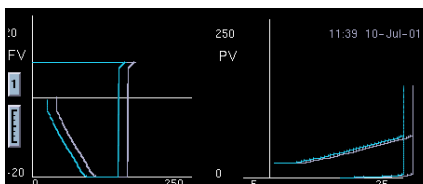


Loops Area in Ventilator Screen

The real-time ventilator loops in the Ventilator screen are synchronous with the associated breath. Flow vs. Volume is shown on the left and Pressure vs. Volume on the right. Loops are drawn with the same display scale as the associated waveforms.

Displaying Loops

You can save and display a **Reference Loop** with the actual loop display. The color of the reference loop is magenta. The Ventilator screen can display a **Single Loop** or **Multi-loop** draw.



Loop Parameter Box

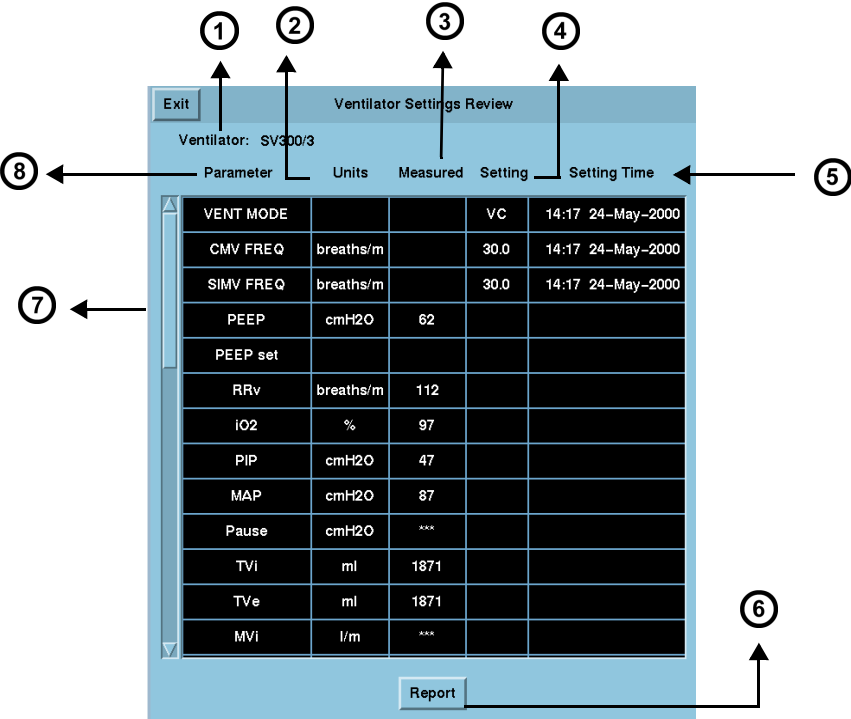
The parameter box next to the loop area contains dynamic compliance, dynamic resistance, and arterial blood gas values. If blood gas values are not available, the labels do not appear. The order and ranges of the parameters follow.

Parameter	Units	Measurement Range
pH	pH, nmol/L	6.6 - 7.8
HCO ₃	mEq/l, mmol/L	1-200 mEq/l
Hct (Hematocrit)	%	15-75%
tHb (Hemoglobin)	g/dl, g/100ml, g/L, mmol/L	5-25 g/dl
PCO ₂	mmHg (kPa)	10-200 mmHg (1.333 - 26.66 kPa)
PO ₂	mmHg (kPa)	10 - 700 mmHg (1.33 - 93.31 kPa)

Trend Area in Ventilator Screen

Three trend graphs on the **Ventilator** screen show the most recent 8 hours of trend data for user-selected parameters (page 15-14). If a selected parameter is not available from the bedside/MIB device, the next parameter from the **Trends Setup** screen is automatically displayed. If less than three parameters are available, the **Ventilator** screen parameter graph is blank.

The Ventilator Settings Review Screen



1	Ventilator type	5	Time and date the setting was modified
2	Selected units of measure at the MIB device or ventilator	6	Generates Ventilator report (Chapter 12)
3	Most recently updated measurement value Certain parameters, identified as measured values or settings, are derived from the values provided by the ventilator and may not reflect actual values.	7	Scroll bar for accessing additional parameters
4	Most recent setting of the ventilator/MIB device	8	Parameter or setting labels

Accessing the Ventilator Settings Review Screen

- 1. Click on the patient’s parameter box.
- 2. Click on **Review**.
- 3. Click on **Ventilator Settings Review**.

Parameter and Settings Order

The **Ventilator Settings Review** screen displays settings and supported parameters sent by the connected MIB device, Infinity bedside monitor, or compatible bedside monitor pod.

NOTE: The Infinity CentralStation does not support AEP and SEP functions functions that are enabled at a bedside monitor.

Each **Ventilator Settings Review** screen parameter and setting displays in a fixed order. If a setting or parameter is not available, the corresponding field on the **Ventilator Settings** screen is blank. Additional settings and parameters not assigned to the fixed order are at the end of data received from the MIB-connected device. Parameters/settings sent to Infinity monitors for various MIB-compliant devices are listed in tables starting on page 15-22.

Order	Description	Parameter	Setting
1	Ventilator type		✓
2	Ventilator mode		✓
3	CMV frequency		✓
4	SIMV frequency		✓
5	PEEP (End Expiratory Pressure)	✓	
6	PEEP		✓
7	RRv (measured respiration rate)	✓	
8	O ₂ concentration	✓	
9	PIP (Peak Airway Pressure)	✓	
10	MAP (Mean Airway Pressure)	✓	
11	Pause Airway Pressure	✓	
12	End Expiratory Flow	✓	
13	Tvi (Tidal Volume inspired)	✓	
14	TVe (Tidal volume expired)	✓	
15	Tve s (Tidal Volume Expired spontaneous)	✓	
16	Minute Volume inspired (MV i)	✓	
17	Minute Volume expired	✓	
18	Minute volume expired spontaneous (MVe s)	✓	
19	Dynamic compliance (Cdyn)	✓	
20	Dynamic resistance	✓	
21	I of I:E I-Part	✓	
22	E of I:E E-Part	✓	
23	end-tidal CO ₂ (etCO ₂)	✓	
24	CVP	✓	
25	SpO ₂	✓	
26	iCO ₂	✓	

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Order	Description	Parameter	Setting
27	etCO2*	✓	
28	iCO2*	✓	
Blood Gas Parameters			
29	pH	✓	
30	HCO3	✓	
31	Hematocrit (Hct)	✓	
32	Hemoglobin (tHb)	✓	
33	PCO2	✓	
34	PO2	✓	
Other Parameters and settings			
35	Barometric pressure	✓	
36	Additional parameters from Ventilator/MIB devices (see tables starting on page 15-22)	✓	
37	Additional settings from Ventilator/MIB devices (see tables starting on page 15-22)		✓

Special Conditions

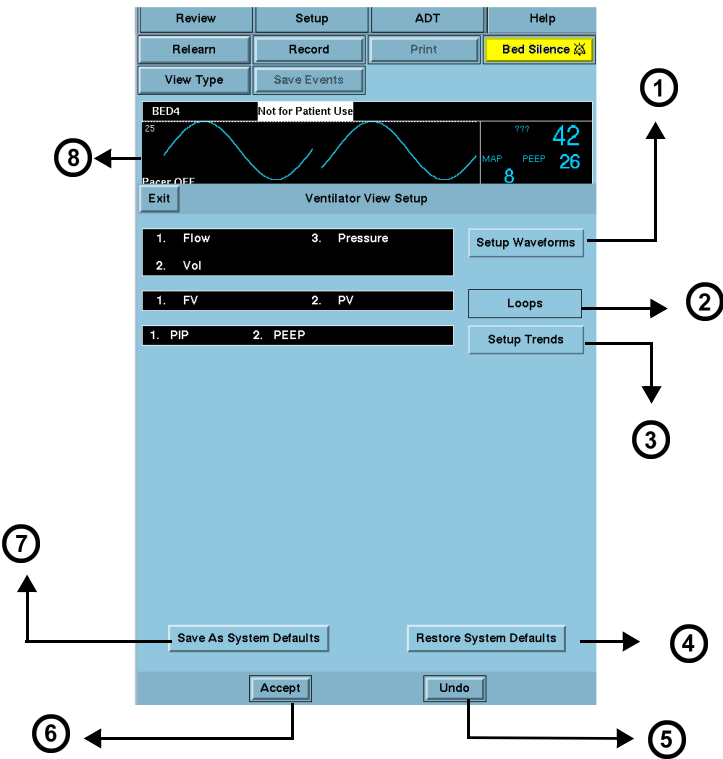
Special Conditions Affecting Ventilator Settings Review Screen

Condition	Effect
Disconnected parameter hardware	No advisory message is sent to the Infinity CentralStation. The VentCentral application is not available and cannot be accessed for the respective patient.
Reset of MIB- device, bedside monitor, or Infinity CentralStation	The Ventilator Settings screen time stamp reflects the first setting following the reset.
Bedside monitor PICK AND GO	The Ventilator Settings screen time stamp reflects the monitor's reconnect to the network.
First connection of MIB-compliant ventilator, etCO ₂ /Respiratory Mechanics Pod, or Delta/Delta XL monitor	Time stamp reflects the first setting received after the device is connected.
Blood gas values stored for more than 30 minutes	Values are removed from the VentCentral screen.
Device sends more digits than the Ventilator Settings screen field can accommodate	Instead of the parameter values, overflow characters display.

