TFS30-15 - Frequency synthesizer

The TFS30-15 is an ultra-low phase noise frequency synthesizer designed for high-precision RF/microwave applications. Operating across a broad frequency range of 200 MHz to 15 GHz, this compact device (85×85×18 mm, ≤0.7 kg) output excellent phase noise as low as -118dBc/Hz@1kHz -126dBc/Hz@10kHz (at 10GHz). specifications.

Built around a high-stability crystal oscillator and featuring SPI control, it ensures rapid frequency switching (≤500 µs) and precise synchronization with external references (±40 mHz accuracy).

Applications Include:

Wireless Communication Testing:

Ideal for 5G, satellite, and millimeter-wave system validation.

Radar and Defense Systems:

SSuitable for pulse modulation testing, radar signal simulation, and electronic warfare applications.

Research and Development:

Enables precision signal generation for academic and industrial R&D in RF/microwave engineering.

Field Maintenance:

IPortable design supports on-site calibration, troubleshooting, and maintenance of RF equipment.

General Specifications

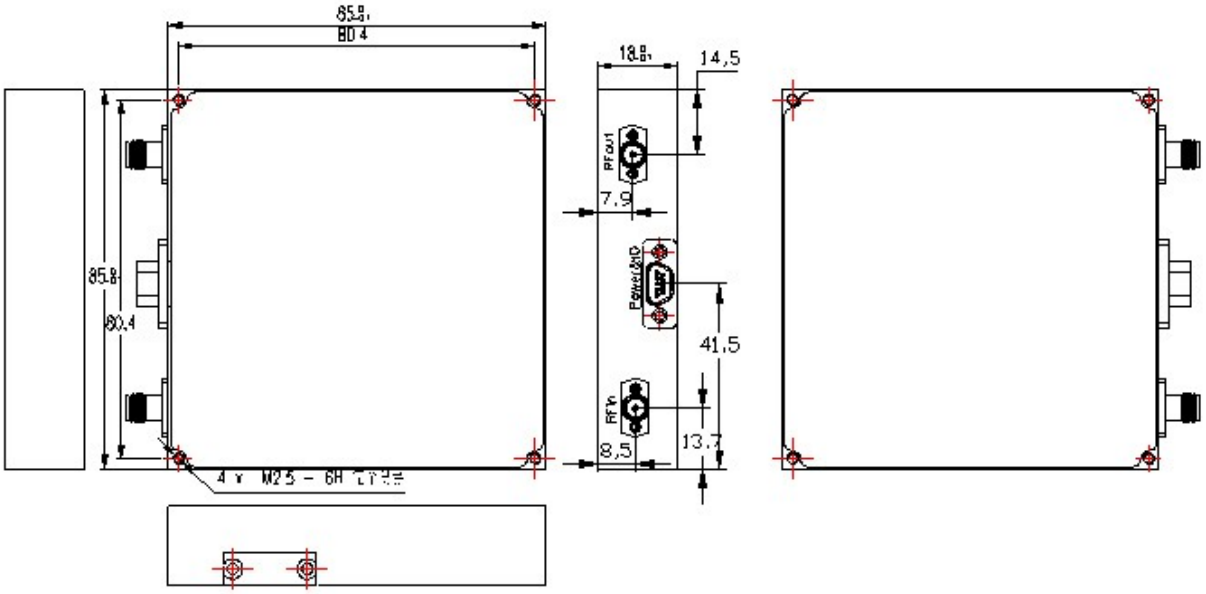
- **Broadband Output frequency: 200MHz~15GHz**
- **Excellent Phase Noise (10GHz):**
  -118dBc/Hz@1kHz
  -126dBc/Hz@10kHz
- **Small size: 85*85*18mm**
- **Control mode: SPI control**

kTB Frequency synthesizer

Ideal for critical systems demanding reliability and performance, the TFS30-15 combines portability with laboratory-grade.

