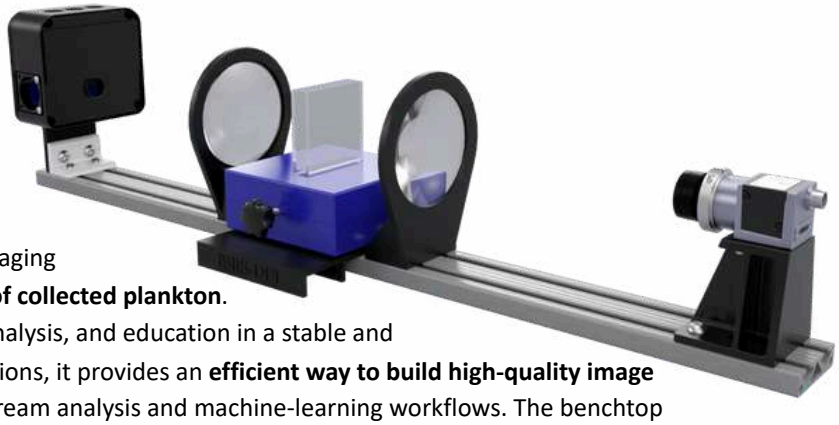
ISIIS-DPI Plankton Shadowgraph Camera

Model: ISIIS-DPI Benchtop P75



Overview

The **ISIIS-DPI Benchtop P175** brings ISIIS-DPI imaging into the laboratory for **controlled observation of collected plankton**. It supports behavioral studies, morphological analysis, and education in a stable and repeatable environment. Used during field missions, it provides an **efficient way to build high-quality image libraries** from plankton net samples for downstream analysis and machine-learning workflows. The benchtop system **bridges field observations, laboratory studies, and automated image processing.**

The benchtop system uses the same imaging resolution and optical scale as the ISIIS-DPI P75, ensuring direct consistency between laboratory observations and in situ measurements. Image acquisition can be performed using standard tools such as the free Basler pylon Viewer, allowing immediate access to imagery without custom software development.

Beyond behavioral observation, the benchtop system plays a critical role in building high-quality image libraries for downstream data analysis. By imaging organisms collected from the field using the same optical principles as ISIIS-DPI systems, researchers can rapidly generate well-labeled, taxonomically relevant reference datasets. These libraries are particularly valuable for training and validating machine-learning classifiers, such as k-nearest neighbor (kNN)–based approaches, used to process large volumes of in situ imagery.

Using freshly collected field samples in a controlled setting ensures that the resulting image libraries are directly relevant to real deployment conditions, accelerating classifier development and improving confidence in automated image analysis workflows.

Features

Standard Field of View:	45 mm x 45mm	**Camera resolution:**	5MP sensor, 3.45 µm pixels, 2/3"
Standard depth of Field:	120 mm	**Light:**	Blue 475nm
Pixel Resolution:	26 µm/pixel	**Power:**	Camera is USB port powerd Light requires 5VDC, from a USB-C cord
Recommended for Particles:	>300µm		
Image File Size	2.9 MB, 1700 px x 1700 px	**Dimensions:**	L 640mm x W 146mm x H 152mm
Camera Frame Rate:	up to 35 fps	**Weights:**	2 Kg

Included Components: LabJack interface module, glass cuvette, 6 ft USB 3.0 cable, 110 V AC power supply

Compatible Software: Basler pylon Viewer (free), Bellamare Benchtop Pylon App (free), Sixclear JADE environment