Ventilator View Setup Screen

The **Ventilator View Setup** screen permits selecting an individualized display for a selected patient.

NOTE: You cannot modify the **Loops** display. The fixed order is: *Flow vs. Volume* and *Pressure vs. Volume*.



1	Opens Waveforms Setup screen	5	Reverts to previous settings
2	Fixed - Always shows Flow vs. Volume and Pressure vs. Volume	6	Accepts new settings/changes
3	Opens Trends Setup screen	7	Saves current setup as system default for all patients
4	Restores system defaults	8	Top ventilation waveform

Accessing the Ventilator View Setup Screen

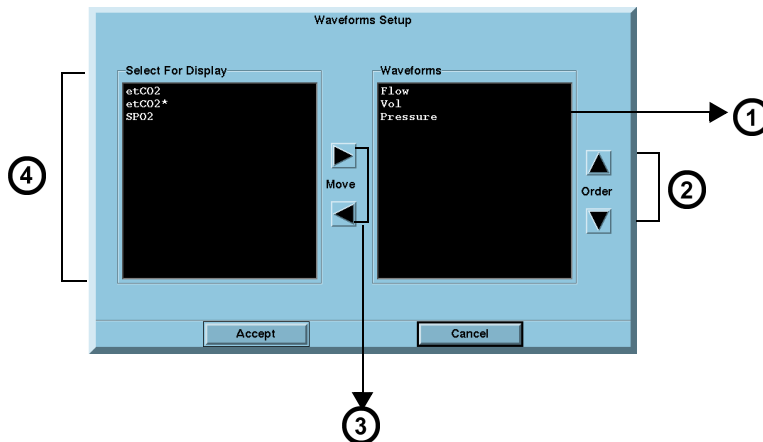
1. Click on the patient's Main Screen parameter box. To access a remote patient, see page 6-4.
2. Click on **Setup**.
3. Click on **Ventilator View Setup**.

Selecting Waveforms for Display

You can set up the display priority of ventilator parameters.

NOTE: If a selected waveform is not available from the bedside monitor, the next waveform is selected to fill available Infinity CentralStation waveform channels.

1. Open the **Ventilator View Setup** screen (page 15-13).
2. Click on **Setup Waveforms**. The **Waveforms Setup** popup displays.



1	Parameters selected for display	3	Arrows permit moving selected parameters from one window to the other
2	Arrows permit changing the priority order of selected waveforms	4	Available parameters

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3. Select the desired display configuration.

The left/right arrows move desired waveforms from the display window to the *Waveforms* window. The up/down arrows move parameters in a desired sort order.

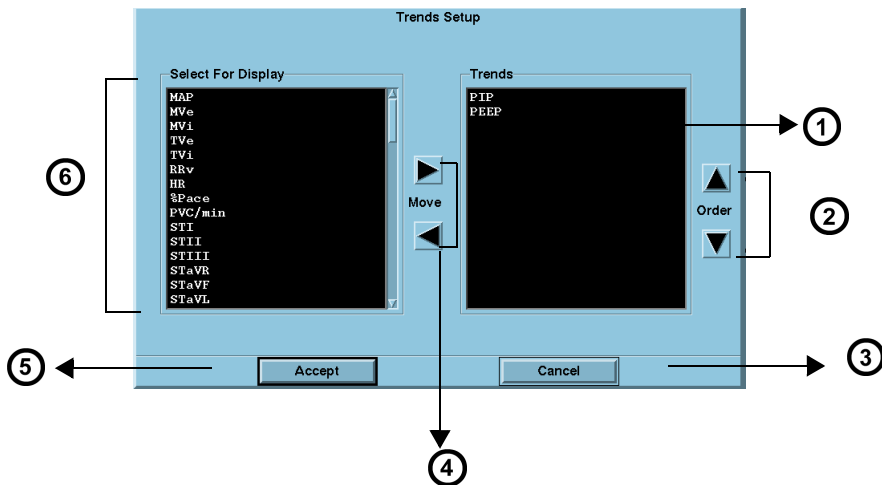
NOTE: You may select several parameters at once before you move them from one window to the other.

4. Click on **Accept** to save or **Cancel** to keep prior settings.
5. Click on **Save as System Defaults** in the **Ventilator View Setup** screen to retain this setup as the system default.

Selecting Waveforms for the Trend Display

To select and prioritize ventilator parameters for trend display:

1. Open the **Ventilator View Setup** screen (page 15-13).
2. Click on **Setup Trends**. The **Trends Order Setup** popup displays.



1	Trends selected for display	4	Arrows permit moving selected parameters from one window to the other
2	Arrows permit changing the priority order of selected trends	5	Accepts current setup
3	Cancels current setup	6	Available parameters for selection

3. Select the desired display configuration.

The left/right arrows move the desired parameters from the display window to the *Trend* window. The up/down arrows move parameters in a desired sort order.

NOTE: You can select several parameters at once to move them from one window to the other.

4. Click on **Accept** to save or **Cancel** to keep prior settings.
5. Click on **Save as System Defaults** in the **Ventilator View Setup** screen to keep this setup as the system default.

VentCentral Trend Parameters

Parameter Label	Definition
Heart Rate	
HR	ECG measurement
Ventilation	
AW-Temp	Airway temperature
Cdyn	Dynamic compliance
C20/Cdyn	Dynamic compliance over last 20% of breath.
etCO2	End-tidal carbon dioxide
InspT%	I:E ratio (inspiratory component)%
ICO2	Inspired CO2 (etCO2)
iO2	Inspired oxygen
iPEEP	Peak end expiratory airway pressure, intrinsic
MAP	Mean airway pressure
Mve	Minute volume, expired
MV s%	Minute volume, spontaneous
MValv	Minute volume, alveolar, total
MVe	Expired minute volume
MVi	Inspired minute volume
PAP	Peak airway pressure
Pause	Pause pressure
PeCO2	Mixed expired carbon dioxide
PEEP	Peak end expiratory airway pressure
PEF	Peak expiratory flow
PIF	Peak inspiratory flow
Raw	Dynamic resistance
Raw e	Expired airway resistance
Raw i	Inspiratory dynamic resistance
RRv	Respiratory rate
RRs	Respiratory rate, spontaneous

Parameter Label	Definition
Ventilation (Continued)	
RRm	Respiratory rate, mechanical
RSBI	Rapid shallow breathing index
Te	Expiratory time
Ti	Inspiratory time
TVe	Tidal volume, expired
TV Leak	Leakage, system
TValv m	Tidal volume, alveolar, mechanical
TValv s	Tidal volume, alveolar, spontaneous
Tva	Tidal volume, alveolar, total
TVd/TV aw	Dilution ratio, airway
TVCO2	CO2, tidal volume
TVe	Expired tidal volume
TVi	Inspired tidal volume
TVi m	Tidal volume, inspiratory, mechanical
TVi s	Tidal volume, inspiratory, spontaneous
TVd aw	Dead space, airway (Vds)
VCO2	CO2 production, minute volume
WOBimp	Work of Breath imposed
Pulse Oximetry	
SpO2/SPO2*	oxygen saturation
PLS/PLS*	Pulse rate
Δ SpO2	Delta SpO2
Respiration	
RR	Respiratory rate
RR	Respiratory rate (etCO2)
RV	Respiratory rate
Temperatures	
T1, T2, T3	Temperature
T	Basic temperature

