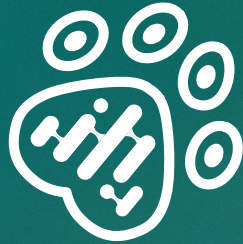
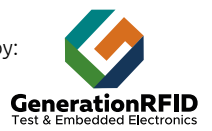


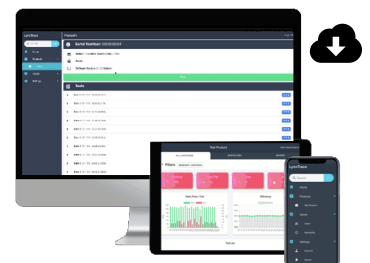
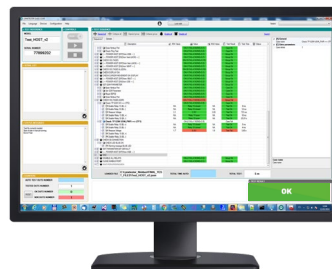
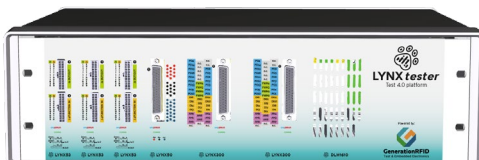
Powered by:



LYNX *tester*

Test 4.0 platform

**Robust and friendly
EOL test platform
for EMS companies**





INTRODUCTION

Lynx Tester is a test platform that assures the manufacturing assembly quality of any electronic board and that it is free from failures when delivered to the end customer. This platform is made up of the following three elements:

1. **Lynx Hardware** based on CAN controlled switch matrix test boards.
2. **Lynx Scheduler**, the local application that controls the test sequence execution.
3. **Lynx Trace**, a cloud-based traceability software that unifies all test information from Lynx Testers.

We have worked over user experience to bring into the market an End Of Line (EOL) test solution which can be understandable and easy to use for non-expert users.

Some main features of the test platform are:

1. **Open hardware** solution that can be reused for current test solutions.
2. **User experience**, intuitive and easy to use.
3. **Cloud solution** that compares performance and user defined KPIs between different test stations. This information can be used to **improve current test strategy and its associated costs**.

Lynx Tester concept fits EMS companies necessities. The solution is suited for high volume, high speed test requirements such as Automotive, Industrial, Medical or IoT, where a dedicated tester is necessary to achieve target results.

On the other hand, as it is adaptable and configurable, it is also appropriated for low volume productions. These solutions require a common test hardware and a specific configuration of the test sequence per each device under test (DUT). This is an advantage for markets such as health or complex electronic products, characterized to be low volume, but higher test coverage.

Instrumentation, power supply, communication cards and the control PC can be adapted to customer demands. This way, the solution allows the integration of the equipment that the customer is used to use. Another advantage is that, since the platform is open, any new specific instrument can be easily integrated on it.





TESTER EXAMPLE

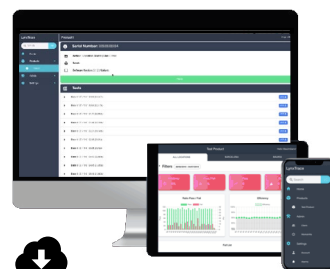
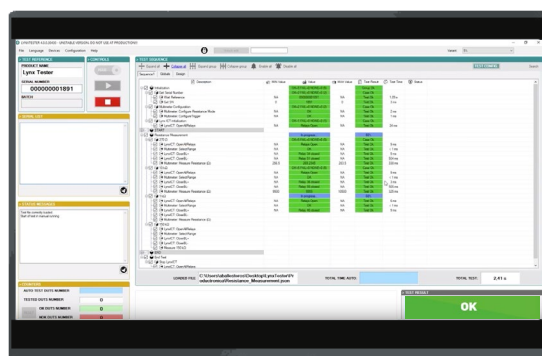
Lynx Tester solution is integrated by market instrumentation, control PC and power supply, following the schema below.

Depending on DUT test complexity, the number of instruments can be high. The solution controls unlimited equipment to assure coverage for the most complex devices under test.



