

# Agilent xCELLigence RTCA HT System

Label-free, real-time cellular analysis for high-throughput screening applications



## Introduction

Agilent xCELLigence technology is now available for high-throughput screening using modular 384-well plate stations designed for use on robotic platforms. Up to four 384-well plate stations can be used in parallel for increased throughput and flexibility.

The Agilent xCELLigence real-time cell analysis (RTCA) high throughput (HT) system provides a unique and powerful means to monitor 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 over-expression of reporter and target proteins. This provides highly physiologically relevant data throughout the experiment.

The Agilent xCELLigence E-Plate 384 features an innovative biosensor configuration that covers 80% of each well bottom surface area. Real-time measurement of impedance across these biosensors provides sensitive detection of cell health and behavior from low cell numbers to confluency. This enables a wide array of potential applications including (but not limited to):

- Functional monitoring of GPCR and receptor tyrosine kinase signaling
- Cell proliferation
- Cell quality
- Compound-mediated cytotoxicity
- Cell-mediated cytotoxicity
- Cell adhesion and spreading



RTCA HT Station	
Dimensions	16.5 cm × 24.0 cm × 13.5 cm (W × D × H)
Weight	<10.0 kg
Electrical input	+5V, -5V, +12V, 15 W max
Electrical switch resistance	7 to 12 Ω
Electrical interface	Handling one Agilent E-Plate 384 device
Communication	RS-232 serial communications at a band rate of 57,600 bits/second
Environment	Temperature: +15 to +32 °C, relative humidity: 80% max. up to +32 °C, without condensation
Status indicators	Single LED for system, heater, and motor status

E-Plate 384	
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	The spacing of the wells is 4.5 mm center-to-center as per the ANSI/SBS 4-2004 standard for 384-well microplates
Volume	95 ±5 µL
Bottom dimension	(2.5 ±0.1 mm) × (2.5 ±0.1 mm)
Electronic interface	Interface with RTCA HT station
Sensor impedance	112 ±22 Ω at 10 kHz, when measured with a 1x PBS solution
Material	Biocompatible surfaces, gamma irradiated
Environment	Temperature: +15 to +40 °C, relative humidity: 98% max. without condensation

RTCA HT Analyzer	
Dimensions	45.0 cm × 45.0 cm × 11.0 cm (W × D × H)
Weight	<13.6 kg
Electrical input	100 to 250 VAC, 50 to 60 Hz, 80 W max
Output test signal	22mV rms ± 20% with max. 5 mV DC offset at 10, 25, and 50 kHz
Impedance measurement accuracy	±(1.5% at 1 Ω)
Impedance measurement repeatability	0.8%
Impedance dynamic range	50 Ω to 2 kΩ
Communication	USB to RS-232 serial communications at a band rate of 57,600 bits/second
Environment	Temperature: +15 to +32 °C, relative humidity: 80% max. up to 32 °C, without condensation
Status indicators	Power and four separate analyzer status LEDs (one for each channel), analyzer self-test button

RTCA HT Control Unit
≥160 GB hard disk drive
≥1 TB second hard disk drive
≥Intel Pentium Dual-Core 1.8 GHz
≥2 GB RAM
Two ethernet cards
Two USB 2.0 ports
≥256 MB graphics device
≥19 in monitor with 1280 × 1024 pixels display resolution

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