

# Microwave Instrumentation

Signal Generators/Signal Sources

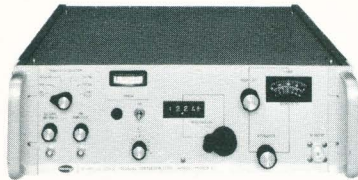
Antennas

800 MHz-21.0 GHz

**polarad**

# Polarad Microwave Signal Generators and Signal Sources, 800 MHz to 21.0 GHz

Spectrally pure, low noise, accurately calibrated CW and modulated signals. These popular Polarad instruments provide unequalled performance, rack or stack versatility and proven reliability backed by the PEI "no exception" warranty and worldwide service.



EXTENDED RANGE 6.95 to 12.4 GHz  
COMPACT X BAND GENERATOR  
Model 1108A-CE

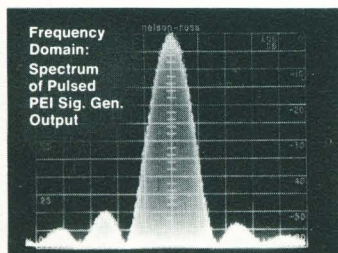
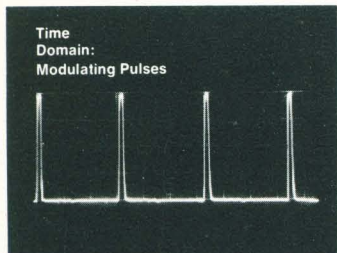


L BAND 800 MHz to 2400 MHz  
AUTO-LEVELLED SIGNAL GENERATOR  
MODEL 1605B-L  
Includes Model 1020A Modulator



NEW Model 1819A. Signal Generator,  
10-15.5 GHz, +10 dBm to -90 dBm  
calibrated outputs. CW and FM, square  
wave, and pulse modulation.

Clean, Fast Pulse Modulation. No CW Leakage.



FULL SPECIFICATIONS ON REQUEST: Please phone, TWX, or write for complete specifications of any models of interest or for a full line catalog. Polarad Microwave Instrumentation specialists and local Polarad representatives are always glad to be of service.

Ask for your new Polarad Microwave Instrument Catalog.

## INNOVATIVE NEW PEI MODELS

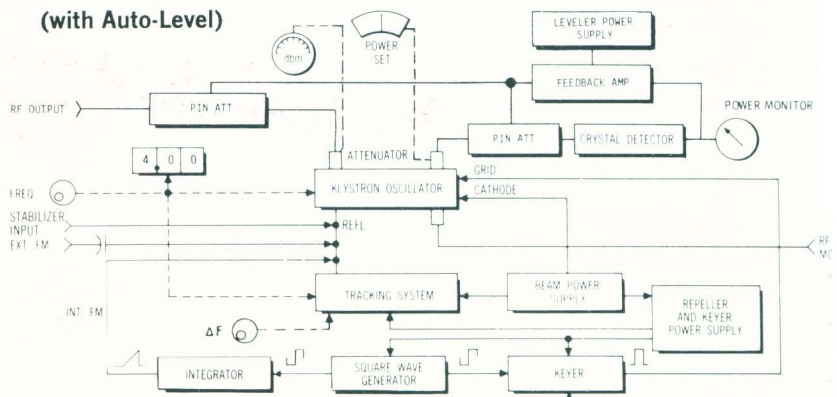
- NEW:** Model 1819A Signal Generator, 10-15.5 GHz; Calibrated outputs +10 to -90 dBm. CW, FM, square wave, and pulse modulation.
- NEW:** For testing high power transmitters, radars, etc. "T" series PEI Signal Generators — with reverse power burnout protection.
- NEW:** Extended range X Band Generators. Model 1108A-CE, 6.95-12.4 GHz Model 1108A-C, 6.95-12.2 GHz.
- NEW:** Models 1020A and 1020T Modulators. Used with all PEI Signal Generators/Sources. Model 1020A Pulse width range: 0.2  $\mu$ s to 2000  $\mu$ s. Model 1020T includes 3 preset pulse widths; Range: 0.2-400  $\mu$ s.