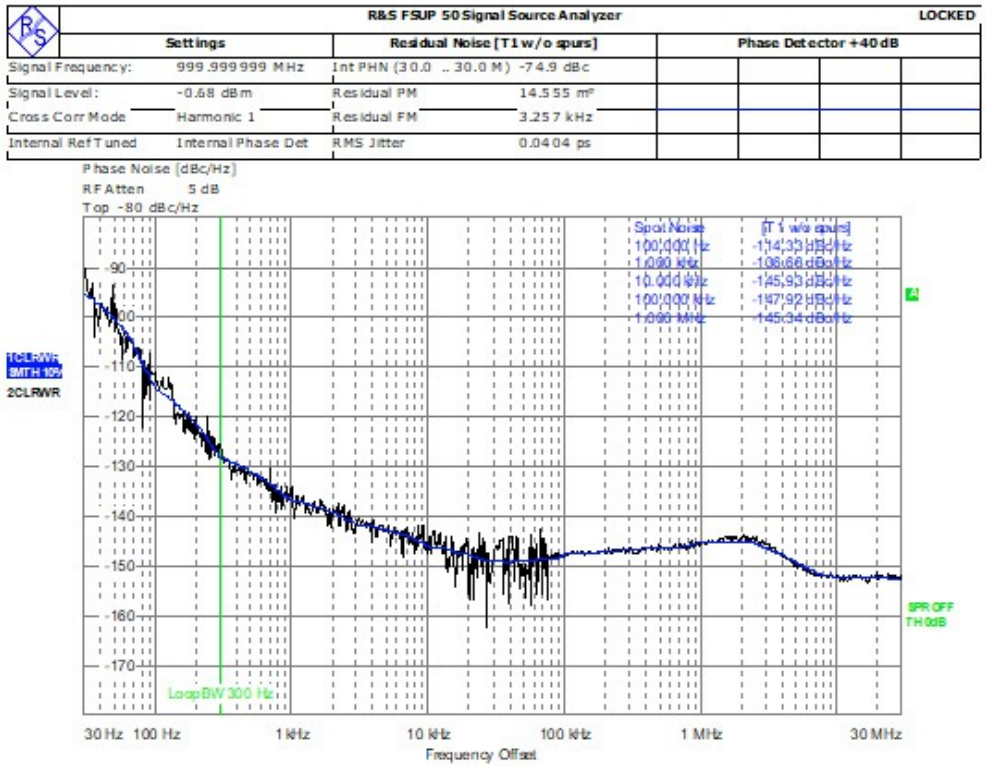
Product Features	Specification name		Indicator parameters		Remark
RF output	Output frequency		200~15000MHz		
	Frequency stepping		0.1Hz		
	Frequency hopping time		≤500us		
	Output power		0±4dBm		
	Frequency stability		Synchronization with external reference (synchronization accuracy less than 40mHz)		
	Phase noise (100MHz)	Frequency	500MHz	1GHz	5GHz
		dBc/Hz@100Hz	≤-116	≤-112	≤-97
		dBc/Hz@1kHz	≤-138	≤-134	≤-122
		dBc/Hz@10kHz	≤-146	≤-143	≤-132
		dBc/Hz@100kHz	≤-146	≤-143	≤-132
		dBc/Hz@1MHz	≤-146	≤-143	≤-132
		Frequency	10GHz	15GHz	
		dBc/Hz@100Hz	≤-92	≤-89	
		dBc/Hz@1kHz	≤-118	≤-113	
		dBc/Hz@10kHz	≤-126	≤-122	
		dBc/Hz@100kHz	≤-126	≤-122	
		dBc/Hz@1MHz	≤-126	≤-122	
	Spurious		≤-75dBc(Typ) ≤-70dBc(Max)		
	harmonic wave		≤-5dBc		
RF input	Enter the reference frequency		10/100MHz		
	Phase noise (100MHz)	dBc/Hz@100Hz	≤-125		
		dBc/Hz@1kHz	≤-155		
		dBc/Hz@10kHz	≤-165		
		dBc/Hz@100kHz	≤-165		
		dBc/Hz@1MHz	≤-170		
	Enter the reference power		7±3dBm		
Operating voltage	Supply voltage		+12VDC±0.5		
	Maximum voltage		+15V		
	Operating current		≤2.2A (Startup) ≤1.95A (Stable)		
Operating environment and form factor	Operating Temperature (° C)		-40~+70		
	Storage Temperature (° C)		-55~+85		
	weight		≤ 0.7kg		
	Dimensions		85*85*18mm		
other	Control mode		SPI		

