



Phase Matrix, Inc.[®]
A National Instruments Company

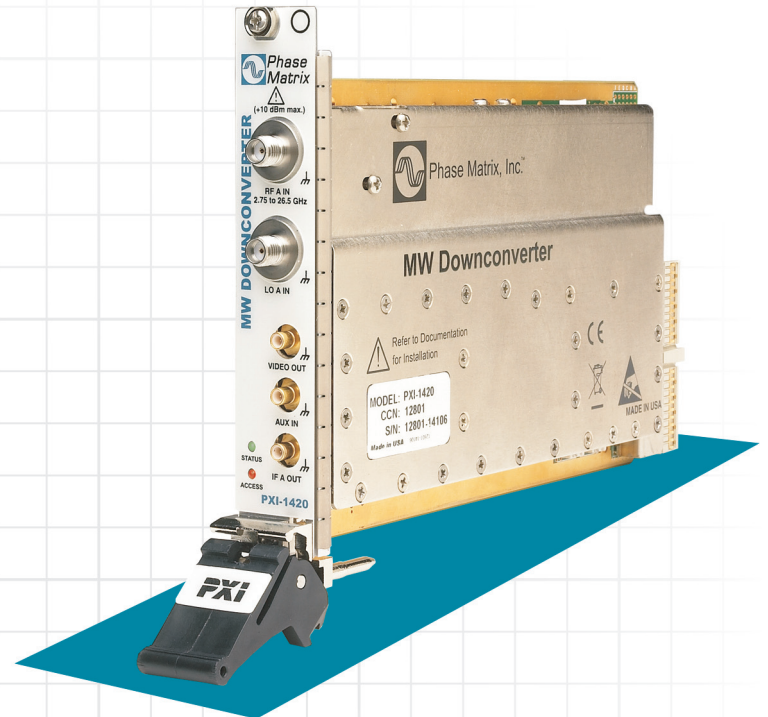
PXI MICROWAVE MW DOWNCONVERTER MODULE

Model PXI-1420

The PXI-1420 MW Downconverter

Module is a PXI 3U, 1-slot downconverter module that, in conjunction with Local Oscillator Module PXI-1450B, converts microwave signals within the 2.75 to 26.5 GHz frequency range into baseband intermediate frequency (IF) signals to drive today's newest generation of digitizers with over 350 MHz instantaneous information bandwidth.

The PXI-1420 MW Downconverter Module is intended for use in applications such as synthetic instrumentation, microwave receivers, signal intelligence, and anywhere a microwave signal needs to be down converted to a baseband frequency for data capture, analysis, and measurement. When combined with a companion high-speed digitizer (>1Gs/s) and user-provided software (e.g., LabVIEW[®]), the PXI-1420 provides a total measurement solution in support of microwave test and measurement applications.



PXI
Systems Alliance

PXI MICROWAVE

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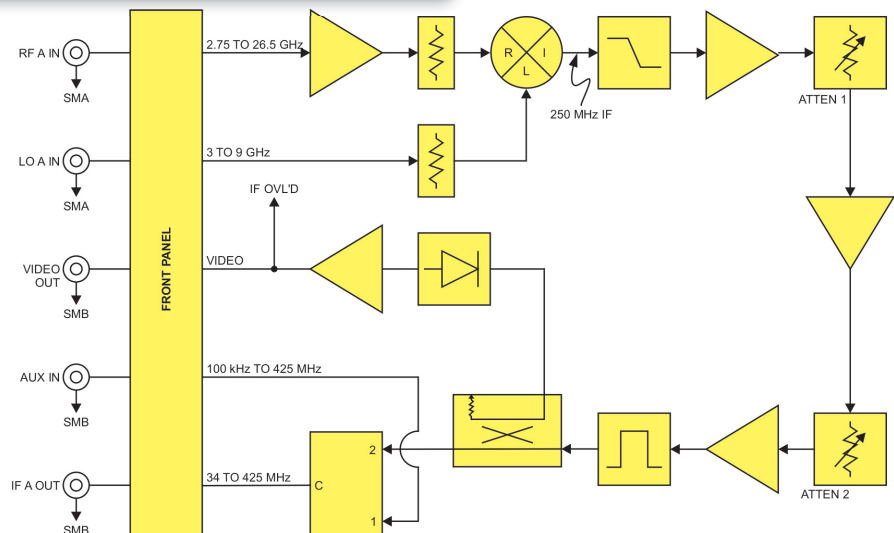
Front Panel



Software-User Interface



Simplified Block Diagram



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Specifications and ordering information subject to change without notice.

