SPECIFICATIONS

	BAND 1	BAND 2	BAND 3 (Option 5804)
Frequency Range	0.25–1 GHz	585B: 0.95–20 GHz 588B: 0.95–26.5 GHz	26.5–170 GHz
Sensitivity	-15 dBm	0.95–20 GHz: -20 dBm 20–26.5 GHz: -10 dBm	-20 dBm -25 dBm typical
Connector	BNC	585B: Precision N 588B: APC 3.5	Depends on remote sensor (See Table)
Maximum Input	+7 dBm	+7 dBm	+5 dBm
Damage Level	+24 dBm	+45 dBm (30 Watts) continuous power +53 dBm (200 Watts) peak pulsed power (≤1 µsec pulse width, 0.1% duty cycle)	+10 dBm
Amplitude Discrimination	10 dB, >100 MHz	15 dB (>50 MHz separation)	20 dB
Frequency Limits	____	Instrument will ignore signals outside of frequency limits.[1] Resolution: 10 MHz Accuracy: ±50 MHz	____
Center Frequency	____	Instrument will lock on signals ≤50 MHz from entered Center Frequency. Resolution: 10 MHz	Instrument assumes any signals present to be in the range ±2 GHz from the specified center frequency and calculates the harmonic number based on this assumption.
FM Tolerance (up to 10 MHz rate)	Carrier must remain in band	20 MHz p–p	Auto Mode: 20 MHz p–p Center Freq: 150 MHz p–p[2]
Aquisition Time[3]			
Pulse	AQ = 0.055 + 1/MinPRF	Frequency Limits (default): $AQ = 0.35 + (2 \times 10^{-5})(PP)/GW + 60/MinPRF + 2(FH)(4 \times 10^{-12})[1 + (10^4/Min\ PRF)]$ Center Frequency: $AQ = 0.2 + (2 \times 10^{-5})(PP)/GW + 72/MinPRF$	Automatic: $AQ = 0.25 + (6 \times 10^{-3})(PP)/GW + 70/MinPRF$ Center Frequency: $AQ = 0.25 + (8 \times 10^{4})(PP)/GW + 70/MinPRF$
CW	AQ = 0.055 + 1/MinPRF	Frequency Limits (default) $AQ = 0.25 + 60/MinPRF + 2(FH)(4 \times 10^{-12})[1 + (10^4/MinPRF)]$ AQ = 0.1 + 72/MinPRF	AQ = 0.25 + 70/MinPRF
Measurement Time[3]			
Pulse	MT = 0.1 + (4)(PP)/[(GW)(RES)]	MT = 0.2 + PP/[(GW)(RES)]	MT = 0.15 + (4) (PP)/[(GW)(RES)]
CW	MT = 0.1 + 4/[(GW)(RES)]	MT = 0.2 + (1/MinPRF)	MT = 0.15 + (4/MinPRF)
Maximum Video Feed-Through	20 dB below signal level For Video Freq. < 250 MHz, tolerance is increased by 10log(250 MHz/fvideo)[3].	20 dB above signal level	15 mV p–p
Gate Error[3]	GE = ±0.07/GW	GE = ±0.01/GW	GE = ±0.03/GW
Distortion Error[3]	$DE = \pm 0.03/[PW - (3 \times 10^{-8})]$	$DE = \pm 0.03/[PW - (3 \times 10^{-8})]$	$DE = \pm 0.02/[PW - (3 \times 10^{-8})]$
Averaging Error[3]	$AE = \pm 2\sqrt{RES/[(GW)(AVG)]}$	$AE = \pm\sqrt{RES/[(GW)(AVG)]}$	$AE = \pm 2\sqrt{RES/[(GW)(AVG)]}$
Total Error[3]			
Pulse	TE = ±GE ±DE ±AE ±Time Base Error	TE = ±GE ±DE ±AE ±Time Base Error	TE = ±GE ±DE ±AE ± Time Base Error
CW	TE = Time Base Error ±1 Count Based on 10 averages	TE = Time Base Error ±1 Count Based on 10 averages	TE = Time Base Error ± N^2 Counts N = Freq/20 GHz

1 Unwanted signals must be greater than 100 MHz from either limit.

2 Measured frequency is a function of average frequency and geometric center frequency when FM is greater than 150 MHz and nonsymmetrical.

