

Terufusion®

Infusion System

Infusion and Syringe Pumps



 **TERUMO**

Terufusion® Infusion System

A clear view on infusion



Hospitals, in their quest for optimization of patient treatment, are faced with the difficulty of combining the safest and the most accurate treatments with a simple workflow. High-tech equipment often lacks ease-of-use, resulting in stress and risks, whilst simplicity might not bring the dedicated treatment to the optimal level.

Concept of Advanced Infusion System



Core elements are further defined and explained in the respective chapters.

Terumo's Terufusion Advanced Infusion System offers accurate, reliable and innovative syringe and volumetric pumps, without putting an extra burden on healthcare professionals. We combine sophisticated technologies with stress-free, easy-to-use functionalities to facilitate them to pursue the best patient outcomes.

Using leading-edge technologies, SMART Terufusion pumps facilitate easy and secure drug management, provide enhanced infusion capabilities, and opens a way to hospital network integration.

Standard Terufusion Pumps simplify workflows without compromising safety and quality of treatment.

Completing the line-up with syringes, infusion sets and accessories, Terufusion Advanced Infusion System is a comprehensive and reliable partner for infusion management optimization.

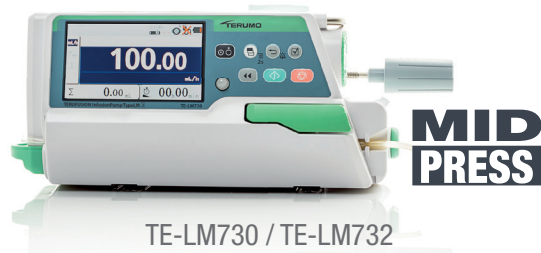
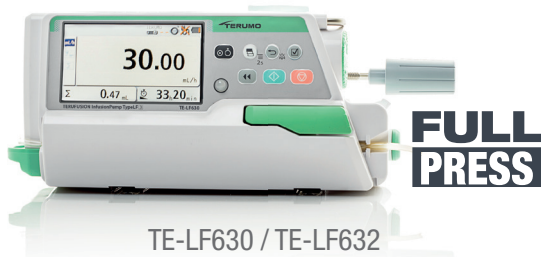
Terufusion Advanced Infusion System: successful integration of ease-of-use, safety and professionalism.



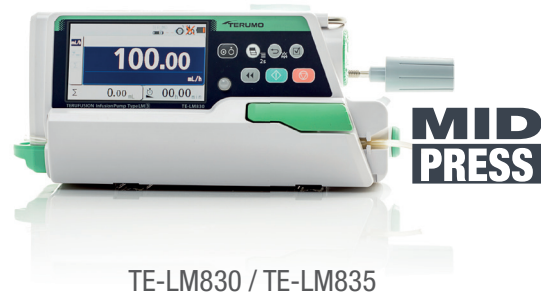
Volumetric Infusion Pumps

Syringe Pumps

Standard



Smart



Concept of Advanced Infusion System

Easy handling

All-in-one information at a glance

The diagram illustrates the layout of the 4.3-inch color screen. At the top, there are two rows of icons: 'Sensor icon display' on the left and 'Status icon display' on the right. The main area is dominated by a large 'Flow rate display' showing '0.00 mL/h'. To the left of this display is a 'Tab display' with several icons. Below the flow rate display, there are two smaller displays: 'Volume delivered display' showing '0.00 mL' and 'Remaining time display' showing '00 h 00 min'.

Healthcare professionals need to see all the important information in an efficient, correct and fast way.

All-in-one information on big 4.3 inch colour screen helps healthcare professionals to receive such information in vivid colour, with comprehensive illustration.



