PXI 30 A Solid State Matrix Module



PXI

© Copyright (2026) Pickering Interfaces. All Rights Reserved.

No part of this publication may be reproduced, transmitted, transcribed, translated or stored in any form, or by any means without the written permission of Pickering Interfaces.

Technical details contained within this publication are subject to change without notice.

FM38792

Technical Support

For Technical Support please contact Pickering Interfaces either by phone, the website or via e-mail.

Warranty

All products manufactured by Pickering Interfaces are warranted against defective materials and workmanship for a period of three years, excluding programmable power supplies, from the date of delivery to the original purchaser. Any product found to be defective within this period will, at the discretion of Pickering Interfaces be repaired or replaced.

Products serviced and repaired outside of the warranty period are warranted for ninety days.

Extended warranty and service are available. Please contact Pickering Interfaces by phone, the website or via e-mail.

Environmental Policy

Pickering Interfaces operates under an environmental management system similar to ISO 14001.

Pickering Interfaces strives to fulfill all relevant environmental laws and regulations and reduce wastes and releases to the environment. Pickering Interfaces aims to design and operate products in a way that protects the environment and the health and safety of its employees, customers and the public. Pickering Interfaces endeavors to develop and manufacture products that can be produced, distributed, used and recycled, or disposed of, in a safe and environmentally friendly manner.

Worldwide Technical Support and Product Information

Pickering Interfaces Headquarters

Stephenson Road, Clacton-on-Sea, CO15 4NL United Kingdom
Tel: +44 (0)1255-687900
e-mail: sales@pickeringtest.com

USA

Tel: +1 781 897 1710
e-mail: ussales@pickeringtest.com

France

Tel: +33 9 72 58 77 00
e-mail: frsales@pickeringtest.com

Germany

Tel: +49 89 125 953 160
e-mail: desales@pickeringtest.com

Sweden

Tel: +46 340-69 06 69
e-mail: ndsales@pickeringtest.com

Czech Republic

Tel: +420 558 987 613
e-mail: desales@pickeringtest.com

China

Tel: +86 4008 799 765
e-mail: chinasales@pickeringtest.com

Malaysia

Tel: +60 12 833 7980
e-mail: aseansales@pickeringtest.com

Safety Symbols

The following safety symbols may be used on the product and throughout the product documentation.

Meaning/Description	Symbol
PROTECTIVE EARTH (GROUND) To identify any terminal which is intended for connection to an external conductor for protection against electric shock in case of a fault, or the terminal of a protective earth (ground) electrode.	
DANGEROUS VOLTAGE To indicate hazards arising from dangerous voltages.	
WARNING/CAUTION An appropriate safety instruction should be followed or caution to a potential hazard exists. Refer to the relevant instructions detailed within the product manual.	
HEAVY If this product is heavy reference should be made to the safety instructions for provisions of lifting and moving.	
STATIC SENSITIVE To indicate that static sensitive devices are present and handling precautions should be followed.	

Contents

Copyright Statement ..... (ii)
Technical Support and Warranty ..... (iii)
Product Safety ..... (iv)
Contents (this page) ..... (v)
Warnings and Cautions ..... (vi)

Section 1

Technical Specification 1.1

Section 2

Technical Description 2.1
- Functional Description 2.1
- Hardware Interlock 2.2

Section 3

Installation 3.1
- Pre Operation Checks 3.1
- Hardware Installation 3.2
- Software Installation 3.2
- Testing Operation 3.3

Section 4

Programming Guide 4.1
- Programming Options for Pickering PXI Modules 4.1
- Using The Interlock Function 4.4
- Using Pickering Drivers In LabVIEW 4.5

Section 5

Connector Information 5.1

Section 6

Trouble Shooting 6.1

Section 7

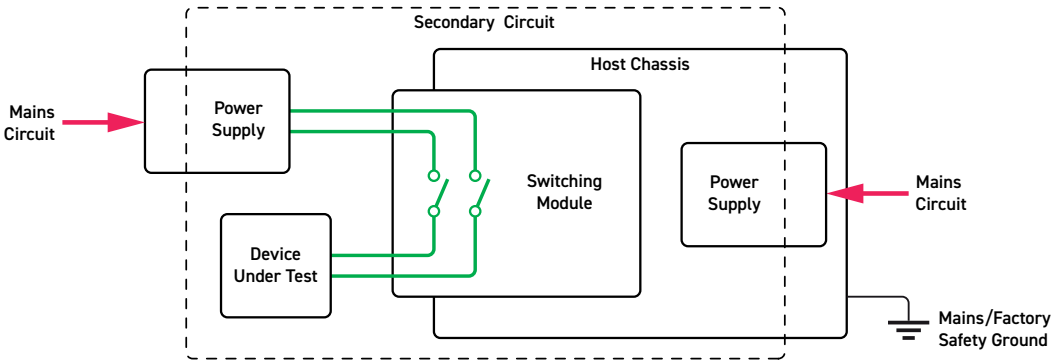
Maintenance Information 7.1
- Relay Numbering 40-555B 7.2

Appendix A

Interlock Connector Wiring A.1

Warnings & Cautions

WARNING - Hazardous Environments	Symbol
This product is not specifically designed for use in hazardous environments, for example in explosive atmospheres. If the product is to be used in hazardous environments we recommend that the user ensures suitable protective measures are taken.	

WARNING - Danger of Electric Shock	Symbol
This module may contain hazardous voltages. Before removing the module from the rack remove all supplies and disconnect user I/O signals. Unused slots in the PXI/PXIe/LXI chassis are populated with blanking plates to prevent access to user I/O signals that may be present. Blanking panels are available to order from Pickering in a variety of slot widths. If the product is not used in this manner for example by using an extender card then additional care must be taken to avoid contact with exposed signals. Not to be used in safety critical circuits, refer to the Pickering Interfaces' terms & conditions of sale. This module must not be used for the switching of Mains Circuits. For the switching of voltages up to the module's full specification, Secondary Circuit power supplies and the Device Under Test must be fully isolated from the Mains Circuit and the safety earth. The host chassis must be correctly installed and be connected to mains or factory safety ground, please refer to your chassis installation manual.  **Diagram Showing Separation Between The Mains Circuit and Secondary Circuit / DUT** For the purposes of this document, a Mains Circuit is an installation classified as Overvoltage Category II up to 300 V. Separation between the Secondary Circuit and Mains Circuit is achieved by a transformer in which the primary windings are separated from the secondary windings by reinforced insulation, double insulation, or a screen connected to the protective conductor terminal.	

CAUTION - Handling of Electrostatic-Sensitive Devices	Symbol
Certain semiconductor devices used in this equipment are liable to damage due to static voltage. Observe the following precautions when handling these devices in their unterminated state, or sub-assemblies containing these devices: • Persons removing sub-assemblies from equipment using these devices must be earthed by a wrist strap and a resistor at the point provided on the equipment. • Soldering irons used during the repair operations must be low voltage types with earthed tips and isolated from the mains voltage by a double insulated transformer. • Outer clothing worn must be unable to generate static charges. • Printed Circuit Boards (PCBs) fitted with these devices must be stored and transported in anti-static bags.	

CAUTION - Product Documentation	Symbol
Suitably qualified & trained users should ensure that the accompanying documentation is fully read and understood before attempting to install or operate the product.	

Safety Instructions

Safety Instructions
All cleaning and servicing requires the equipment to be isolated and disconnected from the power source and user I/O signals (refer to the Maintenance Section). • Appropriate manual handling procedures should be followed as dictated by the weight of the individual module or the combined weight of the modules & chassis. • Should a fault occur with the module or chassis, immediately isolate and disconnect the incoming power to the chassis and the user I/O signals. • Ensure the equipment is installed, operated and maintained by trained and authorised personnel. • For suitably equipped products in the event of an emergency press the red "emergency stop" button situated on the front of the unit.