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Parameter Label	Definition
Pressures	
ART	Arterial pressure
CPP	Cerebral perfusion pressure
CVP	Central venous pressure
GP1	General pressure 1
GP2	General pressure 2
ICP	Intracranial pressure
LA	Left-atrial pressure
NIBP	Non-invasive blood pressure
P1	P1 pressure
P2	P2 pressure
PA	Pulmonary arterial pressure
PWP	Pulmonary Wedge Pressure
RA	Right arterial pressure
V	Ventricular pressure
Cardiac Output	
BT	Blood temperature
CCO	Continuous cardiac output
CCI	Continuous cardiac index
CCO	Continuous cardiac output
DO2	Oxygen delivery or availability
FiO2	Fraction of inspired O2
ICI	Intermittent cardiac output index
ICO	Intermittent cardiac output
PVR	Pulmonary vascular resistance
PVRI	Pulmonary vascular resistance index
SVR	Systemic vascular resistance
SVRI	Systemic vascular resistance index

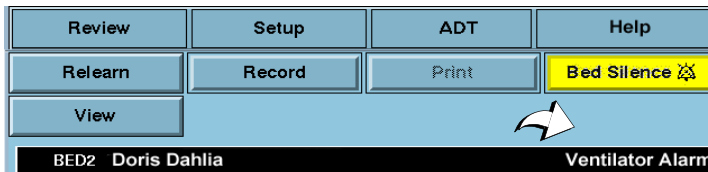
Parameter Label	Definition
Cardio Respiration	
SaO2	Saturation of arterial oxygen
SvO2	Saturation of venous oxygen
VO2	Oxygen consumption
TCP/CO2	
TCO2	Transcutaneous carbon dioxide
ht pwr	Heater power
O2	Oxygen concentration
Anesthesia	
etCO2	End-tidal carbon dioxide
eO2	Expired O2
iCO2	Inspired CO2
FiO2	Fraction of inspired O2
RRc*	Respiration rate
SEV	Sevoflurane
iDES	Inspired desflurane
etDES	End-tidal desflurane
iENF	Inspired enflurane
etENF	End-tidal enflurane
iHAL	Inspired halothane
etHAL	End-tidal halothane
iISO	Inspired isoflurane
etISO	end-tidal isoflurane
iN2O	Inspired nitrous oxide
etN2O	End-tidal nitrous oxide
Lab data	
HCO3	Bicarbonate
hct	Hematocrit
tHb	Hemoglobin concentration
pCO2	Partial pressure CO2
pH	Blood pH
pO2	Partial pressure O2

MIB Ventilator Alarms

MIB-connected ventilators: Orange alarm messages appear in the lower right corner of the topmost Main Screen waveform channel and are available without the VentCentral option enabled.

In the VentCentral screens alarm messages appear on the right side of the information area (see arrow). When an MIB-connected ventilator is active at the Infinity CentralStation and the signal is lost, the Infinity CentralStation sounds a one-shot alarm and displays the message, *MIB Disconnected*

NOTE: MIB alarm messages will be sent to and displayed at the Infinity CentralStation when you put a patient's bedside monitor in *standby* mode.



Parameter boxes in the VentCentral screens that originate at MIB-connected ventilators do not flash when they are in alarm.

Alarm messages that originate at MIB-connected ventilators are displayed for as long as the ventilator sends them. If multiple alarm conditions occur simultaneously, the messages rotate.

Alarms that originate from the etCO₂/Respiratory Mechanics Pod can be silenced remotely when the corresponding remote silence function is enabled.

Ventilator Report

For detailed information on ventilator reports and how to request them, see page 12-20.

VentCentral Messages

Message	Description	Action
<i>Trend data not available</i>	When you admit a new patient to Main Screen, it takes a moment for the trend data to be compiled. Within 1 minute the database will contain trend data.	Exit and re-enter the trend application.
<i>No trend parameters selected</i>	Trend parameters have not been selected.	Select trend parameters (page 15-14).
<i>Serious Alarm at <%s></i>	There is an MIB alarm at the corresponding bed.	Check the patient.
<i>MIB Disconnected</i>	MIB cable is disconnected	Re-connect MIB cable

Ventilator and Device Messages/Labels

Tables on the following pages list messages, labels, and settings sent by various MIB-connected devices to the Infinity bedside monitors for display at the Infinity CentralStation.

Please refer to the table on page 15-9 for information about display of these data on the **Ventilator Settings Review** screen and the Ventilator report.

CAUTION! The following tables list possible labels and messages for identification purposes. For complete information about message interpretation and device operation, please refer to the equipment documentation.

Dräger Cato Anesthesia System

NOTE: The Dräger Cato Anesthesia System is not available in the U.S.

Parameter Label	Description	Displayed in...
e[HAL, ISO, ENF, SEV, DES]	Expired agent	Ventilator screen (page 15-6)
i[HAL, ISO, ENF, SEV, DES]	Inspired agent	
eCO2	Expired CO2	
iCO2	Inspired CO2	
eO2	Expired O2	
iN2O	Inspired N2O	
iO2	Inspired O2	
MAP	Mean Airway Pressure	
MVe	Expired Minute Volume	
Pause	Pause Pressure	
PIP	Peak Inspired Airway Pressure	
PEEP	Peak End Expiratory Airway Pressure	
RRc	Respiratory rate	
RRv	Respiratory rate	
TVe	Tidal volume, expired breath	

Dräger Cicero Anesthesia System

NOTE: The Dräger Cicero Anesthesia System is not available in the U.S.

Parameter Label	Description	Displayed in...
HAL, ISO, ENF, SEV, DES	Expired and inspired agent	Ventilator screen (page 15-6)
eO2	Expired O2	
iN2O	Inspired N2O	
iO2	Inspired O2	
MAP	Mean Airway Pressure	
MVe	Minute Volume, expired	
Pause	Pause Pressure	
PIP	Peak inspired airway pressure	
PEEP	Peak end expiratory airway pressure	
RRc	Respiratory rate	
RRv	Respiratory rate	
TVe	Tidal volume, expired breath	
Selected Settings		
HAL, ISO, ENF, SEV, DES	Tidal volume, expired breath	Ventilator Settings screen (page 15-8)
eO2	Tidal volume, inspired breath	

Dräger Julian/Julian Primus/Primus Anesthesia System

NOTE: The Dräger Julian Primus and Dräger Primus Anesthesia Systems are not available in the U.S.

Parameter Label	Description	Displayed in...
[HAL, ISO, ENF, SEV, DES]	Expired and inspired agent	Ventilator Settings screen (page 15-8)
ECO2 ³ or etCO2	Expired CO2	
etCO2	End Tidal CO2	
eN2O	Expired N2O	
eO2 or etO2	Expired O2	
iN2O	Inspired N2O	
iCO2 ¹	Inspired CO2	
iO2	Inspired O2	
MAP	Mean Airway Pressure	
MVe	Minute Volume, expired	
Pause	Pause Pressure	
PIP	Peak inspired airway pressure	
PEEP	Peak end expiratory airway pressure	
RRc	Respiratory rate (CO2)	
RRv	Respiratory rate (Volume/flow/pressure/derived)	
TVe	Tidal volume, expired breath	
Cdyn ¹	Compliance	
Baro Prsr ¹	Barometric Pressure	
Leakage ¹	Leakage	
iMAC ¹	Inspired MAC (minimum alveolar concentration)	
eMAC ¹	Expired MAC	
APNEAt ¹	Apnea Duration	
Delta O2 ¹	(iO2 - eO2)	
Selected Settings		
iO2 set	iO2 setting	Ventilator Settings screen (page 15-8)
TVi set ¹	Tidal volume, inspired breath	
Ti set ¹	Inspiratory Time	
IPPV FREQ ¹	frequency	
INT PEEP set ¹	Intermittent PEEP	
P Support ¹	Support Pressure	
PIP set ¹	Maximum Inspired Airway Pressure	
FLOW trig set ¹	Flow Trigger	
F Gas Flow	Fresh Gas Flow	

