

High Performance Liquid Chromatograph

# i-Series Method Transfer System



# Enables Both HPLC and UHPLC Analysis

The i-Series Method Transfer System (MT system) enables both conventional analysis via its high compatibility with existing LC systems and rapid analysis via high-speed methods. In pharmaceutical development, a single integrated system allows process synthesis screening analysis for synthetic substances in the UHPLC flow line, and impurity content identification in the HPLC flow line.

Analysis results from LC systems in the same laboratory may differ, even with the same method, due to differences in the system delay volumes of these systems. The i-Series MT system demonstrates outstanding reproducibility between various LC systems with different system delay volumes, simplifying method transfer between instruments.

Further more, with the i-Series MT system the process of migrating from UHPLC to HPLC or from HPLC to UHPLC can be accomplished using a single system.

The i-Series MT system is based on the same user-friendly i-Series, but maximizes performance and reliability for migrating and transferring customer methods.



UHPLC

i-Series  
MT system

HPLC



# Dual Flow Lines Simplify the Process of Migrating Methods

A single integrated system allows analyses in two flow lines with UHPLC and HPLC delay volumes. In addition to simplifying the transfer of analytical methods for customers using HPLC, it can also streamline the process of converting customers' analytical methods from HPLC to higher-speed UHPLC.

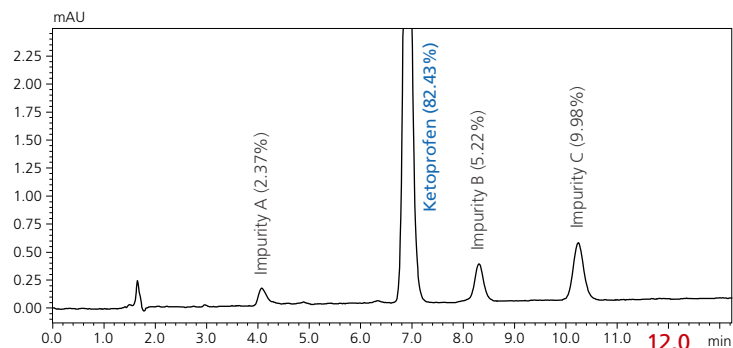
## ► Supports Method Compatibility Compliant with the United States Pharmacopeia

General Chapter <621> Chromatography in the United States Pharmacopeia specifies allowable ranges for changes to analytical parameters, so that revalidation is not necessary as long as the setting values remain within those allowable ranges. i-Series MT system includes dual flow lines for HPLC and UHPLC analysis. With two system volumes, it can support both existing analytical methods and UHPLC methods.

### Flow line 1

#### HPLC Conditions

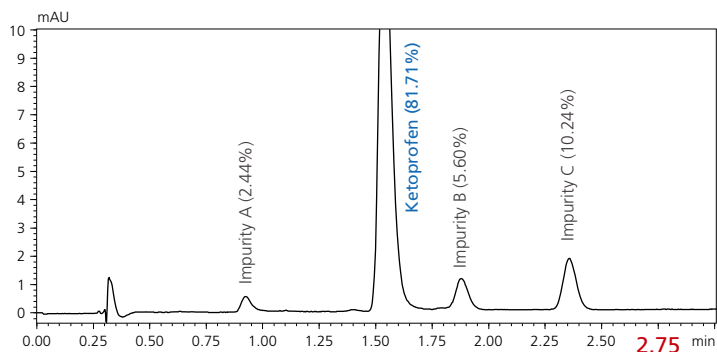
Column	: Shim-pack™ VP-ODS 150 mm L. × 4.6 mm I.D., 5.0 μm
Mobile phase A	: Phosphate (potassium) buffer solution, pH 3.5
Mobile phase B	: Acetonitrile
Composition	: A/B = 57/43 (v/v)
Flow rate	: 1.0 mL/min
Column temperature	: 40°C
Injection volume	: 20 μL
Sample	: Ketoprofen 1 mg/mL