Section 1 - Technical Specification

- 8x2 Power Matrix
- Available With Optional Hardware Interlock
- 30 A Rating at 40 V
- 40 A Rating For Single Relay Closure
- Very High Hot Switch Capacity
- Very High Inrush Current Rating
- Fast Operating Speed
- Long Service Life
- Drivers Supplied for Windows and Linux, Plus Support for Real-time Systems
- Supported by PXI or LXI Chassis
- Supported by ***eBIRST*** ™
- 3 Year Warranty



The 40-555B is a high current 8x2 matrix occupying two PXI chassis slots. Matrix crosspoints are isolated solid state relays which offer fast operation under hot switching conditions and high inrush current with no operational life degradation.

Signal paths can carry 30 A of continuous current and switch up to 40 V. The relays can support 40 A continuous operation for a single closure, also they can sustain inrush current in excess of 120 A. AC or DC signals can be switched since the switch is polarity insensitive.

The 40-555B is particularly well suited to automotive and aerospace applications where switching of high capacity loads is required. The module is supplied with a comprehensive package of drivers, including support for selected RT operating systems.

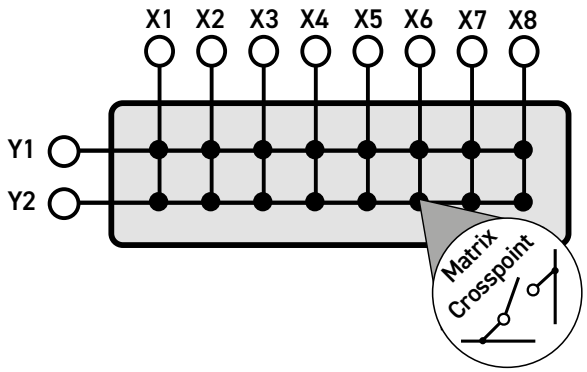
Supported by *eBIRST*

eBIRST switching system test tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.

For more information go to: pickeringtest.com/ebirst



30 A Solid State Matrix Module with Optional Hardware Interlock



40-555B Solid State 8x2 Matrix Schematic Diagram.

Section 1 - Technical Specification

Switching Specification

Switch Type:	Solid State MOSFET
Max Switch Voltage:	±40 V* (DC or AC peak)†
Continuous Crosspoint Current:	30 A continuous ‡, 40 A continuous with single relay per module closed
Peak Current:	120 A for 200 µs
Max Y-Bus Current:	40 A
Path Resistance - On:	6 mΩ at 25 °C typical
Leakage Current (at ±40 V):	<1 µA at 25 °C and switch cold, <5 mA at max temperature immediately after switch has carried maximum current for >10 minutes.
Rise/Fall Time:	8 µs (typical)
Operate Time:	250 µs
Max Operating Speed at nominal load:	60 operations/sec
Expected Life (operations):	Indefinite when used within ratings

* For full voltage rating, signal sources to be switched must be fully isolated from mains supply and safety earth.

† Differential voltage between channels must not exceed rated voltage, additional caution should be used when applying AC voltages as multiple asynchronous supplies can create high differential voltages between channels.

‡ The capacity of the module to carry 30 A on all channels is chassis dependent and dependent on the number of high power modules fitted to the chassis. Specification reflects test conditions in a Pickering PXI chassis. Refer to supplier for chassis cooling capacity, restrict average RMS current over 5 minute period to 25 A per channel for chassis meeting the minimum PXI recommendations.

Power Requirements

+3.3 V	+5 V	+12 V	-12 V
100 mA	1400 mA	0	0

Mechanical Characteristics

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

Connectors

PXI bus via 32-bit P1/J1 backplane connector.

Signals via 2 front panel 8-pin male power D-Type connectors, for pin outs please refer to the operating manual.

Interlock via 4-pin female 00 series connector*
(40-555B versions with hardware interlock option)

*Mating half supplied when hardware interlock option ordered, to be wired by end user.

PXI & CompactPCI Compliance

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus & Star Trigger are not implemented.

Uses a 33 MHz 32-bit backplane interface.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives:

Low-voltage safety EN61010-1:2010,
EMC Immunity EN61326-1:2013,
Emissions EN55011:2009+A1:2010.

Operating/Storage Conditions

Operating Temperature:	0 °C to +55 °C
Humidity:	Up to 90 % non-condensing
Altitude:	5000 m
Storage Temperature:	-20 °C to +75 °C
Humidity:	Up to 90 % non-condensing
Altitude:	15000 m

Product Order Codes

PXI Solid State Matrix, 8x2, 30 A:	40-555B-011
PXI Solid State Matrix, 8x2, 30 A, Hardware Interlock:	40-555B-011-HI

Product Customization

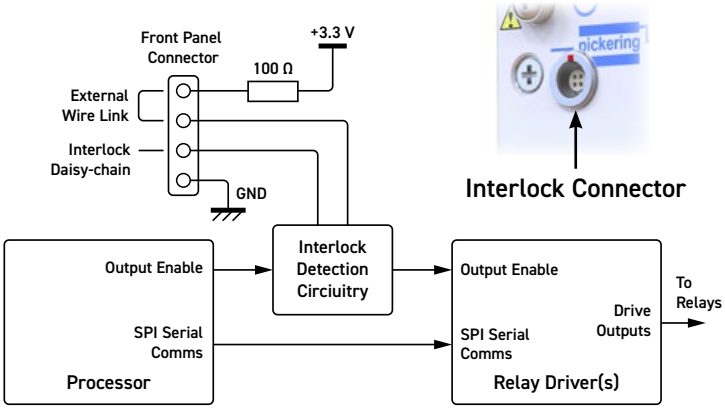
Pickering modules are designed and manufactured on our own flexible manufacturing lines, giving complete product control and enabling simple customization to meet very specific requirements. Customization can include:

- Alternative relay types
- Mixture of relay types
- Alternative number of relays
- Different performance specifications

All customized products are given a unique part number, fully documented and may be ordered at any time in the future. Please contact your local sales office to discuss.

Hardware Interlock

The 40-555B modules are available with an optional hardware interlock. The interlock, when activated, will return all relays to their default unpowered state (assuming the relays are fully functional) and also provide error notification via the software interface. The interlock feature can be daisy-chained between additional hardware interlock enabled modules for example to allow one signal to disable multiple cards. For further details please refer to the Hardware Interlock section within the user manual.



Interlock Signal Routing Diagram for 40-555B Versions With Hardware Interlock Option

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. For more information go to: pickeringtest.com/ebirst

Product	Test Tool	Adaptor	Termination
40-555B-012	93-005-001	93-005-236	93-012-103

Interlock Connectors

For module with hardware interlock option (40-555B-012-HI) spare/replacement connectors can be ordered.

Product	Description
44-972-040-xm	4-pin cable assembly.
44-960-040	Connector only, no internal wiring (replacing that supplied with the module)

Please refer to the 90-031D 4-pin GTx™ data sheet for details. GTx is a trademark of Gigatronix Ltd.

