



Infutest 2000 Series E

Precision Infusion Device Analyzer



1% of Reading Accuracy
Compatible with Pulsatile
Flow Pumps



ES601 Plus
System Connectivity

Datrend Systems was one of the very early innovators in high-accuracy infusion device testing. The very first Datrend product offering, the Infutest 2000, was introduced in the early 1990's, and was an immediate success in the worldwide market. This original Infutest product was marketed within Canada under Datrend's own brand name, and in the rest-of-world market under an alternate brand for many years. But the alternate brand product was still named Infutest. The design and ongoing manufacturing of both brand-name Infutest products was all done by Datrend Systems. The basic color patterns and product appearance of the Infutest remain the same today as they were back then. Many of these early model Infutest analyzers are still in use around the world today, attesting to the quality and longevity of the Infutest design, and to Datrend's design concepts and capabilities overall. Since these early days of Infutest, the product has undergone four distinct evolutionary technology platform enhancements. The current platform, the Infutest 2000 Series E, offers many features and capabilities that are unique in the market, while maintaining a coveted 1% of reading accuracy level, even on pulsatile flow pumps! This is an accuracy level that some infusion device analyzer manufacturers can only dream about!

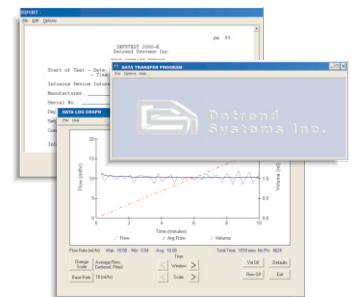
The Infutest 2000 Series E analyzer, when combined with the optional Infutest 2000 Series E RSM Module, allows you to simultaneously test up to four single channel infusion devices, or four independent channels of a multi-channel device in just seconds. When used without the RSM Module, you can still test two single channel devices or two independent channels of a multi-channel infusion system.

Infutest 2000 Series E is the ultimate solution for your infusion device inspection requirements. Conduct the full range of flow, pressure, volume and interval tests on practically any fluid delivery system including single rate, dual rate and patient controlled analgesia (PCA) devices. These tests are performed following easy-to-use manual or autosequence formats using the front panel keypad and graphical display.

The Infutest 2000 Series E is a member of the Datrend ES601 Plus System Connectivity Family. You can connect Infutest to the ES601 Plus via RS232, and use any of the ES601's 12 IV Pump Autosequences. A "starter set" of autosequences is provided in the ES601 Plus, and each of these is fully editable for total customization to the exact set of infusion devices that you may have. Infutest also interfaces with the medTester 5000C when it is equipped with the IVPUMP autosequence option, or to a PC running the Infutest Data Transfer Program (DTP), a standard Infutest accessory, for automated operation and test data storage.

End-of-Infusion Analysis - Accurate volume-to-be-infused (VTBI) measurements are a snap with Infutest 2000 Series E. End-of-infusion analysis (EIA) calculates the volume infused at the instant the STOP key is pressed or when the autosequence preset test time has elapsed. This computation can be easily verified by checking the full test data log from Infutest 2000 Series E internal memory.

SynchroStart - SynchroStart accurately captures the initial start-up flow dynamics of your IV pump, an invaluable feature when testing pumps with a pulsatile flow pattern. No need to attempt to start both the IV pump and the analyzer at the same time to make this critical measurement - Infutest 2000 does it for you... automatically!



Expand to Four Channels with the
Optional Remote Sensor Module

The Infutest 2000 Series E is backed by the Datrend Systems 5-Year Warranty!

Infutest 2000 Series E



8000-006 120V, North America
8000-007 230V, United Kingdom
8000-008 230V, Europe
8000-053 230V, Germany

8000-024 120V, North America
8000-025 230V, United Kingdom
8000-026 230V, Europe



Single Rate Test (Continuous Flow Conditions) Flow Measurement

Nominal range: 0.1 - 1200 ml/hr
Max. flow measurable and displayed: 1700 ml/hr
Min. flow measurable and displayed: 0.04 ml/hr
Max. display resolution: 0.001 ml/hr
Measuring time: 10 min. at 0.1 ml/hr / 20 sec. max. above 6 ml/hr
Accuracy: Average flow: +/- 1%, 0.1 - 1200 ml/hr
Ranges: LOW - 0.1 to 170 ml/h / HIGH - 170 to 1200 ml/h
Range selection: Automatic
Internal nominal effective collection volume: LOW range: 0.014 ml
HIGH range: 1.1 ml

Volume Measurement

Range: 0 - 9999 ml, Max. display resolution: 0.001 ml, Accuracy: +/- 1%

Back Pressure Measurement

Range: 0 - 300 mmHg, Zero offset error: +/- 5 mmHg,
Display resolution: 1 mmHg, Accuracy: +/- 1% FS, +/- zero offset error

