

# Cardio Intrinsic Optical Signal Acquisition System

# CIOS8

## *Optical Recording of Cardiomyocytes Activity without Staining*



This device can detect the activities of cultured cardiomyocytes very easily by the unique method. The noninvasive optical recording of activities of cultured cardiomyocytes in culture ware such as 96-well plate is available, after simply setting on the stage without staining of cells. 24 wells are recorded simultaneously, and integrated software can show the activities of each well in waveform.

The beat rate and contraction duration of cardiomyocytes are also analyzed and shown almost real-time. This small and right-weight device having temperature controller and recording-well position changer can work as stand-alone.

The use on the air table is recommended since this device does not have anti-vibration function.

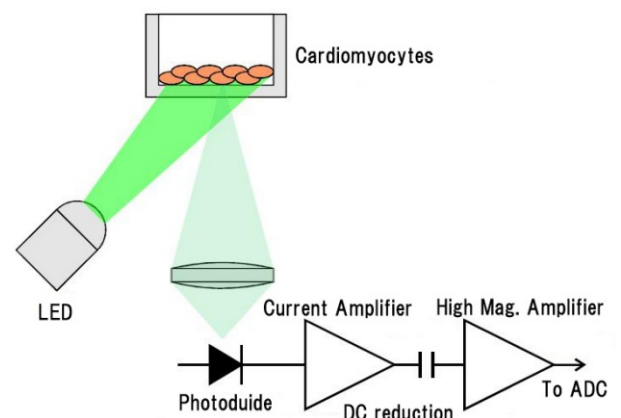
### Principle of Activity Detection

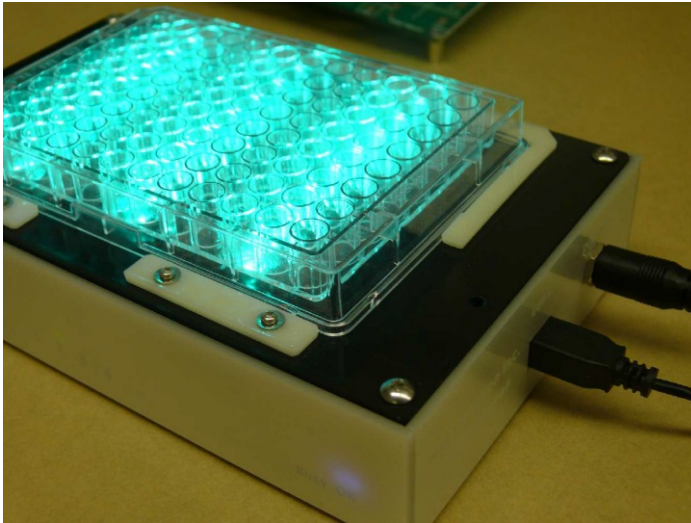
The principle of measurement of activities is quite simple.

It is well known that cell activities change the light scattering, and also the cardiomyocytes show larger changes by the beating activities.

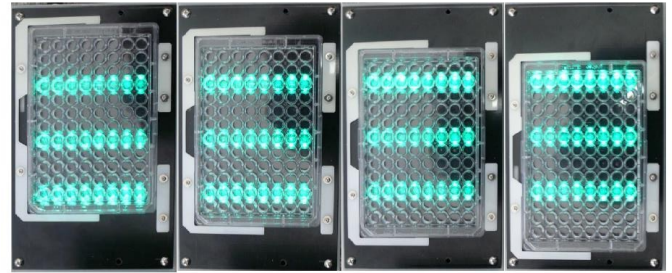
LED under cultureware illuminates sample at low angle. The scattered light reflected from cells is detected by photo-diode, then only change component is amplified and extracted as the activity signal.

The extracted signal is digitized and amplified thousands of times, or tens of thousands of times. Then, the cardiac activities are recognized by the numeral process.





CIOS 8 features all the devices in the small body: Light sources, detectors, heating plates with the temperature controller, a plate positioning carrier and a light blocking lid.



Motorized culture-ware carrier sets the recording position by the command from CIOS8 application software. All wells can be recorded quickly in stable temperature condition without opening of the device.

### Simple Operation

1. Place cultureware with cardiomyocytes on CIOS8
2. Set the cover
3. Click [RUN] icon on CIOS8 software



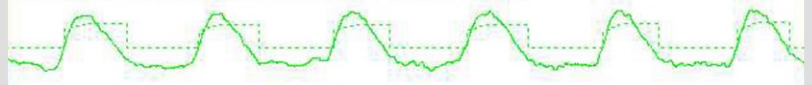
CIOS8 software can be navigated intuitively, and the measurement and analysis in real-time are available without experiences of optical recording.

Beating rate and contraction period are detected in high accurately by unique analysis algorithm, and the result can be exported in CSV format which can be handled by spreadsheet applications.

### Cardio Intrinsic Optical Signal Acquisition System

Product Name: CIOS8 Ver1.0  
 Code: CIOS8-v1  
 Contents: CIOS8-v1  
 Power Cable  
 USB2.0 Cable  
 Driver Software  
 CIOS8 Software

[c4] bpm=88.4±0.6 Ti=678.6±4.9msec Td=274.4±6.0msec



Example of Cardiac Intrinsic Optical Signal Waveform from cultured cardiomyocyte, from Ph.D. Yoshinori Ide.

\* Optional filter for optical recording using voltage-sensitive dye is also available.

This product is made in JAPAN. The contents were the information on February 1, 2017.  
 The photograph of CIOS8 shows prototype of CIOS8.  
 The appearance of the product and/or software may be changed slightly without announcement.

CIOS8-E v1.0

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