## CHECK THESE OUTSTANDING FEATURES OF ALL PEI MODELS:

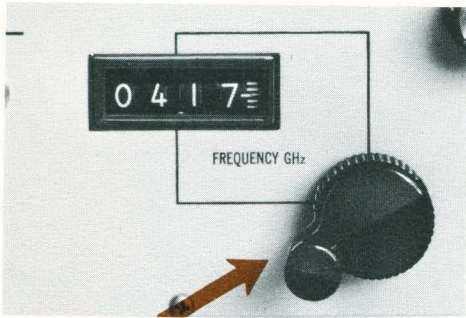
- **Largest selection of Compact Modular Instruments**  
Signal Generators: L, S, C, X, K Bands, 800 MHz — 21.0 GHz  
Signal Sources: L, S, C, X Bands, 800 MHz — 11.0 GHz  
Frequency Doublers: Ks, Ku Bands, 10-21 GHz  
Modulator, for all Generators/Sources
- **Signal Purity** — Stable, spectrally pure signals.
- **Low noise sideband "floor"**.
- **Accurate Digital Frequency Readout.**
- **High Available Power Output** and Widely Adjustable Calibrated Outputs, 130 dB dynamic range attenuators.
- **Adjustable Pulse, FM and Square Wave Modulation:** All modular Signal Generators and Sources include internal FM and square wave modulation, 800-1200 Hz rates. Widely adjustable pulse, FM and square modulation with Model 1020A or 1020T Modulator, 10-10,000 Hz mod. rates.
- **Auto-Levelled Generators, 800 MHz to 4.6 GHz:** Uniform CW, pulse, FM and square wave output level. No need for power adjustments when frequency is changed. Infinite pulse on-off ratio — even with leveling. 10-10,000 Hz internal modulation rates.
- **Compact** All modules 5 1/4 inches (13.3 cm) high, except modulators 1020A and 1020T which are 1 3/4 inches (4.4 cm) high.
- **Rack or Stack:** Handles on panels reverse for rack mounting.
- **Exceptional Reliability** Refined microwave cavity oscillators provide long, trouble-free life. PEI's non-contacting tuning avoids noise and deterioration caused by metal-to-metal contacts.
- **Unhedged warranty has no exceptions.**
- **Low Cost** —

A quarter century of microwave expertise is at your service. Call or write for complete specifications and applications assistance.

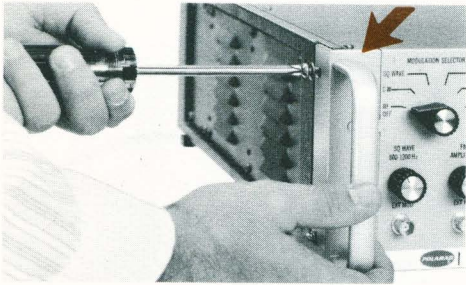
## BLOCK DIAGRAM OF POLARAD SIGNAL GENERATOR (with Auto-Level)



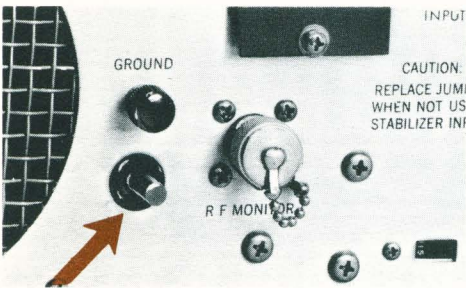
# Polarad Features at no Extra Cost



**Single-Knob Unidial Tuning Control**  
—With frequency readout in accurate digital format.



**Rack or Bench Mounting** — Simply remove and reverse the handles on Polarad Modular instruments to convert them to rack mounting. For bench use, the units can easily be stacked one above the other.



**Swept Band Tuning** — Motor Drive any Polarad Generator or Source via the rear tuning shaft extension. Automatic tuning is especially useful with automatically leveled Signal Generators.

**GSA SCHEDULE** — Most Polarad instruments available per authorized Federal Supply Schedule GS-00S-057071. GSA catalog on request.

