

# Agilent xCELLigence RTCA MP System

For label-free, real-time cellular analysis



The Agilent xCELLigence real-time cell analysis (RTCA) multiple plates (MP) system provides a unique and powerful means to monitor cells in real time, without the potential artifacts generated by using labels. This noninvasive measurement allows detection of changes in adherence, morphology, and viability without the need for overexpression of reporter and target proteins. This provides physiologically relevant data throughout the entire experiment.

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

- Cell proliferation
- Cell quality
- Compound-mediated cytotoxicity
- Cell-mediated cytotoxicity
- Cell adhesion and spreading
- Functional monitoring of receptor tyrosine kinase and GPCR signaling
- Cell-mediated cytolysis
- Barrier function
- Viral quantification



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| RTCA MP Station              |                                                                                        |
|------------------------------|----------------------------------------------------------------------------------------|
| Electrical input             | ±5 VDC, +12 VDC, 10 W max.                                                             |
| Electronic switch resistance | 2 to 5 Ω                                                                               |
| Electronic interface         | Handling six Agilent E-Plate 96 devices                                                |
| Communication                | RS-232 serial communications at a baud rate of 57,600 bits/second                      |
| Environment                  | Temperature: +20 to +40 °C, relative humidity: 98% max. noncondensing                  |
| Measurement rate             | <10 s per measurement for one E-Plate 96 or <1 minute per measurement for six E-Plates |
| Dimensions                   | 44 cm × 44 cm × 18 cm (W × D × H)                                                      |
| Status indicators            | Power and device status                                                                |

| E-Plate 96           |                                                                                |
|----------------------|--------------------------------------------------------------------------------|
| Footprint            | Compliance with ANSI/SBS 1-2004 requirements                                   |
| Dimensions           | 12.77 cm × 8.55 cm × 1.75 cm (W × D × H, with cover)                           |
| Well spacing         | 9 mm center-to-center as per ANSI/SBS 4-2004 standard                          |
| Well volume          | 243 ±5 µL                                                                      |
| Well bottom diameter | 5.0 ±0.05 mm                                                                   |
| Electrical interface | Compatible with RTCA SP and MP stations                                        |
| Sensor impedance     | 17 ±5 Ω at 10 kHz, when measured with a 1x PBS solution                        |
| Materials            | Polystyrene well plate, glass sensor substrate, UV irradiated                  |
| Environment          | Temperature: +15 to +40 °C, relative humidity 98% maximum without condensation |

| E-Plate 96 VIEW 96                         |                                                                     |
|--------------------------------------------|---------------------------------------------------------------------|
| <b>All E-Plate 96 specifications apply</b> |                                                                     |
| Viewing window                             | Four center electrodes removed to aid in microscopy (~400 µm width) |

| RTCA MP Control Unit                             |  |
|--------------------------------------------------|--|
| Laptop computer with pre-installed RTCA software |  |
| User-friendly graphical user interface (GUI)     |  |
| Flexible experimental protocol setup             |  |
| Real-time data acquisition                       |  |
| Real-time numeric and graphic data display       |  |
| Multiple output formats                          |  |

| RTCA MP Analyzer                    |                                                                                                             |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Electrical input                    | 100 to 240 VAC, 50 to 60 Hz, 25 W max                                                                       |
| Output test signal                  | 22 mV rms ±20% at 10, 25, and 50 kHz                                                                        |
| Impedance measure accuracy          | ±(1% + 1.5 Ω)                                                                                               |
| Impedance measurement repeatability | 0.8%                                                                                                        |
| Impedance dynamic range             | 10 to 5 kΩ                                                                                                  |
| Communications                      | RS-232 serial communications at a baud rate of 57,600 bits/second                                           |
| Environment                         | Temperature: +15 to +32 °C, relative humidity: 80% max. up to 31°C decreasing linearly to 50% max. at 40 °C |
| Dimensions                          | 40 cm × 40 cm × 8 cm (W × D × H)                                                                            |
| Status indicators                   | Power, communications, and analyzer status, analyzer self-test button                                       |