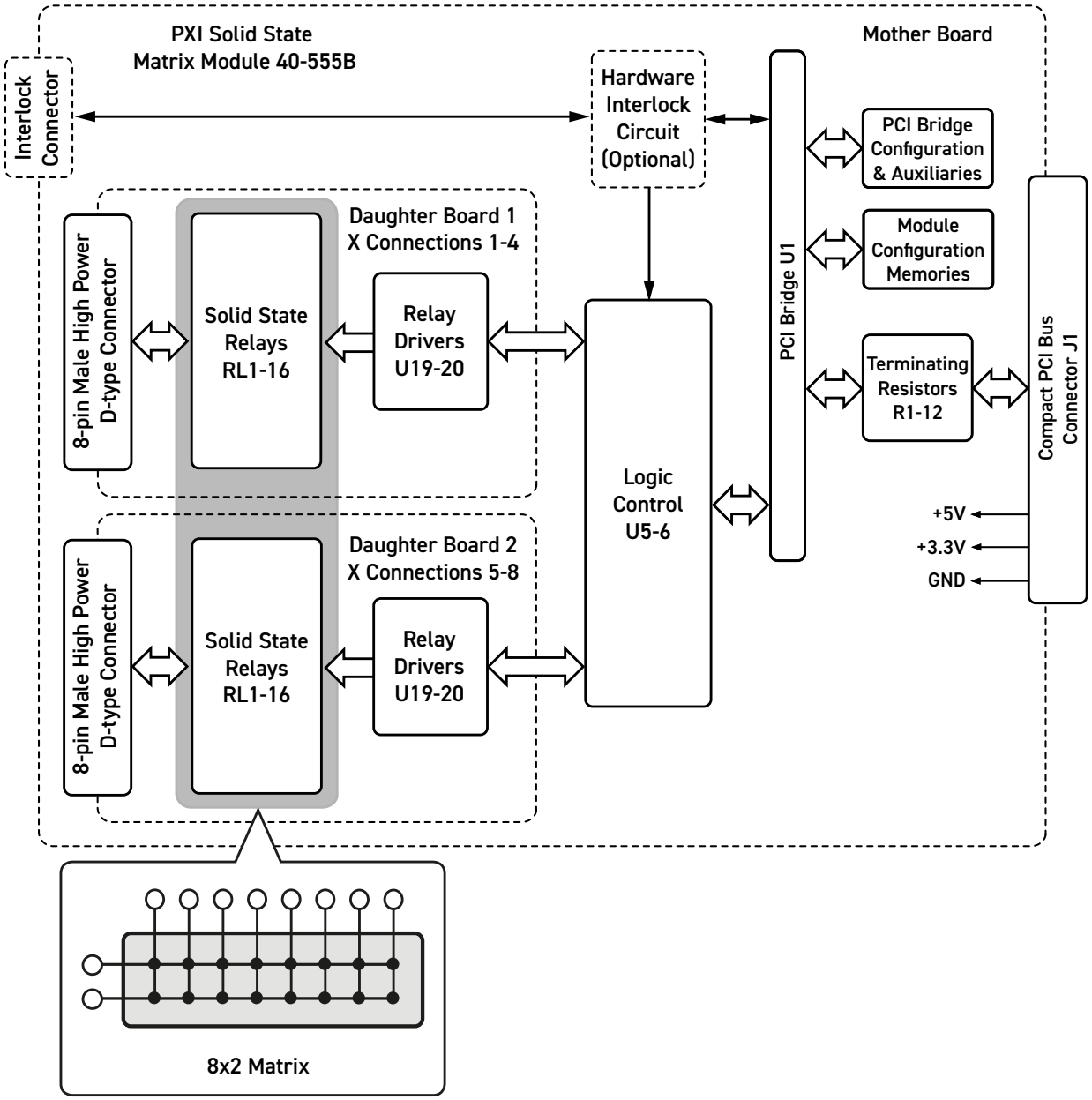
Mating Connectors & Cabling

For a complete list of connection accessories and documentation for the 40-555B module, please refer to our 8-pin Power D-type datasheet (90-012D).



Functional Description

A functional block diagram is provided in Figure 2.1. The Matrix Module is powered by +5 V and +3.3 V inputs via Compact PCI connector J1. The interface to the user test equipment is via the front panel mounted 8-pin D-type connectors. The module comprises a mother and two daughter PCBs which are mounted together in a sandwich arrangement. The inner daughterboard is fitted with the solid-state relays and associated driving circuit for switching crosspoints X1/Y1 to X4/Y2. The outer daughterboard is identical to the inner and has the switching circuit for crosspoints X5/Y1 to X8/Y2. The relays are energised via control signals from relay drivers on the daughterboards which are fed with serial data from the control logic on the motherboard. The control logic is addressed by PCI bridge U1 to output the required signal. PCI Bridge U1 is an



FPGA which is configured by EEPROM U2.

Figure 2.1 - 40-555B 30 A Solid State Matrix: Functional Block Diagram

Hardware Interlock

The 40-555B-011-HI modules have an interlock feature that can be used to return the relays (assuming they are fully functional) to their default unpowered state if the interlock connector is not in place or if the connection between the two interlock pins is open-circuit.

Note: The mating half to the hardware interlock connector is supplied with the module in an unwired state, the user must implement the link connections as detailed in this section to permit operation of the module.

The user connector has the following control pins:

- Pin1: A 3.3 V output from a 100 Ω series protection resistor
- Pin2: An Enable pin which is by default pulled low by a 10 kΩ resistor. NO RELAYS WILL BE SWITCHED BY THE MODULE UNLESS THIS PIN VOLTAGE IS RAISED TO 3.3 V.
  The pin can be raised to 3.3 V by connecting to the supplied 3.3 V pin above. This is a global Enable for all the relays on the module. If the Enable pin is allowed to be set low then the module will continue to disable the relay operation until the software resets the channels to be on.
- Pin3: A Status Readback pin which is raised to 3.3 V when the Enable pin is set high AND the software has reset the module to enable relay control. This is available as physical signal on the user connector and its status can be read back by the software driver.
- Pin 4: A connection to PXI Ground

The interlock can be used in a variety of ways when multiple modules are used in a system:

- All the Enable pins can be linked together and a single switch used to pull the Enable high to 3.3 V. The enable pin can be pulled high using a user connection. The software driver can then enable or disable individual channels.
- All but one of the Enable pins can be connected together and connected to the Readback Status pin of one of the modules (Master Module). The Master Module then has its Enable pin connected high (3.3 V). To restart the system the software driver would then have to enable each module through the Master Module's Module Enable and then turn on each 40-555B through its Module Enable.
- Each module can be independently controlled by linking its Enable pin to its 3.3 V pin, if the user connector is disconnected or if the link between the interlock pins is open-circuit all the relays will return to the default unpowered state and will require restarting through its software driver control.
- The Status Readback output from one module can be connected to the Enable of the next module in the series chain. Disconnection of the user connector or if the link between the interlock pins is open-circuit will result in the relays of all the modules further returning to their default unpowered state. As in the previous cases when the user connection is re-established the software driver will need to restart the system.

It should be emphasized that if the Enable pin of the module is set low, even temporarily, the module will not automatically turn back on when the Enable returns high. The software driver must be used to turn the channels back on.

If required, spare / replacement hardware interlock connector(s) can be purchased, please refer to Support Products in Section 1 for details.

