

Handheld Sensing System for Field Applications

Valuable real-time data can now be collected in a variety of settings with the Jaz, a handheld, field-portable analytical instrument from Ocean Optics that combines the power of optical sensing with onboard computing power. The level of flexibility Jaz provides will change analysis in custom applications ranging from crop management and environmental analysis to UV radiation and ozone monitoring.

Because of its size and versatility, Jaz is a convenient analytical tool for applications across various industries and disciplines. The spectral data collected and analyzed by Jaz can help marine biologists and hatcheries measure upwelling/downwelling, and supply fluorescence readings to gauge the health of fish, corals and other sea life.

Jaz is a family of stackable, modular and autonomous components -- a typical setup for field use is about the size of a few decks of cards stacked atop each other -- that share common electronics and communications. At its heart is a miniature CCD-array spectrometer, or light measuring device, available with user-selected grating and slit options optimized for a variety of optical sensing application needs. Also incorporated into the Jaz stack is a powerful microprocessor and onboard display with data logging capability, so that full spectra data can be acquired, processed and stored without the need for a PC.

Jaz's Ethernet and battery modules offer additional functionality for field use. The Ethernet module has data storage capability via an SD card slot and allows users to connect to the Jaz unit via the Internet, making remote measurements possible and enabling the creation of networked sensing modules.

The Lithium-Ion battery module is rechargeable in the field via the solar cell or back in the lab using the Power over Ethernet connection (100 Mbps, IEEE 802.3-compliant 10/100 single-cable), the USB 2.0 port or an external power supply. The battery module also has a power-conserving sleep mode for long-term measurements and two additional SD card slots for storing data.

The Jaz platform also expands to include light sources (VIS-NIR or LED) and additional spectrometer channels. Jaz can be connected to field-ready fibre optic accessories such as cosine corrected irradiance probes for solar irradiance measurements, optical fibres and probes for immersing in fluids or sampling solid surfaces, and devices for adjusting the field of view of the sampling optic. A special holster makes the Jaz wearable, freeing hands to manipulate sampling devices.