
PRODUCT BRIEF: Harmonic Ratio Analyzer / Model HRA-002

OVERVIEW

The HRA-002 is a multi channel, spectrum-analyzing device that provides harmonic amplitude information that scales automatically as the input power (fundamental) is adjusted. Any harmonic generating components, within the RF system, can be easily identified with this device allowing improved process control and reduced costs. The HRA-002 system is a measurement and reporting tool for RF-systems operating at 13.56 MHz and 400 kHz, other frequencies are available upon request. The HRA system is especially useful in providing real-time monitoring of the harmonic amplitude as it is affected by changes within the sputtering chamber. This tool will allow the semi-conductor manufacturer to react immediately to sudden or adverse changes in the RF system by monitoring the RS-232 output port data with the built in time stamp. By monitoring the data over time, drifts within the RF system can be identified and rectified before the process quality is affected. Power handling capability is dependent upon selection of the sampling head used in the HRA system. The CLR 002 and CLR 1350 RF couplers allow operation from 100 to 10 kW and can be fitted with quick disconnect connectors or to suit customer requirements.



TARGET MARKETS

The HRA system (patent pending) is targeted for users and manufactures in the semi-conductor fabrication equipment industry. A medical version of the Harmonic Ratio Analyzer will be available in Q3 of 2004.

KEY BENEFITS

The Harmonic Ratio Analyzer system is compact, light, easy to use and very affordable. Real-time monitoring of the sputtering process will facilitate semi-conductor / wafer fabrication and improve process control. The system can easily be adapted to existing and new sputtering equipment. Custom packaging is available on request.

- OPERATING TEMPERATURE: FROM 10 DEG TO 40 DEG CELSIUS
- MAXIMUM POWER INPUT: EITHER PORT: 33dBm (50 OHM INPUT IMPEDANCE)
- POWER MEASUREMENT RANGE: 45 dB
- HARMONIC MEASUREMENT RANGE: 0 TO -30 dB CARRIER, ACCURACY +/- 1 dB, @ -30 TO -45 dB (STANDARD RANGE), ACCURACY +/- 3dB @ -45dB AND GREATER (OUT OF RANGE).
- RESOLUTION: 0.1 dB
- ACCURACY: +/- 0.5 % @ OPERATING TEMPERATURE AND MEASUREMENT RANGE

- OPERATING FREQUENCIES HRA-002: F1: 13.56 MHz +/- 1MHz & F2: 400 kHz +/- 30 kHz
- FREQUENCY ANALYSIS RANGE: EXTENDABLE TO 500 MHz
- ANALYZE ONE OR MORE FREQUENCIES (HRA-002 COVERS 13.56 MHz AND 400 kHz)
- ANALYSIS RATE: 5 TO 30 SEC (FACTORY SETTABLE)
- RS232 COMPATIBLE ASCII DATA PACKET OUTPUT FOR REMOTE MONITORING (FIXED, 2400 BAUD, 8-BIT, NO PARITY)
- TIMESTAMP (DATE, YEAR, HOUR, MINUTE, SECOND) PER DATA-PACKET
- RS232 DATA REPORTING, APPROXIMATELY 10 SECOND INTERVALS (FIXED AT THIS TIME)
- TIMESTAMP RESET VIA RS232 COMMAND
- POWER SUPPLY: EXTERNAL SUPPLY (9 TO 15 VDC AT 1/2 AMP)
- DISPLAY: 4 X 16 BACKLIT LCD DISPLAY

OVERALL SYSTEM CHARACTERISTICS (RF Coupler and Analysis Unit combined)

- POWER MEASUREMENT: +30dBm TO +70 dBm (ACCURACY +/- 1dB)
(STANDARD SAMPLING MODULES)
- POWER MAX THROUGH SAMPLING MODULE: 10 kW (PEAK) WITH A 2:1 MAX VSWR
- IMPEDANCE: 50 OHMS
- READOUT MEASUREMENT CALIBRATED TO MATCH COUPLER MODULE AT FACTORY
- FREQUENCY RANGE OF COUPLERS:
- CLR 002: 375 kHz TO 10 MHz
- CLR 1350: 10 MHz TO 50 MHz
- COUPLER COEFFICIENT (+/- 0.5dB OVER FREQUENCY RANGE):
- CLR 002: -46dB
- CLR 1350: -43dB

MODEL NUMBERS AND ACCESSORIES

HRA-002 / sampling and measurement unit
 CLR 002 and CLR 1350 / RF couplers
 Accessory: Harmonic Absorption Unit

DOCUMENTATION

Model HRA-002 Operation Manual Document # FE 4001 Rev 002

PRICE AND AVAILABILITY

The HRA-002 scheduled release is Q1 of 2004.
 One HRA-002 system price is \$4,500 (Introductory Price)

- \$980 for each CLR RF coupler
- \$2,540 for the HRA-002

CONTACT INFORMATION

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