Data Sheet

Agilent

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Agilent xCELLigence RTCA Cardio System

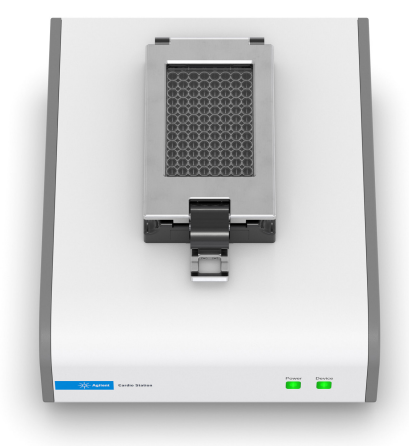
For preclinical cardiac safety assessment and functional monitoring of cardiomyocyte contraction

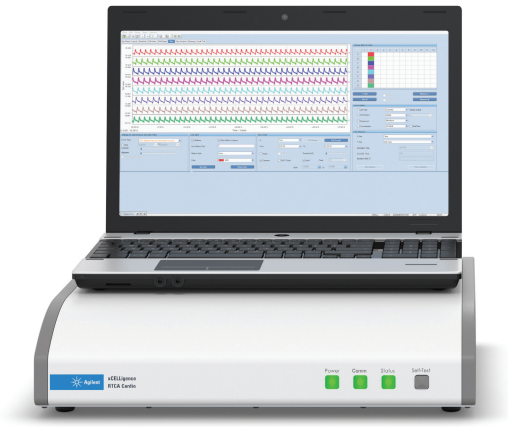
The Agilent xCELLigence real-time cell analysis (RTCA) Cardio system provides a powerful means of monitoring cells in real time, without the potential artifacts generated by using labels. The noninvasive measurement of cellular impedance enables detection of changes in cell adherence, morphology, and viability without the need for overexpression of reporter and target proteins. This provides highly physiologically relevant data throughout the course of the experiment.

The xCELLigence RTCA Cardio system enables continuous label-free measurement of cardiomyocyte function, and provides predictive information about cardiac safety during drug development by measuring cardiomyocyte beating under physiological conditions. This technology provides high throughput and a quantitative, predictive assay system for early cardiac liability detection of drug candidates in a 96-well format.

Obtain physiologically relevant data:

- Measure cardiomyocyte beating in real time using a high-throughput, 96-well plate format.
- Use stem cell derived, induced pluripotent stem (iPS) cell derived, or primary cardiomyocytes.
- Noninvasively monitor short-term (ms) and long-term (days and weeks) cell responses.
- Obtain beat rate and amplitude with rapid data acquisition (12.9 ms update rate/plate).
- Achieve optimal cell culture conditions by placing the RTCA Cardio station and Agilent E-Plate into a standard CO_2 incubator experiment.





RTCA Cardio Station	
Dimensions	28.0 cm × 34.0 cm × 16.0 cm (W × D × H)
Weight	<10.0 kg
Electrical input	+5 V, −5 V, 5 W max
Electrical switch resistance	2 to 5 Ω
Electrical interface	Handling one E-Plate Cardio 96
Communication	LVDS in parallel
Environment	Temperature: +15 to +40 °C, relative humidity: 98% maximum without condensation
Status indicators	Power and devices status

E-Plate Cardio 96	
Footprint	Compliance with ANSI/SBS 1-2004 requirements
Dimensions	12.77 cm × 8.55 cm × 1.75 cm (W × D × H) (with plate cover)
Spacing	9 mm center-to-center as per ANSI/SBS 4-2004 standard for 96-well microplates
Volume	243 ±5 µL
Bottom diameter	5.0 ±0.05 mm
Electronic interface	Interface with the RTCA Cardio station
Sensor impedance	17 ±5 Ω at 10 kHz, when measured with a 1x PBS solution, UV irradated
Environment	Temperature: +15 to +40 °C, relative humidity: 98% maximum without condensation

RTCA Cardio Control Unit
Laptop computer with preinstalled RTCA Cardio software
User-friendly graphical user interface (GUI)
≥160 GB hard disk drive
≥2 GB RAM

RTCA Cardio Analyzer	
Dimensions	40.0 cm × 40.0 cm × 9.2 cm (W × D × H)
Weight	<8.0 kg
Electrical input	100 – 250 VAC, 50/60 Hz, 25 W max
Output test signal	22 mV rms ±20% with max. 5 mV DC offset at 10 kHz
Impedance measurement speed	Maximum 12.9 ms for 96 wells
Impedance measurement accuracy	±1.5% at 1 Ω
Impedance measurement repeatability	0.8%
Impedance dynamic range	20 Ω to 2 kΩ
Communication	USB 2.0
Environment	Temperature: +15 to +32 °C, relative humidity: 80% max, up to +32 °C without condensation
Status indicators	Power, communications, and analyzer status, analyzer self-test button

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