Easy disposable settings

Close Door After Tube Set

Set Syringe

Volumetric

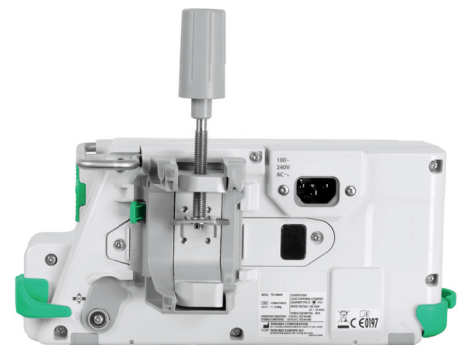
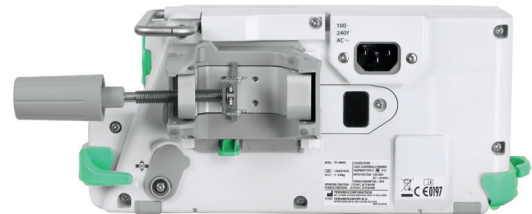
Syringe

First-time users are in need of simple instructions to start up pumps. To facilitate this, visual instructions on how to set an infusion set or a syringe are shown on the large coloured screen.

Mobile, portable & flexible

Healthcare professionals like to move pumps around, attaching and removing them easily and quickly.

By using the integrated handle and the flexible pole clamp, it is easy for healthcare professionals to quickly attach or remove pumps from a pole or Terufusion rack.



Concept of Advanced Infusion System

Enhanced safety

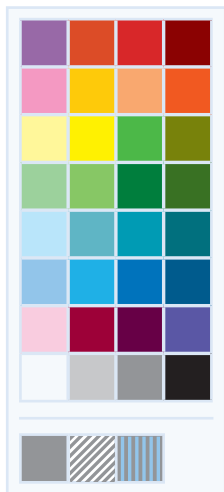
Fast classification and recognition of drugs


Many drug names look alike with each other, and healthcare workers are constantly under stress not to make mistakes.

Terufusion Drug Library Manager enables healthcare workers to define 16 different colours out of 96 combinations of colours and patterns. In addition, drug names can be defined in Tall Man letters in compliance with FDA recommendation, and are shown on the screen with colours.



| Drug name with Tall Man Letters | Can be confused with |
|---------------------------------|----------------------|
| DOBUtamine | DOPamine |
| buPROPion | busPIRone |
| chlorproMAZINE | chlorproPADIME |
| CEFOtaxim | CeftAZIdim |
| ATEnolol | AceBUTolol |
| cycloSPORINE | CYCLOserine |
| DimenhyDRINATE | DIPHENHYDRamine |




DOBUtamine

| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Edit |
|--------|---|---|---|---|--|---|---|---|---|
| Colour |  |  |  |  |  |  |  |  |  |
| |  |  |  |  |  |  |  |  | |
| |  |  |  |  |  |  |  |  | |

Safety first

Healthcare professionals need to see at a glance which alarm or warning has been activated.

By colours and realistic illustrations, the Terufusion pump allows to differentiate instantly between high (red) and low (yellow) priority of alarms.



Precaution against unintended infusion



If a healthcare professional forgets to close the roller clamp when removing the tube from the infusion pump, the risk of free flow is quite high.

The Anti Free Flow (AFF) function is aimed at preventing inadvertent excess infusion by automatically closing the tube with the anti-free flow clip when the door is opened.



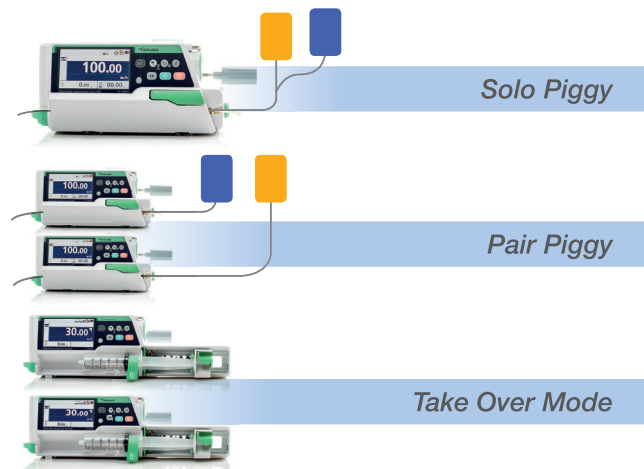
Concept of Advanced Infusion System

Optimized workflow

Optimizing patient treatment

To optimize patient treatment a balanced and continuous infusion of multiple medications is imperative.