Lynx Scheduler

Easy to use test case management software designed to validate electronic products in ICT and FCT – EOL modes.



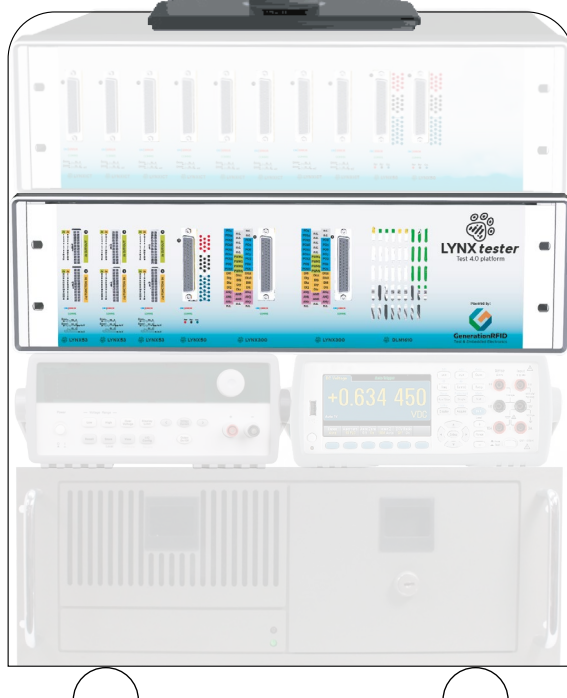
Lynx Trace

Traceability cloud based software that unifies in a single portal all the test information generated by the Lynx Scheduler at the company local manufacturing plants.

Interconnections, JTAG and communication boards.*

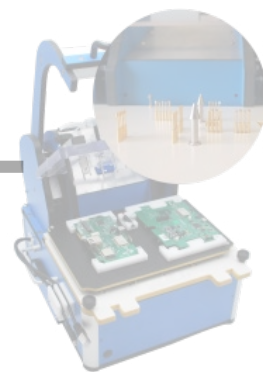
Lynx Hardware

A set of test boards used in the Lynx Tester platform to test embedded electronic boards. It is modular, expandable and compatible with 19" sub racks.



Power Supply and DMM*

Industrial PC*



* Market parts.





LYNX Scheduler

Lynx Scheduler is an easy to use test case management software designed to validate electronic products in ICT and FCT – EOL modes. As it does not require programming skills, the test engineer can easily create and modify the test sequence. The solution is suited to validate any mass-produced electronic product at the manufacturing line that requires flexibility, adaptability and the highest coverage levels at a minimum test time.



SIMPLICITY



"I'm not a test expert, but with Lynx Tester Platform I can easily implement an EOL test."

COMPATIBILITY



"I could reuse former test equipment and integrate it into Lynx Tester. This saved me acquisition costs for new devices."

SUPPORT



"Their direct support from test experts accompanied me throughout the purchasing process, installation and test definition."

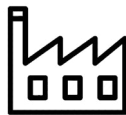


Test edition and complements

Lynx Tester implements the most common necessities of any test scheduler, together with enhanced features. Test edition tools allow the users to define, modify, add, remove, move or copy test cases and acceptance criteria limits.

Retries and conditional executions are also available. The user always has visual feedback of the test time and OK/NOK results.

Some of the enhanced features include BOM introduction for test coverage indication, comments to help rework of a NOK DUT and autoincremental functions to perform robustness testing of certain inputs/outputs.



Integration in industrial environments and traceability

Our test software can be integrated in any manufacturing line. It doesn't matter if integrated in a test handler or as a stand-alone device. It is compatible with many PLC protocols or, in case of special necessities, our technicians can program a specific protocol.

Traceability is necessary when devices under test are traced with bar code, data matrix or RFID. A single report fits its associated device. The report contains all test information, such as result, test time, part number and measured values and acceptance criteria. These are only a few examples of how powerful this tool is.



Open Platform

Test market is changing every day. New instruments and communications boards are brought into the market every year. For this reason, Lynx Tester Platform can easily integrate new products to make them available for the test. It also implements SCPI protocol to cover most of the test instrumentation in the market.

