

Infusion Pump Tester IN-600



Test device for function tests of infusion pumps in accordance to IEC 60601-2-24

- for peristalsis or syringe pumps
- touch screen or PC operation
- 1- or 2-channel version available
- integrated nurse call test
- software-controlled graphical evaluation possible (start up diagram, trumpet curve)
- robust light metal case
- user specific language setting
- option - suit case

Test and measurement technic
for medicine and industry



Management System
ISO 9001:2008
www.tuv.com
ID: 0910099181

S.P.L.
Elektronik

Technical Data

Line voltage:	83 – 264 V ac, 50 / 60 Hz	Interface:	1 x USB for PC-connection
Nominal power:	max. 100 VA	Testing device connection:	4 x Luer-Lock 6 x sockets 4 mm
Protection class:	1	Digital display:	4,3" TFT-Display
Environmental temperature:	+5 - +40 °C	Operation:	Touch panel
Storage temperature:	+5 - +50 °C	Accessories:	1 x USB interface cable
Measurements		Mechanical data:	light weight metal case IP20
Flow rate:	0,1 – 0,99 ml/h, $\pm 0,1$ ml/h or $\pm 2,5$ % of measurement value ¹⁾ 1 - 1000 ml/h, $\pm 0,1$ ml/h or ± 1 % of measurement value ¹⁾	Dimensions:	290 x 340 x 87 mm (D x W x H)
Switch-off pressure:	0 – 2,5 bar, $\pm 0,1$ bar or ± 1 % of measurement value	Weight:	approx. 3,7 kg
Bolus volume:	0 – 5,0 ml	Selectable languages:	german, english, french, polish, spanish italian, portuguese, turkish
Test nurse's call switch:	contact closed / open / not connected		

¹⁾ at least 5 ml of measurement liquid must be pumped by syringe pumps and at least 25 ml by discontinuous pumps (peristalsis pumps and the like)

Description of functions:

The IN-600 serves for the functional testing of infusion pumps such as syringe pumps, roller (volumetric) pumps, peristalsis (finger) pumps and the like. The IN-600 can make measurements at 2 pumps at the same time. The tests can be made via the touch display in stand alone mode or via a PC software.

The measurement parameters:

Feed rate, Volume (volumetric)
Switch-off pressure, minimal pressure
Bolus Volume
Function of the nurse's call contacts
Pressure Measurement

Measurement principle for feed-rate measurements:

Measurement of the feed-rate is based on a volumetric principle in which the measuring system is cyclically filled and sampled by a dosing pump. The IN-600 displays a new arithmetic mean after each measurement cycle. The duration of measurement is in accordance with the stipulations contained in the test step selected by the operator.

In order to achieve the measurement precision of 1% of the measured value given above in the technical data, at least 5 ml of measurement liquid must be pumped by syringe pumps and at least 25 ml by discontinuous pumps (peristalsis pumps and the like).

Switch-off pressure:

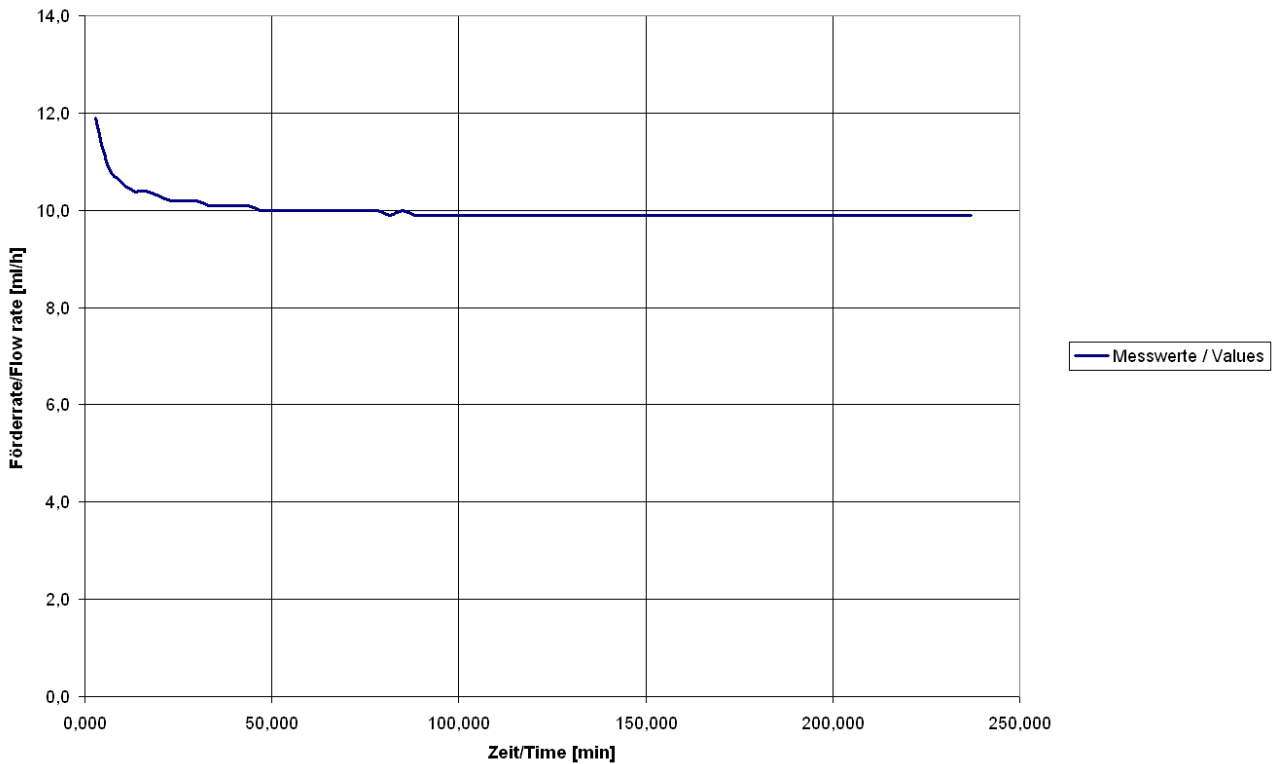
The IN-600 determines the switch-off pressure by closing the entry valve, which produces artificial stenosis. When the switch-off pressure is reached, the infusion pump triggers an alarm, and the system stops the feed of infusion liquid. Continuous measurement of the input pressure at the IN-600 enables determining the maximum pressure, which is then recorded as the switch-off pressure of the pump. If the input pressure exceeds 2.5 bar, the system automatically opens the valves and stops the measurement.

