

TRANSCOM INSTRUMENTS

Product Brochure



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Portable Vector Network Analyzer T5113H/T5231A



Overview

Compared to conventional multiport test scheme of VNA+matrix switch, T5845A supports synchronous test of DUTs. Each DUT has its own test interface to achieve completely parallel operation. Therefore, the “multi-purpose” functions of T5845A are achieved without losing stability, accuracy and repeatability.

Key Features

- Frequency Range: 300kHz~1.3GHz/3GHz (T5113A/T5231A)
- Dynamic Range: >125 dB (IFBW=10 Hz), 130 dB typical
- Low Noise Level: <-120 dB (IFBW=10 Hz)
- Low Trace Noise: 1 mdB rms (IFBW=3 kHz)
- High Measurement Speed: 100 μ s/point (IFBW=30 kHz)
- High Effective Directivity: >45 dB
- Remote Control: LAN/GPIB/USB
- Very Low Power Consumption: 40W
- “One-Key-Test” Solution

Measurement Range

Product Model	T5231A	T5113H
Impedance	50 Ω , 75 Ω ¹	
Test Port Connector	N-type, female	
Number of Test Ports	2	
Frequency range	300kHz~3.0GHz	300kHz ~ 1.3GHz
Full CW Frequency Accuracy	$\pm 5 \times 10^{-6}$	
Frequency Resolution	1Hz	
Number of Measurement Points	2 ~ 10001	2 ~ 1601
Measurement Bandwidths	1Hz to 30kHz (in 1 / 1.5 / 2 / 3 / 5 / 7 steps)	1Hz to 30kHz (in 1 / 3 steps)
Dynamic Range	125dB, typ.130dB	
Measurement Parameters	S11, S21, S12, S22	S11, S21

¹Use 75 connector via adapter

Effective System Data¹

Product Model	T5231A	T5113H
Effective Directivity	45 dB	
Effective Source Match	40 dB	
Effective Load Match	45 dB	NA

¹ Applies over the temperature range of 23°C \pm 5°C after 40 minutes of warming-up, with less than 1°C deviation from the full two-port calibration temperature, at output power of -5 dBm and IF bandwidth 10 Hz.

Measurement Accuracy

Product Model	T5231A	T5113H
Accuracy of Transmission Measurements (magnitude / phase)		
+5dB to +15dB	0.2dB/2°	0.2dB/2° (+10dB to +13dB)
-50dB to +5dB	0.1dB/1°	0.1dB/1° (-50dB to +10dB)
-70dB to -50dB	0.2dB/2°	
-90dB to -70dB	1.0dB/6°	
Accuracy of Reflection Measurements (magnitude / phase)		
-15dB to 0dB	0.4dB/3°	
-25dB to -15dB	1.0dB/6°	1.5 dB/7°
-35dB to -25dB	3.0dB/20	4.0 dB/22°

Trace stability		
Product Model	T5231A	T5113H
Trace Noise Magnitude (IF bandwidth 3 kHz)	1mdB rms	2 mdB rms
Temperature Dependence (per one degree of temperature variation)	0.02dB	

Measurement Speed

Product Model	T5231A				T5113H			
Measurement Time Per Point	125ms				150 ms			
Source to Receiver Port Switchover Time	< 10ms				NA			
Typical Cycle Times Versus Number of Measurement Points (IFBW 30kHz)	51	201	401	1601	51	201	401	1601
One-Path Two-Port Calibration (300kHz~1.3GHz)	NA				9ms	31ms	60ms	235ms
Uncorrected (300kHz~10MHz)	13ms	52ms	104ms	413ms	NA			
Full Two-Port Calibration (300kHz~10MHz)	46ms	123ms	226ms	844ms	NA			
Uncorrected (10MHz~3GHz/8GHz)	7ms	27ms	53ms	207ms	NA			
Full Two-Port Calibration (10MHz~3GHz/8GHz)	34ms	73ms	125ms	434ms	NA			

Test Port Output

Product Model	T5231A	T5113H
Match (W/O System Error Correction)	15dB	20dB
Power Range		
300kHz~1.3GHz/3GHz/6GHz	-55dBm to +10dBm	-55 dBm to +3 dBm
6GHz~8GHz	NA	
Power Accuracy	±1.0dB	±1.5 dB
Power Resolution	0.05dB	

Test Port Input

Product Model	T5231A		T5113H	
Match (W/O System Error Correction)	25dB		30dB	
Damage Level			+26dBm	
Damage DC Voltage			+35V	
Noise Level (IF Bandwidth 10 Hz)	< -120dBm		< -127dBm	

General Data

Display	10.4 inch TFT color LCD, touch screen
External Trigger Input Connector	BNC female, Input level range: 0 to +5 V
External Reference Input	BNC female; 10 MHz; 2 dBm ± 2 dB (T5231A/T5113H)
External Reference Output	BNC female; 10 MHz; 2 dBm ± 2 dB (T5231A/T5113H)
VGA Video Output	15-pin mini D-Sub; female; driving the VGA compatible monitors
GPIO Connector (Optional)	24-pin D-Sub (type D-24), female; compatible with IEEE-488
USB Connector	Female; provides connection to printer, ECal module, USB storage
LAN Connector	10/100/1000 Base T Ethernet, 8-pin
Operating Temperature Range	+5°C ~ +40°C
Storage Temperature Range	-45°C ~ +55°C
Humidity	90% (25°C)
Atmospheric Pressure	84 to 106.7 kPa
Calibration Interval	3 yr
Power Supply	220 ± 22 V (AC), 50 Hz
Power Consumption	60W
Dimensions (W × H × D)	440 × 231 × 360 mm
Weight	7.1 kg (T5231A) / 6.5 kg (T5113H)

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About Transcom

Shanghai Transcom Instrument Co., Ltd. (NEEQ: 831961), established in 2005, independently research and develop high-end radio frequency communication testing instruments and is a professional provider of overall testing solutions. Starting from 2009, Transcom, titled as National High-Tech Enterprise and the fostered enterprise by Shanghai Little Giant Project, has undertaken the tasks of development for National "New-Generation Broadband Wireless Mobile Communication Network" and the construction of Shanghai Engineering Research Center for Wireless Communication Testing Instruments.

In 2015, Transcom officially announced its new five-year development strategy "1+3". In detail, Transcom will continue to enhance its potential to be the national team for domestic wireless communication instruments, and develop security software for mobile communication network (network communication/data mining), wireless signal (spectrum monitoring/situation analysis) and Beidou navigation (signal monitoring for satellite navigation/mobile anti-jam verification platform). The strategy has now been implemented systematically with progressive achievements in Shanghai, Guangdong and other cities.

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ISO9001



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