## MODULAR MICROWAVE SIGNAL GENERATORS

Model	Options (See Note 1)	Frequency (Digital Readout)	Power Output (See Note 1)	USA PRICE
1105B 1105B-L 1105B-T	L option Output leveled ( $\pm 0.75$ dB) and External AM T Option: Reverse power protection.	800 MHz – 2.4 GHz L Band	+6 to -130 dBm cal. output. Uncalibrated output: > 10 dBm (10 mw)	\$4050 4350 4350
1106B 1106B-L 1106B-T	L option: Output leveled ( $\pm 1$ dB) and External AM T Option: Reverse power protection.	1.80 – 4.6 GHz S Band	+6 to -130 dBm cal. output. Uncalibrated output: > 10 dBm (10 mw)	\$4050 4350 4350
1107A 1107A-S	1107A-S with reduced noise sidebands T Option: Reverse power protection. Note 3	3.7 – 8.4 GHz C Band	+6 to -130 dBm cal. output. Uncalibrated output: 3.7 – 4.3 GHz > 25 mw 4.3 – 8.2 GHz > 10 mw 8.2 – 8.4 GHz > 10 mw	\$4750 4900
1108A 1108A-C 1108A-CE	“C” and “CE” Models with increased range T Option: Reverse power protection. Note 3	6.95 – 11.0 GHz 6.95 – 12.2 GHz 6.95 – 12.4 GHz X Band	+6 to -130 dBm cal. output. Uncalibrated output: 6.95 – 8.0 GHz > 20 mw 8.0 – 11.0 GHz > 10 mw	\$4750 5000 5300
1709A 1719A	Include Signal Source & Doubler	10.0 – 15.5 GHz Ks Band	-0 to -100 dBm cal. output. to 15.35 GHz +10 to -90 dBm cal. output. to 15.35 GHz	\$7350 7650
1710A	Includes Signal Source & Doubler	15.0 – 21.0 GHz Ku Band	-3 to -103 dBm calibrated output.	\$7350

## MODULAR MICROWAVE SIGNAL GENERATORS WITH MODEL 1020A OR 1020T MODULATOR

The new Model 1020T Modulator includes 3 preset pulse widths. See Page 4. FM, Square Wave, & Pulse Modulation, 10-10,000 Hz rates; 0.2-2000  $\mu$ s pulse widths

Model	Modules	Frequency (Digital Readout)	Power Output (See Note 1)	USA PRICE
1605B 1605B-L 1605B-T	1105B or 1105B-L or 1105B-T and 1020A or 1020T	800 MHz – 2.4 GHz L Band	See Model 1105B above	\$4450 4450 4750
1606B 1606B-L 1606B-T	1106B or 1106B-L or 1106B-T and 1020A or 1020T	1.80 – 4.6 GHz S Band	See Model 1106B above	4450 4750 4750
1607A 1607A-S	1107A or 1107A-S and 1020A	3.7 – 8.4 GHz C Band	See Model 1107A above Note 3	5150 5300
1608A 1608A-C 1608A-CE	1108A & 1020A 1108A-C & 1020A 1108A-CE & 1020A	6.95 – 11.0 GHz 6.95 – 12.2 GHz 6.95 – 12.4 GHz X Band	See Model 1108A above Note 3	5150 5400 5700
1809A 1819A	1509, 1207A & 1020A	10.0 – 15.5 GHz Ks Band	See Models 1709A and 1719A above	7750 8050
1810A	1510, 1208A & 1020A	15.0 – 21.0 GHz Ku Band	See Model 1710A above	7750

## MODULAR MICROWAVE SIGNAL SOURCES

Polarad Signal Sources are similar to Signal Generators except that the Sources' output attenuators are not directly calibrated. Sources provide considerably greater power output and are lower priced. They are compatible with Modulators 1020A and 1020T. A panel mounted power meter is available. (See Note 1)

Model	Frequency (Digital Readout)	Power Output (See Notes 1 & 2)	USA PRICE
1205B	800 MHz – 2.4 GHz L Band	Avail. output: > 30 mw below 1 GHz, > 50 mw above 1 GHz	\$3625
1206B	1.80 – 4.6 GHz S Band	Avail. output: > 30 mw below 2 GHz, > 50 mw above 2 GHz	3625
1207A	3.7 – 8.4 GHz C Band	Avail. output: 3.7 – 4.3 GHz > 60 mw, typically > 100 mw 4.3 – 5.0 GHz > 25 mw, typically > 35 mw 5.0 – 6.6 GHz > 55 mw, typically > 200 mw above 5.5 GHz 6.6 – 8.2 GHz > 35 mw, typically > 100 mw 8.2 – 8.4 GHz > 25 mw, typically > 50 mw	3750
1208A	6.95 – 11.0 GHz X Band	Avail. output: 6.95 – 8.0 GHz, > 75 mw, typically > 100 mw 8.0 – 9.5 GHz, > 30 mw, typically > 75 mw 9.5 – 11.0 GHz, > 30 mw, typically > 50 mw	3750

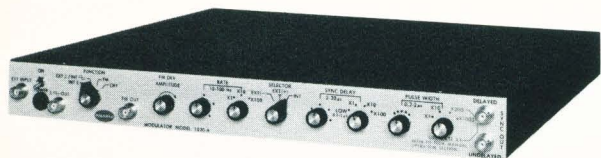
**NOTE 1 – P OPTION** — Auxiliary panel mounted power meter (for internal and external signals). For Generators, increases calibrated power range. For Sources, provides output calibration. Scale range, typically  $\pm 5$  dB centered at rated output. Typical accuracy  $\pm 1$  dB.