Internal communication between Terufusion SMART pumps stationed in a Terufusion communication rack system provides special functions like Piggy and Take Over Mode for a balanced continuous infusion.

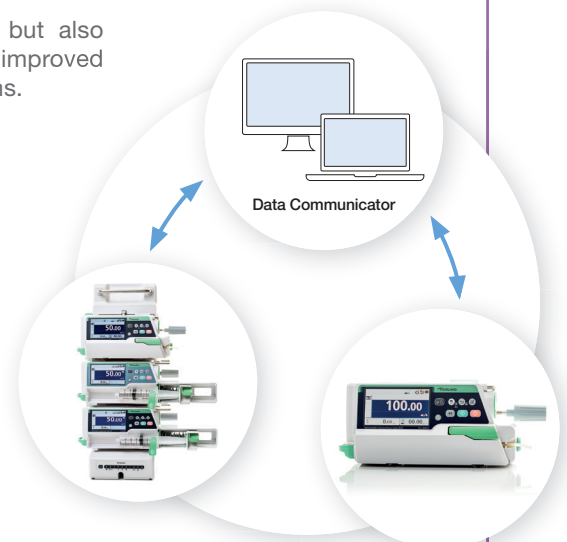
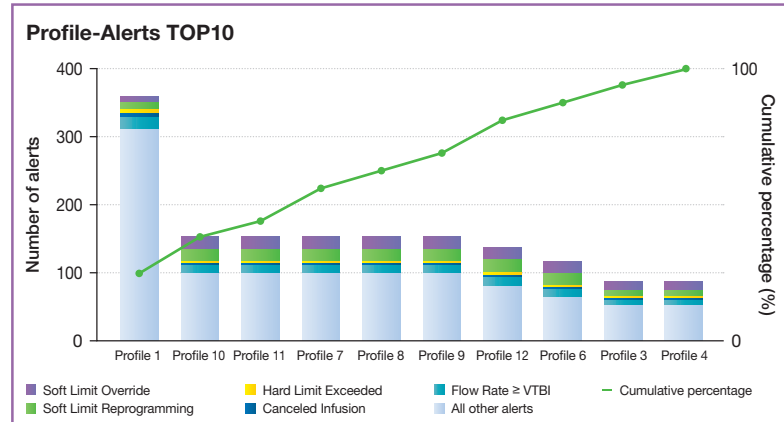


Extensive communication capability

In addition to connectivity via SMART racks (WIFI, Wired LAN & RS-232C), Terufusion SMART pumps offer stand-alone WIFI connectivity.

Hospital professionals can not only upload drug libraries to pumps, but also download History data, analyse them in graphical format, and feedback for improved operation. Pumps can also be integrated into hospital information systems.