Bolus volume:

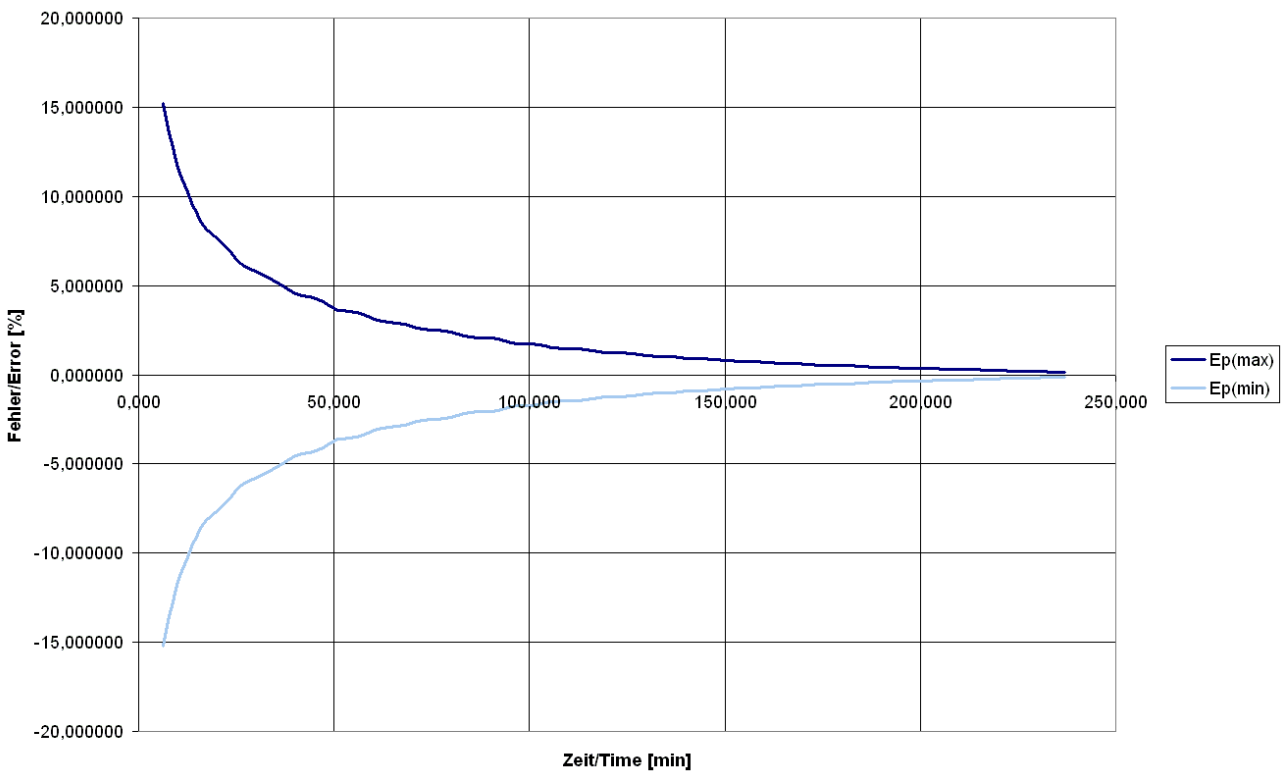
The bolus volume is defined as the volume of liquid, which leaves the infusion tube after the switch-off pressure is reached and the stenosis valve is opened. The system measures this volume immediately after the stenosis valve is opened.

(The specified measuring accuracy refers to the measuring element. Technical modifications and errors reserved. 10/2015)

Technical Data



Start up diagram at IEC 60601-2-24



Trumpet curve at 60601-2-24

(Technical modifications and errors reserved. 10/2015)