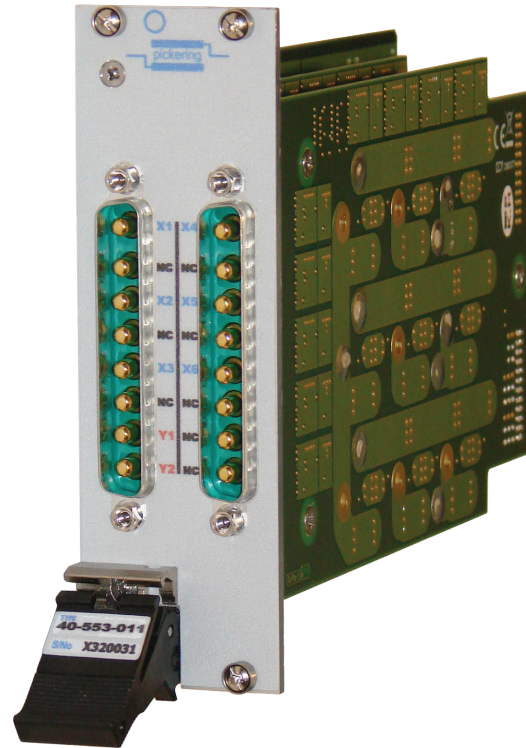# 40-553
10A Solid State Matrix

- **6x2 Power Matrix**
- **10 Amp Rating at 200 Volts**
- **Very High Hot Switch Capacity**
- **Very High Inrush Current Rating**
- **Fast Operating Speed**
- **Long Service Life**
- **VISA, IVI & Kernel Drivers Supplied for Windows**
- **Supported by PXI or LXI Chassis**
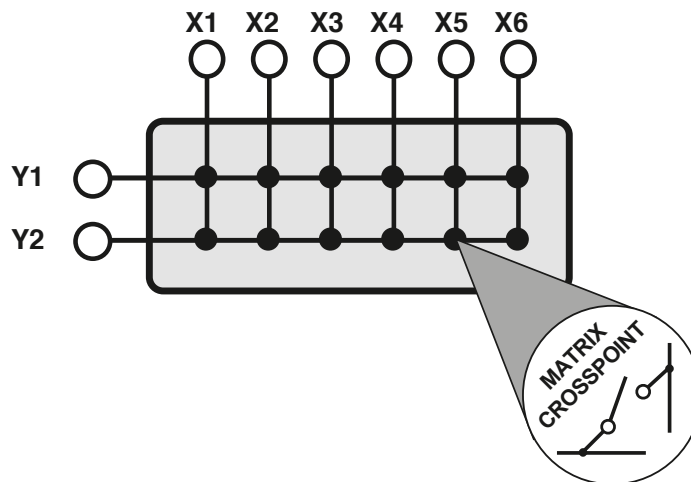- **Supported by eBIRST**
- **3 Year Warranty**

The 40-553 is a high current matrix available in a 6x2 configuration occupying two slots of PXI chassis. Each matrix crosspoint uses a fully isolated solid state relay which has been designed to offer fast operation under hot switching conditions and high inrush current with no operational life degradation.

Each matrix switching path can support 10A of continuous current and switch up to 200V signals. The switches can sustain inrush currents in excess of 50A. AC or DC signals can be switched since the switch is polarity insensitive.

The 40-553 is particularly well suited to automotive and aerospace applications where the switching of high capacity loads is required. The module is supplied with a comprehensive package of drivers, including support for selected RT operating systems.

Supported by eBIRST

This product is supported by eBIRST which tests the switching system using an external tool. eBIRST provides a graphical output of its tests which includes an image showing the location of any defective relay. For more information on eBIRST see **93-000D.pdf**

40-553 Solid State 6x2 Matrix Schematic Diagram.

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Switching Specification

Switch Type	Solid State MOSFET
Max Switch Voltage:	±200V (DC or AC peak)
Continuous Crosspoint Current:	10A
Peak Current:	50A for 200μs
Max Y-Bus Current:	40A
Path Resistance – On:	75mΩ at 25˚C typical
Rise/Fall Time:	20μs typical
Operate Time:	70μs on, 120μs off
Recommended Maximum Cycle Rate (on, then off):	150 operations/sec
Expected Life (operations):	Indefinite when used within ratings

Relay Type

The 40-553 is fitted with solid state MOSFET switches

Power Requirements

+3.3V	+5V	+12V	–12V
100mA	700mA	0	0

Mechanical Characteristics

Dual slot 3U PXI (CompactPCI card).
3D models in a variety of popular file formats are available on request.

