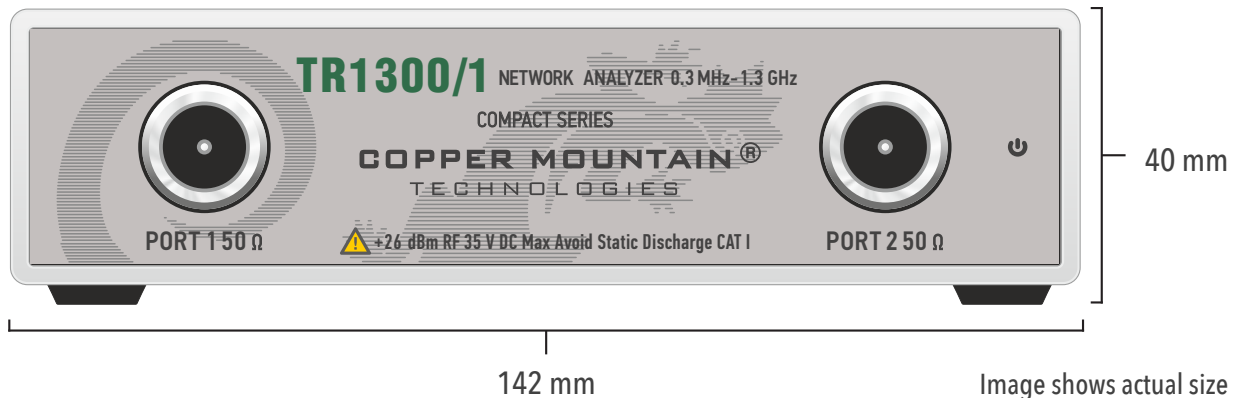


# Compact Series: TR1300/1



- **Frequency range:** 300 kHz - 1.3 GHz
- **Wide output power range:** -55 dBm to +3 dBm
- **Dynamic range:** 135 dB (10 Hz IFBW)
- **Measurement time per point:** 150  $\mu$ s per point, min typ.
- **9 logical channels with 8 traces** each max.
- **Automation programming** in Python, LabVIEW, MATLAB, .NET, etc.
- **Time domain and gating** conversion included
- **Frequency offset mode**, including vector mixer calibration measurements
- Up to **16,001 measurement points**
- Multiple **precision calibration** methods and automatic calibration

# TR1300/1 Specifications<sup>1</sup>



## Primary Specifications

Impedance	50 Ohm
Test port connector	type N, female
Number of test ports	2
Frequency range	300 kHz to 1.3 GHz
Full frequency accuracy	$\pm 5 \cdot 10^{-6}$
Frequency resolution	1 Hz
Number of measurement points	2 to 16,001
Measurement bandwidths (with 1/3 steps)	10 Hz to 30 kHz
Dynamic range <sup>2</sup>	130 dB (135 dB typ.)

## Measurement Accuracy<sup>3</sup>

Accuracy of transmission measurements <sup>4</sup>	Magnitude / Phase ( $S_{11} = S_{22} = 0$ )	Magnitude / Phase ( $S_{11} = S_{22} = 0.1$ )
+10 dB to +13 dB	$\pm 0.2$ dB / $\pm 2^\circ$	$\pm 0.2$ dB / $\pm 2^\circ$
-50 dB to +10 dB	$\pm 0.1$ dB / $\pm 1^\circ$	$\pm 0.15$ dB / $\pm 1.5^\circ$
-70 dB to -50 dB	$\pm 0.2$ dB / $\pm 2^\circ$	$\pm 0.2$ dB / $\pm 2^\circ$
-85 dB to -70 dB	$\pm 1.0$ dB / $\pm 6^\circ$	$\pm 1.0$ dB / $\pm 6^\circ$
Accuracy of reflection measurements <sup>5</sup>	Magnitude / Phase	
-15 dB to 0 dB	$\pm 0.4$ dB / $\pm 4^\circ$	
-25 dB to -15 dB	$\pm 1.5$ dB / $\pm 7^\circ$	
-35 dB to -25 dB	$\pm 4.0$ dB / $\pm 22^\circ$	
Trace noise magnitude (IF bandwidth 3 kHz)	0.002 dB rms	
Temperature dependence	0.02 dB/°C	