### Flow line 2

#### UHPLC Conditions

Column	: Shim-pack XR-ODS II 75 mm L. × 3.0 mm I.D., 2.2 μm
Mobile phase A	: Phosphate (potassium) buffer solution, pH 3.5
Mobile phase B	: Acetonitrile
Composition	: A/B = 57/43 (v/v)
Flow rate	: 1.0 mL/min
Column temperature	: 40°C
Injection volume	: 20 μL
Sample	: Ketoprofen 1 mg/mL

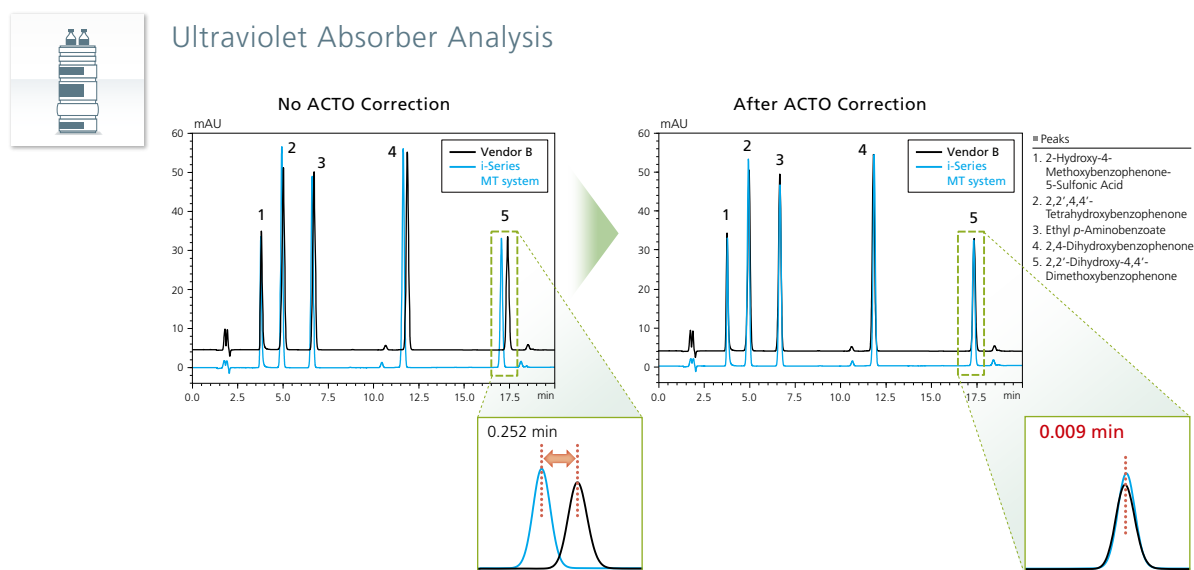
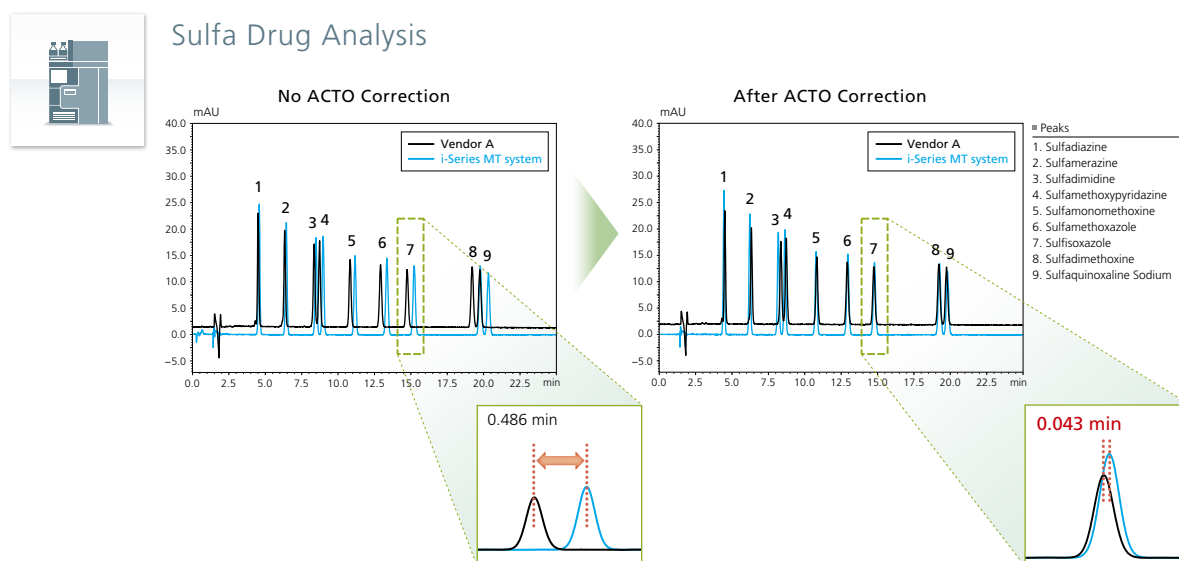


