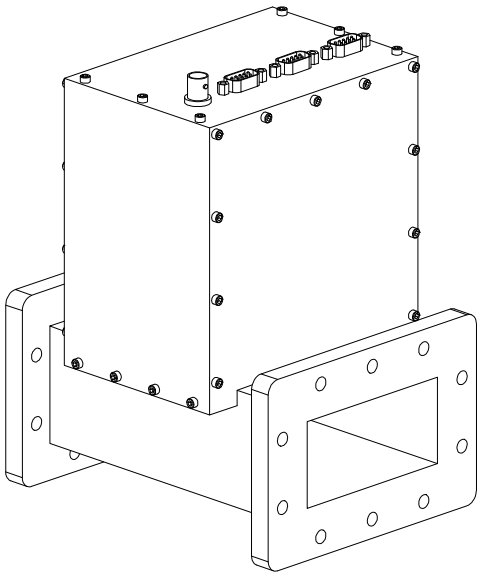
Waveguide Impedance Analyzer, WR340

GERLING

Model GA3113

The GA3113 Waveguide Impedance Analyzer is high power vector impedance analyzer used for monitoring and controlling process parameters in industrial microwave heating applications. It is designed for CW, high-ripple ("rectified") and pulsed microwave power operation modes. Under the full power operating conditions of magnetron based microwave generators, GA3113 measures both magnitude and phase of reflection coefficient as well as incident, reflected and absorbed power and frequency. The GA3113 is available with Windows® based software for effective monitoring and recording of impedance measurements, and it can be controlled from a personal computer via RS232 or CAN interface.



Based on the six-port reflectometer (SPR) principle, the GA3113 creates four different combinations of the waves incident on and reflected from load. These combined waves are sensed by four amplitude detectors. Using the detector outputs and signal frequency, the SPR can compute the complex reflection coefficient of the load as well as the incident power. The system parameters required for the computations are obtained during factory calibration using a set of impedance standards. It is recommended that the recalibration be performed annually. A frequency counter is also integrated with the system.

The control, visualization and data logging software significantly expands the system capabilities. Basic features include:

- Microsoft Windows® environment
- Accurate measurement of complex reflection coefficient and its displaying in various formats, including
  - Magnitude and Phase angle
  - Return Loss and VSWR
  - Polar displays of Smith (Z and Y) and Rieke-type Charts
- Measurement of incident, reflected, and absorbed power and display in various formats, including Watts, decibels, percentage of incident power
- Numerical readout of signal frequency, load reflection coefficient and power in various formats
- Arbitrary shifting of the measurement reference plane
- Saving measured data as tables (text files) or pictures (BMP, GIF, JPG)
- Periodic data logging of all or some of the measured quantities
- Multiple windows enabling simultaneous observation of various quantities in different formats
- Wide selection of appearances of displayed curves
- Storing and retrieving of complete system settings matched to particular tasks
- Extensive on-line help

Electrical Specifications:

Frequency	2425-2475 MHz
Maximum Power	30 kW (continuous and peak)
Minimum Power	1 W
Dynamic Range	20 dB maximum
Measurement Error	Reflection coefficient: .05 max. Incident power: 5% max.
Waveform	CW, rectified, (optional) pulsed
Max CW Ripple	15% of peak value
Rectified mode	400 pps maximum
Pulse mode	100 us minimum pulse width 100 ms maximum pulse period
Input Voltage	24 V ± 10% DC, 625 mA
Control Interface	RS-232 or CAN

Mechanical Specifications:

Waveguide	WR340 (RG113/U)
Flange	CPR-F (UG554/U)
Electrical Connections	9-pin male D-sub with jacking screw receptacles
Construction	Aluminum waveguide
Weight	6.6 lbs (3 kgm)
Overall Dimensions	(see outline drawing)
Operating Temperature	40 ºF (5 ºC) to 130 ºF (55 ºC)

Options:

- Detector without software (multiple unit orders)
- Additional interface (RS-232 or CAN)
- Pulse mode operation

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All dimensions are in inches [millimeters].

