



- Samples continuously for deployments lasting up to 6 months.
- Generates high resolution images of suspended particles in the size range <10 to 150  $\mu\text{m}$ .
- Automated operation includes routines for antifouling and periodic standard analysis to monitor instrument performance.
- Uses input voltage of 18-36VDC, 35W continuous power while sampling.
- Operational temperature range of 0°C to +45°C.
- For more information about this sampler, see the [IFCB pages](#) at [mclanelabs.com](#).

## Imaging FlowCytobot

### Application:

The Imaging FlowCytobot (IFCB) is an in-situ automated submersible imaging flow cytometer that generates images of particles in-flow taken from the aquatic environment.

### Features:

The IFCB uses a combination of flow cytometric and video technology to capture high resolution images of suspended particles. Laser-induced fluorescence and light scattering from individual particles are measured and used to trigger targeted image acquisition; the optical and image data are then transmitted to shore in real time.

Collected images during continuous monitoring can be processed externally with automated image classification software. Images can be classified to the genus or even species level with demonstrated accuracy comparable to that of human experts.

### Image acquisition:

IFCB generates high resolution (~ 3.4 pixels/micron) images of suspended particles in the size range <10 to 150  $\mu\text{m}$  (such as diatoms and dinoflagellates). The instrument continuously samples at a rate of 15ml of sea water per hour.

### Imaging schedule:

Depending on the target population the IFCB can generate on the order of 30,000 high resolution images per hour.

### Deployment:

The IFCB can be used for bench top analysis as well as for pier and other wired deployments. The housing and fluidic components are rated to 40m. Extended unattended deployments (6 to 9 months) are possible as IFCB's automated operation includes antifouling procedures and periodic standard analysis to monitor instrument performance.

This product complies with  
21CFR1040.10 and 21CFR1040.11



# Imaging Flow Cytobot Sampler Specifications

## DIMENSIONS (PRESSURE HOUSING):

Max Diameter: 26 cm (10 in)

Height 102 cm (40 in)

## WEIGHT (APPROX):

In air: ~32 kg

In seawater: neutral (housing and instrument)

## PUMP:

Type: Servo-driven syringe pump, 5ml capacity

Flow rate: 0.25 ml /min fixed rate

## CONTROLLER:

Housing material: Aluminum, 6061-T6 hard coat anodized

Power supply: 18-36 VDC external power source

Power consumption: 35W (continuous sampling)

Communications: 10/100/1000-BaseT Ethernet

## OPERATIONS:

Maximum depth: 40m

Schedule: Automated or interactive system

Typical deployment length: 6 months (longer deployments possible)

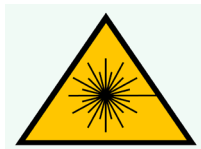
Frequency: 5mL sample per 20 min. interval

## REAGENTS:

400 ml biocide (reusable sample bag)

400 ml cleaning solution (reusable sample bag)

100 ml micro-bead suspension (syringe reservoir)



Example Mosaic from IFCB Dashboard (not to scale)

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