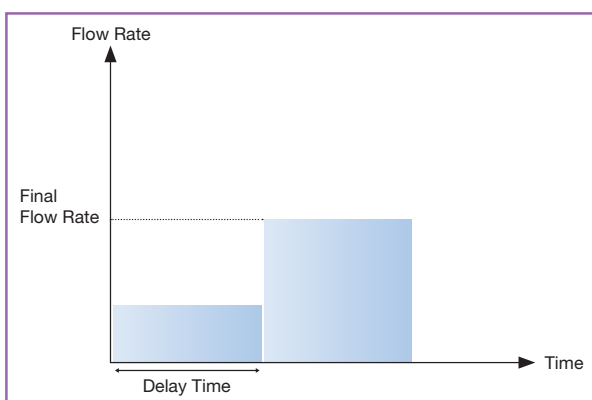
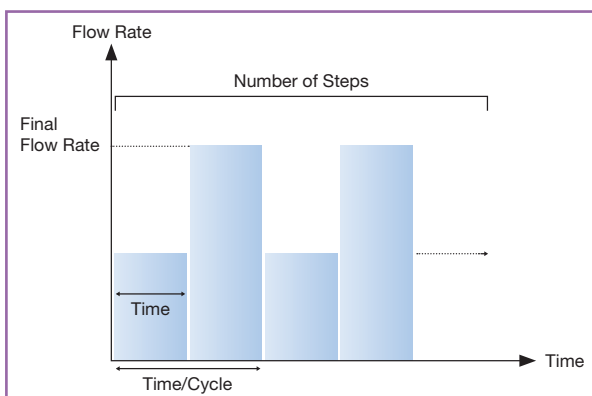
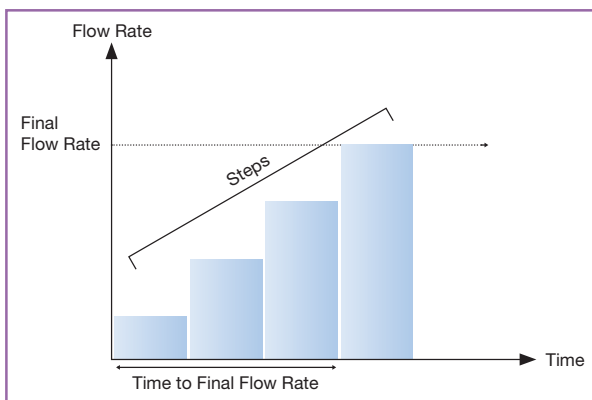
Example of a graph generated by the software.



Advanced applications

Different drugs have different ways of taking effect.

Terufusion SMART pumps provide not only **Dose Mode** options (ml/h, µg/kg/min, mg/kg/h), but also **Advanced Modes** such as 'Intermittent', 'Multi-Step' and 'Delayed Start'. All these can be selected and applied, depending on the type of medication.



Technical data

| | TE-SS73X series | TE-SS83X series |
|---|--|---|
| Model | TE-SS730/TE-SS732 ¹ | TE-SS830 / TE-SS835 |
| Type of device | Syringe pump | |
| Classification & compliance to standards | Class I and internally powered equipment, Defibrillation-proof type CF applied part (according to IEC/EN 60601-1) Class IIb medical device (according to Council Directive 93/42/EEC) IEC/EN 60601-1-2, IEC/EN 60601-2-24 | |
| Protection against harmful ingress of water or particulate matter | IP 24 | |
| Dimensions / Weight | TE-SS730/SS830/SS835: 381 mm (W) x 120 mm (H) x 112 mm (D), approx. 2.0 kg TE-SS732: 381 mm (W) x 120 mm (H) x 131 mm (D), approx. 2.0 kg | |
| Compatible disposables | Luer lock syringes (TERUMO and other specified brands) Sizes: 5, 10, 20, 30, 50/60 mL | |
| Flow rate setting range | 0.01 - 150 mL/h (for 5 mL syringes) 0.01 - 300 mL/h (for 10, 20 and 30 mL syringes) 0.01 - 1200 mL/h (for 50/60 mL syringes) | |
| Flow rate display change | 0.01 mL/h step (0.01 to 10.00 mL/h) 0.10 mL/h step (10.00 to 100.00 mL/h) 1.00 mL/h step (100.00 to 1200.00 mL/h) (Will be 0.00 mL/h when power is turned on) | |
