

- Test Operation of Pickering Interfaces Switching Products
- Finds Faulty and Failing Relays
- Displays Position of Relays to be Replaced
- Simple USB Control From Any Windows® PC
- Uses USB Power, No External Power Source Required
- Simply Connect, Identify Test Target and Run the Software
- Test PXI, LXI or PCI Controlled Products
- Reduces Cost of Ownership and Switch System Down Time



eBIRST Test Tools

eBIRST is a range of USB controlled test tools capable of performing automated path resistance tests on Pickering Interfaces switching products. The tool simply interfaces with the product's user connector so a test can be run using the supplied Windows based software.

The tool is offered in a variety of versions for testing different switching products, each version is dedicated to one connector type and capable of testing any relay with a consistent path resistance at 30 mA (any reed relay, solid state relay or typical EMR with 2A or less current rating). There are three core tools and a set of adapter interfaces to cover connectors used in our switching system range.



eBIRST Cable Adapter

Benefits of eBIRST

The eBIRST range drives down the cost of ownership of switching systems:

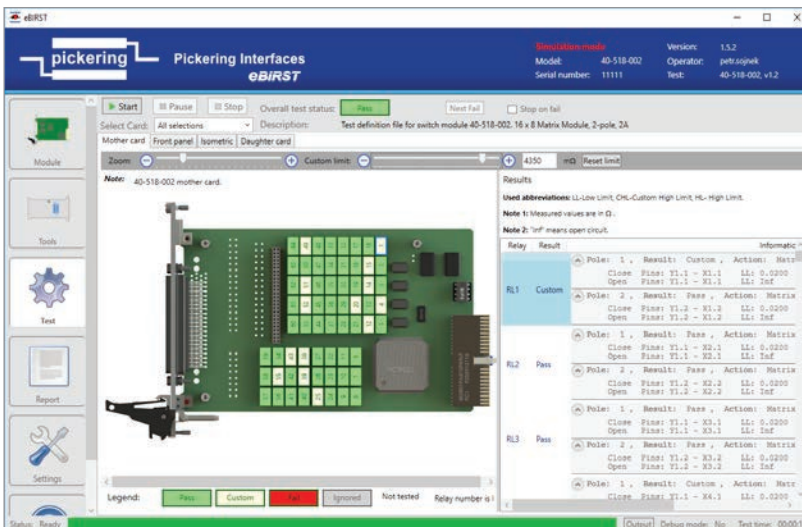
- Easy local repair of switching systems
- Right first time repairs reduce the time and stress introduced by incorrect fault diagnosis
- Minimise system down time, eliminate the expense and time in returning damaged systems
- Reduces service cost
- Ease the time and cost of regular calibration intervals