# ACTO Function Achieves Higher Reproducibility

The newly developed Analytical Condition Transfer and Optimization (ACTO) function incorporated in LabSolutions™ allows users to transfer injection timings matched to differences in system volumes between instruments, without editing the concentration gradient programs in existing methods.

## ► More Optimal Method Transfer with a Simple Operation

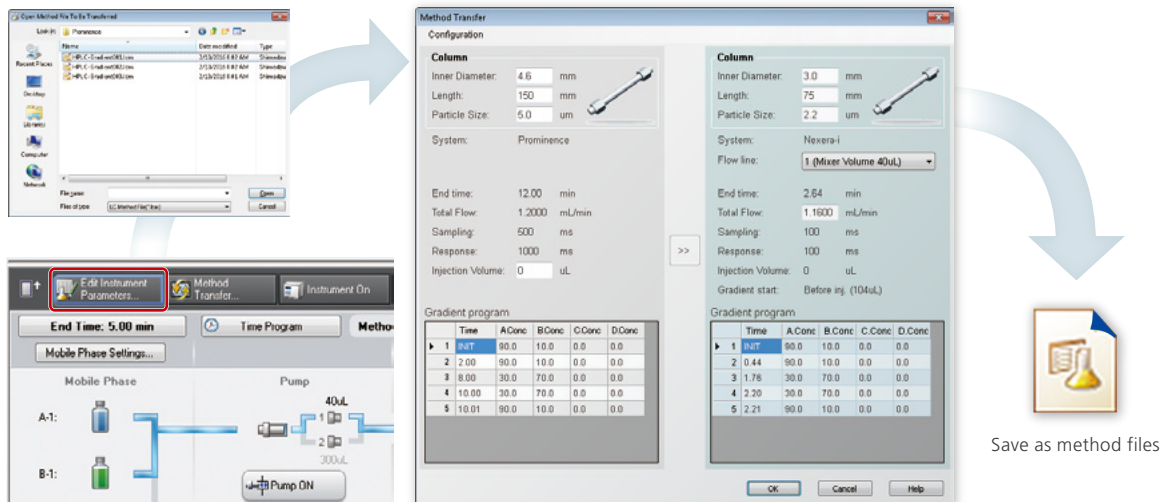
Reproducing analysis results is difficult even when the same columns and the same mobile phase conditions are used, because the gradient analysis start times differ due to differences in internal volumes between LC systems. With the ACTO function, differences in internal volume can be fine-tuned to heighten data reproducibility between different systems and streamline method transfer.



# Achieves Seamless Method Transfer Process

## ▶ Transfer Methods with a Single Button Operation—ACTO Function

The ACTO function also includes functionality for transferring HPLC methods to UHPLC methods. Just by loading method files prepared on an existing system and entering information about the columns used, the optimized methods will be presented for fast analysis. By selecting one of the flow lines, the function can also transfer methods from UHPLC to HPLC.



