

TC-2800A

GNSS Signal Generator

Data Sheet





Introduction

The TESCO TC-2800A GNSS signal generator is designed to measure the quality of the receiver in the production line by generating GPS, GLONASS and BeiDou signals. The user can set the signal conditions through the frontal LCD and keypad without PC, and the signal generator supports USB interfaces and commands for automatic production. Lightweight and slim, the product is the size of half the rack/2U; thus saving installation space. TC-2800A is an economically efficient, optimal solution for the reliable measurement of C/N0 and reception sensitivity of single or multiple DUTs in the GNSS receiver production line.

- Single-channel GPS L1 C/A
- Single-channel GLONASS L1 C/A
- Single-channel BeiDou B1
- Wide dynamic power range from 0 to -130 dBm
- Signal data display through color LCD
- Easy control through frontal keypad without PC
- Remote control through USB Port
- Easy firmware upgrade through USB port
- Lightweight and slim, size of half the rack/2U

Features

Stable System Architecture

TC-2800A deploys FPGA-based Software-Define-Radio (SDR) architecture for stable signal and efficient GPS/GLONASS signal transmission, which require high accuracy.

Wide Dynamic Power Range

TC-2800A provides a wide and continuous dynamic power range from 0 to -130 dBm. For the various measurement requirements, TC-2800A covers all power level within this range without gaps. The 30dB attenuator enables TC-2800A to meet low-level output requirements as low as -160 dBm.

Front LCD and Keypad Control

TC-2800A users need not establish PC connections or use separate programs to set GPS or GLONASS signal parameters. The intuitive, easy-to-use GUI and front keypad allow the user to set protocol parameters, RF output, and frequency efficiently. Such convenient setting allows the user to perform repetitive measurement easily in various conditions.

Remote Control

TC-2800A is equipped with USB-to-serial interfaces for users to control the devices remotely through USB on PC without RS-232C or GPIB interfaces. The user can run all functions using the provided commands and even create an automation program for mass production.

Firmware Upgrade

TC-2800A provides a simple upgrade program for users to upgrade the firmware through PC. The upgrade program is provided upon purchase, and the user can receive the upgrade data from the TESCOM website or through email.

Mechanical Specification

1. Signal Specification

GPS Signal	
Range	L1 C/A channel
Frequency	1575.42 MHz
PRN	1 ~ 32
GLONASS Signal	
Range	L1 C/A channel
Frequency	1602.00 MHz \pm K Δ f1, K= -7 ~ 6, f1= 562.5 kHz
Channels	K= -7 ~ 6
BeiDou Signal	
Range	B1 channel
Frequency	1561.098 MHz
PRN	1 ~ 37
Modulation	
BPSK (Bipolar Phase Shift Keying)	
Harmonics	
In-Band	-40 dBc (\pm 20 MHz)
Out-Band	-35 dBc
Phase Noise	
RMS	< 0.6 Deg (100 Hz ~ 100 kHz)
Spot	< -70 dBc/Hz @ 1 kHz
Frequency Accuracy	
\pm 1 ppm/year @ operating temperature	

2. Power Specification

Output Level	
Signal Range	0 dBm to -130 dBm
Resolution	0.1 dB
Accuracy	< \pm 1.0 dB (output level > -100 dBm)
	< \pm 1.5 dB (output level \leq -100 dBm)
VSWR	
1.3, Typ.	
Output level \leq -40 dBm: < 1.3	
- 40 dBm < output level \leq -10 dBm: < 1.6	
- 10 dBm < output level \leq 0 dBm: < 2.2	

3. Remote Control

Port	
USB to Serial (Virtual COM Port)	
Driver	
CP2103	Silicon Laboratories CP210x USB to UART Bridge (http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx)

4. Interface

RF Port	
OUT	N Type, 50 Ohm, DC isolated (> 0.1 MHz)
Reference Port	
IN	BNC Type, 10 MHz < ±10 ppm, 0 dBm to 10 dBm @ 50 Ohm
OUT	BNC Type, 10 MHz < ±1 ppm, 8 dBm ± 2 dB @ 50 Ohm

5. Miscellaneous

Physical	
Dimension	210 (w) x 342 (d) x 88 (h) mm
Weight	6 kg
Packing	
Size	335 (w) x 454 (d) x 145 (h) mm
Weight	approx. 7 kg
Line Voltage	
Input	100 - 240 VAC, 50/60 Hz
Power	< 45 W
Temperature	
Operation	5 °C to 40 °C
Storage	-10 °C to 60 °C

Ordering Information

Item Code	Description
TC-2800A	GNSS Tester ⁽¹⁾
S2800-30	BeiDou S/W Option

⁽¹⁾ In the case of GNSS tester order, GLONASS and GPS are the basic specifications.



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