**Prices:** P Option for Signal Generators — \$295. P Option for Signal Sources — \$345.

**NOTE 2** — External matching tuners provide up to 3 dB greater source output. Details on request.

**NOTE 3** — T Option. Internal Isolator for reverse power protection — \$400.

# Accessories for Polarad Microwave Signal Generators and Sources

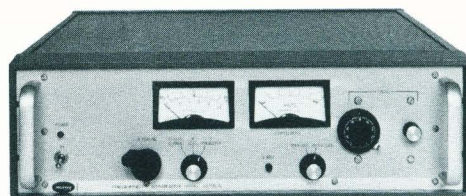


**MODULATOR MODEL 1020A.** Solid state; 1 3/4" high; provides widely adjustable FM, pulse and square wave modulation usable with all Polarad Signal Generators and Sources. Pulse width range, 0.2 to 2000  $\mu$ s. 10-10,000 Hz mod. rates. Infinite on-off ratio pulses (even with auto-leveled Signal Generators) facilitates transponder tests.

**MODEL 1020T** includes 3 preset pulse widths, which are screwdriver adjustable from front panel. Pulse width range 0.2-400  $\mu$ s. Otherwise similar to Model 1020A.

**U.S. PRICES:** Model 1020A, \$550; Model 1020T, \$650. Prices reduced by \$150 when Modulator is ordered with any Signal Generator or Source. (Model 1020T is included in price of Models 1605B-T and 1606B-T).

**FREQUENCY STABILIZER:** For most applications, the excellent stability of Polarad Signal Generators and Sources is adequate. Stabilizers are available for all Polarad Generators and Sources. Details on request.



## Spectrum Analyzers



A large selection of versatile Spectrum Analyzers is available; 10 Hz to 40 GHz.

**Spectrum Analyzer Catalog will be sent on request.** N-R 600 Series Spectrum Analyzers, 100 kHz to 40 GHz; 0-2 GHz Frequency Spans; 300 Hz Resolution. Internal preselector and digital memory/data interface available.

## Calibrated Antennas 1-21 GHz

Model	Type	Frequency Range, GHz	VSWR (Typ.)	Gain db (Midband)	Directivity (Typical-3dB Degrees )	U.S. Price
CA-L	Horn	1.0-2.34	3:1	11	55	390.00
CA-S	Horn	2.14-4.34	3:1	17	24	390.00
CA-M	Horn *	4.19-7.74	3:1	25	10	390.00
CA-X	Horn *	7.3-10.00	3:1	28	10	390.00
CA-Ks	Horn *	9.8-15.35	3:1	30	3	495.00
CA-Ku	Horn *	14.75-21.0	3:1	32	3	540.00
CA-LPR	Log Per. **	1.0-11.0	2.5:1	20	8	1650.00
CA-R2, Parabolic Reflector for CA-M, CA-X, CA-Ks, and CA-Ku						350.00
CA-T, Antenna Tripod						420.00

\*Used With Parabolic Reflector CA-R2  
\*\*Used With Integra! Parabolic Reflector

Thousands of Polarad calibrated directional antennas are in use for field intensity measurements and susceptibility tests, point to point communications and other RF/Microwave applications. All models are linearly polarized, with high directivity and high front to back ratio. They mount easily on on a tripod, e.g. Polarad Model CA-T.



### OTHER POLARAD INSTRUMENTS

#### Specifications Upon Request

- Microwave Receiver, Model TR, 0.95-21 GHz
- Field Intensity Meter, Model CFI, 1.0-21 GHz

### WORLDWIDE SERVICE:

Service Centers in USA and worldwide provide competent maintenance. Details on request. Warranty: New instruments fully warranted for one year.

# polarad electronics corporation

A quarter century of Microwave Instrumentation leadership.

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