Lynx Scheduler uses multiple communication buses and protocols to interact with the DUT. CAN, FlexRay, Ethernet, USB and serial buses are available and over them protocols such as Modbus are implemented.





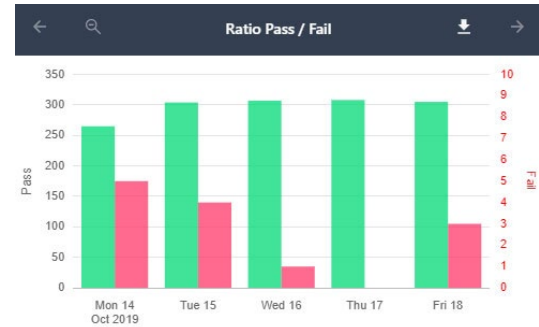
Lynx Scheduler Features		Variants	
Test edition	Execution	Edition	
Test sequence edition and modification.		x	
Edition in Test Groups, Test Cases and Test Sequences for a clear organization		x	
Configurable delays between steps		x	
Adjust for the acceptance criteria		x	
Password protection		x	
Executions in Manual and Automatic mode		x	
Drag and drop		x	
Copy and paste test steps and test cases		x	
Enable/disable steps, test cases and test groups		x	
Search function for objects in the sequence (Groups, Cases, Steps, Functions)		x	
Conditioned executions depending on a test result (If, If not, equal, Goto, Jump).		x	
Retries by Test Step or by Test Case		x	
Structure replications with variables for copy similar tests sequences		x	
User real time test feedback			
Total test time	x	x	
OK / NOK test result	x	x	
Realtime information	x	x	
Timer and counter function	x	x	
Graphical panels	x	x	
DUT Serial number management and reporting			
Manual serial number introduction	x	x	
Bar code scanner or manual	x	x	
Multiple serial number batch (queue)	x	x	
Autoincrement serial number	x	x	
Unique report per test and DUT	x	x	
Report formats (HTML, CSV, Logs)	x	x	
Connectivity with external test equipment			
Dll drivers for external test devices	x	x	
Number of devices that can be controlled by the SW	unlimited	unlimited	
SCPI compatible	x	x	
Integration with test handler			
PLC integration capability	x	x	
ERP integration capability	x	x	
Parametrization by variants			
Number of variants that can be controled	25	25	
Coverage analysis and Rework features			
Assign to each TC which components from the BOM are suceptible to cause the failure.	x	x	
Coverage percentage analysis for external and internal functions	x	x	
Error repetitibility figures	x	x	
Covergae enancement proposals	x	x	
Enhanced features			
Expressions evaluator (formerly called 'Macros')	x	x	
Boundary / robustness testing	x	x	





LYNX Trace

Lynx Trace is a traceability cloud-based software that unifies in a single portal all test information generated by the Lynx Scheduler at the company manufacturing plants. It features relevant test information for plant managers in order to evaluate and optimize the implemented test process by showing configurable statistics, plant time and performance comparisons. It also implements DUT returns and rework handling.



TRACEABILITY



"Due to the traceability system, I can get any information from the module and its test results, wherever I am."

BIG DATA



"Cloud data base assures that the information is stored in a robust and reliable way."

STATISTICS



"I can consult and compare the test statistics and user defined KPIs. This helps me to improve performance of the manufacturing plants."



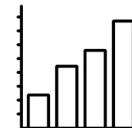
Implement Traceability

Traceability is the basis of manufacturing control. Lynx Trace incorporates unitary traceability since the test start in order to associate DUT with results. With this solution, you will never doubt anymore whether a product is correct or not, since you can consult the status of the DUT on your mobile device wherever you are.



Cloud for EOL test data

Centralized test data for electronic products validated in the manufacturing plants is the purpose of Lynx trace. It is, therefore, the reference site where the user can consult the information of the production data results. It is useful for managers, test and rework engineers. In order to help daily activities, many features are available, such as user management, warnings and alarms, reports and user defined KPIs calculated from real variables of the production line.