Alarm Messages		
Message	Description	Displayed in...
APNEA	Apnea	Main Screen-lower right hand corner of the top waveform channel Bed View-information area, right below menu buttons Alarm causes that are labelled as ' <i>Ventilator Alarm</i> ' refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
Paw > HI LIM	Airway pressure > high limit	
Ventilator Alarm	• Inspired Agent > High Limit¹ • Expired Agent > High Limit¹ • Mean Airway Pressure < -2 mbar • Problems with Ventilator¹ • Internal Temperature High¹ • Gas Supply Alarm¹ • Ventilator Communication lost¹ • Fresh Gas delivery failure¹ • O2 Cylinder empty without wall supply¹ • O2 Cylinder not connected¹ • N2O Cylinder empty¹ • N2O delivery failure¹ • O2 delivery failure¹ • Air delivery failure¹ • Internal/external switch over valve error¹ • Circle Occluded¹ • Ventilator not in locked position¹	
O2 SUPPLY?	O2 Supply Pressure Low	
iO2 < LO LIM	Inspiratory O2 < low limit	
Patient Disconnect ¹	Breathing System Disconnected	
AW-TEMP>HI LIM ¹	Airway temperature > high limit	
N2O Fail ¹	N2O delivery failure	
Air Fail ¹	Air delivery failure	
Fresh Gas Fail ¹	Fresh gas failure	
O2 Fail ¹	O2 delivery failure	
No Fresh Gas ¹	No fresh gas	
Waveforms¹		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	
CO2	Only 2 waveforms can display. If CO2 is available, Paw displays with it. Flow is only available if CO2 is not.	
Loops		

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Mode Display	
Mode at Device	Mode at Infinity CentralStation
IPPV	IPPV ²
SIMV	SIMV
PCV	PC
VCV	VC
Standby	Standby
PSV	PS
Man/Spont	Man/Spont
Fresh Gas external	Fresh Gas EXT
Pressure Support added to Volume Control	VC+PS
Pressure Support added to Pressure Control	PC+PS
¹ Applicable only to Dräger Primus	
² In some languages IPPV is used for CMV or VC	
³ Applicable only to Dräger Julian	

Dräger Narkomed IIC / IV / 6000 / 6400 Anesthesia System

Parameter Label	Description	Displayed in...
i[HAL, ISO, ENF, SEV, DES]	Inspired agent	Ventilator Settings screen (page 15-8)
e[HAL, ISO, ENF, SEV, DES]	Expired agent	
etCO2	Expired CO2	
iCO2	Inspired CO2	
eO2 or etO2	Expired O2	
iO2	Inspired O2	
iN2O	Inspired N2O	
etN2O	Expired N2O (6000 and 6400 only)	
MAP	Mean Airway Pressure	
MVe	Minute Volume, expired	
PIP	Peak inspired airway pressure	
PEEP	Peak end expiratory airway pressure	
RRc	Respiratory rate	
RRv	Respiratory rate	
TVe	Tidal volume, expired breath	
Selected Settings (IIC and IV only)		
iO2 set	iO2 setting	Ventilator Settings screen (page 15-8)
Waveforms		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	
Alarms		
APNEA	Apnea	Main Screen-lower right hand corner of the top waveform channel
Paw > HI LIM	Airway pressure > high limit	
iO2 > HI LIM	Inspired O2 > high limit	
Ventilator Alarm	• Agent > High Limit • Ventilator failure • Ventilator Communication lost • Mean Airway Pressure < -2 mbar • CO2 device error • Check expiration valve	Bed View-information area, right below menu buttons Alarm causes that are labelled as ' <i>Ventilator Alarm</i> ' refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
O2 SUPPLY?	O2 Supply Pressure Low	
No Fresh Gas	No fresh gas	
Low Battery	Low battery	
PEEP > HI LIM	PEEP exceeds high limit	
MVe < LO LIM	MVe below lower alarm limit	
etCO2< LO LIM	etCO2 below lower limit	
etCO2>HI LIM	etCO2 exceeds upper limit	

Dräger Fabius GS/Fabius CE/Tiro Anesthesia System

NOTE: The Dräger Fabius CE Anesthesia System is not available in the U.S.

Parameter	Description	Displayed in...
Pause	Plateau Pressure	Ventilator Settings screen (page 15-8)
iO2	Inspired O2	
MAP	Mean Airway Pressure	
MVe	Minute Volume, expired	
PIP	Peak inspired airway pressure	
PEEP	Peak end expiratory airway pressure	
RRv	Respiratory rate	
TVe	Tidal volume, expired breath	
Air Flow ⁴	Air flow (Fabius GS only)	
N2O Flow ⁴	Nitrous oxide flow	
O2 Flow ⁴	Oxygen flow	
Setting	Description	Displayed in...
TVi set	Inspired Tidal Volume setting	Ventilator Settings screen (page 15-8)
I:E I part	I:E ratio - inspiratory component	
I:E E part	I:E ratio - expiratory component	
IPPV FREQ	IPPV frequency setting	
INT PEEP set	Intermittent PEEP setting	
PIP set	PIP setting	
FLOW Trig set ¹	Flow trigger Level setting	
i FLOW set ¹	Inspiratory flow setting	
P Support ¹	Support pressure	

Alarm Messages	Description	Displayed in...
APNEA	Apnea	Main Screen-lower right hand corner of the top waveform channel Bed View-information area, right below menu buttons Alarm causes that are labelled as ' <i>Ventilator Alarm</i> ' refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
Paw > HI LIM	Airway pressure > high limit	
Ventilator Alarm	• Mean Airway Pressure < -2 mbar • PEEP > Pressure Threshold for 15 seconds • Problems with Respirator • No Fresh Gas • Check APL Valve • Pressure Measurement Inoperable² • Internal System Fault² • Power Supply Error² • Problems with Ventilator² • Loss of Data²	
O2 SUPPLY?	O2 Supply pressure low	
iO2 < LO LIM	Inspiratory O2 < low limit	
BATTERY ²	Battery low	
Patient Disconnect ²	Breathing system disconnected	
APL Valve? ¹	Check APL valve	
Waveforms		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	
Loops ¹		
Mode Display		
Mode at Device		Mode at Infinity CentralStation
IPPV		IPPV ³
SIMV ¹		SIMV
PCV ¹		PC
Standby		Standby
PSV ¹		PS
Man/Spont		Man/Spont
Fresh Gas external		Fresh Gas EXT
¹ Not applicable to Dräger Fabius CE ² Applicable only to Dräger Fabius CE ³ In some languages IPPV is used for CMV or VC ⁴ Applicable only to Dräger Fabius GS		

Dräger Apollo Anesthesia System

NOTE: The Dräger Apollo Anesthesia System is not available in Canada.

Parameter	Description	Displayed in...
[HAL, ISO, ENF, SEV, DES]	Expired and inspired agent	Ventilator Settings screen (page 15-8)
ECO2	Expired CO2	
eO2	Expired O2	
iN2O	Inspired N2O	
iO2	Inspired O2	
MAP	Mean Airway Pressure	
MVe	Minute Volume, expired	
Pause	Pause Pressure	
PIP	Peak inspired airway pressure	
PEEP	Peak end expiratory airway pressure	
RRc	Respiratory rate	
RRv	Respiratory rate	
TVe	Tidal volume, expired breath	
Baro Prsr	Barometric Pressure	
Leakage	Leakage	
iMAC	Inspired MAC	
eMAC	Expired MAC	
APNEA t	Apnea Duration	
Delta O2	(iO2 - eO2)	
Setting	Description	Displayed in...
TVi set	Inspired Tidal Volume setting	Ventilator Settings screen (page 15-8)
I:E I part	I:E ratio - inspiratory component	
I:E E part	I:E ratio - expiratory component	
IPPV FREQ	IPPV frequency setting	
INT PEEP set	Intermittent PEEP setting	
PIP set	PIP setting	

Alarm Messages	Description	Displayed in...
APNEA	Apnea	Main Screen-lower right hand corner of the top waveform channel Bed View-information area, right below menu buttons Alarm causes that are labelled as ‘ <i>Ventilator Alarm</i> ’ refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
Paw > HI LIM	Airway pressure > high limit	
Ventilator Alarm	• Mean Airway Pressure < -2 mbar • PEEP > Pressure Threshold for 15 seconds • Problems with Respirator • No Fresh Gas • Check APL Valve • Pressure Measurement Inoperable • Internal System Fault • Power Supply Error • Problems with Ventilator • Loss of Data	
O2 SUPPLY?	O2 Supply Pressure Low	
iO2 < LO LIM	Inspiratory O2 < low limit	
BATTERY	Battery Low	
Patient Disconnect	Breathing System Disconnected	
Waveforms		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	
Loops		
Mode Display		
Mode at Device		Mode at Infinity CentralStation
IPPV		IPPV ¹
SIMV		SIMV
PCV		PC
VCV		VC
Standby		Standby
PSV		PS
Man/Spont		Man/Spont
Fresh Gas external		Fresh Gas EXT
Pressure Support added to Volume Control		VC+PS
Pressure Support added to Pressure Control		PC+PS
¹ In some languages IPPV is used for CMV or VC		

Dräger Zeus Anesthesia System

NOTE: The Zeus Anesthesia System is not available in the U.S. or Canada.