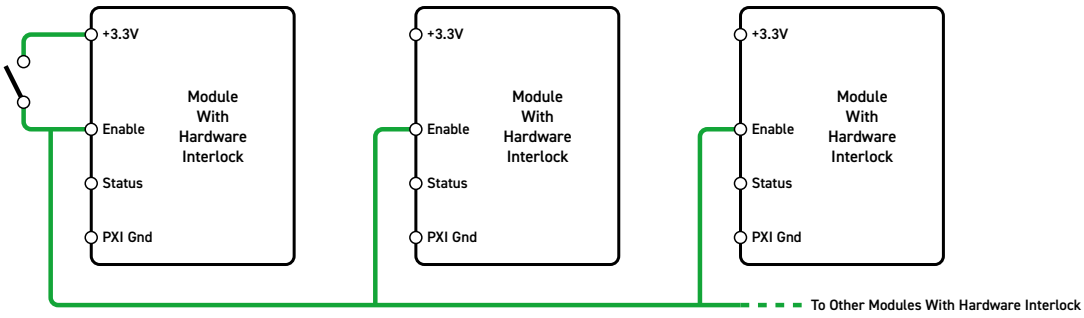


Figure 2.2 - All 40-555B-011-HI Modules Enabled by a Common Signal

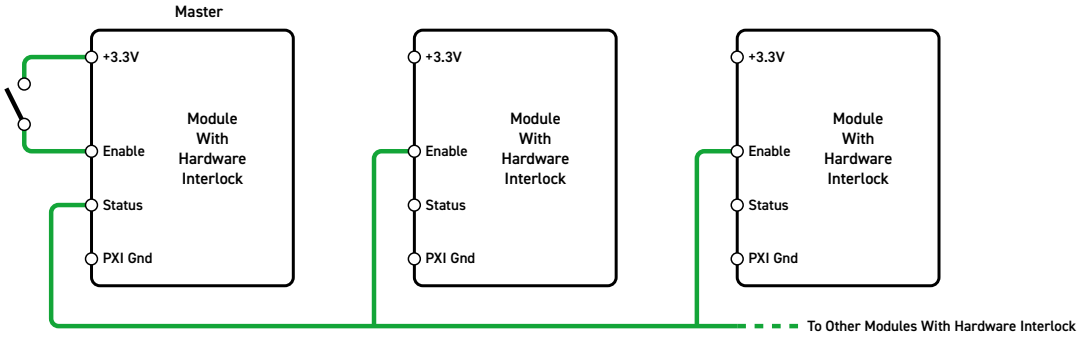


Figure 2.3 - 40-555B-011-HI Modules Enabled by a Master Module

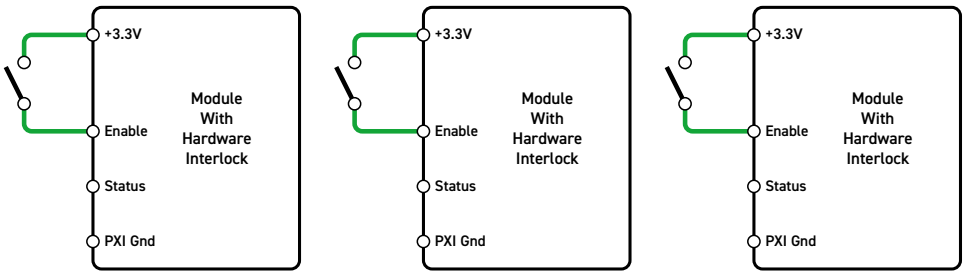


Figure 2.4 - Each 40-555B-011-HI Module Enabled Independently

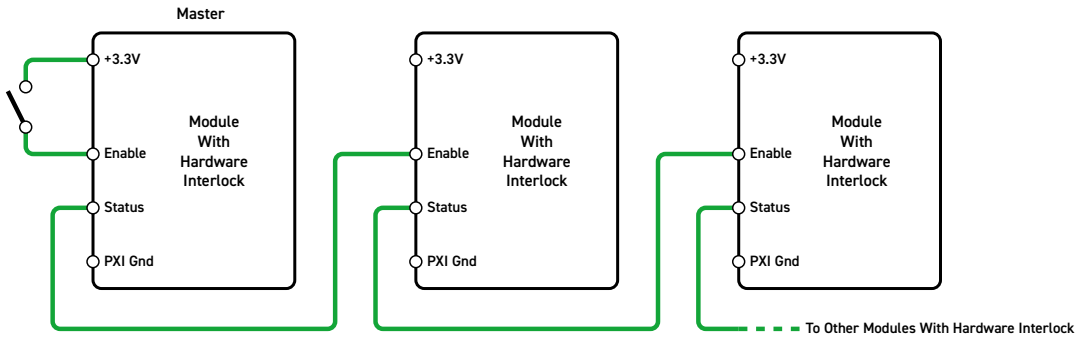


Figure 2.5 - 40-555B-011-HI Module Enables Daisy-Chained From a Master

Section 3 - Installation

Refer to the Warnings and Cautions at the front of this manual

Modular products require installation in a suitable PXI/LXI chassis. The module is designed for indoor use only.

Pre-operation Checks (Unpacking)

1. Check the module for transport damage and report any damage immediately to Pickering Interfaces. Do not attempt to install the product if any damage is evident.
2. Position the chassis relative to any other equipment the module(s) will connect with. Ensure the chassis is not connected to the electrical supply.
3. Ensure that the designated area for the chassis containing the module is of flat and solid construction to withstand and support the combined weight of the module(s) and chassis.

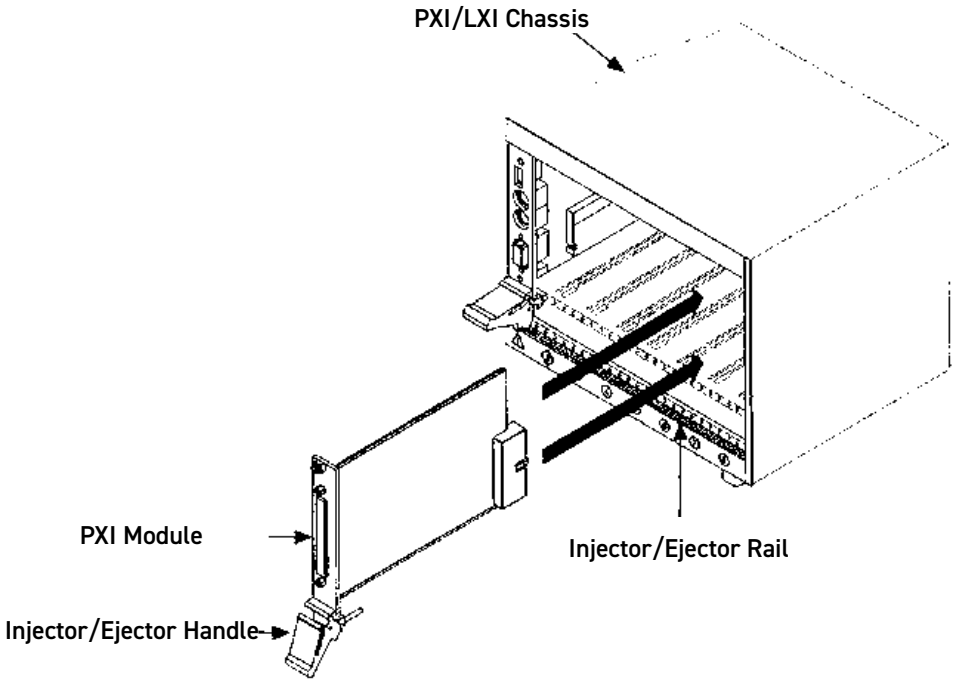


Figure 3.1 - Installing the Module into a PXI/cPCI/LXI Chassis

Hardware Installation Electrical Connection (Chassis)

The chassis must be electrically installed in accordance with local regional electrical codes by a qualified engineer.

The chassis must be grounded.

Electrostatic discharge can damage the components on the module. To avoid such damage in handling the board refer to page vi.

Ensure that there is adequate ventilation.

The module should be installed in accordance with the following procedure:

1. Ensure that the system is turned OFF but still connected to mains so that it remains grounded.
2. Choose an appropriate slot in the rack.
3. Remove the blanking plate for the chosen slot.
4. Ensure that the injector/ejector handle is in its downward position. Align the module with the card guides on the top and bottom of the slot.
   Do not raise the injector/ejector handle whilst inserting the module as the module will not insert properly.
5. Hold the handle whilst slowly sliding the module into the card guides until the handle catches on the injector/ejector rail (refer to Figure 3.1).
6. Raise the injector/ejector handle until the module firmly seats into the backplane. The front panel of the module should be flush with the front panel of the chassis.
7. Secure the front panel of the module using both screws to the chassis front panel mounting rails.
8. In a system employing a remote control interface to connect an external controller to a PXI chassis or to link multiple chassis, power-up the system as follows:
   a. For a system comprising an external controller and one chassis, power up the chassis before powering up the external controller.
   b. For a system comprising more than one chassis, turn ON the last chassis in the system followed by the penultimate, etc, and finally turn ON the external controller or chassis containing the system controller.
9. For Pickering Interfaces modular LXI installation there is no requirement to use any particular power up sequence.

