

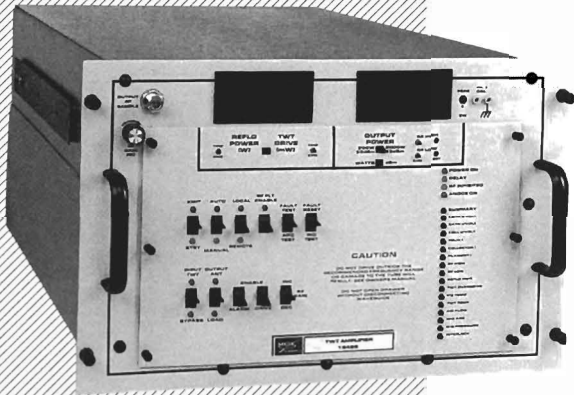
# M O D E L 3 0 0 2 8



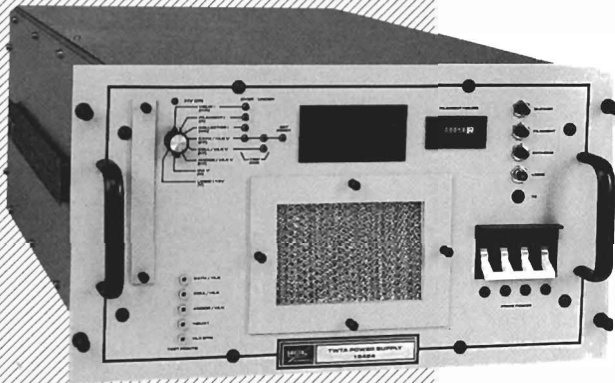
## High Power TWT Amplifier C-Band

M/N 30028-700 (700 Watts)  
M/N 30028-600 (600 Watts)

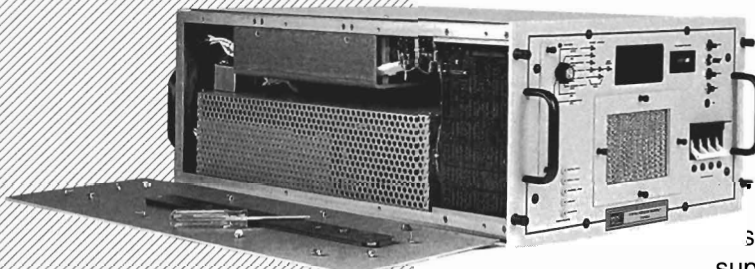
# Model 30028



M/N 15425  
TWT Amplifier



M/N 15424  
Power Supply



M/N 15424  
Side panel removed,  
providing access to  
switching (cathode)  
power supply module.

- LED Digital Displays
- Complete TWT Protection
- RF Drive Limiting
- Fault Setpoint Check Functions
- Switch Mode Power Supply
- Power Supply Front Panel Test Points
- Forced Air Cooling, TWT and Power Supply
- Rackmount - 13 Rack Units Total (22.75 in.)
- Rugged Construction
- Computer Interface Optional

The M/N 30028 C-Band traveling wave tube amplifier is available in 700 and 600 Watt configurations. The amplifier system consists of two - rackmountable drawers containing the TWT amplifier and power supply. Six (6) foot long interconnecting control and high voltage cables are included with the system.

All control and monitoring functions are located on the front panel. RF forward, reflected and drive power is monitored on 2-LED displays on the TWT amplifier. RF high/low and reflected setpoint check pushbuttons display fault values on these displays, also. All power supply voltage, current, and fault setpoint check values are displayed on an LED digital display. Convenient, front panel test points assist with power supply diagnosis.

Removable side panels on the TWT amplifier and power supply drawers provide easy access to the TWT and switching (cathode) power supply module, respectively.

Domestic and international primary power sources can be accommodated. The TWTA is supplied with a manual RF attenuator. The M/N 20073 motorized attenuator is available as an option.

Remote connectors are provided to interface all panel control and monitoring functions to the optional M/N 15389 remote panel or RS422/485 computer interface (M/N 20087).