Connectors

PXI bus via 32-bit P1/J1 backplane connector.
Signals via two front panel mounted 8-pin male power D-type connectors, for pin outs please refer to the operating manual.

Product Order Codes

6x2 10A Solid State Matrix:	40-553-011

Note: The 40-553-011 supersedes the 40-553-001 which is functionally the same.

Support Products

eBIRST Switching System Test Tool

This product is supported by the eBIRST test tools which simplify the identification of failed relays, the required eBIRST tools are below. This product requires master slave testing and two sets of tools are required together with the master slave cable **93-970-301**. For more information see **eBIRST**.

Product	Test Tool	Adapter	Termination
All Types	93-005-001	93-005-236	93-012-103

Mating Connectors & Cabling

For connection accessories for the 40-553 module please refer to the **90-012D** 8-pin power D-type Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the Connections Solutions catalog.

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Programming

Pickering provide kernel, IVI and VISA (NI & Keysight) drivers which are compatible with all Microsoft supported versions of Windows and popular older versions. For a list of all supporting operating systems, please see: www.pickeringtest.com/os
The VISA driver is also compatible with Real-Time Operating Systems such as LabVIEW RT. For other RTOS support contact Pickering. These drivers may be used with a variety of programming environments and applications including:

- **Pickering Interfaces Switch Path Manager**
- **MTQ Testsolutions** Tecap Test & Measurement Suite
- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Keysight** VEE   • **Mathworks** Matlab   • **Marvin** ATEasy

Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries.

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0°C to +55°C
Humidity:	Up to 90% non-condensing
Altitude:	5000m

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

PXI & CompactPCI Compliance

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus and Star Trigger are not implemented.
Uses a 33MHz 32-bit backplane interface.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2001, EMC Immunity EN61000-6-1:2001, Emissions EN55011:1998.

PXI & LXI Chassis Compatibility

Compatible with all chassis conforming to the 3U PXI and 3U cPCI specification. Compatible with Legacy and Hybrid peripheral slots in a 3U PXI Express chassis.
Compatible with Pickering Interfaces LXI Modular Chassis. For information on driving your switching solution in an LXI environment refer to the LXI Product Guide.
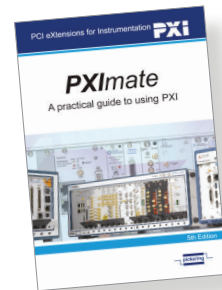
Latest Details

Please refer to our Web Site for Latest Product Details.
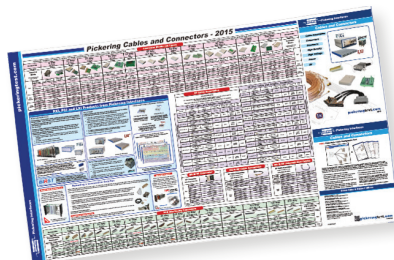www.pickeringtest.com

Please refer to the 200 page Pickering Interfaces "**Connection Solutions**" catalog for the full list of connector/cabling options, including drawings, photos and specifications. Available in either print or as a download. Alternatively our web site has dynamically linked connector/cabling options, including pricing, for all Pickering PXI modules.
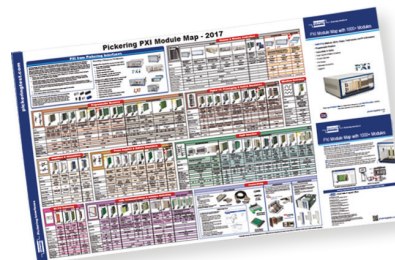
"**The Big PXI Catalog**" gives full details of Pickering's entire range of PXI switch modules, instrument modules and support products.
At over 500 pages, the Big PXI Catalog is available on request or can be downloaded from the Pickering website.

Ever wondered what PXI is all about?
Pickering Interfaces' "**PXImate**" explains the basics of PXI and provides useful data for engineers working on switch based test systems.
The PXImate is available free on request from the Pickering website.

The "**Cables & Connectors Map**" – outlines the cable and connector options available for all PXI Modules.

The "**PXI Module Map**" – a simple fold-out selection guide to all Pickering's 1000+ PXI Modules.

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