Software Installation

First install the appropriate Pickering PXI switch card drivers by running the installer program Setup.exe (provided in a compressed zip file), either from the CD-ROM supplied, or by downloading the latest version from our website: pickeringtest.com - the recommended method. Setup is accompanied by a ReadMe file containing additional installation information. A single installation covers all Pickering switching and simulation PCI, PXI and PXIe products.

When installation completes, the installed drivers' ReadMe file is offered for display. It can also be displayed later using a shortcut on the Programs>>Pickering menu.

If you are not a LabVIEW user you should choose the "full" version, and once that has been installed run the LabVIEW Runtime Engine installer via the shortcut on the Programs>>Pickering menu. In the absence of LabVIEW the Runtime Engine is required to support the Pickering Test Panels application.

Testing Operation

After installation of the hardware and Pickering PXI Driver software package start the General Soft Front Panel (GSFP) using the desktop icon or via the Start menu (***Start Menu-> Pickering Interfaces Ltd -> General Soft Front Panel***).



Figure 3.2 - General Soft Front Panel Icon

A selector panel will appear, listing all installed Pickering PCI, PXI or LXI switch cards and resistor cards. Click on the card you wish to control, and a graphical control panel is presented allowing operation of the card. Panels can be opened simultaneously for all the installed cards.

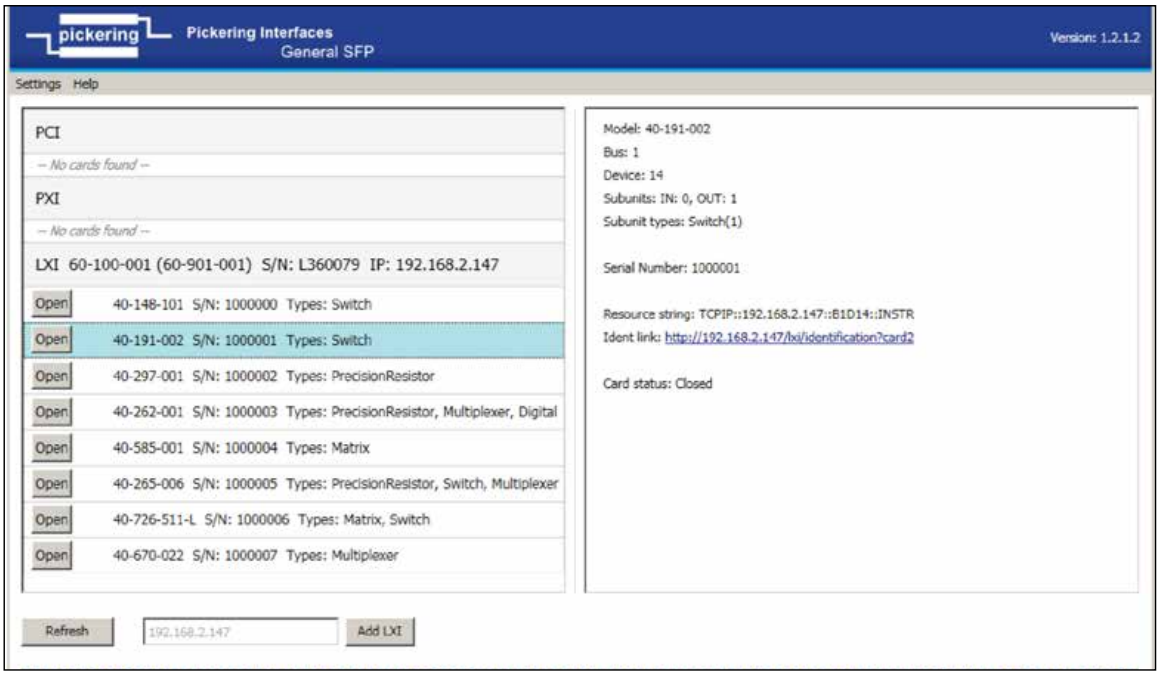


Figure 3.3 - General Soft Front Panel Selector

More details how to use the GSFP can be found in the manual, via menu ***Help\Manual***.

Section 4 - Programming

Programming options for Pickering Interfaces PXI Modules

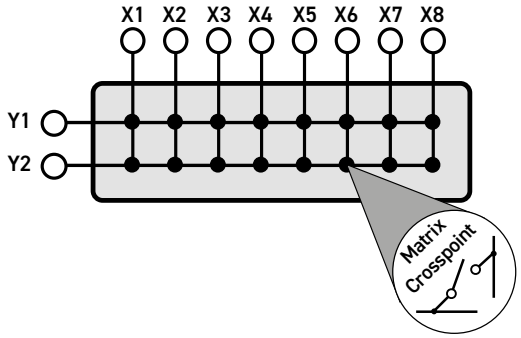
For information on the installation and use of drivers and the programming of Pickering's products in various software environments, please refer to the Software User Manual.

This is available as a download from:
pickeringtest.com/support/software-drivers-and-downloads

Also, it can be accessed from the DVD supplied with the product:
<DVD_DRIVE>\downloads\Documentation\Software-Manual.pdf

Programming The Solid State Matrix

The 40-555B is a single pole switching matrix with 8 connections on the X-axis and 2 connections on the Y-axis.Connections are made by operating the relays at the crosspoints between X and Y lines allowing single X-Y connections, or X-X connections using a Y line as a path. The matrix architecture is shown in the diagram below:



40-555B 8x2 Matrix

The entire matrix is treated as a single programming sub-unit designated as Sub-Unit 1. The following page gives some simple examples using the provided drivers: the IVI driver, the Direct I/O driver, and the IVI compliant driver.

Using The IVI Driver, Direct Driver or VISA Driver

This section provides some code fragments which show how to control the Solid State Matrix using the, Direct I/O Driver or the VISA Driver.

Once the drivers are installed the manual "Sys40Prg.pdf" and driver help files which fully describes these functions can be found in the Pickering folder(s) or the Pickering entries on your Start Menu.

The card must be opened before use and closed after using the following function calls:

Direct I/O Driver - Open with `PIL_OpenCards` or `PIL_OpenSpecifiedCard` and close with `PIL_CloseCards` or `PIL_CloseSpecifiedCards` respectively.

VISA Driver - Open with `pipx40_init`, and close with, `pipx40_close`.

Setting a Matrix Crosspoint:

Using the Pickering Direct I/O driver:

```
DWORD SubUnit = 1;
PIL_ClearSub(CardNo, SubUnit);    //clear all crosspoints to off state
PIL_OpCrosspoint(CardNo, SubUnit, 2, 1, 1);  //set crosspoint x1, y2 to on
PIL_OpCrosspoint(CardNo, SubUnit, 2, 1, 0);  //set crosspoint x1, y2 to off
```

Using the VISA driver:

```
ViUInt32 SubUnit = 1;
pipx40_clearSub(vi, SubUnit);     //clear all crosspoints off state
pipx40_setCrosspointState (vi, SubUnit, 2, 1, VI_ON);//set crosspoint x1, y2 on
pipx40_setCrosspointState (vi, SubUnit, 2, 1, VI_OFF);      //set crosspoint x1, y2 off
```

Using the IVI driver:

For IVI Driver support, please contact the Pickering Sales Office

Using The Interlock Function

The following functions are applicable to 40-555B-011-HI modules fitted with the optional hardware interlock.

Get the status of Interlock

Use the attribute "ATTR_INTERLOCK_STATUS", to the get the status of the interlock.

```
BOOL interlock = 0x0;              // Interlock Status of the card.
// Getting the Interlock status of the card
ErrCheck(PIL_GetAttribute(card, subunit, TRUE, ATTR_INTERLOCK_STATUS, ((BOOL*)&interlock)));
if (interlock == (BOOL)FALSE)
{
   printf(" Front Panel Interlock pins are not connected. Card is disabled \n");
}
else
{
   printf(" Front Panel Interlock pins are connected. Card is active \n");
}
```

Reset the interlock

Use the ClearCard() function to reset the interlock.

