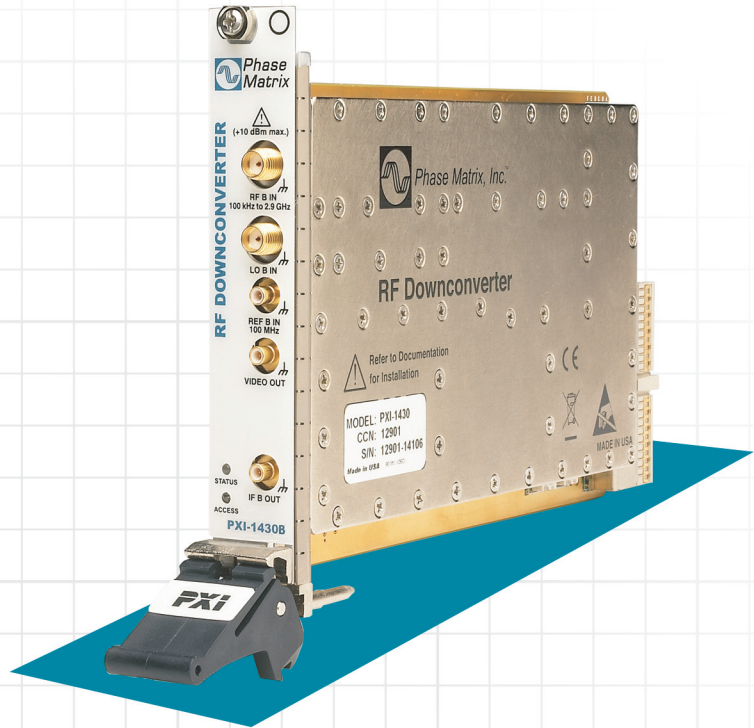




PXI MICROWAVE RF DOWNCONVERTER MODULE

Model PXI-1430B



The PXI-1430B RF Downconverter Module is a PXI 3U, 1-slot downconverter module. It works in conjunction with the PXI-1450B Local Oscillator Module to convert microwave signals in the 100 kHz to 2.9 GHz frequency range into baseband intermediate frequency (IF) signals to drive today's newest generation of digitizers.

The PXI-1430B RF 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 (> 1 Gs/s) and user-provided software (e.g., LabVIEW®), the PXI-1430B provides a total measurement solution in support of microwave test and measurement applications within the 100 kHz to 2.9 GHz frequency range.