Big Data and Statistics

Get the information to make the right decisions. Centralizing and operating with cloud data allows a quick detection of deviations or inefficiencies. With Lynx Trace the user can easily define KPIs and consult statistics of the most common errors in the manufacturing line. It also allows to compare performances between different manufacturing plants. It is the indispensable tool to detect improvement opportunities and correct them in order to increase competitiveness.





Lynx Trace Features		Variants	
Test edition		Corporate	Multiplant
Max. accepted Lynx Scheduler licences		5	50
Maximum allowed data volume per year		10 GB	100 GB
Max. number of manufacturing plants		1	10
Max. number of testers per manufacturing plant		5	10
Max. number of admin users		5	20
Support (Email Support in Less than 72h, Phone Support During Office Hours 4h per month)		x	x
First purchase conference support		2 hours	4 hours
Cloud reporting		x	x
Test results statistics (KPI, ..)		user defined	user defined
Failure rootcause registration		x	x
Test results analysis by product, variant, factory, date, batch		x	x
Components references and packages failure analysis		x	x
Product return rootcause registration		x	x
Mobile applications (iOS - Android)		x	x
Real time alarms and warnings		x	x
Serial number scanning in App		x	x





LYNX Hardware

Lynx Hardware is a set of test boards used in the Lynx Tester platform to test embedded electronic boards. It is modular, expandable and compatible with 19" subracks. When connected to a bed of nails, an excitation signal can be applied to any test point of the Device Under Test (DUT) whilst monitored by the measurement instrumentation. The solution features less interconnections, ultrafast switching time thanks to SSR matrix and full test coverage, at a minimum test time. Integration of existing testers and its associated measurement equipment is also possible with minimum effort.



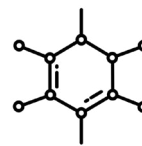
Modular

As each device under test has its own features, a complete solution is implemented by combining the selected Lynx test boards. This way, only the necessary hardware is required and purchasing costs and system complexity can be lowered.



CAN controlled

Lynx Hardware is controlled by CAN bus messages. This standard is very common in industrial environments and is suited for open designs. It is the best choice when a functional tester must be integrated in EOL EMS companies.



Scalable

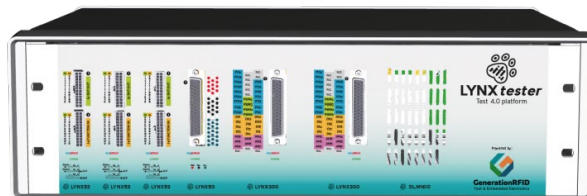
Though each test rack can support hundreds of pins, if more capacity is required other test racks can be set in parallel. This way, the number of pins to control can be easily increased to fit DUT pinout requirements.

EQUIPMENT EXAMPLES



Lynx Tester I.460

- Low cost ICT solution for DUT component validation.
- Ethernet controlled.
- 400 independent test points for ICT measures.
- 4-wire testing capability.
- 8ch, 20A power supply (4 Vbatt – 4 gnd).
- 32ch, 2A power supply (16 Vbatt – 16 gnd).
- 20 free relays where JTAG or external stimulus can be connected to control DUT pins.
- External DMM is required for the measurement of voltages, currents and impedances.
- JTAG is supported.



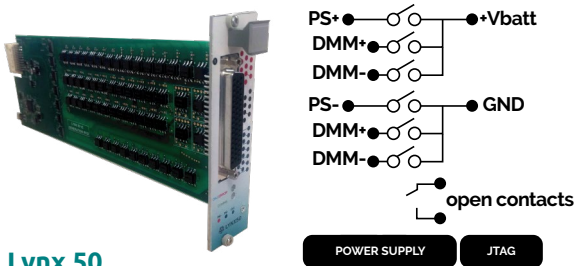
Lynx Tester F.128

- Complete and easy to use solution for functional validation of embedded electronics at EOL.
- Ethernet controlled.
- 128 independent test points.
 - 4ch, 20A power supply (2 Vbatt – 2 gnd).
 - 16ch, 2A power supply (8 Vbatt – 8 gnd).
 - 24ch, digital signals to test DUT digital inputs.
 - 16ch, analog signals to test DUT analog inputs.
 - 8ch, PWM signals to test DUT frequency inputs.
 - 32ch, configurable relays up to 6A to test DUT power outputs.
 - 82 free relays where JTAG and external stimulus can be connected to control DUT pins.
- External DMM is required for the measurement of voltages, currents and impedances.
- JTAG is supported.