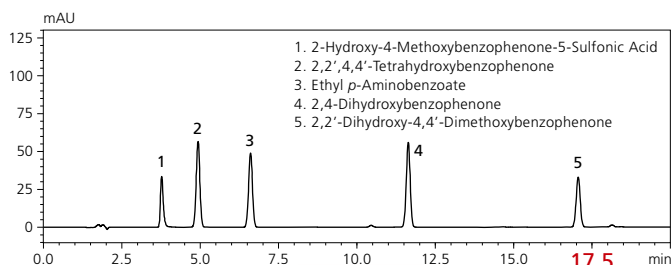
The i-Series MT system has two flow lines matched to the UHPLC and HPLC delay volumes. In addition to simplifying method transfer for customers using HPLC, this single integrated system also streamlines reviewing procedures for increasing the speed of customers' methods using UHPLC.

### Flow line 1

#### HPLC Conditions

Column : Shim-pack VP-ODS  
150 mm L. x 4.6 mm I.D., 5 µm  
Mobile phase A : 20 mmol/L Phosphate buffer solution, pH2.5  
Mobile phase B : Acetonitrile  
Flow rate : 1.0 mL/min  
Column temperature : 40°C  
Time program

Time	Unit	Func	Value
2.00	Pump	B.Conc	30
25.00	Pump	B.Conc	70
25.10	Pump	B.Conc	30
32.00	Controller	Stop	



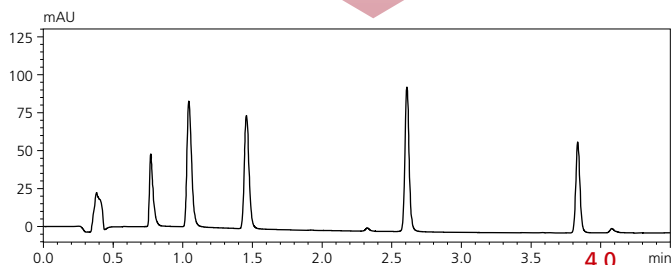
5 times faster

### Flow line 2

#### UHPLC Conditions

Column : Shim-pack XR-ODS II  
75 mm L. x 3.0 mm I.D., 2.2 µm  
Mobile phase A : 20 mmol/L Phosphate buffer solution, pH2.5  
Mobile phase B : Acetonitrile  
Flow rate : 0.97 mL/min  
Column temperature : 40°C  
Time program

Time	Unit	Func	Value
0.44	Pump	B.Conc	30
5.48	Pump	B.Conc	70
5.50	Pump	B.Conc	30
7.02	Controller	Stop	





# Designed for User-Friendly Operability

## —Core Technologies That Provide a Solid Foundation for Analysis

### Forced Air Circulation Column Oven Supports Up to 85°C

Forced air circulation provides higher column temperature stability. Heating capacity up to 85°C enables thermostatic analysis, such as for analyzing sugars.

### Autosampler Enhances Data Reliability

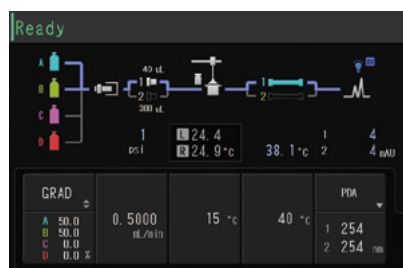
The excellent reproducibility with a low injection volume less than 1  $\mu\text{L}$  and low carryover (max 0.0025%) maximize data reproducibility when migrating methods.

### Dual Temperature Control Cell Inhibits Baseline Fluctuations

In addition to the flow cell temperature control function, the system also includes a function for controlling the temperature of the detector's optical systems (TC-Optics). These functions minimize the influence of external air temperature variations to help ensure a stable baseline.

### Touch Panel Enables Sensory-Based Determination of the Operating Status

The i-Series user interface features a flow line diagram that allows users to visually confirm the flow lines and columns being used. Switching between flow lines requires only one touch on the control panel, which significantly reduces the user operating time.



### The Compact Footprint Provides a Spacious Operating Environment

A single i-Series MT system can perform the work of two LC systems, so the required installation space is significantly reduced in comparison to existing LC systems.



### Automatically Switch Between Two HPLC/UHPLC Flow Lines

The system includes a 10-port flow line switching valve for two flow lines in the same system, one for HPLC and the other for UHPLC. The flow lines can be switched automatically using the software, which significantly reduces the time and trouble involved in transferring methods.

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