After the front panel pins for the interlock are inter connected, the function ClearCard() should be called so the Interlock pin connection is registered and card to be active for user.

```
// Resetting the Interlock status of the card
ErrCheck(PIL_ClearCard(card));
```

Note:

It's a good practice to have the ClearCard() function called as soon as the card is open for use in an application.

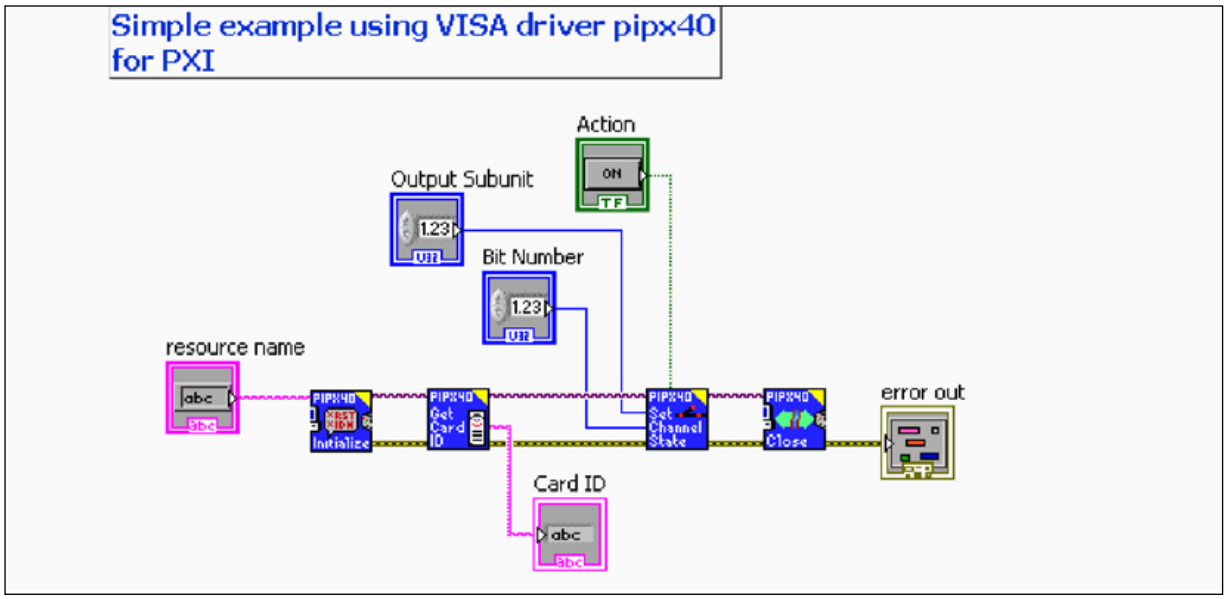
Using Pickering Drivers In LabVIEW

Most Pickering drivers include a LabVIEW wrapper to permit full operation of the Pickering product from the LabVIEW environment. These wrappers are normally installed to the current LabVIEW folder system during installation of the Pickering driver.

The process of controlling a Pickering product normally consists of the following steps:

1. Open a control session on the product.
2. Use functions in the library to operate the product.
3. Close the control session.

Following is a simple example of the use of the most common Pickering drivers:



Example Use of Pickering Drivers in LabVIEW

To download LabVIEW examples, please go to:

Using Pickering Drivers in LabVIEW

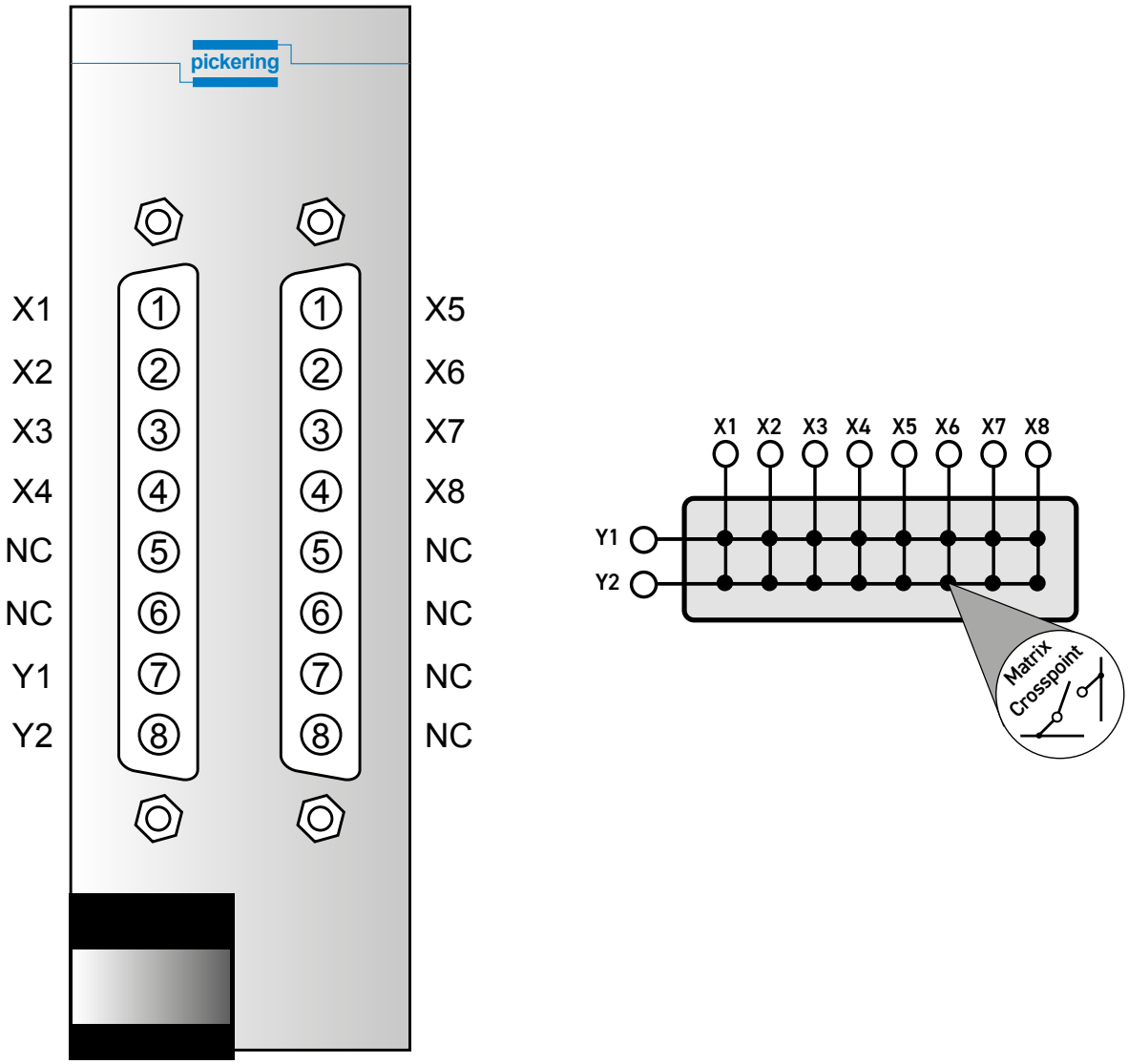


Figure 5.1 - 8x2 30 A Solid State Matrix 40-555B: Pinouts Viewed From Front Panel, Connectors are 8-pin Power D-type Plugs.

