iLine F,
In-Line Smart
Cell Culture
Monitoring

The iLine Fast brings real-time label free monitoring to suspension mammalian cell bioreactors. The iLine F takes holograms of the cells and through advanced image analysis software, the cell count, cell size distribution, cell viability and parameters are generated automatically during the cultivation.

The iLine fast is designed specifically for use in combination with bioreactors. The technology can track a full cycle and can count cell viability from very low to high concentrations. The iLine Fast can be used in various settings and can be integrated with the bioreactor control systems.

The iLine Fast is connected to bioreactors via a specific, sterile closed loop disposable fluidics system. Cells are pumped out of the bioreactor, via an innovative pumping system, flow through the imaging device in a temperature-controlled environment and flow back to the bioreactor after the holograms of the cells have been captured. The holograms are continuously analyzed to compute cell density and cell viability.

Thanks to its on-line features, the technology strongly improves productivity and quality and allows staff in charge of the bioprocess environment to focus on tasks not linked to sampling, staining and analyses of data.
The monitoring platform is used continuously throughout the cell multiplication cycle and gives very accurate information related to the ideal harvest time of the culture.
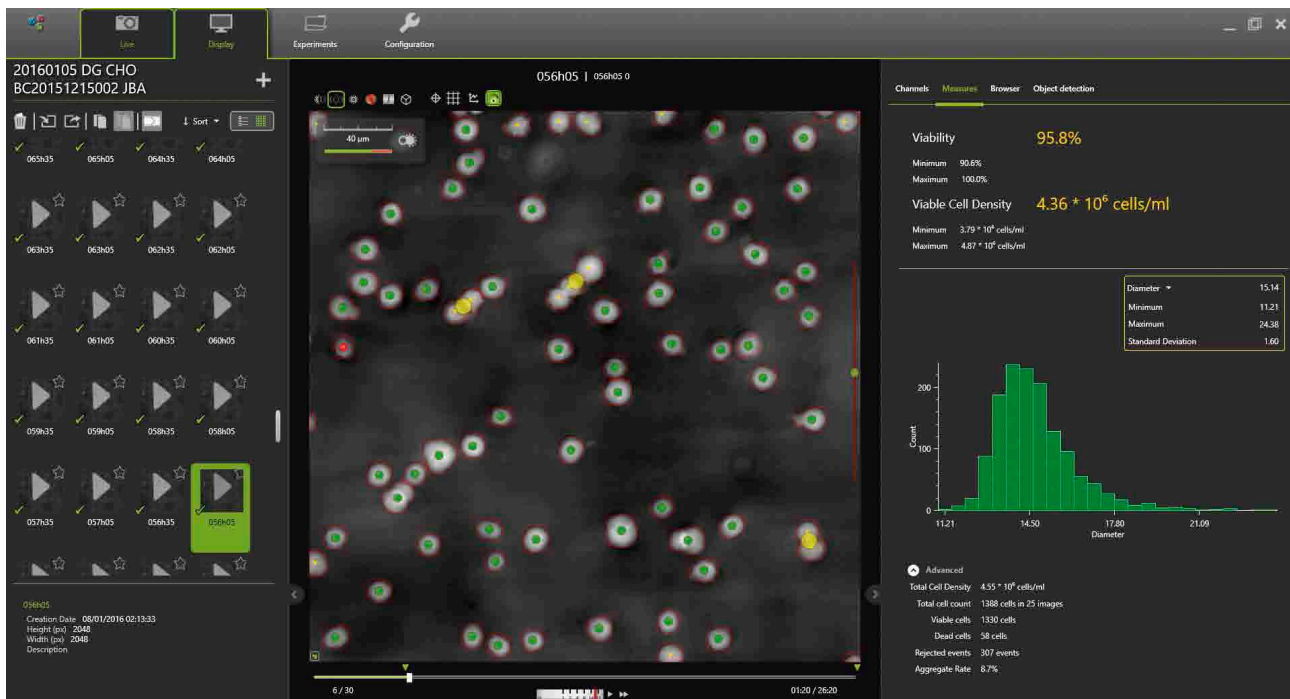
Cell density and viability

Cell viability and density are indicated via a simple visual gauge. For more in depth knowledge, Individual cells can be observed and analyzed via an easy to use cell browser. Green dots represent living cells, red dots represent dead cells and yellow dots represent cells within an aggregate.

Cell density and viability are measured by using a label free method based on the 'holographic' fingerprint of a cell. First of all the iLine Fast captures holograms of all the cells flowing through the fluidics system in a 3D volume. In a second phase all objects within the observed volume, typically 100 times larger than traditional microscopes, are refocused. In a third step the holographic fingerprint of each cell is computed. The fingerprint is computed by an expert system and is based on a combination of parameters that allow for a fast and accurate classification. The methodology used by the quantitative imaging based platform can distinguish living and death cells and can eliminate debris easily making it a versatile and cost effective solution.
The iLine Fast has been benchmarked and compared to existing manual and automated off-line methods and has shown to be more consistent and accurate.