

# PXI Modules

## 3060 PXI RF Combiner

**AEROFLEX**  
A passion for performance.



The 3060 PXI RF Combiner is a high performance 3 input RF combiner covering the frequency range 250 MHz to 2.7 GHz.

- Frequency range 250 MHz to 2.7 GHz
- 3 input RF power combiner
- Switched paths for system calibration
- Combiner calibration data stored in the module
- >35 dB port to port isolation
- >20 dB return loss ( $\Sigma$  port)
- <15 dB through loss
- Single slot 3U high

### Introduction

The 3060 RF combiner is a high performance 3 input RF combiner covering the frequency range 250 MHz to 2.7 GHz supplied in a compact single slot wide 3U high PXI package.

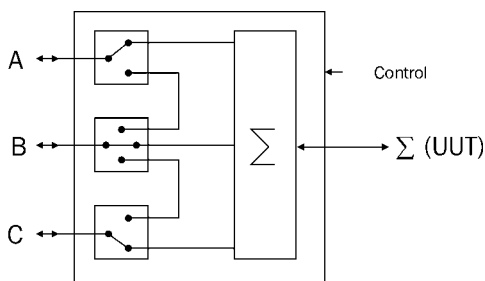


Figure 1. Combiner block diagram

The module is designed for use in RF test systems to provide accurately calibrated signal routing, combining or splitting between up to three RF

measurement modules and the test subject. The 3060 is ideally suited for use in conjunction with Aeroflex 3020 Series Digital RF Signal Generator and 3030 Series RF Digitizers. Together these modules enable development of compact, high performance and low cost modular test systems for RF transceiver and component testing.

In addition to providing summing of signals the 3060 provides RF switching between ports A - B and B - C. These switch connections enable test system calibration without the need to disconnect the test subject. In this mode either the signal source or the signal analyzer can act as the calibration reference. Alternatively an accurate power meter can be connected to the 3rd input port to provide more accurate test system calibration. To maximize flexibility, each port is bi-directional thus allowing a wide variety of system configurations to be supported. Electronic RF switching is used to ensure that minimal time delays are incurred when performing system calibration as well as providing high reliability for volume manufacturing.

### Calibration

The 3060 is provided with on-board frequency response calibration data accurate to better than 0.2 dB. Calibration data can be addressed over the PCI bus and used to provide system calibration to the plane of the output connector. This minimizes test system uncertainty and thereby helps to improve manufacturing yield. The frequency response for each RF path is factory calibrated and stored within the module.

### Applications

The 3060 is designed for use in radio test applications such as transceiver testing where the ( $\Sigma$ ) port acts as a single port duplex connection point with one or two RF sources providing Rx stimulus input(s) and an RF signal analysis instrument connected to the third port to measure DUT Tx parameters.

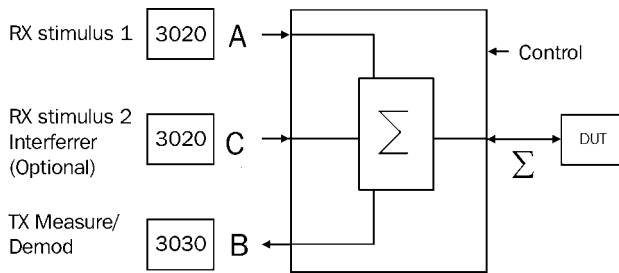


Figure 2 – Transceiver testing

For intermod testing, two or three ports can be used to combine RF source inputs to a common DUT test port. In this case the DUT output port would be directly connected to the analysis instrument.

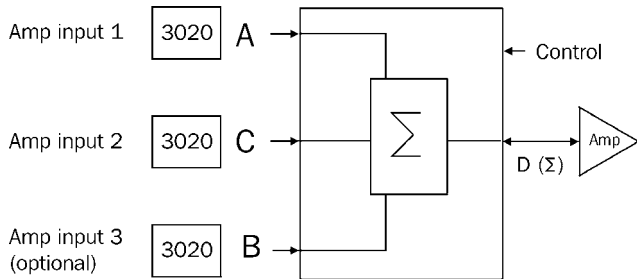
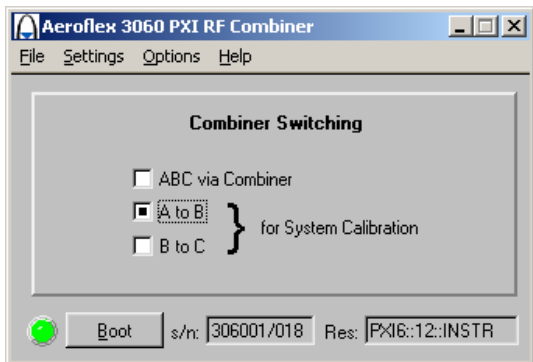


Figure 3 – Rx and Amplifier Intermod testing

**Software**

The 3060 is supplied with a VXI PNP Driver and soft front panel



**Customer Support.**

Users can elect to purchase PXI modules with optional warranty extensions.