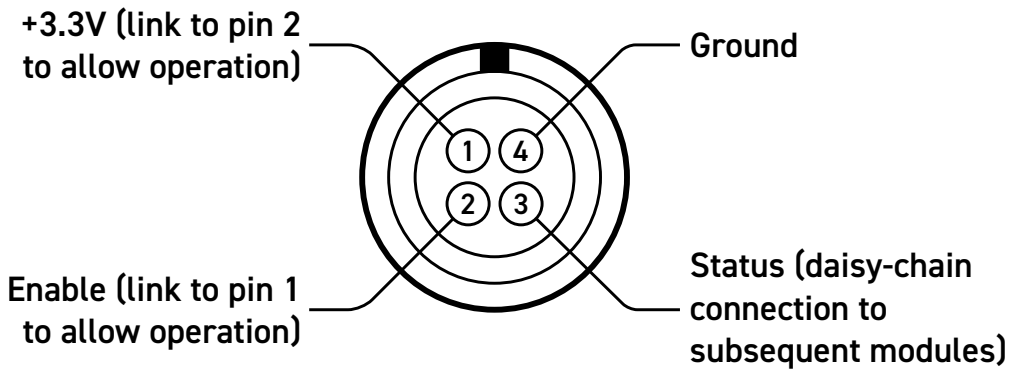


Figure 5.2 - Pinout: Hardware Interlock Connector
Applicable to 40-555B-011-HI Modules With Hardware Interlock Option
(4-pin 00 Series Female Connector Viewed From Front of Module)

Refer to Appendix A for Wiring and Assembly Instructions

Note 1: the maximum conductor size for the interlock connector is 30 AWG

Note 2: The mating half to the hardware interlock connector is supplied with the module in an unwired state, the user must implement the link connections as detailed in this section to permit operation of the module.

Section 6 - Troubleshooting

Refer to the Warnings and Cautions at the front of this manual. 

Installation Problems

The Plug & Play functionality of Pickering switch cards generally ensures trouble-free installation.

If you do experience any installation problems you should first ensure that all cards are properly seated in their slots. Improperly mated cards may go undetected by the operating system, or may be detected as a card of an unknown type. They can also cause the computer to freeze at various stages in the boot sequence.

If your system employs a remote control interface you should check the integrity of all remote control interface links. When the system is powered up, and during Windows start-up, you should expect to see periodic activity on the remote control interface RX/TX (yellow) indicators, clearing to leave only the PWR/LNK (green) LEDs illuminated. The RX/TX indicators should show activity when you attempt to access a card.

Diagnostic Utility

The Pickering Diagnostic Utility (accessible through the Programs>>Pickering>>PXI Utilities menu) generates a diagnostic report of the system's PCI configuration, highlighting any potential configuration problems. Specific details of all installed Pickering switch cards are included. All the installed Pickering switch cards should be listed in the "Pilpxi information" section - if one or more cards is missing it may be possible to determine the reason by referring to the PCI configuration dump contained in the report, but interpretation of this information is far from straightforward, and the best course is to contact Pickering support: support@pickeringtest.com, if possible including a copy of the diagnostic report.

In the "VISA information" section, if VISA is not installed its absence will be reported. This does not affect operation using the Direct I/O driver, and is not a problem unless you wish to use VISA. VISA is a component of National Instruments LabWindows/CVI and LabVIEW, or is available as a standalone environment.

If VISA is present and is of a sufficiently recent version, the section "Pipx40 information" should present a listing similar to "Pilpxi information".

Please note that the Diagnostic Utility cannot access cards if they are currently opened by some other application, such as the Test Panels or Terminal Monitor.

Section 7 - Maintenance Information

Refer to the Warnings and Cautions at the front of this manual. 

Periodic Maintenance

This product and its corresponding chassis do not require any periodic maintenance.

General Cleaning

- Isolate the electrical power from the chassis and ensure that no user I/O signals are being applied.
- Wipe the product & chassis surfaces with a clean dry anti-static cloth only.

Software Update

For PXI modules operating in a PXI chassis, no module software updates are required. For the latest version of the driver please refer to our web site pickeringtest.com where links to our Software Download page will provide the latest version of the driver software for the various programming environments encountered.

For PXI modules which are supported in one of Pickering Interfaces' Modular LXI Chassis (such as the 60-102B and 60-103B) no module software update is required. If the module was introduced after the LXI chassis was manufactured the module may not be recognized, in this case the chassis firmware may need upgrading. This is a simple process which is described in the manual for the Modular LXI Chassis.

Switching System Test Tools

We recommend the use of ***eBIRST*** to provide a check of the correct operation of relays and to identify the location of any faulty relay. For more information visit: pickeringtest.com/ebirst

Relay Look-up Tables

The following pages provide a cross reference between the signal paths of the product and the physical relays on the PCB. The tables can be used in the fault finding process and should be used in conjunction with the corresponding PCB layout diagrams to identify the position of faulty relays. Users of ***eBIRST*** switching system test tools do not need to use this information to locate faulty relays.

RELAY LOOK-UP TABLE

The relays are fitted on two daugter PCBs, designated inner and outer, both have the same relay positioning.

40-555B RELAY CROSS REFERENCE			
Crosspoint		Daughter Board	Relay No.
X	Y		
1	1	Inner	U11 & U12
	2		U5 & U6
2	1		U15 & U16
	2		U13 & U14
3	1		U9 & U10
	2		U7 & U8
4	1		U3 & U4
	2		U1 & U2
5	1	Outer	U11 & U12
	2		U5 & U6
6	1		U15 & U16
	2		U13 & U14
7	1		U9 & U10
	2		U7 & U8
8	1		U3 & U4
	2		U1 & U2

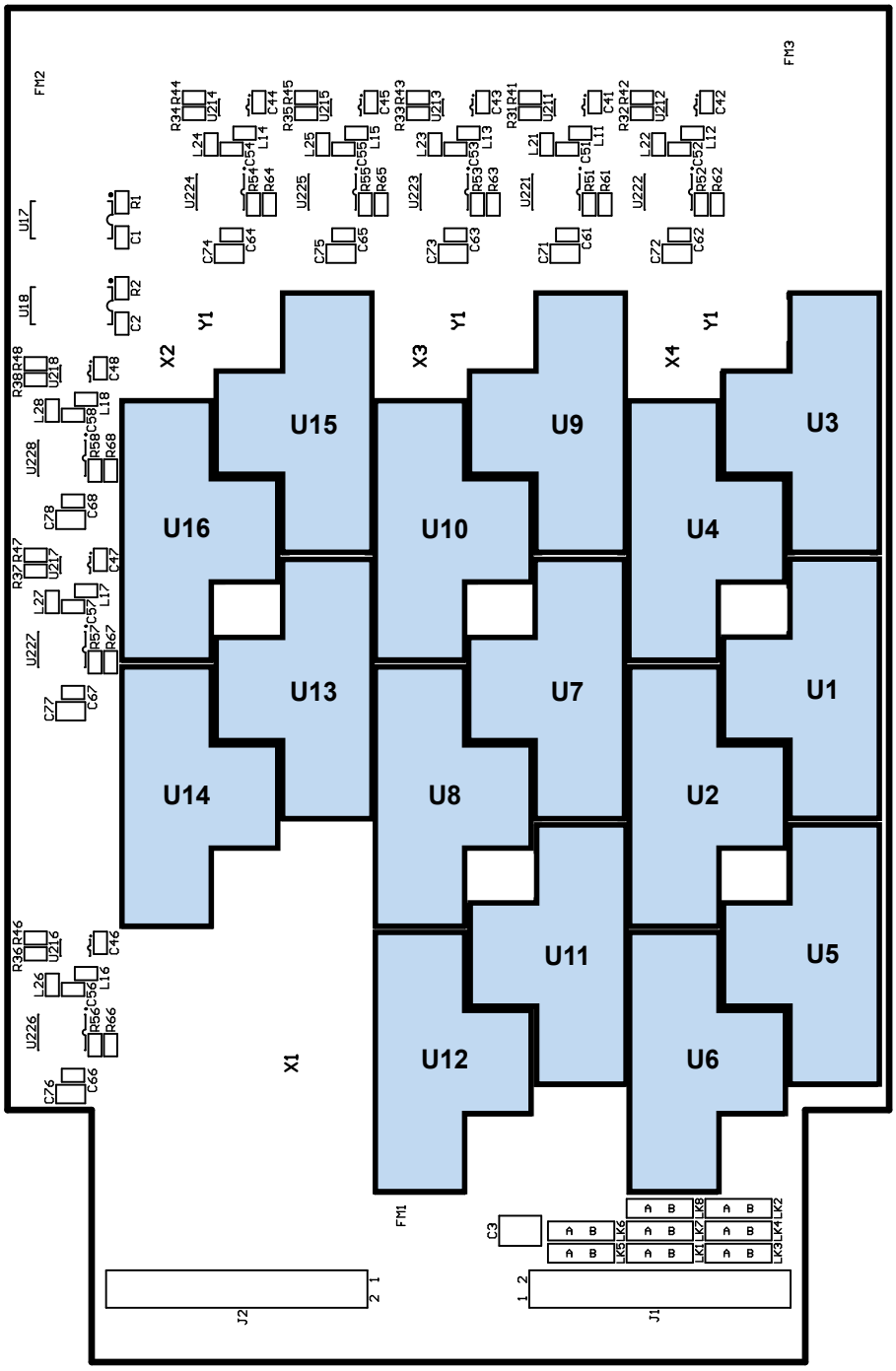
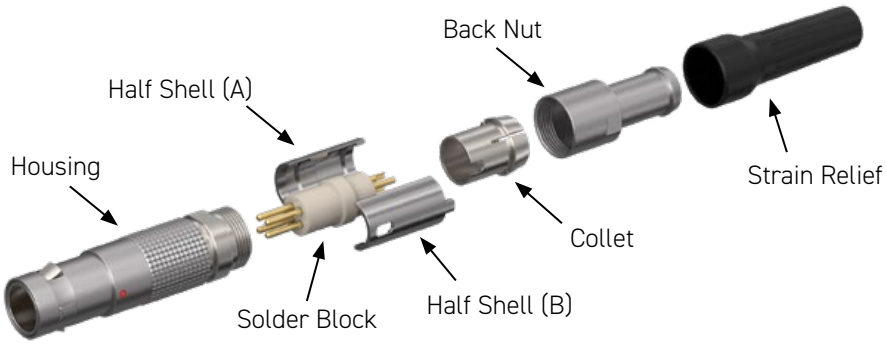