Specifications

RF INPUT SPECIFICATIONS

DESCRIPTION	SPECIFICATION
RF A IN Frequency Range	2.75 to 26.5 GHz
RF A IN Operating Level Range	-160 to -40 dBm/-30 dBm nom.
RF A IN Compression Point	-25 dBm min.
RF A IN Max. Level (<i>continuous without damage</i>)	+10 dBm max.
RF A IN Return Loss (50 Ω)	
2.75 to 10 GHz	-12 dB nom.
10 to 26.5 GHz	-10 dB max.
RF A IN Noise Figure	
< 8.75 GHz	12 dB max.
< 26.5 GHz	28 dB max.
RF A IN IP3	-10 dBm min. (<i>with two -40dBm RF-input tones spaced 1 MHz apart, the 3rd order intermodulation product measures with the IF (250 MHz) shall be > 60 dBc</i>)
LO Leakage @ RF A IN (<i>3 to 9 GHz</i>)	-60 dBm max. (<i>includes LO related leakage</i>)

IF OUTPUT SPECIFICATIONS

DESCRIPTION	SPECIFICATION
RF A to IF A Gain	38 dB nom.
IF A OUT Gain Control	37 to 68.5 dB in 0.5 dB/step
IF A OUT Level	-2 dBm (500 mVp-p) nom. (<i>User adjustable via IF Gain Control</i>)
IF A OUT Overload Warning	+3 dBm $\pm$ 2 dB
IF A OUT Center Frequency	250 MHz nom. (<i>User adjustable via LOA IN Frequency</i>)
IF A OUT Bandwidth	300 MHz nom./1 dB
IF A OUT Second Harmonic Distortion	50 dBc min. (<i>@ -2 dBm IF OUT</i>)
LO A Leakage @ IF A OUT	-55 dBm max.
Spurious Single Tone Signals @ IF A OUT	-70 dBm (<i>residual spurs, input, terminated, measured with SA</i>)

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Specifications (continued)

IF VIDEO SPECIFICATIONS ①

DESCRIPTION	SPECIFICATION
Output Rise Time	15 ns max. @ 250 MHz IF Out
DC Output Level (w/ -2 dBm IF Out)	+1 V min. (<i>polarity positive</i>)
DC Level Error Over Temp.	±2 dB (0 to + 55° C)

LOCAL OSCILLATOR INPUT SPECIFICATIONS

DESCRIPTION	SPECIFICATION
LO A IN Frequency Range	3 to 9 GHz
LO A IN Power	+15 dBm ±2 dB
LO A IN Return Loss	-10 dB min.
LO A IN Impedance	50 Ω nom.

GENERAL SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Temperature Range	
Operating	0° to +55° C
Non-Operating	-40° to +70° C
Relative Humidity	10% to 90% (<i>non-condensing</i>)
Certifications	
CE Compliance	Low Voltage Directive 2006/95/EC
Safety	EN/IEC 61010-1:2001
EMI/RFI	EN 55011:2007, IEC 61326-1:2006
Weight	
Shipping Weight	1 lb./0.5 kg
Connector	
RF A IN	SMA (f) (27 GHz type)
LO A IN	SMA (f) (27 GHz type)

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Specifications (continued)

GENERAL SPECIFICATIONS (continued)

DESCRIPTION	SPECIFICATION
Connectors (continued)	
VIDEO OUT	SMB (m)
IF A OUT	SMB (m)
AUX IN	SMB (m)
Warranty	1 Year

PXIbus SPECIFICATIONS

DESCRIPTION	SPECIFICATION				
Module Type	3U/1-Slot				
Warm-up Time	15 minutes max.				
DC Power Dissipation	+3.3 V	+5 V	+12 V	-12 V	Total Power
	70 mA	0.1 mA	850 mA	0.1 mA	10.5 W max.

ORDERING INFORMATION

Model	PXI-1420
Options	None
Accessories ②	
MPXI-14XX-ACC01	Cable set
Related Products	PXI Modules PXI-1410, PXI-1430B, PXI-1440B, PXI-1450B

Notes:

- ① IF video is not available in bypass mode.
- ② Software, operation manuals, and quick-start guides are available online www.phasematrix.com
- ③ "Typ." means approximately 2/3 of all units meet these characteristics at room temperature. Characteristics identified by typ. and nom. are by design and are not normally verified on every unit during production.

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Phase Matrix, Inc. designs and manufactures RF and microwave test-and-measurement (T&M) instruments, subsystems, and components and is a wholly owned subsidiary of National Instruments. Our array of instruments includes traditional benchtop frequency counters, modular (VXI) pulsed-frequency counters, modular (VXI and PXI) synthetic instruments, including downconverters, upconverters/synthesizers and local oscillators that are designed for both commercial and military applications. In addition, we produce instrument-grade, fast-switching synthesizer modules that can be used in various instruments or subsystems. We also manufacture a line of narrowband and broadband microwave components, ranging from VCOs to complex custom-built assemblies for military instrumentation and telecommunications applications.

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