1.0 GENERAL INFORMATION

1.1 Description

The traveling-wave tube amplifiers contained in the instrumentation series are laboratory instruments designed for general purpose microwave applications. There are special amplifiers which are off-shoots from this series and are so designated by their respective model numbers. These amplifiers are basic units, which have been modified for specific and special applications, and their manuals will contain addendum pages applicable to their specialities.

All instruments of this series utilize a periodic permanent magnetic (PPM) focused traveling-wave tube, a solid state regulated power supply, and a complete integral cooling system.

1.2 Specifications

The characteristics of the basic individual units are shown in Table 1–1.

TABLE 1–1
SPECIFICATIONS

RF PERFORMANCE

1077H Series

MODEL	FREQUENCY	POWER OUTPUT (min)
1077H11	18.0-26.0 GHz	1 watt

RF PERFORMANCE

1177H Series

MODEL	FREQUENCY	POWER OUTPUT (min)
1177H09	1.0-2.0 GHz	10 watts
1177H10	1.4-2.4 GHz	20 watts
1177H01	2.0-4.0 GHz	10 watts
1177H05	2.5-4.0 GHz	20 watts
1177H02	4.0-8.0 GHz	10 watts
1177H06	4.0-10.5 GHz	10 watts
1177H03	8.0-12.4 GHz	10 watts
1177H07	6.5-13.5 GHz	10 watts
1177H04	12.4-18.0 GHz	10 watts
1177H08	10.5-18.0 GHz	10 watts

TABLE 1–1
SPECIFICATIONS (Continued)

RF PERFORMANCE

1277H Series

MODEL	FREQUENCY	POWER OUTPUT (min)
1277H09	1.0-2.0 GHz	20 watts
1277H01	2.0-4.0 GHz	20 watts
1277H02	4.0-8.0 GHz	20 watts
1277H03	8.0-12.4 GHz	20 watts
1277H04	12.4-18 GHz	20 watts

ELECTRICAL

Gain at rated power output	30 dB min.*
Duty	CW
Input voltage	120 Vac ± 10%
Input frequency	50/60 Hz
Power consumption	350 W maximum
Noise figure	35 dB maximum
Spurious modulation	-35 dB minimum
VSWR	3.0:1 maximum
RF impedance	50 ohms

MECHANICAL

Length	15.5 inches
Width	16.75 inches
Height	3.5 inches
Weight	20 pounds maximum (Note 1)
Connectors	Type N female (Note 2)

ENVIRONMENTAL

Operating temperature	0 – 50°C ambient

NOTE 1:

L-band units will not exceed 28 pounds and Option A (line transformer) will increase any unit weight by 10 pounds.

NOTE 2:

Ku-band units have WR-62 waveguide (UG-419/U waveguide flange) for RF input and output. 1077H11 units have WR-42 waveguide for RF input and output.

*Except Model 1177H06

OPTIONS:

A. 220/240V Input Voltage – auto-transformer for operation at 220 Vac ± 10% or 240 Vac ± 10% at 50/60 Hz.

B. DC Heater Supply – Incorporated in all units. Reduces spurious content.

C. Helix Voltage Regulator – Incorporated in all units. Regulator in helix circuit to reduce gain variations due to temperature effects.

D. Unattended Protection – Turns off all power in the event of helix overload. To recycle, AC power line must be interrupted or power switch recycled.

E. Rackmounting – Allows unit to be mounted in 19" wide rack.

F. Local/Remote – Duplicates amplifier's RF ON switch and status lights.

G. 48 to 420 Hz – Allows amplifier operation at any input line frequency from 48 to 420 Hz.

H. Logic Circuit (TTL) – Computer Compatible (TTL) logic command and control circuitry. Turn-on, Turn-off reset functions and status indications are provided remotely. Line power must be supplied through an isolation transformer external to amplifier. A 28 Vdc source is needed to operate control circuits.

I. 28V Input Voltage – Allows unit to operate from 28 (±3) Vdc bus.

J. Isolators/Circulator – Provides isolator internal to the amplifier package. Rated power output of amplifier may be affected by insertion loss of isolator.

K. High Gain – Provides solid state pre-amp in conjunction with TWT for increased amplifier RF gain.

L. Automatic Reset – Option allows amplifier to attempt automatic reset from "Ready" to "RF ON" (after a 10 sec. delay) in the event of a momentary fault condition. The auto-reset will be attempted three times. After the third attempt, if the fault has not been cleared, the unit will revert to the "OFF" mode.

M. -48V Input Voltage – Allows operation of the amplifier from a -44 to -56 Vdc Bus.