Figure 7.1 - 40-555B Component Layout - Daughter Board

Appendix A - Interlock Connector Wiring

Interlock Connector Wiring

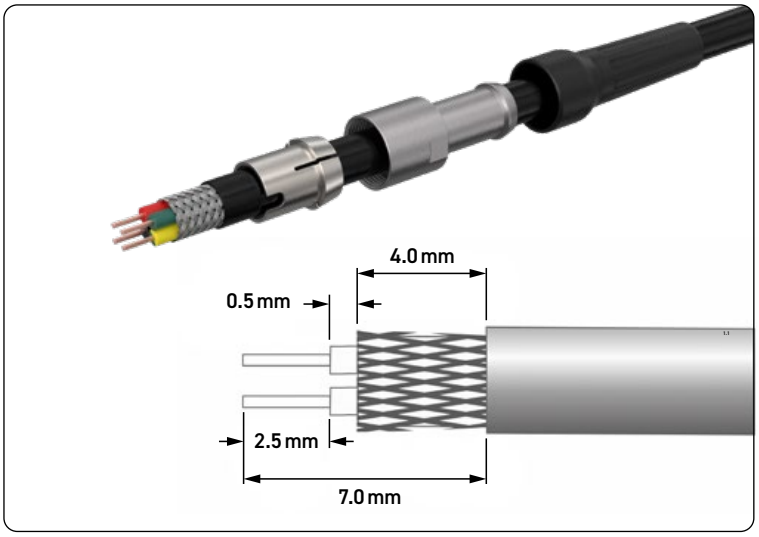
The following procedure describes the steps required for the wiring of the interlock connector supplied with versions of the module with the hardware interlock function.



Position strain relief, back nut and collet on cable.



Strip outer jacket, braided screen and individual conductors. Refer to the guideline stripping dimensions shown.

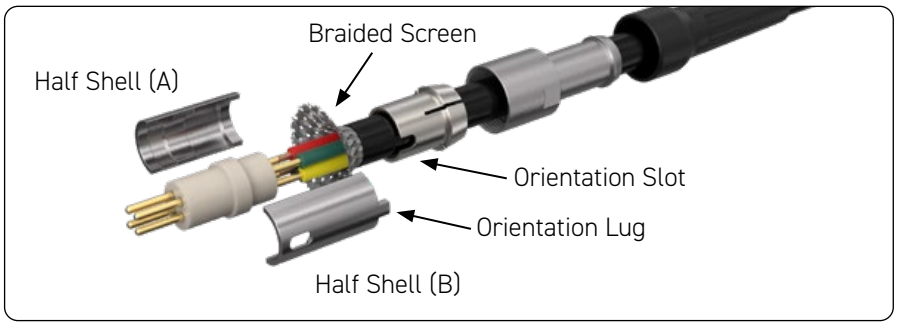


Solder terminate each individual conductor.

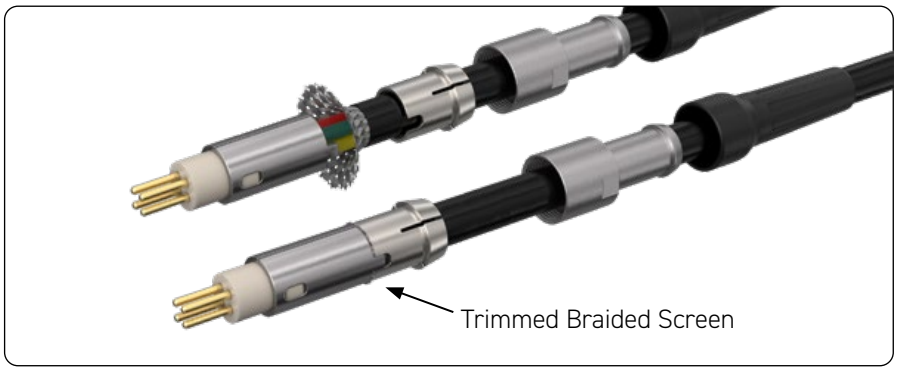


Appendix A - Interlock Connector Wiring

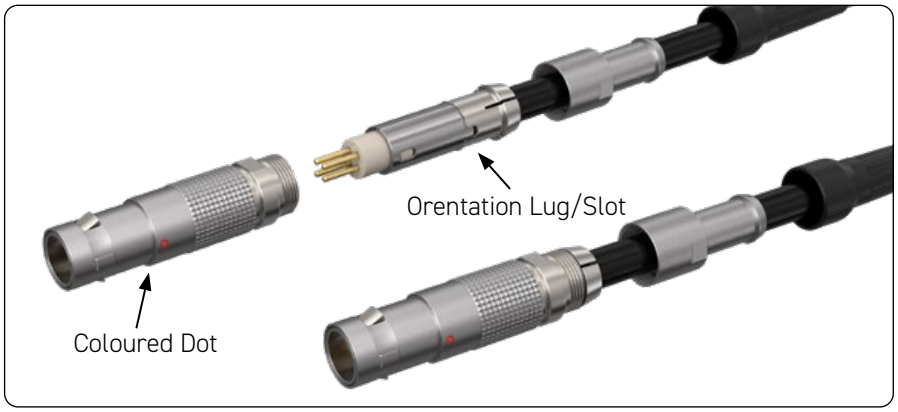
Fold back braided screen then position the half shells.
Note position of orientation lug/slot.



Slide the collet forward trapping the braided screen then trim.



Insert sub-assembly into the plug housing. Note alignment of orientation lug with colored dot on the housing.



Apply suitable thread lock and secure the back nut to the recommended torque of 0.25 Nm.
Attach Strain Relief.