## Effective System Data

300 kHz to 1.3 GHz		
Directivity		45 dB
Source match		40 dB
Load match		28 dB
Reflection tracking		$\pm 0.10$ dB
Transmission tracking		$\pm 0.08$ dB

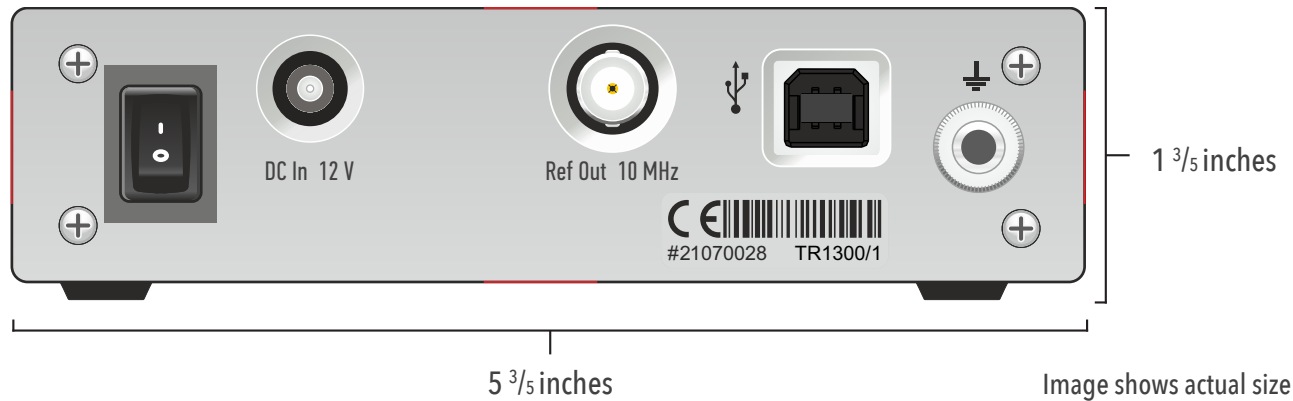
## Uncorrected System Performance

300 kHz to 1.3 GHz		
Directivity		18 dB
Source match		15 dB
Load match		28 dB

## Test Port Output

Power range	-55 dBm to +3 dBm
Power accuracy	$\pm 1.5$ dB
Power resolution	0.05 dB

[1] All specifications subject to change without notice. [2] The dynamic range is defined as the difference between the specified maximum power level and the specified noise floor. The specification applies at 10 Hz IF bandwidth. [3] Reflection and transmission measurement accuracy applies over the temperature range of (73  $\pm$  9) °F or (23  $\pm$  5) °C after 40 minutes of warming-up, with less than 1 °C deviation from one-path two-port calibration temperature, at output power of -10 dBm. Frequency points have to be identical for measurement and calibration (no interpolation allowed). [4] Transmission specifications are based on a matched DUT, and IF bandwidth of 10 Hz. [5] Reflection specifications are based on an isolating DUT. © Copper Mountain Technologies - www.coppermountaintech.com - Rev. 2022Q2



### Test Port Input

Noise floor	-137 dBm/Hz
Damage level	+26 dBm
Damage DC voltage	35 V

### Measurement Speed

Time per point	150 $\mu$ s typ.
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### Frequency Reference Output

Port	10 MHz Ref Out
Internal reference frequency	10 MHz
Output reference signal level at 50 Ohm impedance	1 dBm to 5 dBm
Connector type	BNC, female

### System & Power

Operating system	Windows 7 and above
CPU frequency	1.5 GHz
RAM	1 GB
Interface	USB 2.0
Connector type	USB B
Input power (VNA)	9 V DC to 15 V DC
Input power consumption (VNA)	8 W
Power supply (Main Outlet)	110-240 V, 50/60 Hz
Power consumption (Main Outlet)	10 W

### Factory Adjustment

Recommended factory adjustment interval	3 years
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### Dimensions

Length	285 mm
Width	142 mm
Height	40 mm
Weight	1.5 kg (53 oz)

### Environmental Specifications

Operating temperature	+5 °C to +40 °C (41 °F to 104 °F)
Storage temperature	-50 °C to +70 °C (-58 °F to 158 °F)
Humidity	90 % at 25 °C (77 °F)
Atmospheric pressure	70.0 kPa to 106.7 kPa