40-525A
Signal Insertion and Monitor Matrix

- 34x4 or 16x4 Matrix With Isolation Relays
- Allows Signal Insertion Between UUT and Test Equipment Connections
- Easy Monitoring of UUT to Test Equipment Connections
- Allows Simulation of Broken Connection
- Can Be Used For Fault Insertion
- 2A Hot or Cold Switching
- Switch up to 220VDC/150VAC and up to 60W Max Power
- VISA/IVI Drivers Supplied for Windows XP/Vista/7/8
- Supported by PXI or LXI Chassis
- 3 Year Warranty

The 40-525A is a matrix with switched pass thru connections on both X and Y axis. It is available in 34x4 or 16x4 formats and can be used for signal insertion and monitoring purposes on connections between the UUT and test system.

Each pass thru connection from LX to X can be open or closed to allow the programmatic disconnection of the signal to check the response of the UUT.

The matrix can be used to connect test equipment, such as a DMM or scope, to monitor the pass thru signals via Y connections while the LY connections can be used to insert a fault condition or insert external signals. When external signals are injected the LX connections can be opened and the LY connections closed.

The matrix size can be expanded by linking Y connections across multiple modules. Larger matrices can be created with switched isolation relays if connected by the LY connections.

The 40-525A uses high quality electro-mechanical relays capable of switch currents up to 2A and voltages up 220VDC/150VAC.

40-525A-001 Matrix Schematic: 34 X-channels and 4 Y-channels with loop-thru switching
Using the 40-525A-001 34x4 Signal Insertion and Monitor Matrix in a Typical Test Application

Cascading two 40-525A-001 34x4 Matrices to Create a 68x4 Matrix For Larger Test Applications
### Switching Specification

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>Electro-mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Type:</td>
<td>Palladium-Ruthenium, Gold Covered Bifurcated</td>
</tr>
<tr>
<td>Max Switch Voltage:</td>
<td>220VDC/150VAC</td>
</tr>
<tr>
<td>Max Power:</td>
<td>62.5VA/60W</td>
</tr>
<tr>
<td>Max Switch Current:</td>
<td>2A</td>
</tr>
<tr>
<td>Max Carry Current:</td>
<td>2A</td>
</tr>
<tr>
<td>Initial Path Resistance - On:</td>
<td>&lt;500mΩ</td>
</tr>
<tr>
<td>Path Resistance - Off:</td>
<td>&gt;10Ω</td>
</tr>
<tr>
<td>Minimum Voltage:</td>
<td>100µV</td>
</tr>
<tr>
<td>Thermal Offset:</td>
<td>&lt;5µV per relay</td>
</tr>
<tr>
<td>Typical Operate Time:</td>
<td>3ms</td>
</tr>
<tr>
<td>Expected Life (operations)</td>
<td>&gt;1x10³</td>
</tr>
<tr>
<td>Very low power signal load:</td>
<td>&gt;1.5x10⁷ (0.1A 20VDC)</td>
</tr>
<tr>
<td>Low power load (2W):</td>
<td>&gt;5x10⁶ (1A 30VDC)</td>
</tr>
<tr>
<td>Medium power load (30W):</td>
<td>&gt;1x10⁵ (2A 30VDC)</td>
</tr>
</tbody>
</table>

### Relay Type

The 40-525A is fitted with high quality electro-mechanical relays, Palladium-Ruthenium Gold covered contacts. A **Spare Relay** is built onto the circuit board to facilitate easy maintenance with minimum downtime.

### Power Requirements

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>+3.3V</td>
<td>typically &lt;500mA</td>
</tr>
<tr>
<td>+5V</td>
<td>0</td>
</tr>
<tr>
<td>+12V</td>
<td>0</td>
</tr>
<tr>
<td>-12V</td>
<td>0</td>
</tr>
</tbody>
</table>

### Bandwidth

Bandwidth: 10MHz (40-525A-001)

### Product Order Codes

- **34x4 Signal Insertion and Monitor Matrix**  40-525A-001
- **16x4 Signal Insertion and Monitor Matrix**  40-525A-002

### Support Products

**Spare Relay Kits**

Kits of replacement relays are available for the majority of Pickering’s PXI switching modules, simplifying servicing and reducing down-time.

The relay kit for this module is as follows:

- 91-100-001 Relay Kit 1

For further assistance, please contact your local Pickering sales office.

**Mating Connectors & Cabling**

For connection accessories for the 40-525A module please refer to the 90-006D 78-way D-type Connector Accessories data sheets where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

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**40-525A-002 Matrix Schematic:** 16 X-channels and 4 Y-channels with loop-thru switching
Programming

Pickering provide kernel, IVI and VISA (NI and Agilent) drivers which are compatible with 32/64-bit versions of Windows including XP, Vista, 7 and 8 operating systems. 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:

- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Agilent VEE**
- **Marvin ATE Easy**
- **Mathworks** Matlab
- **MTQ Testsolutions** Tecap
- **Tecap Switching**

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

Latest Details

Please refer to our Web Site for Latest Product Details.

www.pickeringtest.com