

# THERMEX THERMATRON LP

## Industrial Microwave Systems

### 100kW Industrial Microwave Generator

#### Model TM100-AI Industrial Microwave Generator

#### 100kW at 915 MHz

The Thermex TM100-AI (Advanced Industrial) Microwave Power Generator is a complete self-contained microwave source used for industrial heating processes. It is rated at 100kW continuous power output and operates at 915 MHz.

The output power is controlled by varying the magnetic field around the magnetron using an electromagnet. This provides a continuous control of the output power manually using a digital potentiometer or automatically by an **Allen Bradley CompactLogix PLC**.

The generator is housed in a NEMA 12 type enclosure that measures approximately 6 feet wide, 4 feet deep and 6-1/2 feet tall. The generator cabinet is designed for free standing or bolting to the floor.

The major components located in the generator cabinet such as the magnetron, circulator and electromagnet are water-cooled in a closed-loop distilled water system. The distilled water is cooled by a water-to-water heat exchanger using plant water.



The plant water also cools the water load and the environmentally enclosed cabinet through a water-to-air heat exchanger. The unique Thermex cabinet design isolates the water section of the microwave generator from the high-voltage section.

The **Allen Bradley HMI** and all necessary controls and indicators are mounted on a control panel located on the front of the cabinet. The cabinet has two large hinged access doors on the front and two on the back that allows complete access to the interior for ease of inspection, installation, and maintenance.

**Thermex Thermatron, LP**  
"High Frequency at Its Best"

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## Specifications:

Operating Frequency:	FCC Assigned 915 MHz +/-15 MHz
Output Power:	PLC-controlled, 5-100kW Continuous Duty
Input Power:	480 VAC, 3 phase, 60 cycle approximately 150 KVA
Magnetron Protection:	A 3-port ferrite circulator with water load protection for the magnetron during periods of high reflected power.
Arc Detection:	Photo Electric Arc Detection to protect the magnetron, circulator, and waveguide.
Output Fitting:	WR-975 Waveguide with EIA range
Cooling:	Plant water 8gpm min., 80°F maximum
Overall dimensions:	48 inches deep X 72 inches wide X 78 inches high
Weight:	Approximately 5,000 lbs.

All control and signal processing circuits are grouped in individual subassemblies/modules for easy maintenance and troubleshooting. Each module can be bench tested and calibrated prior to installation into the microwave generator.

### Standard Equipment:

The following standard controls and indicators are provided with the TM100-AI PLC-controlled Microwave Generator:

- PLC Control for Automatic Operation – Allen Bradley CompactLogix PLC with HMI provides the following benefits:
- The microwave generator is programmed to operate at maximum efficiency by optimizing all of the generator functions and controlling the power output based on the amount of power reflected by the load. Thus, the generator will automatically adjust the microwave power to the load's ability to absorb microwave energy.
- On-screen Diagnostics and Alarm Messaging to help troubleshooting.
- Recording and storing all Operating Parameters – up to 32 recipes storing capability.
- On-screen calibration of all analog signals complete with help screens and instructions for the operating personnel. These analog signals include the following: reflected power, anode current, anode voltage, filament current, magnet current, and output power.
- With automatic power control, the TM100-AI Microwave Generator will automatically compensate for line voltage fluctuations, delivering a steady power output.
- **Interlocks:** High Reflected Power, Water Level, Water Temperature, Water Flow, Air Flow, and Cabinet Air Temperature.
- **Indicator Lamps:** Oven READY, Generator READY, System Fault, Heat ON.
- **Push Buttons and Switches:** Start-up, Shut down, Start heat, Stop heat, Local/Remote Power Control Switch, Reset, E-stop.
- **Panel Meters:** Output Power, Filament Hour.

**We invite you to contact us today for additional information on the system, professional assistance with your application or simply to learn more about microwave heating.**

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