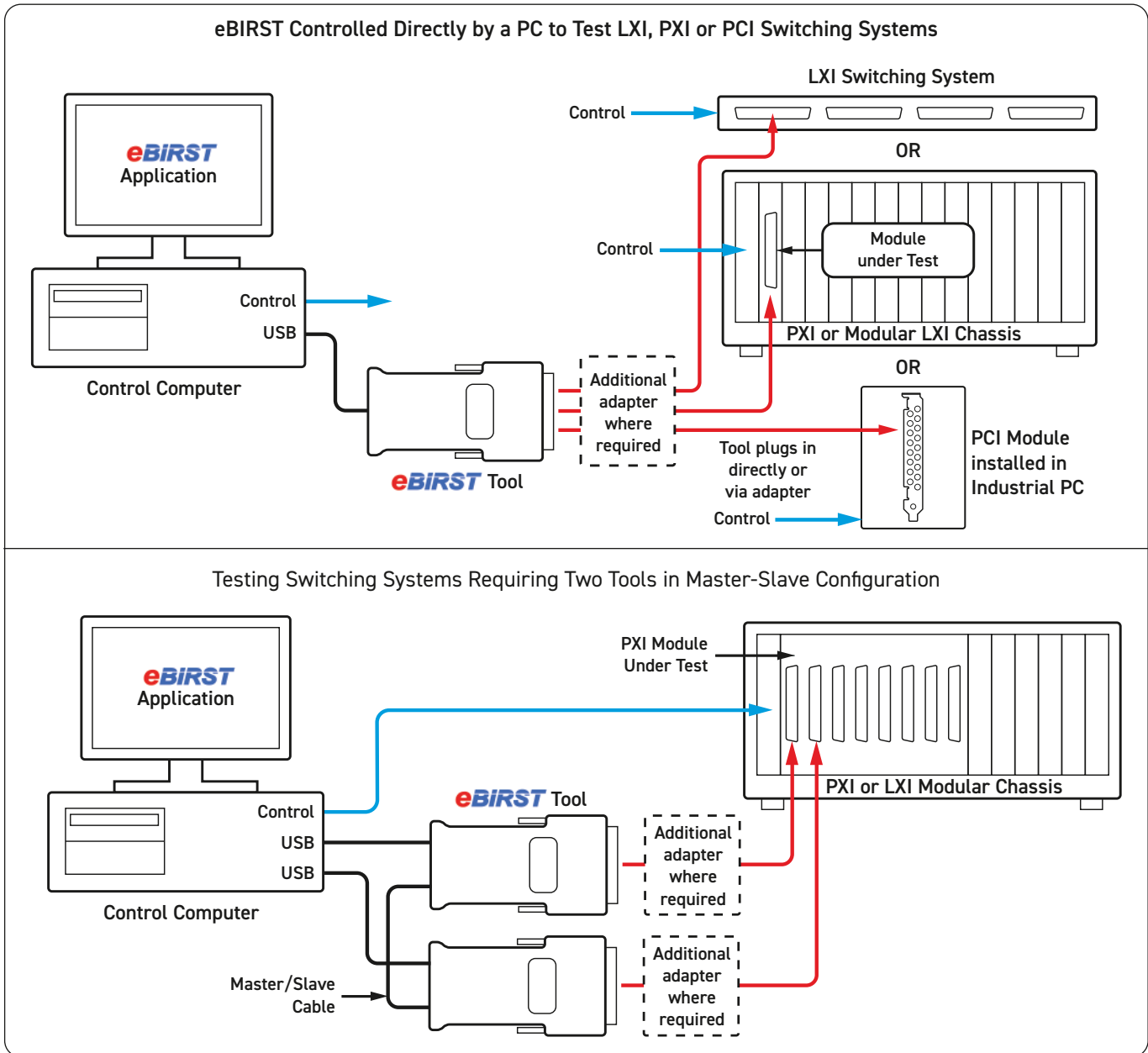
Testing a Switching System

To test a switching system, most products require just a single test tool. Support for some connectors requires the use of a PCB based adapter or a cable adapter and a termination fixture. The supplied application program allows the tool to measure the switching system path resistance and identify relays which fail to open (are welded), fail to close or have high path resistance.

The eBIRST software will automatically choose the correct tool settings for measuring the path resistance to match the requirements of the relays in the switching system under test. Once a test is completed the application software highlights relay failures and issues, identifying the physical location of the defective relay on a graphical representation of the switch system layout. Once identified, the switching product can be repaired locally and the test re-run to ensure the corrective action has been successful.

Typical graphical output from the eBIRST tool, failed relays are highlighted in red, their positions are mapped on to a representation of the switching system layout.





Two Tool Master Slave Operation

Some products with multiple user connectors and a switched thru path may require the use of two tools in a master-slave arrangement to provide 100% test coverage. In this is the case users should purchase two tools to match their connectors and the eBIRST slave mode connection cable accessory.

Testing RF Modules

The DC testing of RF coaxial products fitted with SMB connectors can be supported by ordering an interface adapter that converts the eBIRST interface to a coaxial interface.

Mechanical Compatibility

Tool dimensions are compatible with use in PXI, LXI and PCI products without having to remove connectors from adjacent user connections or modules.

USB Control

The eBIRST tools are simply controlled by attaching them to the USB ports of a PC or a USB hub. The USB2 connection provides all the power the eBIRST tool requires.