Elapsed Time Measurement

Range: 0 - 100 hours, Display format: hh:mm:ss, Accuracy: +/- 1 second

Pulsatile Flow Conditions

Flow Measurement

Nominal range: 5 - 999 ml/hr
Max. flow measurable and displayed: 1700 ml/hr
Min. flow measurable and displayed: 2.75 ml/hr
Max. display resolution: 0.001 ml/hr
Measuring time: 14 min. at 5 ml/hr / 20 sec. max. above 200 ml/hr
Accuracy: Average flow +/- 1%
Range: HIGH range only (internally selected)
Internal nominal effective collection volume: 1.1 ml

Volume Measurement

Range: 0 - 9999 ml, Max. display resolution: 0.001 ml, Accuracy: +/- 1%

Dual Rate Test (Continuous Flow Conditions ONLY)

Flow Measurement

Nominal range: 0.1 - 170 ml/hr
Max. flow measurable and displayed: 200 ml/hr
Min. flow measurable and displayed: 0.04 ml/hr
Max. display resolution: 0.001 ml/hr
Measuring time: 10 min. at 0.1 ml/hr / 20 sec. max. above 6 ml/hr
Accuracy: Average flow: +/- 1%
Ranges: LOW range only
Delivery period determination: Automatic
Internal nominal effective collection volume: 0.014 ml

PCA Pump Test (Continuous Flow Conditions ONLY)

Flow Measurement, Bolus Delivery period

Nominal range: 0.1 - 170 ml/hr
Max. flow measurable and displayed: 200 ml/hr
Min. flow measurable and displayed: 0.04 ml/hr
Max. display resolution: 0.001 ml/hr
Measuring time: 10 min. at 0.1 ml/hr / 20 sec. max. above 6 ml/hr
Accuracy: Average flow: +/- 1%
Ranges: LOW range only
Lockout detection: Automatic
Internal nominal effective collection volume: 0.014 ml

Occlusion Pressure Test

Display Units: mmHg, psi / Display resolution: 1 mmHg (0.1 psi)
Range: 0 - 2586 mmHg (0 - 50 psi)
Measuring time: 2 seconds
Zero offset error: +/- 5 mmHg (0.1 psi) Accuracy: +/- 1% +/- zero offset error

Lockout Time Measurement

Range: 0 - 100 minutes, Display format: mm:ss, Accuracy: +/- 2 seconds

Nurse Call Detection

Nurse Call signal from pump sampled once per second.
Nurse Call signal can be produced by any of: relay contacts, open collector output, TTL output, RS-232 level, or 20 mA current loop.

Memory Type: NVRAM (battery-backed)

Capacity:

2 channel: 900 flow and 700 pressure measurements per channel
4 channel: 450 flow and 350 pressure measurements per channel

Interface

User Interface: 40-character by 8-line backlit LCD, 4 front panel soft-keys,
Internal beeper, LCD contrast control

Fluid interface: Inputs A & B: Delrin twistlock, self-sealing /
Common output A & B: Delrin twistlock

PCA Pump Trigger Outputs:

Mechanical - One 1/4" female stereo phono jack per channel
Electrical - Relay contacts rated at 120 VAC, 1 A; normally open and normally closed contacts available.

Nurse Call Inputs:

Mechanical - One 1/4" female stereo phono jack per channel
Electrical - 50K-ohm differential input impedance.

Parallel Port: Centronix standard printer interface, DB-25F

Printer Driver: Epson MX/FX Series, 80 cps, 80 columns and 66 lines / page

Serial Port:

Mechanical - RS-232 / DB-25M

Electrical - RS-232C; bidirectional; CTS handshaking; 9600 baud, 8-None-1

Power Supply: 120 VAC 60 Hz @ 12 W (230/240 VAC 50 Hz Europe/UK)

Environment: Operating Temp. 15°C to 40°C, Operating RH 10% to 90%
Storage Temp. 0°C to 40°C, Storage RH max 90%RH, Indoor Use Only, Category III

Dimensions: 12" W x 12" D x 6" H (30.5 cm W x 30.5 cm D x 15.2 cm H)

Weight: 10 lbs. (4.5 kg)

Accessories

Standard Accessories:

Power cord, (Region-specific)
Flushing syringe P/N 7006-006
Operator Manual P/N 6100-109
Input/Output tubing set(s) P/N 7300-005
Data Transfer Program (DTP) software P/N 6950-001

Optional Accessories:

6' RS-232 Serial Port cable, DB25 - DB25 (SSC -1), P/N 7100-062
6' RS-232 Serial Port cable, DB25 - DB9 (SSC -2), P/N 7100-065
6' PCA Pump trigger cable, unterminated pair (PCA -1), P/N 7100-061
6' Nurse Call Alarm cable, unterminated pair (NCA -1), P/N 7100-060
6' Parallel Printer Cable (PPC-1), P/N 7100-064
RSM Connector Cable (AUX-1), P/N 7100-279



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