WLR-2800 Software

Microsoft Windows® compatible LOGGER software supports a wide variety of configurations, including simultaneous operation of multiple instruments. LOGGER is designed to take advantage of the processing power available in field laptop computers today. In addition to real-time displays, plots may be easily exported as bitmap files, ASCII text files, or to a printer using export dialog boxes. System variables such as acquisition rate and data averaging is easily adjustable to suit any sampling strategy. The main mission of the software is data acquisition, and the software automatically suspends graphical displays if the acquisition computer has insufficient resources to handle the load.

For ease of use, data are stored as Microsoft Access® databases. Raw voltage data, calibration information, system information, calibrated data, and results from post processing are all available in this readily usable database format. A singular advantage to this approach is that system setups are retained, and any data file may be used as a calibration database for subsequent profiles. These data tables may be easily analyzed using the standard Microsoft Office suite, or exported for use in other packages, such as Matlab.

WLR-2800 Technical Specifications

Optical

Spectral Range: 313-900 nm

Standard Wavelengths: 340, 380, 412, 443, 465, 490, 510, 532, 555, 565, 589, 625, 665, 683, and 694 nm

Optional Wavelengths: 313, 320, 395, 455, 475, 520, 670, 710, 765, 780, 875 nm, and PAR (Photosynthetically Active Radiation—400-700 nm). *Consult factory for availability.*

Bandwidth: 10 nm FWHM standard; 20 nm FWHM optional

Filter Photodetectors: 15 wavelengths standard; up to 19 wavelengths (optional)

Detectors: Custom 13 mm^2 silicon photodiodes

Filter Type: Custom low-fluorescence interference

Field of View: 13.6° half angle in air; 10° half angle in water (SeaWiFS-compatible)

Out-of-band Rejection: $1x10^{-10}$

Typical Saturation: 10^3 $\mu Wcm^{-2}nm^{-1}sr^{-1}$

Noise Equivalent Radiance: 10^{-6} $\mu Wcm^{-2}nm^{-1}sr^{-1}$

WLR-2800 Physical

Diameter: 10.2 cm

Length: 24 cm

Materials: PET plastic housing

Weight: 2.5 kg

Temperature Rating: -5°C to 50°C

System Electronics

Microcontroller: Each head uses a separate high performance PIC17C756 CMOS microcontroller
Featuring 8bit, 18.432MHz frequency, internal 16K non-volatile EEPROM

Data Acquisition: A high accuracy 16 bit ADC with a PGA input yielding a 10 VFS and 1.3 µV LSB
The microprocessor enables auto zero and gain corrections for the A/D and PGA
A set of internal voltage references are also used in calibrations
32 channel multiplexer selects analog signals from up to 19 photodetectors, temperature sensors, pressure and tilt/roll sensors
Real time data averaging can be selected for 15 Hz to 1Hz

Photodetector Preamps: Each detector is individually amplified by an electrometer grade FET Op Amp with variable gain.
The electrometer gain is computer selected to match the light signal level. The available gains (100,000 V/A, 30M V/A and 10E10 V/A) cover 10 decades of light levels with minimum detectable signals of less than 10 femptoAmps.

System Data Rate: maximum rate of 15 Hz (19 wavelengths) and 57600 Baud (The maximum sample rate varies with number of wavelengths, no. of heads connected and Baud rate)

Channel Sampling Time: scan time is typically 25msec when reading 32channels including additional processing time, all heads are synchronized to start scans within 500 µsec ±175 nsec

Output: RS-485 full duplex at 57 kbaud

Deckbox

Microprocessor: A separate PIC17C756 CMOS microcontroller is used to translate the high level PC program commands to individual head commands, buffer the high volume of data transmitted from the heads and provide exact timing of data collection between heads

Cable: RS-232 serial interface; custom 6-conductor red braided-jacket Kevlar® cable (custom lengths available up to 350 m)

Battery Power: Rechargeable 12-V gel cell battery; LED indicator light for low battery voltage

AC Adapter/Charger: Universal 90-240 VAC, 50-60 Hz

Output: single COM port

Biospherical Instruments Inc.
5340 Riley Street
San Diego CA 92110, USA
Phone: (619) 686-1888
Fax: 619-686-1887
E-mail: sales@biospherical.com
URL: www.biospherical.com

**Specifications subject to change without notice*