In-situ Power + Analysis + Storage

Overview:

The CPICS SmartModule is a combination power pack and processing add-on module that enhances the capabilities of the CPICS *in-situ* aquatic microscope. With its built-in processing system, full-frame images captured by the CPICS camera are reduced to much smaller regions of interest (ROIs) that are stored locally within the unit. An internal battery allows the CPICS system to function as a complete standalone intelligent image logger and processor that can be added to a variety of vehicles and instrument packages without the need to modify their existing communication or power configuration.

Power:

Each CPICS SmartModule has a built-in rechargeable battery that is capable of providing approximately two hours of continuous CPICS image acquisition, processing and storage, which is sufficient for short data collection operations. For tasks requiring more time, external power packs can be daisy-chained as needed. Spent power packs can rapidly removed for charging and replaced with charged packs to eliminate down-time.

Data Storage and Communication:

Captured images are stored on a removable solid state drive that is attached to the exterior of the SmartModule with a wet-mateable connector to allow attachment and removal without opening the SmartModule housing. Several drives may be used alternately to allow extended operations. At the surface, data can be transferred to other computers either by the physical transfer of the drive, or by a high speed WiFi link. WiFi is an ideal method to do a quick non-disruptive examination of the images that have been stored, especially when there is only a small amount of time before the unit is returned to the water.
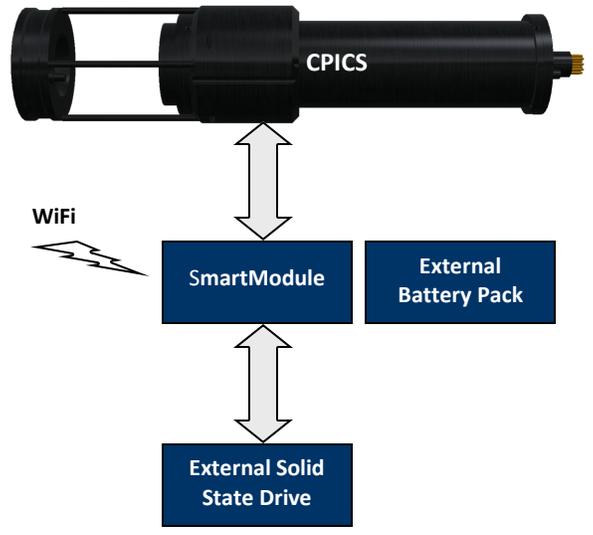
Advanced Processing Option:

With this additional option, the CPICS SmartModule can work even smarter by analyzing your captured images with our automated machine vision classification system to identify plankton at the taxon level.

Applications:

Typical uses of the CPICS SmartModule are in CTD Rosettes, towed vehicles, autonomous underwater vehicles, manual surveys by divers, and many more.

Specifications:

Pressure Rating	
Smart Module-100:	100m
Smart Module-600:	600m
Smart Module-6000:	6000m
Data Storage	
Removeable solid state drive:	500 GB
Data communication	
CPICS to SmartModule	Gigabit Ethernet over copper
SmartModule to network	Ethernet over 802.11n/ac WiFi
Power	
Voltage:	24 volts DC
Time, internal power pack:	~2 hrs
Time, external power pack:	~10 hrs

Dimensions		
Processor w. internal power pack:	25cm x 15cm (Length x Diameter)	
External power pack:	10cm x 15cm (Length x Diameter)	
Weight		
SmartModule:	2 kg (air)	1 kg (water)
Power pack :	3 kg (air)	2 kg (water)

CPICS SmartModule interconnectivity