

# ThinkRF D2030

## 27-30 GHz RF Downconverter

Extend your existing 3G/4G test equipment to 5G

### Features and Benefits

- Compact, low-power, portable and cost-effective
- Retain and upgrade your existing field, lab and manufacturing test equipment
- 160 MHz real-time bandwidth with 100 kHz tuning resolution
- Standard SCPI control over Ethernet

### Applications

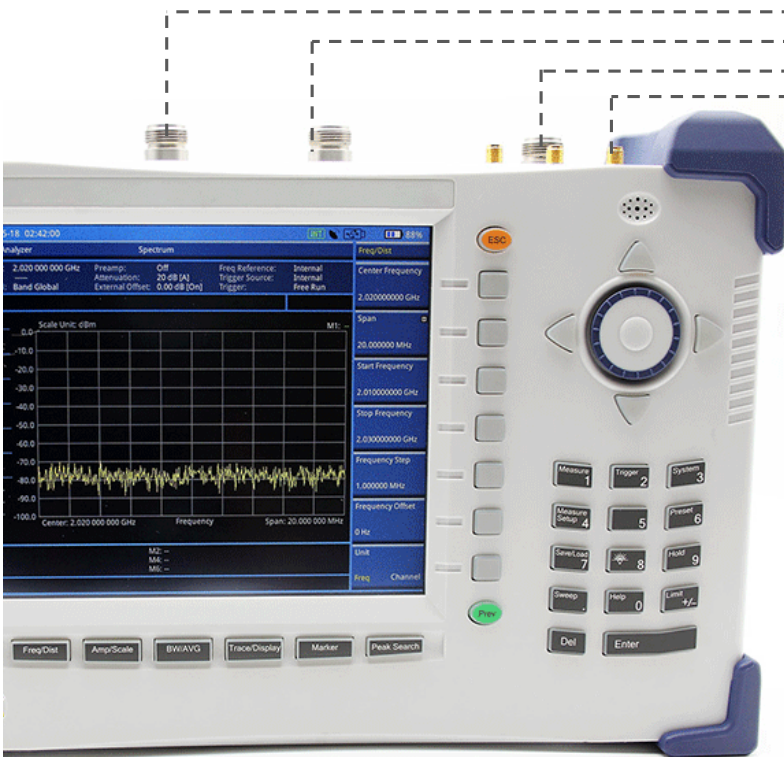
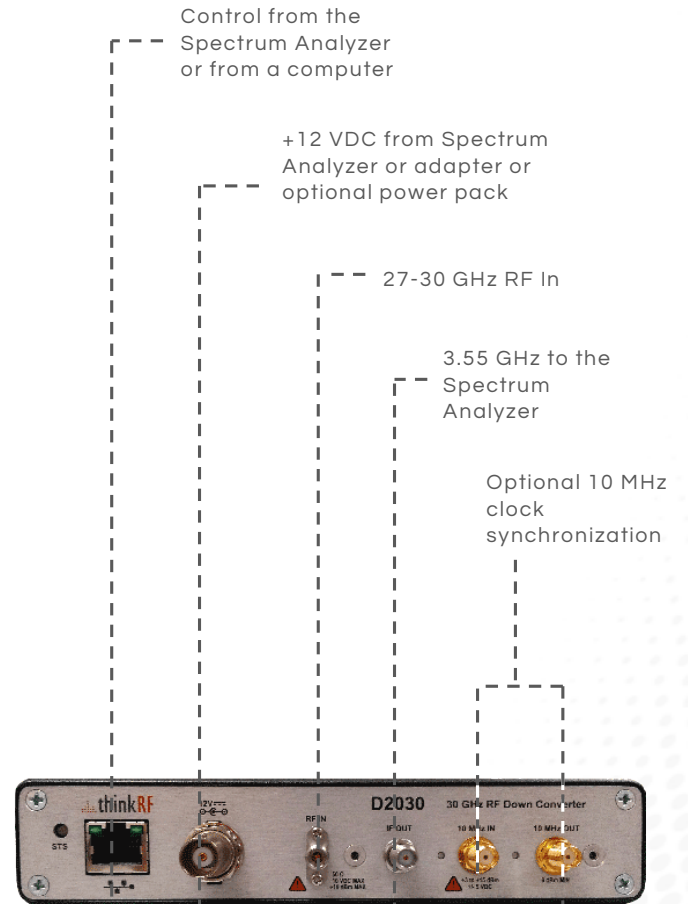
- Spectrum analysis
- Drive testing
- Transmission test
- Customer Premise Equipment test
- Interference testing



# Extend Your Existing 3G/4G Test Equipment to 5G with the D2030 RF Downconverter

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 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.



Your Current 3G/4G Test Equipment, Lab Spectrum Analyzer or Hand-Held



## Features and Capabilities

### Compact, Versatile, and Portable Frequency Downconversion

The ThinkRF D2030 RF Downconverter 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.



### Easy to Use with Minimal Training Requirements

The D2030 RF Downconverter 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 standard SCPI control over Ethernet, allowing the user to control the unit through the spectrum analyzer or any standard PC.



### Synchronize Multiple Units for Increased Performance

ThinkRF has created a 5G RF downconverter 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	D2030 - 355 option
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 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	Average of 5 units measured at CF 28.05 GHz
100 kHz	-87 dBc/Hz typical	Average of 5 units measured at CF 28.05 GHz
1MHz	-107 dBc/Hz, typical	Average of 5 units measured at CF 28.05 GHz
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)
2 <sup>nd</sup> Harmonic Rejection	65 dBc	@-25 dBm RF input
Spurious		
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	0.5ppm/year	



## General Specifications

### Connectors

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

### 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	0°C to +50°C	
Storage Temperature Range	-40°C to +85°C	
Size (W x L x H)	190 x 210 x 25 mm (7.5 x 8.5 x 1.0 inches)	Approximate
Weight	1 kg (2.2 lbs.)	Approximate

### Regulatory Compliance

RoHS Compliance	RoHS	
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

### APIs and Protocols

Standard SCPI	Control over Ethernet
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## Ordering Information

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

Contact us for more information on 5G applications

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