# Specifications

## MCL SPECIFICATION 40A3028

**Frequency Range (GHz):** 5.850-6.425

**Bandwidth (MHz):** 575

**Output Power At Cabinet Output Flange (watts-minimum):**

700W TWT: 630

600W TWT: 540

**Gain:** Rated Power 75dB

**Gain Variation** (across bandwidth at 10dB backoff): 3dB

**Gain Slope** (over any 40MHz band at rated power):  $\pm 0.02$ dB

**Gain Stability** (constant drive dB/24 hours):  $\pm 0.25$

**Gain Adjustment Minimum** (continuously adjustable): 20dB

**Input VSWR:** 1.2:1 maximum.

**Output VSWR** (as seen by antenna feed systems): 1.25:1 maximum

**Load VSWR** (maximum allowable): 2.0:1 for specification compliance

**AM to PM Conversion:** 6 deg/dB at P rated;

2 deg/dB at 10dB below P rated.

**Harmonic Output** (dB below fundamental): 60dB below carrier.

**Group Delay** (in any 40MHz band):

Linear: 0.02 nanoseconds/MHz.

Parabolic: 0.01 nanoseconds/MHz<sup>2</sup>.

Ripple: 0.5 nanoseconds peak to peak.

**Residual AM** (dB below rated carrier output in 4kHz band):

Below 4kHz: -45dBc minimum.

4kHz to 500kHz:  $-20 (1.0 + \text{Log } F)$  [F in kHz].

Above 500kHz: -80dBc minimum.

**Phase Noise:** Meets limits 1 and 2, IESS 308/309.

**Noise & Spurious Outputs- Maximum** (excluding harmonics

and power line related frequencies):

From 4.2-12GHz: -65dBw/4kHz.

From 3.7-4.2GHz: -120dBw/4kHz.

From 12.0-40.0GHz: -110dBw/MHz.

**Intermodulation Products** (at HPA output): For two equal carriers

at a combined level of -10dB down from rated power;

-30dB down from the individual carrier output power.

**Noise Figure:** Less than 10dB.

**AC Power:**

**Voltage:** 208/120 VAC,  $\pm 10\%$ , 3 phase (other AC voltages available by option).

**Frequency:** 60Hz (50Hz available by option).

**KVA:** 4.2 maximum.

**Power Factor:** 0.9 minimum.

**In-rush:** 200% maximum (Integrated over 3 half cycles).

**RF Connectors:** Input: Type N; Output: WR137 with CPRF flange.

## ENVIRONMENTAL SPECIFICATIONS

**Operating Environment:**

**Temperature:** 0°C to +50°C.

**Humidity:** 95% (without condensation).

**Altitude:** 10,000 ft. (3,050 m).

Derate 2°C/1000 ft. Above Sea Level.

**Shock and Vibration:**

**Shock:** 10G for 11mS.

**Vibration:** 0.1G<sup>2</sup>/Hz

from 20-2,000 Hz.

**Non-Operating Environment:**

**Temperature:** -20°C to +70°C.

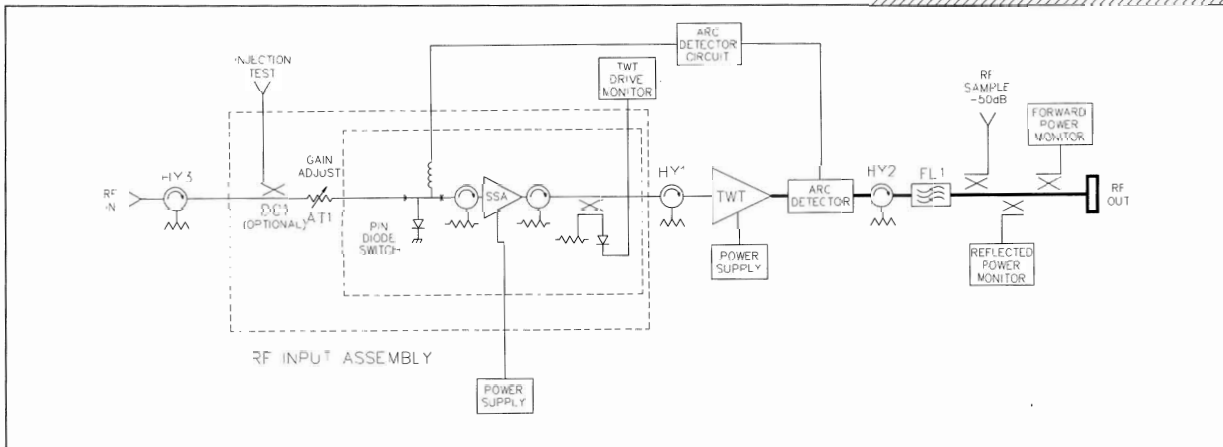
**Humidity:** 100% without condensation.

