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# 2.5 GHz 4x1 and Quad 4x1 Multiplexers

## NI PXI-2594, NI SCXI-1194

- 2.5 GHz bandwidth
- 50  $\Omega$  characteristic impedance
- SMA direct connectivity
- Excellent insertion loss, VSWR, and isolation specifications
- Onboard relay counting
- Fully software programmable

### NI PXI-2594

- 4x1 multiplexer configuration
- 1-slot 3U PXI module

### NI SCXI-1194

- Quad 4x1 multiplexer configuration
- 1-slot 4U SCXI module

### Operating Systems

- Windows 2000/XP
- Linux®

### Recommended Software

- NI Switch Executive
- LabVIEW
- LabVIEW Real-Time Module
- LabWindows/CVI
- Measurement Studio

### Other Compatible Software

- Visual Basic
- C/C++

### Driver/Services Software (included)

- NI-SWITCH
- NI-DAQmx



## Overview

The National Instruments PXI-2594 and SCXI-1194 are 4x1 high-frequency unterminated multiplexing switches. The NI SCXI-1194 performs the same functions as the PXI-2594 but in a higher density, quad 4x1 multiplexing configuration. The PXI-2594 and SCXI-1194 are capable of switching signals from DC to 2.5 GHz. The characteristic impedance of the channels on these modules is 50  $\Omega$ .

The PXI-2594 and SCXI-1194 have a maximum voltage rating of 30 V<sub>rms</sub> with a maximum switching current of 500 mA. They are well suited for applications that require the routing of high-frequency signals inside automated test equipment (ATE) systems because they can switch signals with very low insertion loss. In addition, the excellent voltage standing-wave ration (VSWR) and isolation parameters make these modules the perfect choice in any system that is geared towards high-frequency applications.

## Relay Count Tracking

The PXI-2594 and SCXI-1194 count relay closures on each of their RF relays. Relay counts are incremented each time a relay is actuated. The counts, stored onboard the module, are retrievable programmatically and can be used for predictive maintenance to reduce unexpected system downtime.

## Software

All National Instruments switch modules are shipped with NI-SWITCH, an IVI-compliant driver offering complete functionality for all switch modules. For additional assistance in configuring, programming, and managing higher-channel-count switching systems, NI Switch Executive software offers an easy-to-use, intelligent switch management and visual routing environment. Use the NI-SWITCH Soft Front Panel for simple relay operations or debugging switch code/execution.

### Ordering Information

NI PXI-2594.....	778572-94
NI SCXI-1194 .....	776572-94
Includes NI-SWITCH and NI-DAQmx driver software.	

### Accessories

SMA male-male cable (semirigid)	
0.15 cm .....	763443-01
0.45 cm .....	763444-01

### NI Switch Executive

Development System .....	778546-01
Deployment Engine .....	778548-00

## BUY NOW!

For complete product specifications, pricing, and accessory information, call (800) 813 3693 (U.S.) or go to [ni.com/switches](http://ni.com/switches).



## 2.5 GHz 4x1 and Quad 4x1 Multiplexers

### Specifications

All specifications are subject to change without notice. Visit [ni.com/manuals](http://ni.com/manuals) for the most current specifications.

### Configuration

PXI-2594.....	4x1 multiplexer
SCXI-1194.....	Quad 4x1 multiplexer

### Input Characteristics

All input characteristics are DC, ACrms, or a combination unless otherwise specified.

Maximum switching voltage .....	30 V
Maximum switching current.....	0.5 A
Maximum carry current.....	0.5 A
Maximum RF power.....	10 W

**Note:** When operating the SCXI-1194 at ambient temperatures >30 °C, a load derating may apply to the total power that the module can handle.

DC path resistance	
Initial.....	<0.35 Ω
End of life .....	1.0 Ω

### RF Performance Characteristics

Characteristic impedance ( $Z_0$ ).....	50 Ω nominal
Insertion loss	
1.0 GHz.....	<0.60 dB
2.0 GHz.....	<1.10 dB
2.5 GHz.....	<1.35 dB
Voltage standing-wave ratio (VSWR)	
1.0 GHz.....	<1.25
2.0 GHz.....	<1.40
2.5 GHz.....	<1.45
Isolation	
1.0 GHz.....	<-55 dB
2.0 GHz.....	<-45 dB
2.5 GHz.....	<-35 dB
Typical bank-to-bank crosstalk (SCXI-1194 only)	
1.0 GHz.....	<-80 dB
2.5 GHz.....	<-65 dB

### Dynamic Characteristics

Maximum Scan Rate.....	45 channels/s
Maximum relay operate time .....	10.4 ms
Expected relay life	
Mechanical .....	1,000,000 cycles
Electrical .....	300,000 cycles
	(30 V, 10 mA, DC resistive)

### Physical Characteristics

Relay type .....	electromechanical, latching
I/O connectors	
PXI-2594.....	5 SMA jacks
SCXI-1194 .....	20 SMA jacks
Dimensions (W by H by D)	
PXI-2594.....	3U, one slot, PXI/cPCI module
	2.0 by 13.0 by 21.6 cm
	(0.8 by 5.1 by 8.5 in.)
SCXI-1194 .....	3.0 by 17.3 by 19.8 cm
	(1.2 by 6.8 by 7.8 in.)

### Environment

Operating temperature .....	0 to 55 °C
Storage temperature.....	-20 to 70 °C
Relative humidity .....	5 to 85%, noncondensing
Pollution Degree .....	2
Approved at altitudes up to 2,000 m.	
Indoor use only.	

### Compliance and Certifications

#### Safety

This product meets the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1
- CAN/CSA-C22.2 No. 61010-1

**Note:** For UL and other safety certifications, refer to the product label, or visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

#### Electromagnetic Compatibility

Emissions .....	EN 55011 Class A at 10 m
	FCC Part 15A above 1 GHz
Immunity.....	EN 61326:1997 + A2:2001,
	Table 1
EMC/EMI.....	CE, C-Tick, and FCC Part 15
	(Class A) Compliant

#### CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

Low-Voltage Directive (safety) .....	73/23/EEC
Electromagnetic Compatibility	
Directive (EMC) .....	89/336/EEC

**Note:** Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

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## Hardware Services

### NI Factory Installation Services

NI Factory Installation Services (FIS) is the fastest and easiest way to use your PXI or PXI/SCXI combination systems right out of the box. Trained NI technicians install the software and hardware and configure the system to your specifications. NI extends the standard warranty by one year on hardware components (controllers, chassis, modules) purchased with FIS. To use FIS, simply configure your system online with [ni.com/pxiadvisor](http://ni.com/pxiadvisor).

### Calibration Services

NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. We provide manual calibration procedures, services to recalibrate your products, and automated calibration software specifically designed for use by metrology laboratories. Visit [ni.com/calibration](http://ni.com/calibration).

### Repair and Extended Warranty

NI provides complete repair services for our products. Express repair and advance replacement services are also available. We offer extended warranties to help you meet project life-cycle requirements. Visit [ni.com/services](http://ni.com/services).



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