

# UltraSys

## ZLS Control System for LaCoste & Romberg Air/Sea Gravity Meters



ULTRASYS™ is a completely automatic, fully digital control system. It uses a 32-bit processor, 16-bit A/D and D/A, to perform all of the platform and sensor control functions. The host computer stores all data on the hard disk and can simultaneously direct data to the video monitor, serial port, and printer in a variety of formats. In High Resolution Marine and Airplane modes, raw data is recorded once per second allowing custom data filtering.

With a two hundred hertz sample rate, ULTRASYS™ produces precise data in High Resolution Marine and Airplane modes.

### Features

#### General

- Advanced Control System with a 32-bit embedded processor
- Digital technology replace analog hardware, eliminating electronic drift and enhancing system reliability
- Full manual control through menu selections
- Simultaneous data output to video monitor, hard disk, serial port, and printer
- Printer output in graphic or digital format

#### Sampling

- Two hundred hertz data sample rate that accurately digitizes sensor, gyro, and accelerometer signals, assuring no loss of signal information
- Platform feedback loops at the rate of two hundred hertz, providing superior platform control
- Twenty-five hertz computation of cross-coupling monitors, assuring accuracy
- Alarm function that shuts down system and provides remote alarm signal in the event of a serious system malfunction

#### Diagnostics:

- Keyboard log that records all keyboard activity for review
- Fully automatic system will start and function unattended after a power interruption
- Complete testing and final adjustment using the ZLS test facility for vertical, horizontal, circular, and ramp testing

#### Reliability:

- Self-contained precision gyro power supply and servo amplifiers

## UltraSys™ Technical Specifications

<b>Estimated Survey Resolution</b>	Resolution of recorded data	0.01 mGal
	Good operating conditions	Better than 0.2 mGal at 0.5 km wavelengths
	Average operating conditions	Better than 0.5 mGal at 2 km wavelengths
<b>System Filtering</b>	Digital filter prior to 1-second sampling	200-point running average of 200 Hz samples
	Fully digital	Set to standard 4-minute period
	The gravity sensor and the stable platform should be located at the center pitch and roll of the vessel. The gravity element and control computer may be installed with a standard separation distance of up to 40 feet.	
<b>Ancillary Data Inputs</b>	Digital:	Twenty-four bit TTL compatible input
	Analog:	Four channels
		Sixteen bit resolution Gains of 1, 2, 4, or 8 using menu selection Sample rate 200 Hz
<b>Data Recording</b>	Digital	Hourly files of 1-second data
	Analog	Unison Analog Printout
<b>Digital Recording Media</b>	USB Flash Drive (primary) 24X CDR-RW	
	ZLS formatted data available via RS-232 serial interface	
<b>Power Requirements</b>	87 - 270 Vac, 47 - 63 Hz, single phase	
<b>Power Consumption</b>	Operating:	1A*
	Maximum:	2.5 A*
		*measured at 117 volts 60 Hz
<b>Clock Source</b>	Frequency available:	200 Hz
	Temperature stability:	5ppm -20C<T<+70C
	Short term aging:	1 x 10 <sup>-9</sup> /sec
	Adjustability:	Sufficient for five years of aging
	Optional rubidium time standard available	

The complete ULTRASYS™ nominally consists of 10 pieces at a gross weight of app. 450 kgs.