Rm-6600A
Universal Radiometer

- **Measure Both Power and Energy**
- **1 kHz GPIB and Rs-232 Interfaces**
- **Numeric and Graphic Display Modes**
- **Full Ratioing and Statistical Analysis**

The Rm-6600A Dual Channel Universal Radiometer offers unmatched accuracy, flexibility, and convenience when making optical power and energy measurements. Paired with the correct probe it can measure cw and average power (in Watts), as well as the energy (in Joules) of individual pulses up to 1 kHz, over a wide range of intensities and wavelengths. Full ratioing capability, high-speed GPIB and Rs-232 computer interfaces, numeric and graphical display modes, and statistical analysis of pulse sets are just some of the standard features. This tremendous versatility makes it the ideal instrument for research labs, hospitals, and any other facility with multiple light sources or applications.

The front panel consists of the LCD display, dual-function numeric/menu keypad, four softkeys, and power switch. The large area, fluorescent-backlit active matrix display exhibits excellent "readability" over a wide viewing angle. The keypad and softkeys are backlit, and offer good tactile feel. The softkey functions are software driven, and vary depending on the active menu.

Data can be displayed in both numeric and graphic modes. The numeric mode consists of two smaller display boxes and bar graphs that continuously show the power/energy data for each channel, and a larger display box called the "hot box". There are a number of choices for the hot box display, including channels A and B, the ratios A/B and B/A, the log of the ratios, and pulse statistics (energy measurement only): mean, minimum, and maximum pulse energies,as well as standard deviation.

If A, B, A/B, B/A, log(A/B), or log(B/A) is active in the hot box when the NUM/CHT button is pressed the Rm-6600A will display the data in graphical form, allowing power vs. time and energy vs. event trends to be observed. Scaling functions make full use of the large area display, and autoscaling allows for plotting of erratic signal levels with minimal data loss.

System functions are intuitively grouped in menus, which are opened by pressing the appropriate key. The softkeys, along with the ESC and ENTER keys, are used to navigate through the menus and submenus. Data is entered via the numeric keypad and softkeys.

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The Rm-6600A can accept both chopped and non-chopped power probes. Chopped probes take advantage of the fixed-frequency lock-in amplifier circuitry, allowing for greater S/N ratio and background rejection. The power can be displayed in Watts or dBm. Other features include Background Cancel and selectable Averaging Time.

The Rm-6600A can measure the true integrated energy of discrete pulses up to 1 kHz, then store the data for future retrieval or pass it in real time over the GPIB or Rs-232 computer interface. Further, Event Averaging allows sets of pulses (2-2,000 pulses/set) to be analyzed for the mean, minimum, and maximum energies, and standard deviation. This provides valuable data for laser stability studies, etc. Other energy functions include Single-Shot (capture-and-hold) mode and External Trigger.

Other features common to both power and energy measurement include Wavelength Select and Correction Factor (0.1 - 1.0). Wavelength Select loads the appropriate spectral correction factor (probe dependent), and Correction Factor can be used to correct the displayed power/energy for the transmission loss of a filter or attenuator. Online help is also available. Pressing the HELP key while a menu item is highlighted will display information about that menu item.

Rear panel features include the universal power entry module (90-260 VAC, 47-63 Hz), A and B Probe Connectors, Sync Input (for external chopper), Trigger Input (for energy measurement), Analog Output to drive a chart recorder, RS-232, and GPIB.

In power mode the Rs-232 and GPIB update with the front panel display at 3 Hz. However, in energy mode both are capable of transmitting energy data in real time up to 1 kHz (x two channels). Data can also be stored in volatile memory for later transfer at a slower data rate. The Rs-232 and GPIB are fully bi-directional and all front panel commands are duplicated via computer interface.

The Rm-6600A is compatible with the following probes:

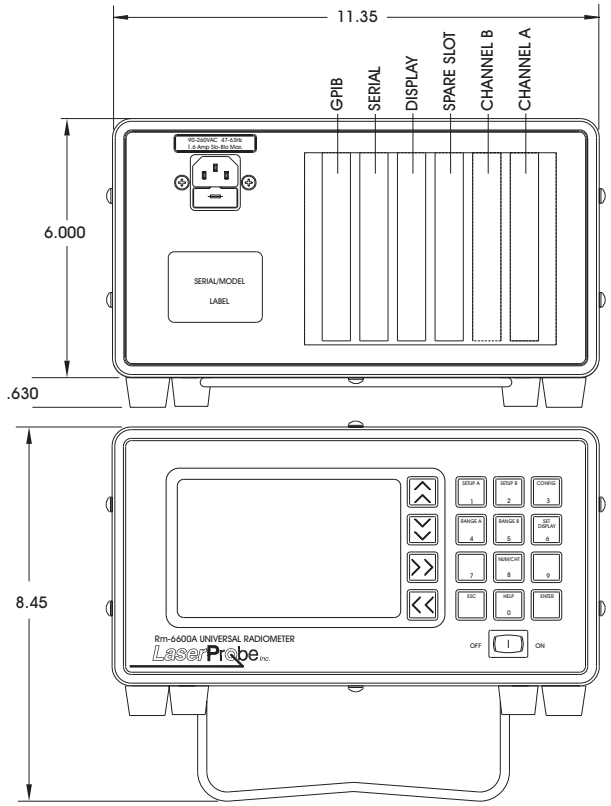
POWER	**ENERGY**
RkP-400	RjP-400
RkP-500	RjP-600
RkT Series	RjP-700
	RjT Series

Contact the factory for additional information regarding probe compatibility and available options.

The Rm-6600A is provided with a certificate of calibration showing traceability to the National Institute of Standards and Technology (NIST) and compliance with MIL-45662 and ANSI-Z540 Sections 7-18.

SPECIFICATIONS

Bar Graph	
Display mode	Channel A, B
Resolution	1%
Display update rate	3 Hz
Energy Measurement	
Max. pulse width	250 ms (probe dependent)
Max. pulse rep rate	1 kHz (probe dependent)
Resolution	0.03% of full scale
Calibration factor	0.100 to 1.000
Ratio range	10^{15} to 1 (probe dependent)
Ratio accuracy	± 2 LSD
Trigger select	Internal, External
Internal (auto) trigger	A or B; Energy > 7% of F.S.
External trigger	TTL; trigger edge within ± 20 μs of start of optical pulse
Accuracy	± 0.5%
Power Measurement	
Resolution	0.05% of full scale
Calibration factor	0.100 to 1.000
Ratio range	10^{15} to 1 (probe dependent)
Ratio accuracy	± 2 LSD
Chopping frequency	30 Hz ± 0.1 Hz; 50% duty cycle
Response time	0.1 sec, 1.0 sec, 10 sec
Background subtract	Up to P_{max} of probe
Accuracy	± 0.5%
Outputs	
Analog output	0-10 VDC, 10V equals F.S. for Channel A and B;the voltage is equal to the mantissa of the ratios A/B and B/A
GPIB	Talker/Listener; Address 0-32; serial poll w/status byte; Terminator LF/CR
RS-232C	110 - 115k baud; 8/7 data bits; parity E/O/N; stop bits 1/2
Operating Parameters	
Power supply	90-260 VAC; 47-63 Hz
Temperature range	O°C to 40°C operating; -20°C to 70°C storage
Dimensions (l x w x h)	31 cm x 29 cm x 15 cm (12" x 11.4" x 6.0")
Weight	5.5 kg (12.0 lb)



As a result of our ongoing commitment to product improvement specifications are subject to change without notice.

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