

# Dräger SmartPilot® View Software – visualisation of anaesthetic levels

The software visualises the complex synergies of anaesthetic drugs and predicts their effects based on pharmacodynamic modelling for both the current status and the prospective course of general anaesthesia. SmartPilot View turns abstract device data into comprehensive visual information to support the decision on more precise and patient-optimised titration of anaesthetic drugs.

Improved drug dosing

Decision-making support

Improved workflow efficiency

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Comprehensive visualisation

Optimised OR and PACU utilisation

## Benefits

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### Improved drug dosing

SmartPilot View is a software which calculates and predicts the combined effects of commonly used analgesic and hypnotic drugs based on population models. It can support the clinician in intraoperatively administering drugs in a patient-individualized and optimized manner what may contribute to:

- better hemodynamic stability
- better controlled patient condition, both during induction and during maintenance
- avoiding over-dosage and a well-managed recovery (faster awakening) to reduce risk of postoperative delirium

### Decision-making support

SmartPilot View supports the decision-making by turning complex pharmacokinetic and pharmacodynamic calculations into an easy-to-interpret visual information:

- displays the current anaesthesia level and hypnotic-analgesic balance (orange dot)
- displays 20 minute prediction for the anaesthesia level (white arrow)
- communicates with selected infusion pumps and based on the current pump rates and the vaporizer settings the "What if..." function shows what effect a rate change or bolus would have
- build-in pre-prediction ("What if..." function) for IV-pump rates and anaesthesia device settings

### Improved workflow efficiency

SmartPilot View supports our workflow by:

- easing the documentation of frequently performed user interventions in the logfiles over the entire surgical procedure via the event markers, e.g. LOC (Loss of Consciousness), Intub. (Intubation), Cut, Move, Extub. (Extubation) and Other. The event markers can be moved and deleted on the time scale at any time.
- automatically receiving drug dosing information from Dräger anaesthesia machines and connected compatible syringe pumps to reduce the manual data entry to a minimum

### Comprehensive visualisation

SmartPilot View allows the anaesthesiologist instant access to the status of anaesthesia and the administered drugs during the whole surgical procedure. Following parameters support the intuitive and fast compilation of patient status:

- Isobole lines in 2D diagram representing areas of probability how patient will react to a defined pain stimulus, and indicating level of anaesthesia e.g. TOL 90, TOL 50, TOSS
- history function on the 2D diagram to track the anaesthesia level from the beginning of the case
- calculated Noxious Stimulus Response Index (NSRI) displayed as a numeric value and as trend graph
- display of the past (40 min), present and preview (20 min) of calculated effect-site concentrations of administered hypnotics, opioids, and muscle relaxants

## Benefits

- Bispectralindex (BIS) signal quality index SQI in %
- continuity of case from induction room into main operation room

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### Optimised OR and PACU utilisation

SmartPilot View can contribute to optimising OR and PACU utilisation times:

- bargraph indicator to estimate the wake-up time
- patient-optimised drug dosing may help to reduce risk of overdosing and, hence, prolonged PACU stay

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### Specific features in combination with Dräger Anaesthesia Workstations

The SmartPilot View runs on medical grade touch panel PCs\* and can be combined with Dräger anaesthesia devices as e.g. Primus® family, Perseus® A500, Zeus® Infinity® Empowered and Atlan® family. These combinations can offer further workflow enhancements:

- data transfer of measured ventilation and gas concentration values
- "What if" function to show the calculated effect of a volatile agent setting before it is even confirmed (only in combination with Zeus IE)
- automatic transfer of Vapor® 3000 and D-Vapor® 3000 hand dial setting as well as measured ventilation and gas concentration values (only in combination with Perseus A500 comprising VaporView functionality)

\* Exception: integrated SmartPilot View option of Zeus IE runs on the main screen of the Zeus IE anaesthesia machine.

## System Components



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### Medical Grade PC

The panel PC is a state-of-the-art medical grade computer that supports clinical software applications and networked information at the point of care to provide relevant information for clinical decision making. With its quiet and hygienic fanless design it is ideal for use in direct patient vicinity.



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### Infinity® Acute Care System

Transform your clinical workflow with Infinity® Acute Care System. Its multiparameter monitor integrates with its networked medical-grade workstation, giving you real-time vital signs, access to clinical hospital systems and data management applications for a comprehensive range of patient information and powerful analysis tools at the point-of-care.

