

thinkRF™ D2030

RF Downconverter/Tuner

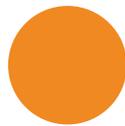


Extend your existing RF test equipment to 30 GHz



COMPACT & LIGHT DESIGN

17.15 cm x 18.74 cm x 3.5 cm
(6.75" x 7.38" x 1.38")
< 1 kg (2.2 lbs)



SINGLE IF OUTPUT

Easy integration with
spectrum analyzers or
receivers.



BUILT-IN LOCAL OSCILLATORS

No need for external
synthesizers.



OVERVIEW

D2030 RF Downconverter/Tuner

Compact, low-power, portable and cost-effective RF downconverter/tuner for the next generation RF environment

1

27-30 GHz RF In

2

3.55 GHz to the
Spectrum Analyzer

3

100 kHz tuning resolution

4

6 W @ 12V input power
consumption

5

Optional 10 MHz
clock synchronization

6

Control from the Spectrum
Analyzer or from a computer



Upgrade your existing field, lab and manufacturing test equipment to 30 GHz

Whether you're in the lab, field or on the manufacturing floor, the ability to measure high frequency 5G signals is becoming a necessity. But as the world moves towards these new 5G wireless standards, many existing spectrum analyzers and test equipment are stuck with the low frequency ranges of the past, meaning they are unable to measure the bands of the future.

The thinkRF™ D2030 RF Downconverter/Tuner is designed to extend the range of your existing analyzers and 3G/4G test equipment to 5G. By down-converting RF from the 27-30 GHz frequency bands down to an intermediate frequency (IF) of 3.55 GHz, you gain the performance needed to measure and analyze 5G signals in a cost-effective and compact solution.

FEATURES & CAPABILITIES

D2030 RF Downconverter/Tuner

1 COMPACT, VERSATILE, AND PORTABLE

The thinkRF D2030 RF Downconverter/Tuner is engineered to work seamlessly with existing spectrum analysis equipment by downconverting RF from the 27 - 30 GHz frequency bands down to an intermediate frequency (IF) of 3.55 GHz.



2 EASY TO USE WITH MINIMAL TRAINING REQUIREMENTS

The D2030 RF Downconverter/Tuner works with your existing test equipment, RF signal detectors, and interfaces, meaning there's minimal training requirements for users. The open platform works seamlessly with current spectrum analysis solutions through SCPI Commands control over Ethernet, allowing the user to control the unit through the spectrum analyzer or any standard PC.



3 SYNCHRONIZE MULTIPLE UNITS FOR INCREASED PERFORMANCE

thinkRF has created a 5G RF downconverter/tuner that features 10 MHz input and output clock references for multi-unit synchronization. As 5G mobile and wireless communications technologies continue to draw upon wider bandwidths and higher frequencies, users can run multiple units in parallel to monitor, detect, and analyze these signals at a lower cost and without replacing their current investment in RF signal detectors.



RF Specifications

Frequency		
Frequency Range		
RF In	27 to 30 GHz	
IF Out	3.55 GHz (the output spectrum is inverted)	D2030-5.5975 GHz option (the output spectrum is non-inverted)
Real-Time Bandwidth (RTBW)	160 MHz	
Tuning Resolution	100 kHz	
Gain Flatness	± 1.5 dB max.	160 MHz BW
Max. Safe RF Input Level	+10 dBm, 10Vdc	
Max. RF Input Operating Level	-20 dBm	
VSWR		
RF In	2.0 : 1 typical*	9.5 dB return loss
IF Out	1.3 : 1 typical*	18.0 dB return loss
Conversion Gain		
Normal Mode	0 dB ± 0.8 dB	
Pre-Amp On	10 dB ± 0.8 dB	Pre-Amp selectable via software
Noise Figure		
Normal Mode	29 dB max. (as measured)	
Pre-Amp On	10 dB max., 9 dB typical*	
Phase Noise (27 GHz - 30 GHz)		
10 kHz	-89 dBc/Hz typical*	For all three values: Average of 5 units measured at CF 28.05 GHz
100 kHz	-87 dBc/Hz typical*	
1MHz	-107 dBc/Hz, typical*	
Local Oscillator Leakage	-57 dBm max.	Measured at RF In port
Third Order Intercept (TOI)	+8 dBm typical*	@ Pre-amp OFF
Image Rejection	40 dBc, min	@ -25 dBm RF input vs Fin ± (2 x IF)
2nd Harmonic Rejection	65 dBc	@ -25 dBm RF input
Spurious performance		
Residual	-85 dBm max.	
Input Related	40 dBc min.	@ - 30 dBm RF input
10 MHz Reference		
Output Level	0 dBm min.	
Harmonic Level	-40 dBm max.	
Initial Tolerance	±1.5 ppm @ 25°C	
Stability over temp	±0.2 ppm (0 °C to 50 °C)	
Aging	±0.5 ppm/year	

* thinkRF expects this performance by design in 90% of the units produced. Variability is possible from unit to unit.

General Specifications

Connectors

RF In	K connector female, 50 Ω
IF Out	SMA female, 50 Ω
10 MHz Reference In and Out	SMA female, 50 Ω
10/100/1000 Ethernet	RJ45
Coaxial Power	BNC

Status Indicators

PLL Lock / 10 MHz reference clock status
Ethernet Link and Activity Status
CPU and Power Status

Power

Physical Power Supply	Use AC Wall Power Adaptor provided	Input AC 120V-240V /+12V Output
Power Consumption	6 W with Power Adaptor provided	At room temperature

Physical

Operating Temperature Range	-10°C to +55°C
Storage Temperature Range	-40°C to +71°C
Size (W x L x H)	17.15 cm x 18.74 cm x 3.5 cm (6.75" x 7.38" x 1.38")
Weight	< 1 kg (2.2 lbs)

Regulatory Compliance

RoHS Compliance	RoHS/RoHS 2 (European Union)	
Marks	CE, CSA, UL	
EMC Directive	EN 61326-1, FCC PT15 & IEC-003	Electromagnetic Compatibility
Low Voltage Directive	IEC/EN 61010-1, CSA/UL 61010-1	Safety

Software Specifications

Software Interface

Standard SCPI	Control over Ethernet
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Ordering Information

Base Units	Part Number	Description
27 to 30 GHz RF Downconverter/Tuner	D2030-355	3.55 GHz IF output

CONTACT US TODAY
FOR A FREE DEMO!

thinkRF™ D2030

RF Downconverter/Tuner



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Intellectual Property - Patents

The thinkRF D2030 product line are protected by patents, (US8,675,781, US9,197,260, US9,350,404, US8,886,794) in the United States. This information is provided to satisfy the patent marking provisions including, but not limited to, the patent marking provisions of the America Invents Act (AIA) and is intended to serve as notice under 35 U.S.C. § 287(a), as amended by Section 16 of the AIA. Additional patents may be pending in the United States and/or elsewhere.


monitor. detect. analyze.

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