & LLRU TESTS:	140
TOTAL FAULTS INSERTED IN BTE/ITA SELF-TESTS:	26

S500 with PinPoint

This example shows an S500 test system that has been specifically designed for the test of door control modules on high speed rail cars.

The failure information and ambiguity group information is then stored in the Test Results Server where it is retrieved by the PinPoint system. The PinPoint system uses the information to automatically guide the operator to the cause of the failure.



Obsolescence replacement

S500 is also ideally suited to replace and consolidate obsolete test systems.

Recognizing the benefits of a commercially produced test system, OEM's have acknowledged that Diagnosys can provide cost effective test solutions and provide a replacement of their older obsolete equipment.

Shown are examples of systems that have been replaced by the S500.

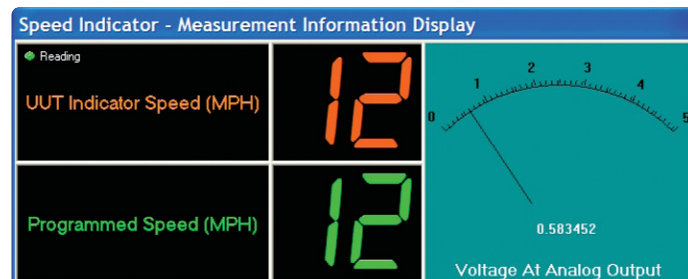
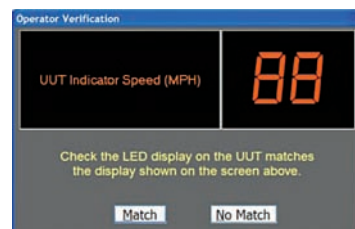
S500 – Applications

Some examples of applications:

- ▶ High voltage S500 test system
- ▶ Designed to test Auxilliary Power Unit on railcars



- ▶ Doppler radar S500 test system
- ▶ Designed to test Doppler radar systems



S500 is a flexible and configurable test platform

S500 – Architecture and software

The S500 test solution is more than just hardware. Designed and configured using industry standard components, it is complemented by specially designed modules where necessary.

The user environment can be tailored to meet individual customer requirements while maintaining a consistent use model and ensures the system:

- ▶ Is easy to use and understand
- ▶ Test programs can be selected by barcode or text entry
- ▶ Displays the desired information
- ▶ Allows different levels of user login to protect test integrity
- ▶ Indicates when self-test and calibration is due
- ▶ Has (optional) system blocking if self-test or calibration has expired to prevent invalid testing

Hardware architecture is based on an industrial computer mounted in the 19" rack and integrated with a PXI / VXI instrument rack. The PXI / VXI standard provides a wide choice of commercially available instruments that are selected for specific test applications and can be configured and re-configured as required. In addition GPIB or LXI controlled instruments can also be integrated.

The PC operates a standard Microsoft Windows™ environment. On top of this the application software is executed. Most customers select the NI™ (National Instruments) software which is recognised as being industry standard. The Diagnosys designed graphical user interface is then integrated to provide ease-of-use.

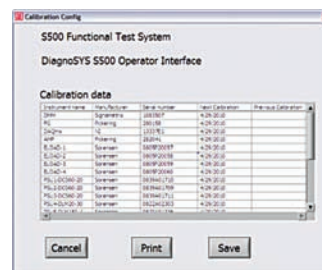


Self test

Every S500 test system is accompanied by an extensive self-test package. This consists of a test program and adaptor.

The self-test package is customized to each S500 configuration and provides an in-depth test of the hardware and software. This gives confidence in the systems functionality. The software can be programmed by the system administrator to:

- ▶ Determine the interval between self-test execution
- ▶ Force / allow system operation when the self-test period has expired