## Technical Data

### SmartPilot® View

Software version	3.0n
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### Classification

Classification in accordance with Directive 93/42/EEC Annex IX	Class IIb
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### General

SmartPilot® View displays pharmacokinetic, pharmacodynamic (PK/PD) modelling information for use with total intravenous (TIVA), balanced anaesthesia and volatile anaesthesia.

Display of haemodynamic measurements and processed EEG (BIS® Aspect).

Drug and dosage data entry for intravenous drugs: manually or automatically from the syringe pumps. For inhaled anaesthetics: automatically from anaesthesia device.

Event markers allow the patient's individual status to be documented with regard to the observed anaesthesia level. The markers may be deleted or repositioned if needed.

Support of USB stick for case recording.

Editable drug database.

### PK/PD models

Interaction between volatile and intravenous hypnotics and opioids visualised through two-dimensional graph with 15 minute prediction.

PK models for each single drug visualised in a time-based graph with 40 minute trend and 20 minute prediction.

Manual entry of drug bolus and rates at current time or retrospectively followed by recalculation of the case, incl. prediction.

### PK models

Propofol	Schnider
Remifentanyl	Minto
Alfentanil	Scott
Fentanyl	Scott
Sufentanil	Gepts
Volatiles	Bailey
Pancuronium	Rupp
Rocuronium	Wierda
Vecuronium	Cronnelly
Mivacurium	Laurin

### PD models

Sequential model	Bouillon
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### Supported drugs

Hypnotics:	
Volatile drugs	Desflurane, Isoflurane, Sevoflurane
Intravenous drugs	Propofol
Opioids (intravenous)	Fentanyl, Remifentanyl, Alfentanil, Sufentanil
Muscle relaxants*	Pancuronium, Rocuronium, Mivacurium, Vecuronium

\* The impact of muscle relaxants on the drug interaction is not taken into account.

### Patient demographic data

Height	150–200 cm (59.1 to 78.7 in)
Weight	40–140 kg (89 to 308 lbs)
Age	18–90 years
Body mass index (BMI)	<= 35 ASA Level < IV

The limitations of the patient demographic data are due to the calculation of lean body mass using the formula from James [James WPT. Research on obesity. London. Her Majesty's Stationery Office. (ISBN 0-11-4500347). 1976].

## Technical Data

### System compatibility

Anaesthesia devices	Zeus®, Zeus® IE, Perseus® A500, Primus®, Primus® IE, Atlan® family
PC-platform	Medical grade panel PC or Dräger C700 for IT with or without Infinity® Explorer (system requirements): – W10 32/64bit – 1-GHz-CPU (x86–x64) – 1 GB RAM (at least 500 MB available RAM at startup of SPV) – 1 GB available Hard Disk Drive space – Screen resolution: 1,280 x 768
Monitoring	Dräger Infinity® Delta, Dräger Infinity® Delta XL, Dräger Infinity® Omega Solution, Dräger Zeus®/Zeus® Infinity® Empowered with integrated haemodynamic monitoring, IACS patient monitor, Philips monitor (MP50, MP70, MX800)

### Display of patient measurements and processed EEG (BIS® Aspect) provided by the basic device:

Heart rate	1/min
Blood pressure (ART M or NIBP)	mmHg or kPa
etCO <sub>2</sub>	mmHg or kPa
BIS Index and SQI	

### Infusion pumps

Dräger	IVenus**
B. Braun	Perfusor® Space with SpaceCom**
Fresenius	Orchestra® Modul DPS with Base A
Fresenius	Orchestra® Modul DPS with Base Primea*
Fresenius	Injectomat® Agilia with Link + Agilia
Alaris®	GH, PK*, TIVA with Gateway
Terumo	Terumo Terufusion® TE-332, TE-371, TE-372
Terumo	Terumo Terufusion® TE-SS800 with TE-RS800
Arcomed	Syramed µSP6000 with UniQue Concept Box

Range of supported devices (e.g. Patient Monitors, Anaesthesia devices and infusion pumps) is expanding: please contact your Dräger representative for the current list of compatible devices.

\* TCI pumps are supported

\*\* up to four infusion pumps

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Orchestra® Modul DPS with Base A, Orchestra® Modul DPS with Base Primea and Injectomat® Agilia with Link Agilia are registered trade mark of Company Fresenius.

Terumo Terufusion® TE-332, TE-371, TE- 372 and Terumo Terufusion® TE-SS880 with TE-RS800 are registered trade mark of Company Terumo.

## Notes

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