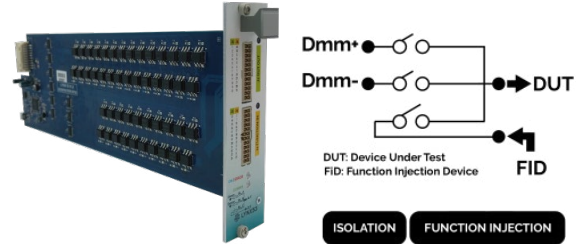


LYNX TEST BOARDS



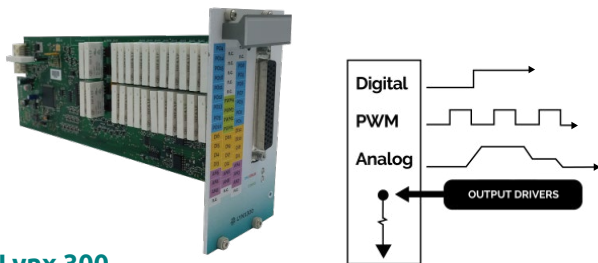
Lynx 50

- CAN, 2A Fast Solid State Relay matrix.
- 10ch +Vbatt, 10ch GND, 10ch open contacts.
- Controlled power supply injection for independent DUT.
- Voltage feedback per each power supply line.
- Reduces cable complexity.
- Output signals up to +52Vdc.



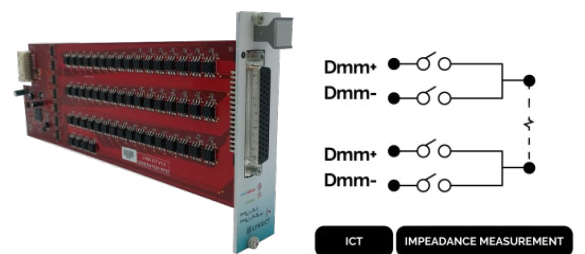
Lynx 53

- CAN, fast Solid State Relay 1:3 matrix.
- 24 independent channels.
- DUT pins isolation and control.
- External stimulus injection to DUT.
- Reduces cable complexity.
- Combines DUT functions options in a single test board.
- Output signals up to +52Vdc.



Lynx 300

- General purpose stimulus generator.
- 12ch, digital signals to test DUT digital inputs.
- 8ch, analog signals to test DUT analog inputs.
- 4ch, PWM signals to test DUT frequency inputs.
- 16ch, configurable relays up to 6A to test DUT power outputs.
- Feedback for all connections to DUT.
- Output signals up to +28Vdc.



Lynx ICT

- CAN, fast Solid State Relay matrix 1:2 matrix.
- 50 channels.
- Combined with an extended tester, it allows impedance measurement between 2 DUT pins.
- Output signals up to +52Vdc.





OTHER LYNX DEVICES



Lynx DC Load

- CAN / USB controlled DC load
- Load range between 50mA and 10A.
- Wide power supply range from 7 to 16.0 Vdc
- Load Power Supply polarity independent.
- Ultrafast reaction time lower than 1 ms (slew rate).
- Generic user configurable waveforms, including constant current, power, voltage and resistance, sinusoidal profile, pulse and automotive life test, arbitrary and user defined waveforms.
- Automotive specific load simulations, such as bulbs with inrush current, motors with hall sensors, wipers and LEDs.
- Possibility to export captured current waveform from digital oscilloscopes.
- Short circuit simulation.



Lynx Test Fixture

- For companies that do not require fully automatic testers, manual operated bed of nails is the best solution.
- Reliable, high density of contacts for contacting the DUT with minimum effort and time.
- Custom solutions.





LYNX *tester*

Test 4.0 platform

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