



AA-12G-2KW-PT

1.0 - 2.0 GHz, 2000 W, 63 dB Min. TWT High Power Pulse Amplifier

FEATURES

- Small form factor 5U chassis
- Modern TWT design with internal monitoring
- Instantaneous L-Band octave bandwidth
- Suitable for linear high peak pulse applications
- Built-in protection circuits
- Versatile interface options
- High reliability and ruggedness



RF SPECIFICATIONS

| Parameter | Specification | Notes |
|--------------------------------|----------------------------|--|
| Frequency | 1.0 - 2.0 GHz | |
| Power Ripple | +/- 0.1 dB (maximum) | |
| Output Peak Power | +63 dBm (minimum) | |
| Load VSWR | 2:1 (maximum) | |
| Duty Cycle | 6% | |
| Gain (for rated output) | 63 dB (adjustable) | |
| Input Power (for Rated Output) | 0 dBm (typical) | |
| Spurious Output | 0-250 Hz > 250 Hz | -55 dBc (minimum) -60 dBc (minimum) |
| Output VSWR Protection | 100% | |
| Gain Stability | 0.25 dB/24 hours (typical) | |

*Optionally customer may specify maximum input power.

RF SAMPLING SPECIFICATIONS

| Parameter | Specification | Notes |
|------------------------------|---------------------|-------|
| RF Output Pulse Video Sample | + 10 mv/kw into 50Ω | |
| RF Output Power Sample | -40 dB | |
| RF Interstage Power Sample | -20 dB | |
| RF Input Power Sample | -20 dB | |

MODULATION SPECIFICATIONS

| Parameter | Specification | Notes |
|---------------------------|----------------------|-------|
| Pulse Width | 0.1μs to 100μs | |
| Repetition Rate | 0-500 kHz | |
| Rise and Fall Time | 100 ns (maximum) | |
| Droop | 0.01 dB/μs (maximum) | |
| Pulse Jitter | +/- 2.5 ns | |
| Video/RF Throughput Delay | 300 ns (maximum) | |



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ELECTRICAL SPECIFICATIONS

| Parameter | Specification | Notes |
|---------------------------|------------------------|-------|
| Primary Input Power Mains | 240+/-10%/1p/60Hz | |
| Primary Power Consumption | 1.3 kVa (maximum) | |
| Elapsed Time Meter | 00,000.00 hours 100% | |
| Modulation Input Pulse | +5v TTL | |
| Digital Interface | Ethernet (LAN)/RS-232 | |

*LAN Optional

MECHANICAL SPECIFICATIONS

| Parameter | Specification | Notes |
|--------------------------------|---|-------|
| Front Panel | Standard RETMA .125" thick with slotted mounting holes | |
| Dimensions - Front Panel Depth | Width: 19" Height: 8.75" Chassis: 26" Overall: 28" | |
| Finish - Front Panel Chassis | Anodize, Color Blue | |
| Weight | 85 Pounds (typical) | |
| Cooling | Self-Contained Forced Air | |

ENVIRONMENTAL SPECIFICATIONS

| Parameter | Specification | Notes |
|-----------------------|--|-------|
| Operating Temperature | 0.1 to +50C Derate to 10C for 10,000-foot Operation | |
| Storage Temperature | -40 to +85C | |
| Humidity | 0 to 95% non-condensing | |
| Altitude | 0 to 10,000 feet above sea level, 50,000 non-operating | |



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DIGITAL INTERFACE RS-232

RS-232 interface provides ability to remotely operate, monitor, control and adjust the system. IEEE-488, an optional feature, provides the ability to remotely operate, monitor and control operation of the amplifier. Any fault condition latches information. Ethernet (LAN) and RS-422 are also available. Software is provided to operate with MS Windows.

CONDITIONS MONITORED AND INTERLOCKED

| Parameter | Specification | Notes |
|-----------------------|---------------|-------|
| VSWR | 0.00% | |
| Body Voltage | 00.00 kV | |
| Body Current* | 00.00 mA | |
| Heater Voltage* | 0.00 V | |
| Heater Current* | 0.00 A | |
| Grid Bias Voltage* | 000.00 V | |
| Grid Pulse Amplitude* | 000.00 V | |
| Access Lid Interlock | Fault | |
| Excessive Temperature | Fault | |
| PRF Limit* | Fault | |
| Pulse Width Limit* | Fault | |
| Pulse Received | Yes/No | |

* The following parameters and associated High/Low limits are factory adjustable (including Cathode Voltage).

CONTROLS & INDICATORS

| | |
|--------------------------------------|--|
| Front Panel | <ul style="list-style-type: none"> • Switches • Illuminated Status Monitor • Off/Standby/Operate/Reset • Warm-up/Standby/Operate/Reset |
| Accessories Supplied (1-Each) | <ul style="list-style-type: none"> • Maintenance Manual • Primary Input Power Mating Connector • CD ROM: Computing Operating Software |

| Connectors | Type | Notes |
|--|--------|-------|
| RF Input (Rear Panel) | N(f) | |
| RF Output (Rear Panel) | SC(f) | |
| RF Samples (Front Panel) | N(f) | |
| RF Output Pulse Video Sample (Front Panel) | BNC(f) | |
| Modulation Input Panel (Front Panel) | BNC(f) | |

| Conditions Monitored and Interlocked | Adjustable Parameters | Notes |
|--------------------------------------|-------------------------|-------|
| RS 232 | DB 25 F (Rear Panel) | |
| IEEE-488 (Optional) | GPIB (Rear Panel) | |
| Ethernet (Optional) | RJ-45 | |
| Primary Power Input | NEMA L5-20 (Three Wire) | |
| Remote Control | DB-25 | |

NOTE: RF Connectors may be optionally located on either the front or rear panels.



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CONTROLS AND INDICATORS (OPTIONAL)

| | |
|------------------|---|
| Operation | The front panel display is active whenever TWTA is powered on. |
| Standard Mode | Warm-up (with time remaining) Standby Operate (with pulse indication) Fault (with fault name) |
| Diagnostics Mode | Following parameters are available through menu: Heater voltage, heater current, grid bias voltage, grid drive voltage, helix voltage, helix current, collector voltage, collector current, cathode current, VSWR. |

OPTIONS

| | |
|--------------------------------------|---|
| Option E-rack Mounting | Allows the unit to be mounted in a standard EAI 19" rack cabinet, incorporating side mounted sides. |
| Option G- 400Hz | Provides for 400 Hz AC frequency operation. |
| Option J- Outputs Isolator | Protects the TWT from varying load VSWR conditions. Insertion loss of the isolator will lower the output power slightly (0.5 dB typically) from normal. Call the factory for configuration and dimensions (isolator may be provided externally). |
| Option X- Reflected Power Protection | Protects the TWT from high load VSWR and intended for use on ultra-wide band or high-power units for which isolators are not normally available. Consists of a coupler and detector that turns the TWTA off when excessive reflected power is sensed. Typical insertion loss is 0.5 db. |