Parameter	Description	Displayed in...
Air Flow	Air flow	Ventilator Settings screen (page 15-8)
Baro Prsr	Barometric Pressure	
Cdyn	Compliance	
et[HAL, ISO, ENF, SEV, DES]	Expired agent	
etCO2	Expired CO2	
etN2O	Expired N2O	
etO2	Expired O2	
i[HAL, ISO, ENF, SEV, DES]	Inspired agent	
iCO2	Inspired CO2	
iN2O	Inspired N2O	
iO2	Inspired O2	
Leakage	Leakage	
MAP	Mean Airway Pressure	
MVe	Minute Volume, expired	
MVe s	Minute Volume, spontaneous	
MVm	Mandatory MV	
N2O Flow	Nitrous oxide flow	
O2 Flow	Oxygen flow	
O2 Supply Prsr	O2 supply pressure	
Pause	Pause Pressure	
PIP	Peak inspired airway pressure	
Raw	Resistance	
RRc	Respiratory rate (CO2)	
RRm	Respiratory rate (mandatory)	
RRv	Respiratory rate (volume/flow)	
TVe	Tidal volume, expired breath	
TVm	Mandatory Tidal volume	
TVs	Spontaneous Tidal volume	

Setting	Description	Displayed in...
ASB RAMP set	Assisted spontaneous breathing ramp	Ventilator Settings screen (page 15-8)
F Gas Flow	Fresh gas flow	
FLOW Trig set	Flow trigger Level setting	
I:E E part	I:E ratio - expiratory component	
I:E I part	I:E ratio - inspiratory component	
INT PEEP set	Intermittent PEEP setting	
IPPV FREQ	IPPV frequency setting	
PEEP set	PEEP setting	
PIP set	PIP setting	
Te set	Expiratory time setting	
Ti set	Inspiratory time setting	
TVi set	Inspired Tidal Volume setting	
Alarm Messages	Description	Displayed in...
AIR SUPPLY?	Air supply low	Main Screen-lower right hand corner of the top waveform channel Bed View-information area, right below menu buttons
AW-TEMP>HI LIM	Airway temperature exceeds high limit	
etCO2< LO LIM	etCO2 below lower limit	
etCO2>HI LIM	etCO2 exceeds upper limit	
iO2 > HI LIM	Inspiratory O2 exceeds high limit	
iO2 < LO LIM	Inspiratory O2 below low limit	
MVe < LO LIM	MVe below lower alarm limit	
MVe > HI LIM	MVe exceeds upper alarm limit	
O2 SUPPLY?	O2 Supply Pressure Low	
Paw > HI LIM	Airway pressure > high limit	
Ventilator Alarm	• Check Flow Sensor • Battery error • CO2 device error • Problems with respirator • Check expiration valve	Alarm causes that are labelled as ‘ <i>Ventilator Alarm</i> ’ refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
Waveforms		
CO2		Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	
Paw	Airway Pressure	
Mode Display		
Mode at Device		Mode at Infinity CentralStation
IPPV		IPPV
IPPV/AutoFlow		IPPV
PCV		PC
SIMV/AutoFlow		SIMV
Standby		Standby

Ohmeda Modulus CD Anesthesia System

Parameter	Description	Displayed in...
MAP	Mean Airway Pressure	Ventilator Settings screen (page 15-8)
MVe	Minute Volume, expired	
Pause	Pause Pressure	
PIP	Peak inspired airway pressure	
RRv	Respiratory rate (volume/flow)	
TVe	Tidal volume, expired breath	
Selected Settings		
iO2 set	iO2 setting	Ventilator Settings screen (page 15-8)

Dräger BabyLog Ventilator

Parameters		
Gas Trans Coeff	Gas transport coefficient	Ventilator Settings screen (page 15-8)
I:E I-Part	I:E ratio (Inspiratory component)	
iO2	Inspired O2	
TV Leak	Leakage in system	
MAP	Mean airway pressure	
MVe	Expired minute volume - high resistance	
MVe / I	Expired minute volume - low resistance	
MV s%	Minute volume, spontaneous fraction	
PEEP	Peak end expiratory pressure	
PIP	Peak inspired airway pressure	
RRv	Respiratory rate - vol/flow	
TVeml	Tidal volume, expiratory	
TVhfml	Tidal volume, high frequency	
Settings		
APNEA TIME	Apnea time limit	Ventilator Settings screen (page 15-8)
FLOW	Expiratory flow setting	
i FLOW	Inspiratory flow setting	
SIMV FREQ	Frequency, IMV	
HFV AMPL	High frequency ventilation (HFV) mode amplitude	
HFV FREQHz	HFV mode frequency	
I:E E-Part	I:E ratio - expiratory component	
Te set	I:E ratio (expiratory time)	
I:E I-Part	I:E - inspiratory component	
Ti set	Inspiratory time	
iO2 set	Inspired O2 setting	
MV ALM DLY	Minute volume alarm delay	
MV HI LIM	Upper minute volume alarm limit	
MV LO LIM	Lower minute volume alarm limit	
PIP set	PIP setting	
PEEP set	PEEP setting	
TRIG VOL	Trigger volume	
Vent:	Babylog	

Dräger Evita 1 Ventilator

NOTE: The Dräger Evita 1 Ventilator is not available in the U.S.

Alarm Messages	Description	Displayed in....
Paw > HI LIM	Paw exceeds upper alarm limit	Main Screen-lower right hand corner of the top waveform channel
AW -TEMP>HI LIM	Airway temperature exceeds upper limit	
AW -TEMP INOP	Airway temperature measurement inoperable	Bed View-information area, right below menu buttons
Ventilator Alarm	• Airway temperature sensor alarm • Check expiration - valve • Failed to cycle • The gas mixer is faulty • Faulty pressure measurement • Problems with respirator (Evita) • Respirator synchronization inoperable • The device temperature of the respirator is too high • Volume measurement unsuccessful • The volume is not constant • Faulty airway temperature measurement	
APNEA	Apnea alarm	Alarm causes that are labelled as 'Ventilator Alarm' refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
ASB>4 SEC	ASB is longer than 4 sec	
Patient	Patient Disconnect	
AIR SUPPLY?	Gas supply, air	
O2 SUPPLY?	Gas supply, O2	
iO2 > HI LIM	iO2 exceeds higher limit	
iO2 < LO LIM	iO2 is below lower alarm limit	
% O2 ERR	iO2 measurement inoperable	
MVe < LO LIM	Mve is below lower alarm limit	
MVe > HI LIM	Mve exceeds upper alarm limit	
RR > HI LIM	RR exceeds upper alarm limit	

Parameter Labels	Description	Displayed in....
AW Temp	Airway temperature	Ventilator Settings screen (page 15-8)
Cdyn	Dynamic compliance	
I:E I-Part	I:E ratio (inspiratory component)	
iO2	Inspired O2	
MAP	Mean airway pressure	
MVe	Expired minute volume	
MVe s	Spontaneous expired minute volume	
Occlusion Press	Occlusion pressure	
Paw MIN	Minimum airway pressure	
Pause	Pause pressure	
PEEP	Peak end expiratory airway pressure	
iPEEP	Peak end expiratory airway pressure, intrinsic	
PIP	Peak inspired airway pressure	
Raw	Dynamic resistance	
RRv	Respiratory rate - vol/flow - pediatric	
RRs	Spontaneous respiratory rate	
TVe	Tidal volume expired breath	
Trapped VOL	Trapped volume	
Selected Settings	Description	Displayed in....
APNEA TIME	Apnea time	Ventilator Settings screen (page 15-8)
ASB RAMP set	Assisted spontaneous breathing ramp	
ASB set	Assisted spontaneous breathing	
BIPAP HI P set	BIPAP high pressure	
BIPAP HI T set	BIPAP high time	
BIPAP LO P set	BIPAP low pressure	
BIPAP LO T set	BIPAP low time	
FLOW Trig set	Flow trigger	
SIMV FREQ	Frequency, IMV - SIMV	
IPPV FREQ	IPPV Frequency	
I:E E-Part	I:E ratio (expiratory component)	
I:E I-Part	I:E ratio (inspiratory component)	
iO2 set	Inspired O2 setting	
MAX iFLOW set	Maximum inspired flow	
PIP set	PIP setting	
PEEP set	PEEP setting	

