TFN TG115 microwave signal generator

100KHz–15GHz

TFN TG115 microwave signal generator is positioned as a multifunctional, cost-effective signal generator, its frequency range covers 100kHz to 15GHz, with a variety of commonly used analog modulation functions (AM/FM/ φ M), pulse modulation functions, low-frequency output functions and frequency/amplitude scanning functions. The above functions make the signal generator become a flexible, universal instrument, suitable for teaching and research, product development, production and maintenance, to meet the application needs of different application scenarios. Rich logic hardware interface and widescreen LCD display, so that you can easily carry out a variety of control operations. Standard 2U height main case, complete standard. Quasi-scpi command set and general multi-communication mode, for you to carry out remote control and secondary development brings great convenience.

Main characteristics

- The frequency range is 100kHz to 15GHz

- High signal purity, phase noise typical values <-115 DBC/Hz@10 kHz

- Output power -20dBm to +10dBm, optional support 130dB dynamic adjustment output

- Support a variety of analog modulation AM/FM/ φM

- Support pulse modulation, up to 70dB on-off ratio; External input impulse train is available

- Provide internal modulation sources: sine wave, square wave, triangle wave, sawtooth wave

- Standard 2U height, convenient rack integration; A rack mounting kit is provided

- USB/LAN remote control interface that provides the standard SCPI command set

Technical specification

Frequency

- ➤ Frequency range: 100kHz to 15.0GHz
- ➤ Time base aging rate: +1ppm/ year
- ➤ Time-base temperature stability: ±0.1ppm
- ➤ Phase noise: -95dBc/ Hz@10kHz (10GHz)

Frequency band	Frequency range	N
1	$f \leq 140\text{MHz}$	0.015625（1/64）
2	$140\text{MHz} < f \leq 156.25\text{MHz}$	0.0078125（1/128）
3	$156.25\text{MHz} < f \leq 312.5\text{MHz}$	0.015625（1/64）
4	$312.5\text{MHz} < f \leq 625\text{MHz}$	0.03125（1/32）
5	$625\text{MHz} < f \leq 1250\text{MHz}$	0.0625（1/16）
6	$1250\text{MHz} < f \leq 2500\text{MHz}$	0.125（1/8）
7	$2500\text{MHz} < f \leq 5000\text{MHz}$	0.25（1/4）
8	$5000\text{MHz} < f \leq 10000\text{MHz}$	0.5（1/2）
9	$10000\text{MHz} < f \leq 20000\text{MHz}$	1

Note: In this article, N indicates the factor that helps define the quota.

Output power

- ➤ Maximum output power: +10dBm
- ➤ Minimum output power: -20 DBM (-120 DBM needs to add program control attenuator option)
- ➤ Output power step: 0.1dB
- ➤ Output power accuracy: ≤+1.0dB (ALC open)

Frequency/amplitude scanning

➢ Scan pipeline: step scan, list scan

➢ Scanning mode: single and continuous

➢ Scanning range: the frequency/amplitude range set by the instrument

➢ Scanning points: step scanning: 2~65535; List scan: 2~16383

➢ Dwell time: 10ms ~ 50s

➢ Trigger pipeline: automatic scanning, external trigger

Pulse modulation

➢ Pulse period: 400ns~ 160s

➢ Pulse width: 200ns~ 85s

➢ Set resolution: 100ns

➢ On-off ratio: ≥70dB

➢ Trigger pipeline: automatic, external trigger, button trigger

Amplitude modulation

➢ Modulation source: internal, external.

➢ Modulation depth: 0~90%

➢ Modulation accuracy: < set value x4%+1% (fmod=1kHz and m< 80%)

➢ Modulation distortion: <3% (fimod=1kHz, m = 30%, 0dBm output)

➢ Modulation frequency range: 10Hz~ 20kHz

Frequency modulation

➢ Modulation source: internal, external

➢ Maximum frequency offset: Nx64MHz (nominal value)

➢ Modulation accuracy: < set value x2%+20Hz (fmod=1kHz)

➢ Modulation distortion: <2 % (fmod =1kHz, offset =Nx 100kHz)

➢ Modulation frequency range: 10Hz~ 200kHz

Phase modulation

➤ Modulation source: internal, external

➤ Maximum phase bias: Nx6rad (nominal value)

➤ Modulation accuracy: < set value x2%+ 0.1rad (fmod=1kHz)

➤ Modulation distortion: <1% (fmod =1kHz, offset = 3rad)

➤ Modulation frequency range: 10Hz ~ 200 kHz

Harmonic output

➤ Harmonic output: ≤-30 DBC (Typical value: 0dBm output)

➤ Non-harmonic output: ≤-60 DBC (Typical value: 0dBm output)

LF signal output

➤ Waveform: sine wave, square wave, triangle wave

➤ Frequency range: sine wave: 100Hz ~ 500 kHz; Square wave: 5 kHz ~10kHz; Triangular wave: 5 kHz ~ 50 KHZ

➤ Output level: 0.2VP-P~2 vp-p

➤ Output port: BNC, 50Ωimpedance

Universal characteristic

- ➤ Rf output: N type negative head, 50Ω impedance connector
- ➤ Low frequency (LF) output interface: BNC type negative head, 50Ω impedance connector
- ➤ 10MHz is optional. BNC negative head, 50Ω impedance connector.

  External reference input level: 0dBm~+10dBm

  Aging rate: +1ppm (typical value)

  10MHz is recommended as an output: BNC negative head, 50Ω impedance connector.

  Internal reference output level: 0dBm~+3dBm

  Aging rate: ±1ppm (typical value)

- ➤ AMIN input interface: 1kΩ BNC type Yin head.
- ➤ FM IN input interface: 1kΩ BNC type Yin head
- ➤ External trigger input interface: 1kΩ BNC type Yin head
- ➤ Internal trigger output interface: 1kΩ BNC type negative head
- ➤ Internal pulse output interface: 1kΩ BNC type negative head
- ➤ External pulse input interface: 1kΩ BNC type negative head
- ➤ Scan enable output interface: 1kΩ BNC negative head
- ➤ LAN interface: 10/100 Base-T, RJ-45 connector
- ➤ RS-232 interface: DB9
- ➤ Power supply: AC110V to 240V 50/60Hz
- ➤ Dimensions: Length x width x height (430mmx380mmx 100mm)
- ➤ Weight: ≤5kg

Order information

CONFIGURATION	DESCRIPTION	ORDER NUMBER
Host	Microwave signal generator	TG115
Standard accessory	CD (User manual, programming manual)	
	Power cord (standard AC220V power cord)	
Option	Program controlled attenuator option	TG115-PCA
	Rack mounting kit	TG115-RMK