Tool Verification

eBIRST tools can be verified by the use of an optional verification fixture. When used with a single tool, the fixtures check that the eBIRST tool is performing to acceptable accuracy, when two tools are available of the same type the fixture can be used to perform a full functional test of its accuracy and the functionality of the in built multiplexer used to access the switching system connector pins.

eBIRST Test Tools

Functionality:	Measures path resistance of switching systems to identify faulty relays.
Control:	USB2 interface from a PC running Windows. Input connection USB Micro-B type connector.

Measurement Ranges:	
Test Currents:	0.1 mA, 1 mA, 10 mA, 30 mA
Open Circuit Test Voltage:	5 V
Resistance Measurement Ranges:	Full scale ranges from 1.83 Ω to 740 Ω depending on tool setting.

Power Supply:	Operates from USB power with less than 0.5A current draw, recommend using a lead up to 2 m. Power supply internally regulates to ensure USB voltage independency.
Software:	Supplied with executable only software. Support is provided only for Pickering Interfaces switching products. Requires a PC running a Windows operating system.
Software Upgrades:	Application program updates available from Pickering Interfaces web site free of charge. Application program updates add new Test Definition Files as they become available. eBIRST tool firmware updates not routinely required.

Supported Products

Switching systems using relays with consistent contact resistance at 30 mA or less (all reed relays, solid state and typically EMR based designs with 2 A or less current rating) based on three eBIRST tools and a variety of cable/PCB adapters which interface to all Pickering Interfaces switching system connectors in the PXI, PCI and LXI control platform. The supported products are indicated on switching system data sheets and their web site landing pages. The range of switching systems supported is being constantly expanded and eBIRST users can request the creation of additional Test Definition Files to support their Pickering Interfaces switching systems.

Mechanical Information

Size varies by tool part number. All tools fully protected by metal enclosure and can be connected to PXI, LXI or PCI switching products without removal of connectors to adjacent products or connectors.

eBIRST Cable & PCB Adapters

Functionality: Converts eBIRST test tool to alternative connectors.

eBIRST Verification Fixture

Functionality: Allows eBIRST tools to be connected together to do a functional check. Provides precision resistors which can be measured by the eBIRST tool and by an external DMM for eBIRST functionality verification.

Reference Resistor Accuracy: 0.1%



eBIRST Tool Rear Panel



eBIRST SMB Co-axial Adapter



eBIRST Termination Fixture



eBIRST Verification Fixture

This page provides information on what to order for different switching products by the connector used. For each connector two options are listed, the first lists essential parts and the second lists parts for the user to independently verify the tools. Verification fixtures are entirely optional but are shown for convenience. The second table shows the parts required if the switching system needs two tools, which makes it essential the user has a Slave Mode Connection Cable.