15: VentCentral Option

Selected Settings (continued)	Description	Displayed in....
INT PEEP set	Intermittent PEEP setting	Ventilator Settings screen (page 15-8)
TACHY LENGTH	Tachyapnea duration	
TACHY FREQ	Tachyapnea frequency	
TVi set	Inspired tidal volume	
TRIG PRESS	Trigger pressure	
Vent:	Evita 1	

Dräger Evita 2 Ventilator

Alarm Messages	Description	Displayed in....
Paw > HI LIM	Paw exceeds upper alarm limit	Main Screen - lower right hand corner of the top waveform channel
AW -TEMP>HI LIM	AW -TEMP exceeds upper alarm limit	
Ventilator Alarm	• Airway temperature measurement unsuccessful • Check expiration - valve • Check flow sensor • CO2 device failure • CO2 not calibrated • CO2 sensor disconnected or malfunctioning • Failure to cycle • Gas mixer inoperable • Pressure measurement unsuccessful • Problems with respirator • Respirator synchronization inoperable • Device temperature is too high. • Volume measurement unsuccessful • Volume is inconsistent. • Airway temperature sensor alarm	Bed View - information area right below the menu buttons. Alarm causes that are labelled as 'Ventilator Alarm' refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
APNEA	Apnea alarm	
ASB>4 SEC	ASB is more than 4 sec	
Patient Disconnect	Patient may be disconnected from ventilator	
etCO2< LO LIM	etCO2 below lower alarm limit	
etCO2 > HI LIM	etCO2 exceeds upper alarm limit	
AIR SUPPLY?	Gas supply alarm, air	
O2 SUPPLY?	Gas supply alarm, O2	
iO2 < LO LIM	iO2 less than lower alarm limit	
iO2> HI LIM	iO2 exceeds upper alarm limit	
% O2 ERR	iO2 measurement unsuccessful	
MVe < LO LIM	MVe is below lower alarm limit	
MVe > HI LIM	MVe exceeds upper alarm limit	
PEEP > HI LIM	PEEP exceeds upper alarm limit	
RR > HI LIM	RR exceeds upper alarm limit	

15: VentCentral Option

Parameter Labels	Description	Displayed in....
Paw MIN	Minimum airway pressure	Ventilator Settings screen (page 15-8)
AW-Temp	Airway temperature	
VCO2	CO2 production, minute volume	
Cdyn	Dynamic compliance	
TVd aw%	Dead space	
TVd aw	Dead space, airway	
etCO2	end-tidal CO2	
I:E I-Part	I:E ratio (inspiratory component)	
iO2	Inspired O2	
MAP	Mean airway pressure	
MVe	Expired minute volume	
MVe s	Spontaneous expired minute volume	
Occlusion Press	Occlusion pressure	
Pause	Pause pressure	
PEEP	Peak end expiratory airway pressure	
iPEEP	Intrinsic peak end expiratory airway pressure	
PIP	Peak inspired airway pressure	
Raw	Dynamic resistance	
RRv	Pediatric respiratory rate - vol/flow	
RRs	Spontaneous respiratory rate	
TVe	Tidal volume expired breath	
Trapped VOL	Trapped volume	

Selected Settings	Description	Displayed in....
APNEA TIME	Apnea time	Ventilator Settings screen (page 15-8)
ASB RAMP set	Assisted spontaneous breathing ramp	
ASB set	Assisted spontaneous breathing	
BIPAP HI P set	BIPAP high pressure limit	
BIPAP HI T set	BIPAP high time limit	
BIPAP LO P set	BIPAP low pressure limit	
BIPAP LO T set	BIPAP low time limit	
FLOW Trig set	Flow trigger setting	
SIMV FREQ	Frequency, IMV - SIMV	
IPPV FREQ	Frequency IPPV	
I:E E-Part	I:E ratio - expiratory component	
I:E I-Part	I:E ratio - inspiratory component	
iO2 set	Inspired O2 setting	
MAX iFLOW set	Maximum inspired flow	
PIP set	Peak inspired airway pressure	
PEEP set	PEEP setting	
INT PEEP set	Intermittent PEEP setting	
TACHY LENGTH	Tachyapnea duration	
TACHY FREQ	Tachyapnea frequency	
TVi set	Inspired tidal volume setting	
TRIG PRESS	Trigger pressure	
Vent:	Evita 2	

Dräger Evita 2D / 4 / XL Ventilator

Alarm Messages	Description	Displayed in....
Paw > HI LIM	Paw exceeds upper alarm limit	Main Screen - in the lower right hand corner of the top waveform channel Bed View - in the information area right below the menu buttons
AW-TEMP > HI LIM	Upper airway temperature exceeds upper alarm limit	
Ventilator Alarm	• AW-TEMP below lower alarm limit (Evita 2D / 4) • AW-TEMP measurement unsuccessful • Battery error (Evita XL) • Check expiration valve • Check flow sensor • CO2 device error • CO2 not calibrated (Evita 2D / 4) • CO2 Zero/Cal required • CO2 window dirty (Evita XL) • CO2 sensor disconnected or faulty • Cycle failure • Gas mixer inoperable • Pressure measurement unsuccessful • Device malfunction (Evita 2D / 4) • Synchronization malfunctioning (Evita 2D / 4) • Volume measurement unsuccessful • Volume not constant (Evita 2D / 4) • Neonatal flow sensor is not at the Y-piece • Pediatric volume measurement inoperable (Evita 2D / 4) • Neonate volume measurement inoperable (Evita XL) • PEEP valve is inoperable • Problems with respirator • Respirator synchronizations faulty • Safety mode if neonatal flow sensor not available (Evita 2D / 4) • Safety mode (Evita XL) • Standby • Loss of data • Inspiratory time in CPAP/PPS mode is less than 4 seconds (Evita 2D / 4) • Inspired time is greater than 1.5 seconds (Evita XL)	Alarm causes that are labelled as 'Ventilator Alarm' refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator

Alarm Messages (continued)		
APNEA	Apnea alarm	Main Screen - in the lower right hand corner of the top waveform channel Bed View - in the information area right below the menu buttons
etCO2< LO LIM	etCO2 below lower limit	
etCO2>HI LIM	etCO2 exceeds upper limit	
AIR SUPPLY?	Gas supply alarm, air	
O2 SUPPLY?	Gas supply alarm, O2	
iO2 < LO LIM	iO2 less than lower alarm limit	
iO2 > HI LIM	iO2 exceeds upper alarm limit	
% O2 ERR	iO2 measurement unsuccessful	
MVe < LO LIM	MVe below lower alarm limit	
MVe > HI LIM	MVe exceeds upper alarm limit	
PEEP > HI LIM	PEEP exceeds upper alarm limit	
PEEP ERR	PEEP valve inoperable (Evita 2D / 4)	
RR > HI LIM	RR exceeds upper alarm limit	
TVe > HI LIM	TVe exceeds upper alarm limit	
ASB > 4 sec	Assisted Spontaneous Breathing exceeds 4 sec	
PATIENT DISCONNECT	Ventilator disconnected (Evita XL)	
Parameters		
Paw MIN	Minimum airway pressure	Ventilator Settings screen (page 15-8)
VCO2	CO2 production, minute volume	
Cdyn	Dynamic compliance	
TVd aw%	Dead space	
TVd aw	Dead space, airway	
etCO2	End-tidal CO2	
I:E I-Part	I:E ratio (inspiratory component)	
I:E E-Part	I:E ratio (expiratory component)	
iO2	Inspired O2	
MAP	Mean airway pressure	
MVe	Expired minute volume	
MVe s	Spontaneous expired minute volume spontaneous	
Occlusion Press	Occlusion pressure	
Pause	Pause pressure	
PEEP	Peak end expiratory pressure	
iPEEP	Intrinsic peak end expiratory pressure (Evita 2D / 4)	
PIP	Peak inspired airway pressure	
Raw	Dynamic resistance	
RRv	Pediatric respiratory rate - vol/flow	
RRs	Spontaneous respiratory rate	
Trapped VOL	Trapped volume	
TVe	Tidal volume expired breath	
AW-Temp	Airway temperature (Evita XL)	