Calibration



Self test

Calibration

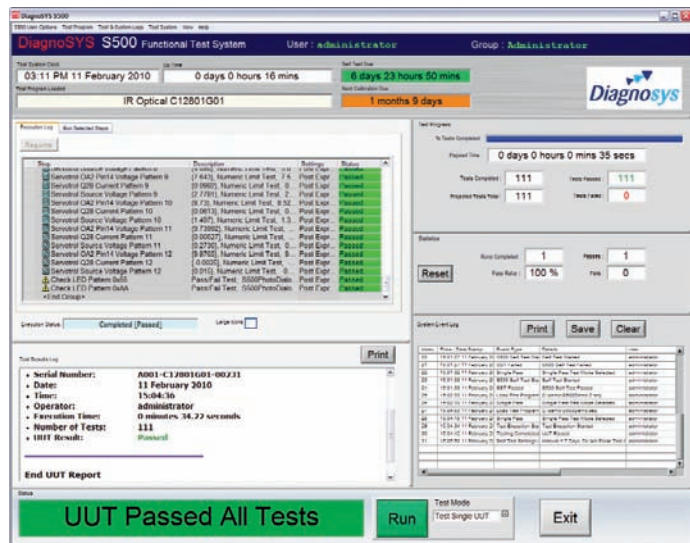
Instruments configured in the S500 will require periodic calibration to national standards. This ensures the system and test programs are operating at optimum performance. To assist in the management of the calibration process the S500 software records and reports the status of each instrument in the system. This information is then used to plan and optimise the calibration activity.

Test interfaces

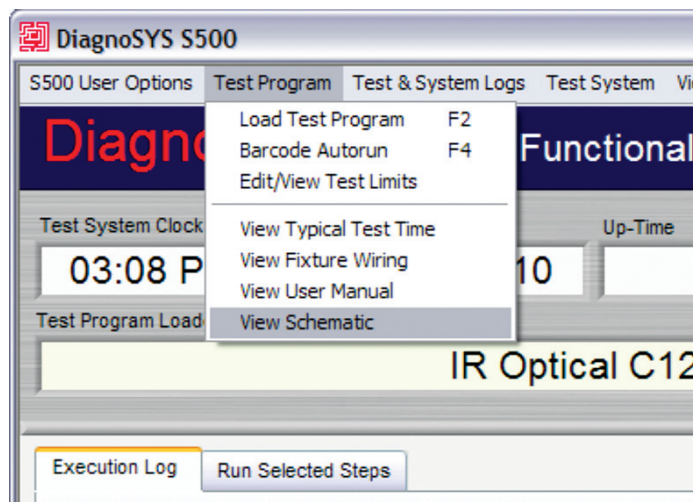
Essential to the reliable operation of the S500 system is the test interface. Using industry standards, the test interfaces are customized to each test application. Whether using high power, digital, RF or pneumatic connections the flexibility of the adapters allow easy and reliable connection to the S500.

S500 – Intuitive software

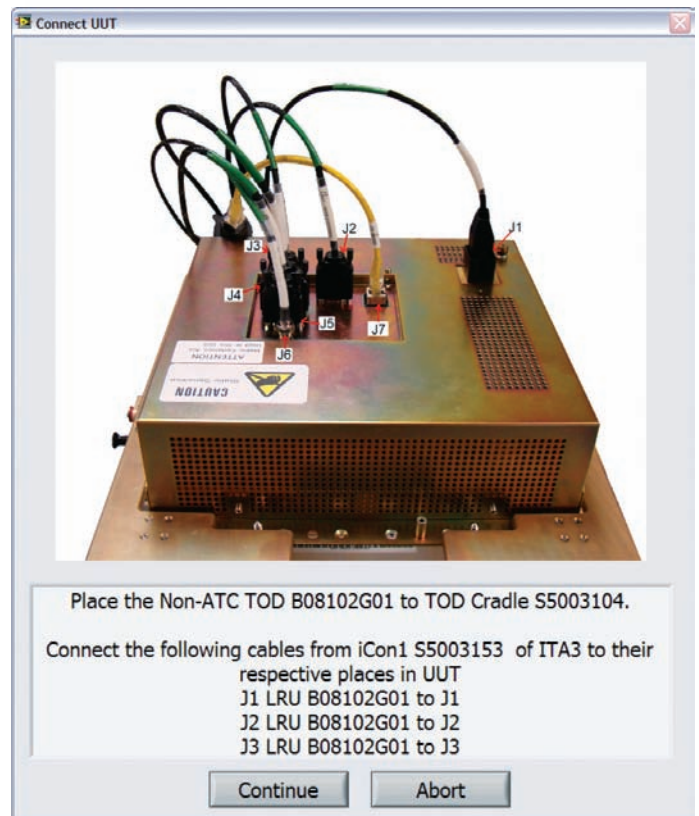
- ▶ Examples of graphical user interface



- ▶ Test program execution with clear pass / fail indication for each test and final result



- ▶ Intuitive user interface



- ▶ Online, interactive user information

Contact your local office, visit our website for details: www.diagnostics.com

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