

EIP MICROWAVE

578

The EIP Microwave 578 (subsequently Phase Matrix 578) is a specialized Source Locking Microwave Frequency Counter designed for precision frequency measurements and phase-locking external microwave sweepers and signal sources. Operating from 10 Hz to 18 GHz as standard, and expandable up to 90 GHz via options, the 578 utilizes a YIG-preselected input to deliver exceptional amplitude discrimination and high input burnout protection up to 1 Watt.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488), Analog Source Lock DAC Output (BNC)
Display	12-digit LED display

Physical

Power Supply	100 / 120 / 220 / 240 VAC ($\pm 10\%$), 50 Hz to 400 Hz
Operating Temperature	0 °C to 50 °C °C
Dimensions (W×H×D)	432 mm × 89 mm × 457 mm mm
Weight	12.7 kg kg

Frequency Measurement

Minimum Frequency (Band 1)	10 Hz
Maximum Frequency (Band 1)	100 MHz
Minimum Frequency (Band 2)	10 MHz
Maximum Frequency (Band 2)	1 GHz
Minimum Frequency (Band 3)	1 GHz
Maximum Frequency (Band 3)	26.5 GHz
Extended Frequency Capability	Up to 110 GHz (with Option 06)
Number of Input Channels	3 (Band 1, Band 2, and Band 3)
Input Impedance (Band 1)	1 M Ω nominal shunted by < 25 pF
Input Impedance (Band 2)	50 Ω nominal
Input Impedance (Band 3)	50 Ω nominal
Sensitivity (Band 1)	25 mV RMS
Sensitivity (Band 2)	-20 dBm
Sensitivity (Band 3, 1 GHz to 12.4 GHz)	-25 dBm
Maximum Input Level (Band 1)	120 V RMS (frequency dependent)
Maximum Input Level (Band 2)	+10 dBm
Maximum Input Level (Band 3)	+10 dBm
Damage Protection Level (Band 2)	+30 dBm (1 W) continuous
Damage Protection Level (Band 3)	+30 dBm (1 W) continuous
Input Coupling	AC (all bands)
AM Tolerance (Band 3)	Any modulation depth, provided minimum signal level remains above sensitivity threshold
FM Tolerance (Band 3)	Up to 10 MHz peak-to-peak
Amplitude Discrimination	Distinguishes between signals separated by ≥ 200 MHz and measures the larger signal if ≥ 6 dB greater
Frequency Resolution	Selectable down to 1 Hz

Source Locking & Control

Source Locking Method	Analog closed-loop frequency/phase matrix lock control
Source Locking Resolution	10 kHz
Lock Control Output Voltage	± 10 V analog sweep/tuning correction signal

Timebase & Reference Oscillator

Standard Reference Oscillator Type	TCXO (Temperature Compensated Crystal Oscillator)
Internal Reference Frequency	10 MHz
External Reference Input Frequency	10 MHz
Reference Output	10 MHz (isolated buffer output)

Reference Oscillator

Standard TCXO Aging Rate	< 1 × 10 ⁻⁷ / month
Standard TCXO Temperature Stability	< 1 × 10 ⁻⁶ (0 °C to 50 °C)

Reference Oscillator Options

Option 01 Oven Timebase Aging Rate	< 5 × 10 ⁻¹⁰ / day (after 72-hour warm-up)
Option 01 Oven Timebase Temperature Stability	< 1 × 10 ⁻⁸ (0 °C to 50 °C)

Inputs & Outputs

Connector Type (Band 1)	BNC female
Connector Type (Band 2)	BNC female

Environmental

Storage Temperature	-55 °C to +75 °C
Operating Humidity	Up to 95% relative humidity at 40 °C (non-condensing)
Operating Altitude	Up to 3,000 meters (10,000 feet)
Non-Operating Altitude	Up to 12,000 meters (40,000 feet)

Options & Accessories

Option 02 Rear Panel Inputs	Relocates Band 1, Band 2, and Band 3 inputs to the rear panel
Extended Frequency Range (Option 06)	26.5 GHz to 110 GHz (requires EIP 93X Series waveguide sensors)

Source Locking

Source Locking Frequency Range	10 MHz to 26.5 GHz
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TECHNOLOGY

YIG-preselected Heterodyne Downconversion

APPLICATIONS

Microwave Frequency Measurement and Source Phase-Locking

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.