Dimensions:

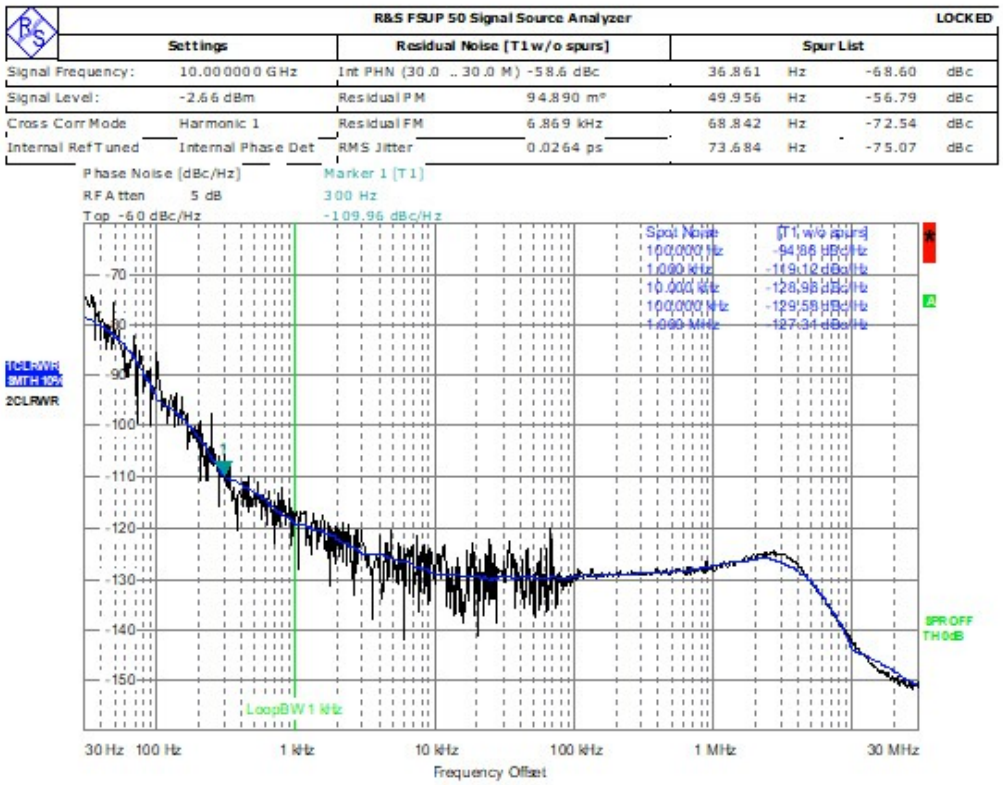


Connector definition					
RF in	SMA-K (detachable) (Φ0. 38).				
RF out	SMA-K (detachable) (Φ0. 38).				
Power and control	J30J-9-ZKP				
J30J pin definition					
1	+12V (Power)	4	GND (Ground)	7	MISO (SPI Communication Interface).
2	+12V (Power)	5	LD (Lock Indicator: High Level Lock)	8	SCK (SPI Communication Interface).
3	GND (Ground)	6	MOSI (SPI Communication Interface).	9	LE (SPI Communication Interface).

Typical Test Curves:



1GHz phase noise plot:



10GHz phase noise curve:

Deliverables:

When the product is delivered, the documents specified in the following table will be provided:

No.	Attachments	Quantity	Remark
1	Factory inspection report	1	
2	Product Certificate	1	
3	Instruction manual for the product	1	Paper/electronic version