Updated 02JUL07

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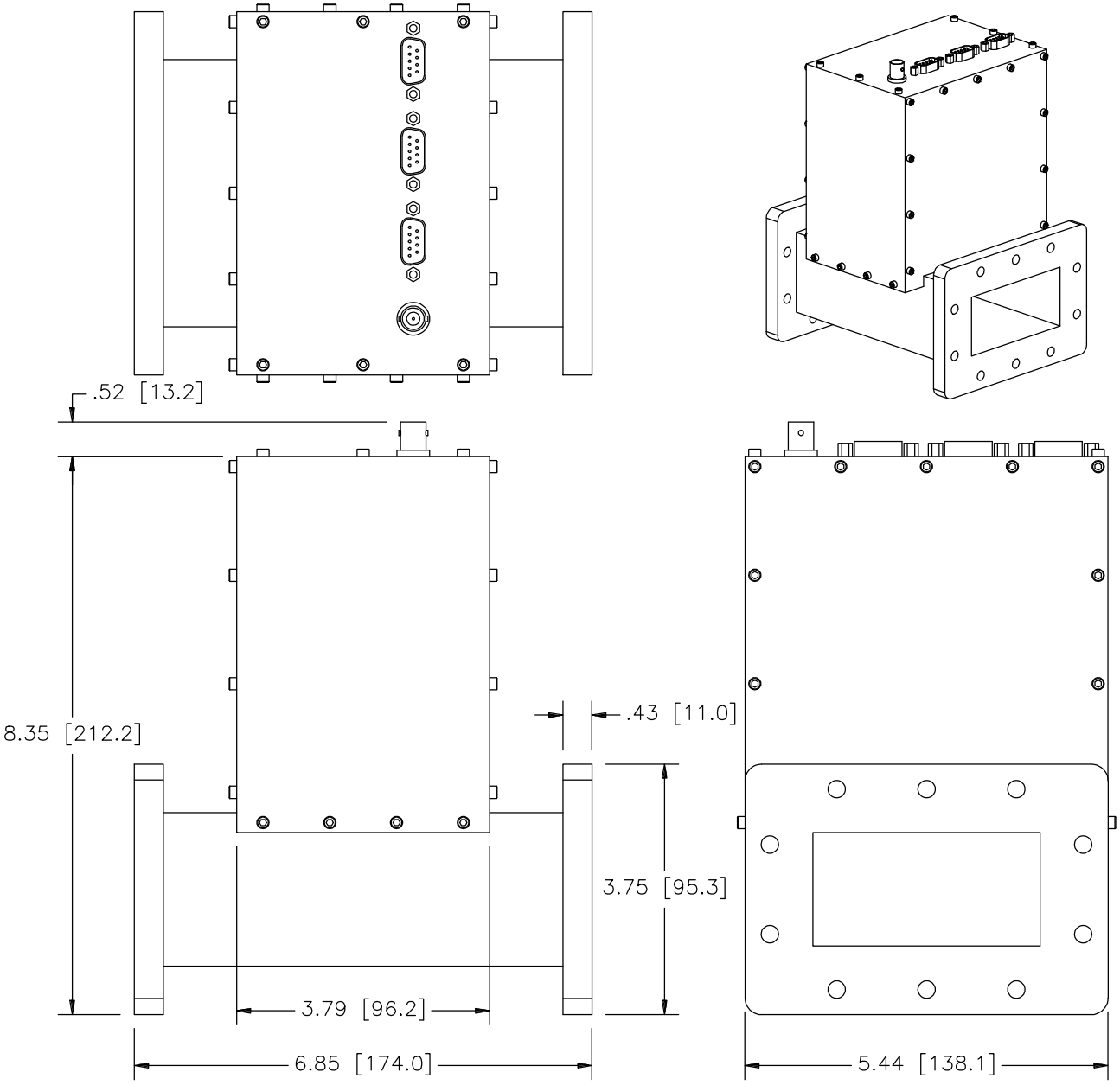

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