**Altitude:** 50,000 ft. (15,240 m).

## MECHANICAL SPECIFICATIONS

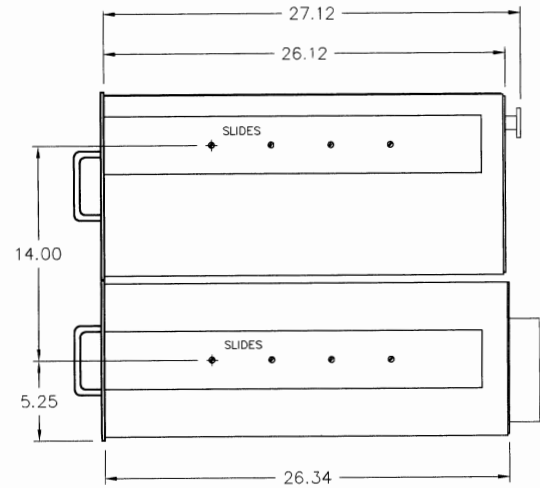
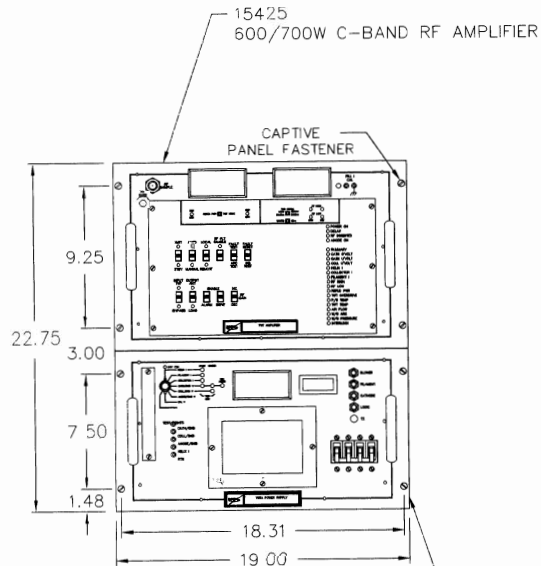
**Dimensions:** See Figure Back Page

**Weight:** Nominal 350 lbs. (159Kg) total

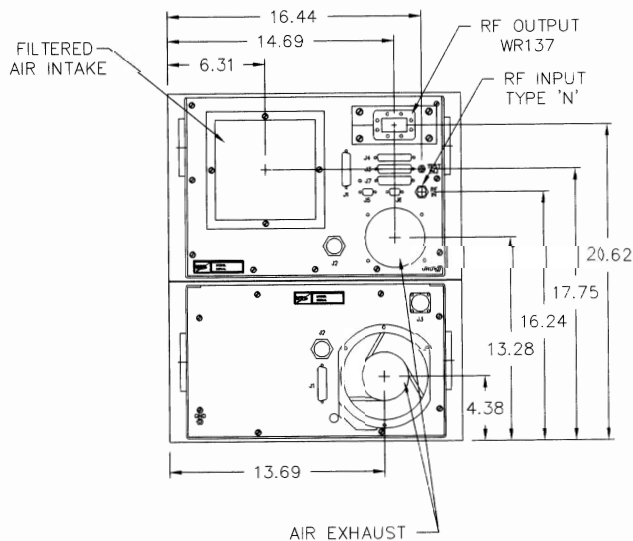


**Note:** Performance information is subject to change without notice. Contact MCL for latest specifications.

# Mechanical Specifications



15424  
600/700W C-BAND POWER SUPPLY



**MCL, INC.**

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