| Dose mode | mL/h, µg/kg/min, mg/kg/h | mL/h, µg/kg/min, mg/kg/h, Drug Library |
| Advanced dose mode | N/A | Interval/intermittent mode. Multi-step mode. Delayed start mode. (To be able to use the advanced mode, the drug library ² needs to be installed.) |
| Combination dose mode | N/A | Solo and Pair Piggyback / Take Over |
| KVO ¹ | Configurable: 0.1 mL/h - 3.0 mL/h, 0.1 mL/h step | |
| Drug library ² | N/A | Up to 3000 drug entries. Up to 30 user defined profiles. |
| Free flow protection | N/A | |
| Alarms | Occlusion, Nearly Empty, Slider Displacement, Syringe Barrel Detection, Syringe Displacement, Plunger Displacement, Battery, Re-alarm, Start Reminder, No Flow Rate, No VTBI*, Flow Rate/VTBI Volume Judgment*, Completion*, Power failure, Shutdown Notice *: Only if the VTBI setting function is enabled (Default: disabled) | Occlusion, Pressure, Nearly Empty, Slider Displacement, Syringe Barrel Detection, Syringe Displacement, Plunger Displacement, Battery, Re-alarm, Start Reminder, No Flow Rate, No VTBI*, Flow Rate/VTBI Volume Judgment*, Completion*, Link Interruption, Power failure, Shutdown Notice *: Only if the VTBI setting function is enabled (Default: disabled) |
| Power supply | AC 100-240V, 50-60 Hz, Internal battery (Lithium ion battery), Sub-battery (NiMH) | |
| Main battery operating time | Approx. 12 hours (at 5 mL/h and 25°C with a new fully charged battery) | |
| Main battery recharging time | ≥8 hours (when charged with AC power supply with the power turned off), battery can be charged to 80% in 3 hours | |
| External communication function | RS-232C (only on TE-SS732) | IrDA and Wireless LAN (IEEE802.11b) (IEEE802.11b/g/n only on TE-SS835) |

