



# T-5000A

## 5 KILOWATT HIGH POWER TRANSMITTER SYSTEM



The Sunair T-5000A is the hallmark solution for mission-critical communications applications requiring hemispheric coverage. The transmitter system combines solid-state RF power amplification and control technology to produce a failsafe high power solution, and operates in a frequency range of 1.5 MHz to 30 MHz. Maximum power output is 5 kW to facilitate long-range hemispheric communications when coupled with the appropriate antenna. Power is reducible in 1 dB steps down to the 500 W level. Standard operating voltage is 338 – 458 VAC, 50 or 60 Hz with a modest power requirement of  $\leq 16$  kVA.

The Sunair T-5000A is supplied as an integrated system consisting of the Sunair T-9000D Software-Defined HF SSB/ISB Transmitter, F-9800 Post-Selector, and the LPA-5000A 5 Kilowatt Power Amplifier. The amplifier architecture consists of four IPA intermediate power amplifier subsystems that are combined to produce final power output and managed by the Sunair HPAC High Power Amplifier Controller. The HPAC actively monitors system balance and performance, and provides power control and safety shutdown in the event of internal module or antenna failure.

Advanced built-in-test (BITE) capability reports the status of the unit down to the subsystem level on the HPAC, the T-9000D, and then to a remote site when configured. The system's intuitive modular design allows for ease of maintenance and upgrade throughout the equipment

life cycle at minimal expense. The T-5000A is available in standard dual-rack or special single-rack configurations. These high-performing niche products are in daily service as integral components of critical strategic communications solutions for leading defense, peacekeeping, and aviation agencies around the world.

- **High Efficiency Solid State Design**
- **Full Power into Load VSWR up to 2:1**
- **BITE to LRU**
- **Remote Control**

## PRODUCT SPECIFICATIONS

| GENERAL                           |  |
|-----------------------------------|--|
| Frequency Range                   | 1.5 – 30 MHz   |
| Frequency Stability               | $\pm 1 \times 10^{-8}$ Per Day   |
| Power Output and VSWR Performance | * 5 kW PEP and Average $\pm 1$ dB for VSWR $\leq 2:1$ ; Selectable in 1 dB Steps Down To 1 kW<br>* Reduced Power for VSWR $\leq 3:1$ ; Self-Protected from Open / Short Circuits<br>* Custom: $\pm 0.5$ dB |
| Duty Cycle                        | Continuous   |
| Tuning Steps                      | 1 Hz Minimum   |
| Transmit Activation Time          | 7 ms Maximum for 90% Output Power With Band Change Per MIL-STD-188-203-1A  |
| Modes of Operation                | AME, NB-FM, USB, LSB, ISB, CW; Data Modes Such As STANAGs 4285, 4259, 4481, 4539, and 4203, RATT, Link 11 / 22 and MIL-STD-188-110 A / B With External Modems  |
| Key                               | Local or Remote  |
| Remote Control                    | Remotely Controllable Through T-9000D; Designed For Unattended Continuous Operation  |
| Post-Selector Operation           | Automatic With F-9800; F-9800 Bypasses at 1.5 – 1.6 MHz  |
| Output Impedance                  | 50 $\Omega$ Nominal, Unbalanced  |
| Output Connector                  | 7/8 Inches EIA Flange (1 5/8 Inches With Adaptor)  |
| Tuning Control                    | Initiated By T-9000D and Digitally Controlled; No Operator Intervention Required   |
| Input Power                       | 338 – 458 VAC 3 Phase, 50 / 60 Hz  |
| Power Consumption                 | $\leq 16$ kVA  |
| Metering                          | TFT Display on HPC and T-9000D; Analog Metering On IPA-1500  |
| BITE                              | Power Up, Surveillance, and Operator-Initiated; Fault Isolation to the IPA Level; Reporting and Resetting Through T-9000D and Remote Control   |
| MTBF                              | 10000 Hours (Estimated)  |
| MTTR                              | 60 Minutes   |
| Dimensions                        |  |
| Dual Rack                         | * 71.13 H x 42.0 W x 31.88 L (in)<br>* 180.7 H x 106.7 W x 81.0 L (cm)   |
| Single Rack                       | * 96.38 H x 22.56 W x 36.9 L (in)<br>* 244.8 H x 57.3 W x 93.7 L (cm)  |
| Weight                            |  |
| Dual Rack                         | 1280 lbs (581.8 kg) Estimated, Unpacked  |
| Single Rack                       | 730 lbs (331.8 kg) Estimated, Unpacked   |
| Construction                      | Modular Plug-In Assemblies, Field Serviceable  |
| Origin                            | Designed and Manufactured in the U.S.A.  |

| TRANSMITTER                |   |
|----------------------------|---|
| Harmonic Suppression       | At Least 60 dB Below Carrier            |
| Intermodulation Distortion | At Least 36 dB Below PEP                |
| Carrier Suppression        | Better Than 70 dB Below PEP             |
| Undesired Sideband         | Better Than 70 dB Below PEP             |
| In Band Noise              | Better Than 50 dB Below PEP             |
| Audio Input Impedance      | 600 $\Omega$ Balanced                   |
| Audio Response             | $\pm 1$ dB from 300 – 3050 Hz           |
| Audio                      | 0 dB Nominal; Adjustable to $\pm 20$ dB |

| PERIPHERAL EQUIPMENT OPTIONS |   |
|------------------------------|---|
| Spares Kits                  | Running Spares, Field Modules, Final Tested Sub-Units |
| AC Power Control             | Remote ON/OFF   |

| ENVIRONMENTAL         |   |
|-----------------------|---|
| Temperature           | * Operating: -20°C to +45°C (-4°F to 113°F)<br>* 45°C to 55°C (113°F to 131°F) @ Reduced Duty Cycle |
| Humidity              | 95% @ +55°C, Non-Condensing   |
| Altitude              | * Operating: Up to 10,000 Feet<br>* Storage: Up to 40,000 Feet                                      |
| Cooling               | Forced Air; Fan-Cooled  |
| Air Source and Volume | Clean Filtered Air  |
| Exhaust Air           | External Exhaust Recommended  |



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