BAND 0 (CW Only)

Frequency Range	100 Hz–250 MHz
Sensitivity	-15 dBm
Connector	BNC
Input Impedance	50 ohms nominal
Maximum Input	+7 dBm
Damage Level	+20 dBm
FM Tolerance	Carrier must remain in band.
Measurement Time	100 Hz Resolution: 200 ms >100 Hz Resolution: (1/RES) + 85 ms
Total Error[3]	TE = Time Base Error ±1 Count

BAND 3

Model 588B Model 588B can have its maximum frequency extended,in bands, up to 170GHz. This requires Option 5804, a frequency extension cabling kit (890), and one or more of the following remote sensors:

Remote Sensor	Frequency Range	WaveGuide Size	WaveGuide Flange
091	26.5–40 GHz	WR-28	UG-599/U
092	40–60 GHz	WR-19	UG-383/U
093	60–90 GHz	WR-12	UG-387/U
094	90–110 GHz	WR-10	UG-387/U
095	50–75 GHz	WR-15	UG-385/U
096	33–50 GHz	WR-22	UG-383/U
097	26.5–50 GHz	K-Conn.*	Coaxial
098	110–170 GHz	WR-6	UG-387/U

STANDARD TIME BASE

Crystal Frequency	10 MHz (TXCO)
Stability	
Aging Rate	$<1 \times 10^{-7}$/month
Short Term	$<1 \times 10^{-9}$ RMS, 1s average
Temperature	$<1 \times 10^{-6}$, 0° to 50°C
Line Variation	$<1 \times 10^{-7}$, ±10% Line voltage change
Warm-up Time	None required.
Output Frequency	10 MHz square wave, 1V p–p minimum into 50 ohms.
External Time Base	Requires 10 MHz square wave, 1V p–p minimum into 300 ohms.

OPTIONAL HIGH-STABILITY TIME BASES

Option	5807	5808	5809
Aging Rate per 24 Hours (after 72 hours warm-up)	$<5 \times 10^{-9}$	$<1 \times 10^{-9}$	$<5 \times 10^{-10}$
Short Term Stability 1s Average (RMS)	$<1 \times 10^{-10}$	$<1 \times 10^{-10}$	$<1 \times 10^{-10}$
Temperature Stability (0°–50°C)	$<6 \times 10^{-8}$	$<3 \times 10^{-8}$	$<3 \times 10^{-8}$
±10% Line Voltage Change	$<5 \times 10^{-10}$	$<2 \times 10^{-10}$	$<2 \times 10^{-10}$

All Time Base options utilize a proportional control oven.

* K-Connector is a registered trademark of Wiltron Company

Specifications subject to change without notice.

PULSE PARAMETERS

Pulse Width	50 ns–CW
Minimum Profile Sample	15 ns
Pulse Repetition Frequency (PRF)	1 Hz–4 MHz
Minimum Off Time	200 ns (will count CW)
Minimum On/Off Ratio	15 dB

PULSE WIDTH MEASUREMENT

Range	50ns–1 s
Resolution	10 ns
Accuracy	±20 ns ±(Time Base Error)(PW)
Measurement Points	6 dB (±1.5 dB) below peak

PULSE PERIOD MEASUREMENT

Range	250 ns–1 s
Resolution	10 ns
Accuracy	±20 ns ±(Time Base Error)(PP)
Measurement Points	6 dB (±1.5 dB) below peak

GENERAL

Dimensions	3.5 in H x 16.75 in W x 14 in D (8.9 cm H x 42.6 cm W x 35.6 cm D)
Weight	35 lbs., 15.9 Kg Shipping weight: 41 lbs., 18.6 Kg
Operating Temperature	0–50°C
Power	100/120/140/200/220/240 Vac ±10% 50–400 Hz, 100 VA Typ.
Resolution	1 kHz to 1 GHz (100 Hz in Band 0)
Gate Time	10 ms to 1µs (dependent upon resolution)

WARRANTY

EIP Microwave warrants these counters to be free from defects in material and workmanship for a period of three years from date of delivery. During the warranty period, EIP will repair or replace, at its option, any components or assemblies that prove to be defective, provided the unit is returned to EIP or an authorized service facility.

Customer Support

During the life of electronic equipment, components may fail. When they do, you need the fastest, easiest, and least expensive repair possible. To meet this need, EIP offers a variety of services designed to minimize equipment downtime. Please contact EIP's Customer Service Department for details.

3 AE = RMS averaging error (Hz)
AQ = Aquisition time (seconds)
AVG = Number of averages
DE = Distortion error (Hz)
FH = Difference between Frequency Limit High and Low (Hz)
GE = Gate error (Hz)
TE = Total error (Hz)
GW = Logical AND of inhibit input and pulse width -3 x 10^{-8} (seconds)
MinPRF = Minimum PRF counter setting (Hz); for MinPRF>1.2 kHz, use MinPRF = 1200
MT = Measurement Time (seconds)
PP = Pulse period (seconds)
PW = Pulse width (seconds)
RES = Counter resolution setting (Hz); for RES>1MHz, use RES = 10%