15: VentCentral Option

Parameters (continued)		
Neg iForce	Negative inspiratory force (Evita XL)	Ventilator Settings screen (page 15-8)
Vtasb	Assisted spontaneous breathing, Support volume (Evita XL)	
Selected Settings		
APNEA TIME	Apnea time (s)	Ventilator Settings screen (page 15-8)
APRV Hi Prsr	APRV high pressure setting	
APRV Hi Time	APRV high time	
APRV Lo Prsr	APRV low pressure setting	
APRV Lo Time	APRV low time	
ASB RAMP set	Assisted spontaneous breathing ramp (s)	
ASB set	Assisted spontaneous breathing	
FLOW ASSIST	Flow assist	
FLOW Trig set	Flow trigger	
SIMV FREQ	Frequency, IMV - SIMV	
I:E E-Part	I:E ratio - expiratory component	
I:E I-Part	I:E ratio - inspiratory component	
iO2 set	Inspired O2 setting	
MAX iFLOW set	Maximum inspired flow setting	
PIP set	Peak inspired airway pressure	
PEEP set	PEEP setting	
INT PEEP set	Intermittent PEEP setting	
TACHY FREQ	Tachyapnea frequency	
TVi set	• Tidal volume, inspired • Tidal volume setting	
TV set	Inspired time (Evita XL)	
Vent:	The selected ventilator type	
VOL ASSIST	Volume assist	
Patient Type	Adult, Pedi, or Neonate (Evita XL)	
Ventilation Mode Display (Evita XL)		
Ventilation Mode at Device		Mode at Infinity CentralStation
IPPV, IPPV/Autoflow, IPPV/Assist/Autoflow, or IPPV/Assist		IPPV
SIMV, SIMV/ASB, SIMV/Autoflow, or SIMV/ASB/Autoflow		SIMV
CPAP, CPAP/PPS, or CPAP/ASB		CPAP
Standby		Standby
MMV, MMV/Autoflow, or MMV/ASB/Autoflow		MMV
BIPAP Assist		BIPAP
CMV		CMV
Waveforms (Evita XL)		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	
Loops	Ventilator loops	

Dräger Savina Ventilator

Parameters	Description	Displayed in...
Cdyn	Dynamic compliance	Ventilator Settings screen (page 15-8)
I:E I-Part	I:E ratio (inspiratory component)	
I:E E-Part	I:E ratio (expiratory component)	
iO2	Inspired O2	
MAP	Mean airway pressure	
MVe	Expired minute volume	
MVe s	Spontaneous expired minute volume spontaneous	
Pause	Pause pressure	
PEEP	Peak end expiratory pressure	
PIP	Peak inspired airway pressure	
Raw	Dynamic resistance	
RRv	Pediatric respiratory rate - vol/flow	
RRs	Spontaneous respiratory rate	
TVe	Tidal volume expired breath	
AW -Temp	Airway temperature	
Max iFlow	Peak Flow	
Ti	Inspired Time	
Selected Settings		
APNEA TIME	Apnea time (s)	Ventilator Settings screen (page 15-8)
ASB set	Assisted spontaneous breathing	
FLOW Trig set	Flow trigger	
SIMV FREQ	Frequency, IMV - SIMV	
I:E E-Part	I:E ratio - expiratory component	
I:E I-Part	I:E ratio - inspiratory component	
iO2 set	Inspired O2 setting	
PIP set	Peak inspired airway pressure	
PEEP set	PEEP setting	
INT PEEP set	Intermittent PEEP setting	
Ti set	Inspired time setting	
TVi set	Tidal Volume, Inspired	
Flow Accel	Flow acceleration	
Tdisconnect	Disconnect time	
FREQbackup	Backup frequency	
TVbackup	Backup of Tidal Volume	

15: VentCentral Option

Waveforms		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	
Loops	Ventilator loops	
Alarm Messages	Description	Displayed in...
iO2 < LO LIM	iO2 less than lower alarm limit	Main Screen - in the lower right hand corner of the top waveform channel Bed View - in the information area right below the menu buttons
iO2 > HI LIM	iO2 exceeds upper alarm limit	
O2 SUPPLY?	Gas supply alarm, O2	
MVe < LO LIM	MVe below lower alarm limit	
MVe > HI LIM	MVe exceeds upper alarm limit	
PEEP > HI LIM	PEEP exceeds upper alarm limit	
TVe > HI LIM	TVe exceeds upper alarm limit	
Paw > HI LIM	Paw exceeds upper alarm limit	
AW-TEMP > HI LIM	Airway temperature exceeds upper alarm limit	
APNEA	Apnea alarm	
RRv > HI LIM	Respiratory rate exceeds upper alarm limit	
ASB > 4 sec	Assisted spot breathing exceeds 4 seconds	
BATTERY	- Battery problem - Low battery	
Patient Disconnect	Ventilator disconnection	
iO2 ERR	Inspired O2 measurement inoperable	
Ventilator Alarm	- Check flow sensor - Standby - PEEP control problems - Problems with respirator - Volume measurement inoperable - Pressure measurement inoperable - Check expiration - valve - Airway temperature measurement inoperable - Fail to cycle - Fan problem	Alarm causes that are labelled as ' <i>Ventilator Alarm</i> ' refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
Ventilation Mode Display		
Ventilation Mode at Device		Mode at Infinity CentralStation
BIPAP or BIPAP/ASB		BIPAP
IPPV, IPPV/Autoflow, IPPV/Assist/Autoflow, or IPPV/Assist		IPPV
SIMV, SIMV/ASB, SIMV/Autoflow, or SIMV/ASB/Autoflow		SIMV
CPAP or CPAP/ASB		CPAP
Standby		Standby

P-B 7200/840 Ventilators

Alarm Messages	Description	Displayed in...
Paw > HI LIM	Paw exceeds upper alarm limit	Main Screen - in the lower right hand corner of the top waveform channel
Paw < LO LIM	Paw fell below lower alarm limit	
APNEA	Apnea event	Bed View - in the information area right below the menu buttons
AIR SUPPLY	Gas air supply pressure	
O2 SUPPLY	Gas O2 supply pressure	
Ventilator Alarm	I:E Alarm	Alarm causes that are labelled as ‘Ventilator Alarm’ refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
Ventilator Alarm (P-B 7200 only)	Leakage, system	
MVe<LO LIM	MVe is below lower alarm limit	
PEEP<LO LIM (P-B 7200 only)	PEEP is below lower alarm limit	
RR>HI LIM	RR exceeds upper alarm limit	
TVe<LO LIM	Tidal volume is low	
Parameter Labels		
Cdyn (P-B 7200 only)	Dynamic compliance	Ventilator Settings screen (page 15-8)
Cs (P-B 7200 only)	Static compliance	
I:E E-Part	I:E ratio (expiratory component)	
I:E I-Part (P-B 840 only)	I:E ratio (inspiratory component)	
MAP	Mean airway pressure	
MVe	Expired minute volume	
MVe s	Spontaneous minute volume	
Pause	Pause pressure	
PIP	Peak inspired airway pressure	
Raw	Dynamic resistance	
Rs	Static resistance	
RRv	Respiratory rate	
TVe	Tidal volume expired breath	
VC	Vital capacity	

15: VentCentral Option

Selected Settings		
FLOW WAVE set	Flow waveform setting	Ventilator Settings screen (page 15-8)
FREQ set	Frequency	
iO2 set	Inspired O2 setting	
100%O2	Inspired O2% setting	
NEBUL set	Nebulizer setting	
PIF set	Peak inspiratory flow setting	
PEEP set	PEEP setting	
Plateau set	Plateau setting	
SIGH ON	Sigh enabled	
TVi set	Tidal volume	
TRIG PRESS	Trigger pressure	
VENT MODE	Selected ventilation mode	
VENT:	Selected Ventilator type	
Waveforms (P-B 7200 only)		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	

Taema Horus Ventilator

NOTE: The Taema Horus ventilator is not available in the U.S.