PXI MICROWAVE

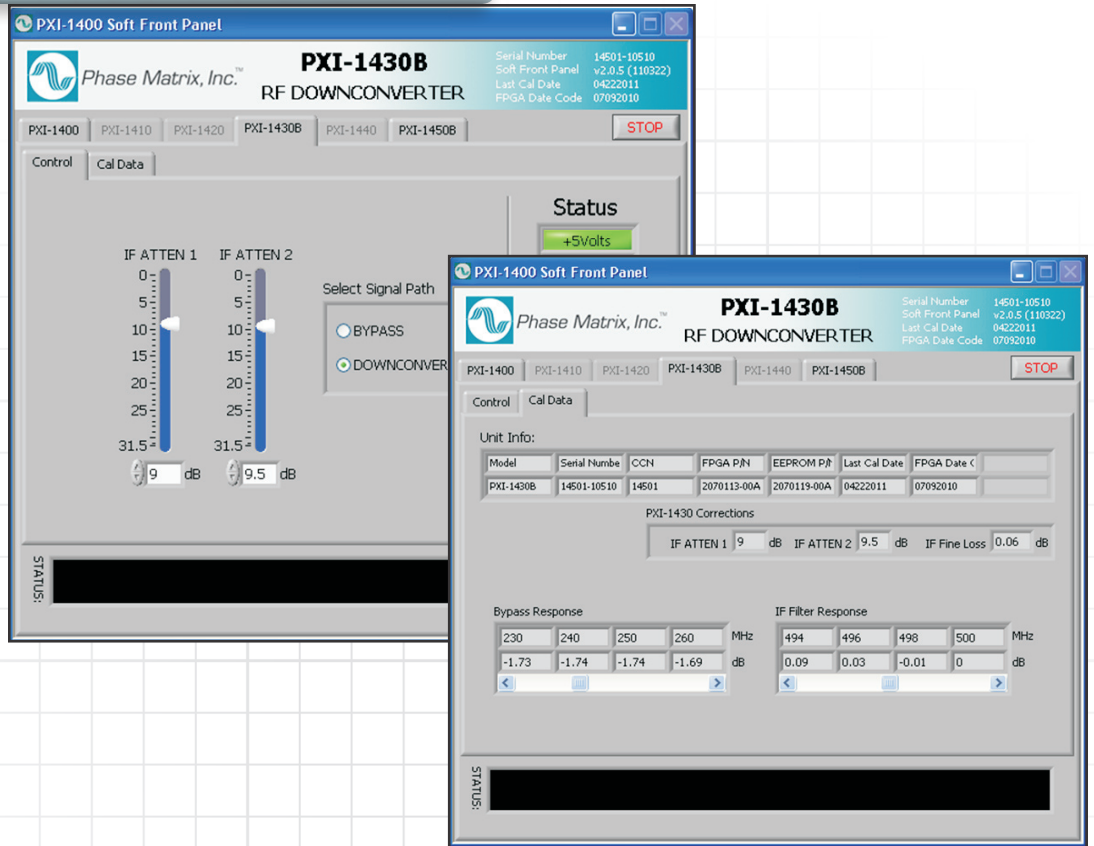
RF DOWNCONVERTER MODULE

Model PXI-1430B

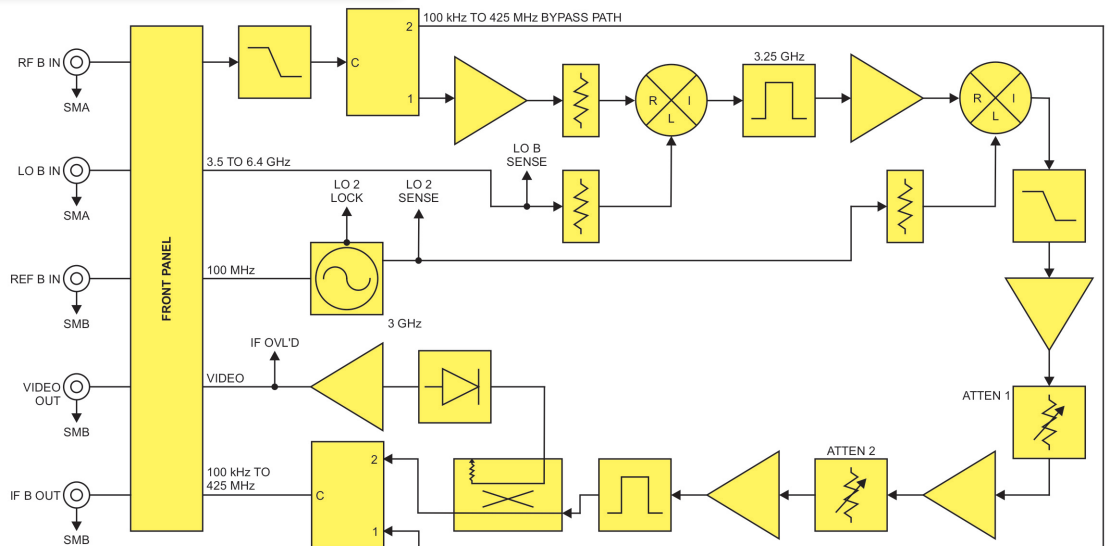
Front Panel



Software-User Interface



Simplified Block Diagram



PXI MICROWAVE

RF DOWNCONVERTER MODULE

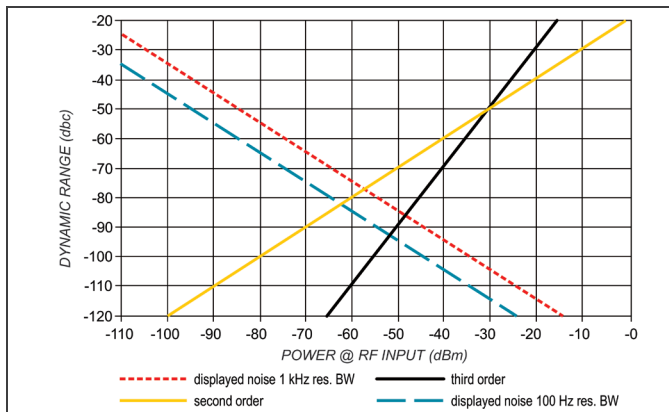
Model PXI-1430B

Specifications and ordering information subject to change without notice.