1 Keep vein open: special function that can be enabled by TERUMO trained service technicians by changing the internal settings of the pump.

2 For installation separate dedicated software is required - please contact your local Terumo office.

| TE-LF63X series | TE-LM73X series | TE-LM83X series |
|---|---|---|
| TE-LF630/TE-LF632¹ | TE-LM730/TE-LM732¹ | TE-LM830 / TE-LM835 |
| Volumetric infusion pump | | |
| Class I and internally powered equipment, Defibrillation-proof type CF applied part (according to IEC/EN 60601-1) Class IIb medical device (according to Council Directive 93/42/EEC) IEC/EN 60601-1-2, IEC/EN 60601-2-24 | | |
| IP 22 | | |
| TE-LF630/LM730/LM830/LM835: 253 mm (W) x 120 mm (H) x 102 mm (D), approx. 2.0 kg TE-LF632/LM732: 253 mm (W) x 120 mm (H) x 121 mm (D), approx. 2.0 kg | | |
| Infusion set (TERUMO) | TERUMO dedicated infusion sets (with Free Flow Protection) | |
| 3.00 to 300.00 mL/h (when setting is 20 drops/mL) 1.00 to 100.00 mL/h (when setting is 60 drops/mL) | When not using the drip sensor 0.10 to 1200.00 mL/h When using the drip sensor 0.10 to 1200.00 mL/h (when setting is 20 drops/mL) 0.10 to 300.00 mL/h (when setting is 60 drops/mL) | |
| 0.01 mL/h step (0.00 to 10.00 mL/h) 0.10 mL/h step (10.00 to 100.00 mL/h) 1.00 mL/h step (100.00 to 999.00 mL/h) (Will be 0.00 mL/h when power is turned on) | 0.10 mL/h step (0.10 to 100.00 mL/h) 1.00 mL/h step (100.00 to 1200.00 mL/h) (Will be 0.00 mL/h when power is turned on) | |
| mL/h | mL/h, µg/kg/min, mg/kg/h | mL/h, µg/kg/min, mg/kg/h, Drug Library |
| N/A | Interval/intermittent mode. Multi-step mode. Delayed start mode. (To be able to use the advanced mode, the drug library ² needs to be installed.) | |
| N/A | Piggy / Take Over Mode | |
| When using an infusion set of 20 drop/mL: 3.00 mL/h (Fixed) When using an infusion set of 60 drop/mL: 1.00 to 3.00 mL/h | 0.10 to 3.00 mL/h (when not using the drip sensor (optional accessory)) When using the drip sensor (optional accessory): When using an infusion set of 20 drop/mL: 3.00 mL/h (Fixed) When using an infusion set of 60 drop/mL: 1.00 to 3.00 mL/h | |
| N/A | Up to 3000 drug entries. Up to 30 user defined profiles. | |
| Drip sensor can detect free flow (free flow alarm) | Anti-free flow clip installed inline | |
| Upper Occlusion, Lower Occlusion, Air-in-line, Door, Flow Rate Abnormality, Free Flow, Line Empty, Battery, Re-alarm, Start Reminder, No Flow Rate, No VTBI, Flow Rate/VTBI Volume Judgment, Completion | Upper Occlusion alarm, Lower Occlusion alarm, Nearly Empty alarm, Pressure alarm ¹ , Air-in-line alarm, Door alarm, Flow Rate Ab- normality alarm, Free Flow alarm, Line Empty alarm, Drip Sensor Dislocation alarm, Battery alarm, Shutdown Notice alarm, Power Failure alarm, Re-alarm, Start Reminder, No Flow Rate alarm, No VTBI alarm, Completion alarm | Upper Occlusion alarm, Lower Occlusion alarm, Nearly Empty alarm, Pressure alarm ¹ , Air-in-line alarm, Door alarm, Flow Rate Ab- normality alarm, Free Flow alarm, Line Empty alarm, Drip Sensor Dislocation alarm, Battery alarm, Shutdown Notice alarm, Power Failure alarm, Re-alarm, Start Reminder, No Flow Rate alarm, No VTBI alarm, Completion alarm, Link Interruption alarm |
| AC 100-240V, 50-60 Hz, Internal battery (Lithium ion battery), Sub-battery (NiMH) | | |
| Approx. 5 hours (at 25 mL/h at 25°C with a new fully charged battery) | | |
| ≥8 hours (when charged with AC power supply with the power turned off), battery can be charged to 80% in 3 hours | | |
| RS-232C (only on TE-LF632) | RS-232C (only on TE-LM732) | IrDA and Wireless LAN (IEEE802.11b, IEEE802.11b/g/n only on TE-LM835) |



Hardware accessories

Included accessories

- AC power cable
- Pole clamp (screw type)
- Instruction manual

Optional accessories

- Drip sensor TE*977 (standard for LF series)
- One touch pole clamp TE*877

Rack systems

- TE*RS700N
- TE*RS800N03
- TE*RS811N



Terumo Luer-Lock syringes

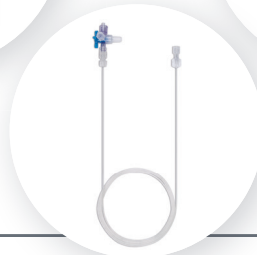
- Available in all sizes
- Highly transparent barrel
- Bold, easy legible and accurate scale markings
- No Latex & PVC components
- Special silicon coating
- Double contact gasket



Infusion and Extension Sets

- Easy setting following the instruction screen of the pump
- Adjustable roller clamp with notch to mount tubing during priming
- AFF clip for prevention of accidental bolus infusion
- Reliable high accuracy combination of Terumo pump & sets*
- Durable tubes for continuous accurate infusion

* Flow rate accuracy: within ± 5%



Full focus infusion system

Terumo offers a comprehensive portfolio of solutions for the complete infusion line-up: user-friendly syringe and volumetric pumps and racks, as well as a wide range of highly accurate, easy-to-use disposables, such as an extended range of infusion sets and syringes.



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Your Terumo partner