Standard Extended Warranty provides either 36 months or 60 months warranty period plus the benefits of guaranteed product repair times in the event of failure.

Standard Extended Warranty can also be provided inclusive of scheduled calibration.

On request Aeroflex can provide customized Premium Warranty support designed around your specific needs.

**SPECIFICATION**

**Frequency Range**

All ports: 250 MHz to 2.7 GHz, useable to 3.0 GHz

**INSERTION LOSS**

**ABC - SUM**

Loss between any of ports A, B, C and Σ port

<15 dB to 2.5 GHz and <16 dB above 2.5 GHz

**A-B, B-C**

Loss between ports A and B or B and C

<2 dB to 2.5 GHz

<3 dB above 2.5 GHz

**Path Loss Calibration Uncertainty**

<0.2 dB

**Temperature Stability**

±0.006 dB/°C (ABC to SUM)

±0.002 dB/°C (A-B, B-C)

**Repeatability**

Better than ± 0.05 dB after warm up following a return from a change of mode valid for at least 2 hours and excluding temperature influence.

**Frequency Response**

<2 dB typical

**Return Loss**

(unused ports terminated into 50 ohms)

Port Σ

>20 dB

Ports A, B and C (Connected to Port Σ)

>16 dB

>15 dB (A or C connected to B)

**Port A, B, C Isolation (unused ports terminated into 50 ohms)**

A-C >35 dB

A-B >35 dB

B-C >35 dB below 2 GHz otherwise >32 dB

**Max Power (Σ)**

+27 dBm, 3 VDC

**Max Power (A, B, C)**

A,B,C +17 dBm

**GENERAL**

**Standard Warranty**

24 months

**Calibration Interval**

Recommended 24 months

**Power Consumption (typical)**

+3.3 V <50 mA (transiently rising to 250 mA during power up)

+5 V <50 mA

+12 V <50 mA

-12 V <50 mA

**Electromagnetic Compatibility**

EN 61326-1:1997, Emissions Class A, Immunity Table 1 –

Performance Criteria B

### Safety

EN 61010-1:2001 Safety requirements for electrical equipment for measurement, control and laboratory use-Part 1, General requirements

### Driver Software

VXIpn compliant software driver

### INTERFACES

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All connectors are SMA

### DIMENSIONS AND WEIGHT

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#### Dimensions

Single width 3U PXI module

#### Weight

330 g

### RATED RANGE OF USE

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#### Operating Temperature

0 to 50°C, meets IEC-60068-2-1 and 60068-2-2

#### Operating Humidity

10 to 90% non-condensing, meets IEC-60068-2-56

### CONDITIONS OF STORAGE AND TRANSPORT

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#### Storage Temperature

-20 to +70°C, meets IEC-60068-2-1 and 60068-2-2

#### Storage Humidity

5 to 93% non-condensing, meets IEC-60068-2-56

#### Shock

30 g peak, half sine, 9 ms pulse. Tested in accordance with IEC-60068-2-27

Random vibration 5 Hz to 500 Hz, 2.46 g rms non-operating. Tested in accordance with IEC-60068-2-64

### COMPLIANCE

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PXI Specification, Revision 2.2

VXIplug&play Specifications (VPP-2, VPP-3.x, VPP-4.x and VPP-7)

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## VERSIONS, OPTIONS AND ACCESSORIES

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When ordering please quote the full ordering number information.

### Ordering

#### Numbers

3060

#### Versions

PXI RF combiner

#### Supplied with

CD ROM containing VXI PNP Driver, soft front panel and user documentation

SMA 50 ohm termination

#### Service Options

W3060/103

Standard Extended Warranty 36 months

W3060/103C

Standard Extended Warranty 36 months with scheduled calibration

W3060/105

Standard Extended Warranty 60 months

W3060/105C

Standard Extended Warranty 60 months with scheduled calibration

#### Optional Accessories

43139/590

SMA link cable

82532

SMA 50 ohm termination

46885/224

SMA connector saver

82536

PXI Assy, 8 slot chassis with 2.2 GHz P4 Embedded Controller (Windows XP)

82544

PXI Assy, 8 slot chassis with MXI-4 PCI-PXI Interface

82538

PXI Assy, 18 slot chassis with 2.2 GHz P4 Embedded Controller (Windows XP)

82545

PXI Assy, 18 slot chassis with MXI-4 PCI-PXI Interface

46662/767

PXI hard carry case (for use with 82536, 82544)

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.