

**15 kW Microwave Generator,
 Model GA4312B**

APPROVALS			REVISIONS			
	INITIALS	DATE	REV	DESCRIPTION	DATE	APPR
Drawn	JFG	28APR04	12	Revised line voltage, outline dwg	15APR14	JFG
Engineering			13	Revised outline drawing	24APR14	JFG
Manufacturing						
Marketing						

1.0 General Description

This document describes the 15kW microwave generator, model GA4312B, designed for industrial applications requiring a highly stable and reliable source of microwave power. Output power is delivered at 2.45 GHz and is continuously adjustable from zero to full output via local or remote controls.

The GA4312B system is a turn-key microwave generator consisting of three primary components, the remote magnetron head (MH) and a rack mountable high voltage power supply (HVPS) and user interface module (UIM). The HVPS and UIM together are the Alter model MPS24 multi-chassis power supply system. The UIM contains circuitry for local and remote controls, interlocks and line power distribution throughout the system.

The MH utilizes the L-3 Com (formerly CTL) model CWM-15S magnetron and delivers microwave power via WR430 output waveguide. Contained within the MH are the filament transformer, interlock circuitry to ensure adequate air and water cooling of magnetron, and an arc detect circuit for protection against damage due to internal waveguide arcs. The MH may be located up to 100 feet from the HVPS.

Installation of the GA4312B system requires connecting only line power and cooling water, while remote controls and user interlock devices may be connected optionally. The modular design simplifies servicing and offers flexibility with system integration. All cables required for electrical interconnection between the primary system components are provided.

2.0 General Specifications

2.1 Electrical Specifications

Microwave Output Power	15 kW max, continuously variable from 10-100%
Frequency	2450 +20/-30 MHz
Magnetron	L-3 Com (CTL) model CWM-15S
Output Regulation	+/- 1% max. for +/- 10% line voltage at full output
Output Ripple	5% RMS at full output
Line Power Input	432-528 VAC, 50/60Hz, 3-phase, 33 Amp/phase (@ 480 VAC) Delta-connected (3-wire plus ground) Optional: 360-440 VAC
Overall Efficiency	61% nominal
Remote Interface	Analog and digital (RS-232)
Interlocks	Magnetron overload; HV fail; Mag head access covers; Cooling air; Cooling water; Arc detection; External user device

2.2 Mechanical Specifications

Waveguide	WR430
Waveguide Flange	CPR430 (UG1711/U)

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Cooling Requirement	MH: Water @ 2.5 gpm min., 90°F max., 50-70 psig HVPS: Forced air convection by internal fans
Water Connections	1/4" NPT female
Electrical Connectors (mating connectors provided)	Line Power: 7-conductor CPC Analog Remote Control: 25-conductor female D-sub Digital Remote Control: 9-conductor female D-sub Fwd & Refl Power Interface: 9-conductor female D-sub (2x)
Enclosures	MH: Bench mount, zinc dichromate plated steel HVPS and UIM: 19" rack mount modules
Weight (approx.)	MH: 45 lbs (20 kgm) HVPS: 121 lbs (55 kgm) UIM: 36 lbs (16 kgm)

2.3 Environmental

Ambient Temperature	5-40 °C (41-104 °F)
Relative Humidity	80% max @ 31 °C, 50% max @ 40 °C (non-condensing)

2.4 Local Controls

Main Power On/Off	Rotary switch
Function Select/Enter	Membrane keypads
Function Display	Graphic LCD display of operating status, forward/reverse power and alarm status
Microwave Power Adjust	Multi-turn dial
Output Status Indicators	LED bar graphs for magnetron anode voltage and current
Operating Status Indicators	LED indicators for multiple interlock and alarm functions

2.5 Analog Remote Controls

Microwave Enable	Dry relay contact (close to enable)
Microwave Power Adjust	0-10 VDC input (10 kΩ impedance)
Hibernate Enable	Dry relay contact (close to enable)
External Interlock	Dry relay contact (close to satisfy)
Alarm Reset	Dry relay contact (close to reset)
System Ready Indicator	Opto-isolated emitter-collector junction
Microwave On Indicator	Opto-isolated emitter-collector junction
Forward Power Sense	0-10 VDC output (requires optional interface module)
Reflected Power Sense	0-10 VDC output (requires optional interface module)
Alarm Indicator Relay	SPDT isolated dry relay contacts
Alarm Code Indicators	4-bit alarm code (opto-isolated emitter-collector junctions)

3.0 Ordering Information

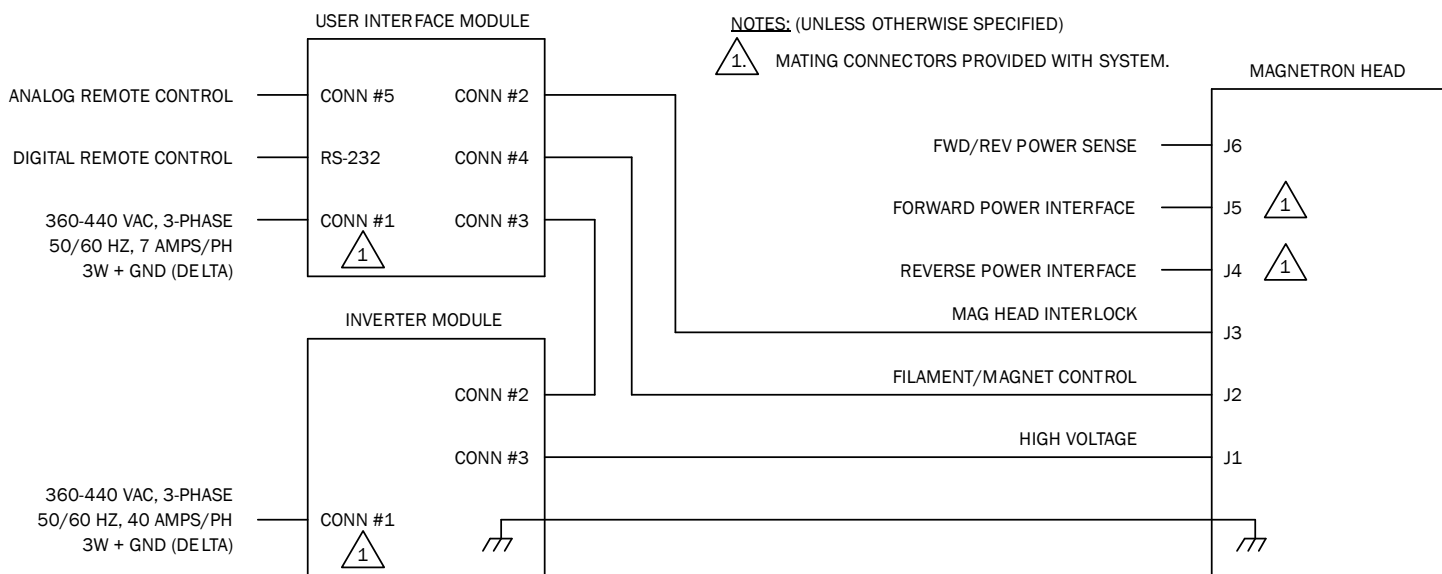
Description

15kW Microwave Generator
 Replacement Magnetron, CWM-15S
 2-Port Isolator (recommended)
 Single Directional Coupler
 Coupler Power Interface (optional)

GAE Part No.

GA4312B
 010212
 GA1110
 GA3109
 GA3301

4.0 System Electrical Diagram



5.0 Typical Waveguide Configuration