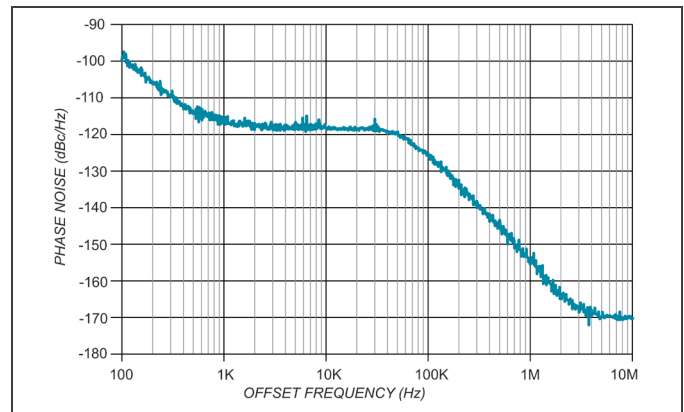
Specifications

RF INPUT SPECIFICATIONS

DESCRIPTION	SPECIFICATION
RF B IN Frequency Range ①	10 MHz to 2.9 GHz (<i>conversion mode</i>) 100 kHz to 425 MHz (<i>bypass mode</i>)
RF B IN Operating Level Range	-160 to -40 dBm/-30 dBm nom.
RF B IN Compression Point	-25 dBm min.
RF B IN Max. Level (<i>continuous without damage</i>)	+10 dBm max.
RF B IN Return Loss (50 Ω)	-10 dB nom.
RF B IN Noise Figure	12 dB max.
RF B IN IP3 (<i>tested with IF @ 250 MHz and two tones spaced 1 MHz apart</i>)	-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 Input (3.5 to 6.4 GHz)	-50 dBm max. (<i>includes LO related leakage</i>)



Dynamic Range at 3 GHz (typ.)



Residual Phase Noise, typ. (does not include LO B contribution)

IF OUTPUT SPECIFICATIONS

DESCRIPTION	SPECIFICATION
RF B to IF B Gain	38 dB nom.
IF B OUT Level	-2 dBm (500 mVp-p) nom. (<i>user adjustable via IF Gain Control</i>)
IF B OUT Overload Warning	+3 dBm ± 2 dB
IF B OUT Center Frequency	250 MHz typ. (<i>user adjustable via LO A IN Frequency</i>)
IF B OUT BW	40 MHz min. (3 dB)

PXI MICROWAVE

RF DOWNCONVERTER MODULE

Model PXI-1430B

Specifications and ordering information subject to change without notice.

Specifications (continued)

IF OUTPUT SPECIFICATIONS (continued)

DESCRIPTION	SPECIFICATION
LO B Leakage @ IF B OUT ⁵	-60 dBm max.
IF OUT Gain Control	37 to 68.5 dB in 0.5 dB/step
Spurious Single Tone Signals @ IF B OUT	-75 dBm (<i>residual spurs, input, terminated, measured with SA</i>)
Bypass Mode Loss	-2.5 dB max. (100 kHz to 425 MHz)

IF VIDEO SPECIFICATIONS ²

DESCRIPTION	SPECIFICATION
Output Rise Time	15 ns max. @ 250 MHz IF Out
DC Output Level (<i>w/ -2 dBm IF Out</i>)	+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 B IN Frequency Range	3.5 to 6.4 GHz
LO B IN Power	+15 dBm ±2 dB
LO B IN Return Loss	-10 dB max.
LO B IN Impedance	50 Ω nom.

REFERENCE OSCILLATOR INPUT SPECIFICATIONS

DESCRIPTION	SPECIFICATION
REF B IN Input Frequency Range	100 MHz ±1 ppm
REF B IN Input Power	0 dBm ±3 dB
REF B IN Input Impedance	50 Ω nom.

GENERAL SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Temperature Range	
Operating	0° to +55° C
Non-Operating	-40° to +70° C

PXI MICROWAVE

RF DOWNCONVERTER MODULE

Model PXI-1430B

Specifications and ordering information subject to change without notice.

Specifications (continued)

GENERAL SPECIFICATIONS

DESCRIPTION	SPECIFICATION
-------------	---------------

Certifications

CE Compliance	Low Voltage Directive 2006/95/EC
---------------	----------------------------------

Safety	EN/IEC 61010-1:2001
--------	---------------------

EMC	EN 55011:2007, IEC 61326-1:2006
-----	---------------------------------

Weight	1 lb./0.5 kg
--------	--------------

Connectors

RF B IN	SMA (f)	IF B OUT	SMB (m)
---------	---------	----------	---------

LO B IN	SMA (f)	IF B OUT	SMB (m)
---------	---------	----------	---------

VIDEO OUT	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
	0.1 A	0.5 A	1.1 A	0.0 A	16 W max.

ORDERING INFORMATION

Model	PXI-1430B
-------	-----------

Options	None
---------	------

Accessories ③

MPXI-14XX-ACC01	Cable set
-----------------	-----------

Related Products	PXI Modules PXI-1410, PXI-1420, PXI-1440B, PXI-1450B
------------------	--

Notes:

- ① When down converting low-frequency signals, it is important to have sufficient IF filtering to prevent overload.
- ② IF video is not available in bypass mode.
- ③ Software, manuals, and quick-start guides are available online www.phasematrix.com
- ④ "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.
- ⑤ LO B leakage at the IF B OUT connector is +10 dBc max. (3.5 to 3.75 GHz)

PXI MICROWAVE

RF DOWNCONVERTER MODULE

Model PXI-1430B

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.

Data sheet PN: DS_1430B Rev.C, Sept. 2013

Copyright © 2013 Phase Matrix, Inc. All rights reserved.