

Press Release

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High-Sensitivity Cell and New Dynamic Range Extension Function Extend Measurement Concentration Range of *Nexera X2* Series UHPLC by Fifty – From Ultra Trace Quantities to High Concentrations, the *Nexera X2* UHPLC Measures it All

Shimadzu, one of the worldwide leading manufacturers of analytical instrumentation, announces the implementation of a new functionality in its *Nexera X2* series UHPLC SPD-M30A photodiode array detectors that increases sensitivity and significantly expands the dynamic range for high concentrations. A high-sensitivity cell, with an optical path length of 85 mm, increases SPD-M30A sensitivity by approximately a factor of five, which further maximizes the already high sensitivity level of *Nexera X2* systems.

In addition, the *i*-DReC (intelligent **D**ynamic **R**ange extension **C**alculator, Patent pending) function dramatically improves signal linearity in high-concentration regions. This high-sensitivity cell and dynamic range extension function expand the range of concentrations measurable by *Nexera X2* systems by approximately 50. Consequently, these systems can be used for an even wider range of applications, from verifying the purity of synthetic compounds to analyzing their impurities.

Benefits of the New Functionality

The following functionality was added to SPD-M30A photodiode array detectors used in *Nexera X2* systems.

(1) High-Sensitivity Cell Expands Low-Concentration End of Measurement Range

A high-sensitivity SR-Cell flow cell with an 85 mm optical path length was added to the line of flow cells used in SPD-M30A photodiode array detectors. By using a longer path length to increase the signal level and a total reflectance capillary to reduce noise, sensitivity has been quintupled compared to the standard SR-Cell used in SPD-M30A detectors. This high-sensitivity SR-Cell provides a UHPLC system with the highest sensitivity level in the world, to ensure detection of even ultra-trace.

(2) *i*-DReC Function Extends High-Concentration End of Measurement Range

The newly developed *i*-DReC function is based on a novel concept that significantly extends the dynamic range for high concentrations. Even if the signal in the high-concentration region is saturated, the *i*-DReC function uses the optimal wavelength to correct linearity in the high-concentration region. This provides good linearity over a high-concentration range that is about ten times larger than with previous models. The *i*-DReC function eliminates the previously required process of diluting concentrated samples, which is especially beneficial when confirming the purity of synthetic compounds or testing stability.

Together, the high-sensitivity SR-Cell and *i*-DReC function expand the range of sample concentrations measurable in *Nexera X2* series systems by up to 50 times. As a result, the *Nexera X2* can now be used for an even wider range of applications, such as testing genotoxins in pharmaceutical markets that require compliance with FDA

guidance and confirming the purity or testing the stability of synthetic compounds.

For further editorial questions, please contact:
Uta Steeger, Shimadzu Europa GmbH, Albert-Hahn-Str. 6-10, 47269 Duisburg
Tel.: +49 (0) 203-7687-410, e-mail: us@shimadzu.eu

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