200-Pin Male LFH Test Tool	104-Pin Female D-type Test Tool	78-Pin Female D-type Test Tool	50-Pin Female D-type Test Tool
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Connector Type on Module Under Test	Single Tool Parts Required	Optional Parts
200-pin Female LFH	1 x 200-pin Male LFH Test Tool: 93-002-001	1 x Verification Fixture 200-pin LFH: 93-002-101
160-pin Male DIN41612	1 x 200-pin Male LFH Test Tool: 93-002-001 1 x 160-pin Female DIN41612 Adapter PCB: 93-002-410	1 x Verification Fixture 200-pin LFH: 93-002-101
104-pin Male D-type	1 x 200-pin Male LFH Test Tool: 93-002-001 1 x 104-pin Female D-type Adapter PCB: 93-002-422	1 x Verification Fixture 200-pin LFH: 93-002-101
96-pin Male SCSI style	1 x 200-pin Male LFH Test Tool: 93-002-001 1 x 96-pin Female SCSI Style Adapter Cable: 93-002-226 1 x 96-pin SCSI Style Termination Fixture: 93-016-103	1 x Verification Fixture 200-pin LFH: 93-002-101
SMB co-axial (up to 56 connectors)	1 x 200-pin Male LFH Test Tool: 93-002-001 1 x 56xSMB Co-axial Cable Adapter: 93-002-202	1 x Verification Fixture 200-pin LFH: 93-002-101
104-pin Male D-type	1 x 104-pin Female D-type Test Tool: 93-022-001	1 x Verification Fixture 104-pin D-type: 93-022-101
100-pin Female SCSI Style	1 x 104-pin Female D-type Test Tool: 93-022-001 1 x 100-pin Male SCSI Style Adapter Cable: 93-022-245 1 x 100-pin SCSI Style Termination Fixture: 93-019-104	1 x Verification Fixture 104-pin D-type: 93-022-101
96-pin Male SCSI Style	1 x 104-pin Female D-type Test Tool: 93-022-001 1 x 96-pin Female SCSI Style Adapter Cable: 93-022-226 1 x 96-pin SCSI Style Termination Fixture: 93-016-103	1 x Verification Fixture 104-pin D-type: 93-022-101
78-pin Male D-type	1 x 78-pin Female D-type Test Tool: 93-006-001	1 x Verification Fixture 78-pin D-type: 93-006-101
68-pin Female SCSI Style	1 x 78-pin Female D-type Test Tool: 93-006-001 1 x 68-pin Male SCSI Style Adapter PCB: 93-006-401	1 x Verification Fixture 78-pin D-type: 93-006-101
SMB co-axial (up to 37 connectors)	1 x 78-pin Female D-type Test Tool: 93-006-001 1 x 37xSMB Co-axial Cable Adapter: 93-006-202	1 x Verification Fixture 78-pin D-type: 93-006-101
26-pin Male MS-M RF Multi-way	1 x 78-pin Female D-type Test Tool: 93-006-001 1 x 26-pin Female MS-M RF Cable Adapter: 93-006-255	1 x Verification Fixture 78-pin D-type: 93-006-101
50-pin Male D-type	1 x 50-pin Female D-type Test Tool: 93-005-001	1 x Verification Fixture 50-pin D-type: 93-005-101
37-pin Male D-type	1 x 50-pin Female D-type Test Tool: 93-005-001 1 x 37-pin Female D-type Adapter PCB: 93-005-418	1 x Verification Fixture 50-pin D-type: 93-005-101
25-pin Male D-type	1 x 50-pin Female D-type Test Tool: 93-005-001 1 x 25-pin Female D-type Adapter PCB: 93-005-414	1 x Verification Fixture 50-pin D-type: 93-005-101
9-pin Male D-type	1 x 50-pin Female D-type Test Tool: 93-005-001 1 x 9-pin Female D-type Adapter Cable: 93-005-238 1 x 9-pin D-type Termination Fixture: 93-003-103	1 x Verification Fixture 50-pin D-type: 93-005-101
8-pin Male Power D-type	1 x 50-pin Female D-type Test Tool: 93-005-001 1 x 2x8-pin Female D-type Adapter Cable: 93-005-236 1 x 8-pin D-type Termination Fixture: 93-012-103	1 x Verification Fixture 50-pin D-type: 93-005-101
SMB co-axial (up to 23 connectors)	1 x 50-pin D-type Test Tool: 93-005-001 1 x 23xSMB Co-axial Cable Adapter: 93-005-202A	1 x Verification Fixture 50-pin D-type: 93-005-101 1 x Verification Fixture 23xSMB: 93-011-101

Master/Slave Tools - Where two tools are required, use the following guide:

Connector Type on Module Under Test	Tool Parts Required	Optional Parts
68-pin Male SCSI style (used on BRIC Modules)	2 x 78-pin Female D-type Test Tool: 93-006-001 2 x 68-pin Female SCSI Style Adapter Cable: 93-006-222 1 x 68-pin Male SCSI Style Termination Fixture: 93-015-103 Slave Mode Connection Cable: 93-970-301	1 x Verification Fixture 78-pin D-type: 93-006-101
All Other Connectors	Tool for each connector as in table above Slave Mode Connection Cable: 93-970-301	Verification Fixture as in table above

Module Support

The eBIRST tool is being continuously expanded to cover the majority of Pickering's switching systems in PXI, LXI and PCI that use the connector interfaces listed. To check if your switching systems are supported contact your local sales office.