Alarm Messages	Description	Displayed in...
Paw > HI LIM	Paw exceeds upper alarm limit	Main Screen - in the lower right hand corner of the top waveform channel Bed View - in the information area right below the menu buttons Alarm causes that are labelled as 'Ventilator Alarm' refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
APNEA	Apnea event	
Expiration Valve?	Check expiration - valve	
Patient Disconnect	Patient may be disconnected from ventilator	
I:E Alarm	I:E error	
iO2 < LO LIM	iO2 is below lower alarm limit	
iO2 > HI LIM	iO2 exceeds upper alarm limit	
MVe < LO LIM	MVe is below lower alarm limit	
MVe > HI LIM	MVe exceeds upper alarm limit	
PEEP > HI LIM	PEEP exceeds upper alarm limit	
Flow Sensor?	Check flow sensor	
AIR SUPPLY?	Gas supply alarm, air	
O2 SUPPLY?	Gas supply alarm, O2	
Parameter Labels	Description	Displayed in...
Cdyn	Dynamic compliance	Ventilator Settings screen (page 15-8)
MAP	Mean airway pressure	
MVe	Expired minute volume	
MVi	Inspired minute volume	
Pause	Pause pressure	
PIP	Peak inspired airway pressure	
PEEP	Peak end expiratory pressure	
RRv	Respiratory rate	
TVe	Tidal volume, expired	
TVi	Tidal volume, inspired	
iO2	Inspired O2	

15: VentCentral Option

Selected Settings	Description	Displayed in...
FREQ set	Frequency	Ventilator Settings screen (page 15-8)
PEEP set	PEEP setting	
TVi set	Tidal volume	
TRIG PRESS	Trigger pressure	
VENT MODE	Selected ventilation mode	
VENT:	Selected Ventilator type	
Waveforms		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	

Hamilton Galileo Ventilator

Alarm Messages	Description	Displayed in...
Paw > HI LIM	Paw exceeds upper alarm limit	Main Screen - in the lower right hand corner of the top waveform channel
Ventilator Alarm	• Minute volume exceeds upper alarm limit • Failure to cycle • Gas supply alarm • PEEP valve inoperable • Ventilator disconnect	Bed View - in the information area right below the menu buttons
APNEA	Apnea alarm	Alarm causes that are labelled as 'Ventilator Alarm' refer to non-clinical device conditions. All other alarm messages refer to clinical events that violate a setting that can be configured at the ventilator.
%O2 Error	%O2 measurement error	
MVe < LO LIM	MVe below lower alarm limit	
RR > HI LIM	RR exceeds upper alarm limit	
Parameter Labels		
Cdyn	Dynamic compliance	Ventilator Settings screen (page 15-8)
I:E E-Part	I:E ratio (expiratory component)	
I:E I-Part	I:E ratio (inspiratory component)	
iO2	Inspired O2	
MAP	Mean airway pressure	
MVe	Expired minute volume	
Pause	Pause pressure	
PIP	Peak inspired airway pressure	
PEEP	Peak end expiratory airway pressure	
Raw	Dynamic resistance	
RRv	Pediatric respiratory rate - vol/flow	
RRs	Spontaneous respiratory rate	
TVe	Tidal volume, expired	
TVi	Tidal volume, inspired	
iO2	Inspired O2	
Selected Settings		
iO2 set	Inspired O2 setting	Ventilator Settings screen (page 15-8)
INSP t%	I:E ratio, inspiratory component	
PAUSE t%	I:E ratio, expiratory component	
PEEP set	PEEP setting	
TVi set	Inspired tidal volume setting	
TRIG PRESS	Trigger pressure	
Vent:	Selected Ventilator type	

Maquet SV 300/SV 300A/Servoⁱ Ventilator

Alarm Messages	Description	Displayed in...
Paw > HI LIM	Paw exceeds upper alarm limit	Main Screen - in the lower right hand corner of the top waveform channel Bed View - in the information area right below the menu buttons
APNEA	An apnea detected	
BATTERY	Battery alarm	
CMV potentiometer	CMV potentiometer error	
GAS SUPPLY?	Gas supply alarm	
HI CONT PRESS	High continuous pressure	
iO2 < LO LIM	iO2 is below lower limit	
iO2 > HI LIM	iO2 exceeds upper limit	
MAINS FAIL	Mains failure	
MVe > HI / LO LIM	MVe is too high/too low	
VENT ERR	Mode switch error	
% O2 ERR	O2 cell disconnect, or O2 potentiometer error	
DEVICE ERR	Over range or Range switch error	
Labels/Settings		
BAROM PRESS	Barometric pressure	Ventilator Settings screen (page 15-8)
AIR SUPPLY	Gas air supply pressure	
O2 SUPPLY	Gas O2 supply pressure	
¹ I:E I-Part	I:E ratio (inspiratory component)	
^{1,2} INSP t%	I:E ratio (inspiratory component)%	
iO2	Inspired O2	
MAP cmH2O	Mean airway pressure	
MVe l	Expired minute volume	
MVi l	Inspired minute volume	
Pause	Pause pressure	
PEEP	Peak end expiratory pressure	
PIP	Peak inspired pressure	
RRv	Respiratory rate	
TVe	Tidal volume expired breath	
TVi	Tidal volume inspired breath	
CMV FREQ	Frequency of CMV setting	
SIMV FREQ	Frequency of SIMV setting	

Labels/Settings (continued)	Description	Displayed in...
INSP t%	I:E ratio - inspiratory component	Ventilator Settings screen (page 15-8)
I RISE%	I:E ratio - inspiratory rise time component	
PAUSE t%	I:E ratio - pause component	
iO2 set	iO2 setting	
iO2 set LO	Lower alarm limit of iO2	
iO2 HI LIM	Upper alarm limit of iO2	
MVe LO LIM	Lower alarm limit of MVe	
MVe HI LIM	Upper alarm limit of MVe	
PATIENT RANGE	Patient type (Adult= 4; Pediatric=15; Neonate=16)	
PEEP set	PEEP setting	
P CTL > PEEP	Pressure control level above PEEP	
P HI LIM	Upper pressure alarm limit	
P SUPPORT	Pressure support level above PEEP.	
TRIG SENS > PEEP	Trigger sensitivity level below PEEP	
VENT MODE ³	Ventilation mode setting	
SV 300, SV 300A, Servo ⁱ	Selected Ventilator type	
VOL set	Volume setting	
Paw	Airway pressure	
Flow	Flow (insp/exp)	
Ventilation Mode Display (Servo ⁱ)		
Ventilation Mode at Device		Mode at Infinity CentralStation
SIMV (PRVC)		SIMV (PRVC)
¹ Certain parameters, identified as measured values, are derived from other values or settings provided by the ventilator and may not reflect actual values. See the operating instructions for your specific monitor or ventilator for detailed information on derived measurements. ² Display of I:E value may be affected by mode of ventilation. ³ Mode value may be blanked during certain conditions and modes of ventilation.		

Maquet SV 900 Ventilator

Parameters	Description	Displayed in...
RRv	Respiratory rate	Ventilator Settings screen (page 15-8)
TVe	Tidal volume, expired	
Tvi	Tidal volume, inspired	
MVi	Minute volume, inspired	
MVe	Minute volume, expired	
PIP	Peak inspired airway pressure	
MAP	Mean airway pressure	
Pause	Pause pressure	
PEEP	Peak End Expiratory Pressure	
iO2	Inspired O2	

Viasys Bear 1000 Adult Ventilator

Alarm Messages	Description	Displayed in...
Paw > HI LIM	Paw exceeds upper alarm limit	Main Screen - in the lower right hand corner of the top waveform channel Bed View - in the information area right below the menu buttons
Paw < LO LIM	Paw is below lower limit	
GAS SUPPLY?	Gas supply alarm	
RR > HI LIM	Respiratory rate exceeds upper alarm limit	
RR < LO LIM	Respiratory rate is below lower limit	
MVe < LO LIM	Minute volume is below lower limit	
MVe > HI LIM	Minute volume exceeds upper alarm limit	
I:E Alarm	I:E Limit (I:E Error)	
Cycle Failed	Fail to cycle	
Parameters		
PIP	Peak inspired airway pressure	Ventilator Settings screen (page 15-8)
MAP	Mean airway pressure	
%MMV	% Mandatory minute ventilation	
TVe	Tidal volume, expired	
Ti	Inspiratory time	
MVe	Minute volume, expired	
MVe s	Spontaneous minute volume	
RRv	Respiratory rate	
Pause	Pause (plateau) pressure	
RRs	Respiratory rate, spontaneous	
Settings		
Ti set	Inspiratory time	Ventilator Settings screen (page 15-8)
iO2 set	Inspired O2 setting	
MAX iFLOW set	Maximum inspiratory flow	
TVi set	Tidal volume, inspired	
Pause t	I:E ratio (Pause component) Inspiratory pause	
Pslope	Pressure slope	
TRIG PRESS	Pressure trigger sensitivity	
FLOW Trig set	Flow trigger	
Paw set	Inspiratory pressure	
MMV	Mandatory minute ventilation	
Freq set	Breath rate	
PSupport	Pressure support	

15: VentCentral Option

Ventilation Mode Display		
Ventilation Mode at Device		Mode at Infinity CentralStation
Assist Control		Assist Control
Pressure Control		PCV
SIMV/CPAP/PSV		SIMV/CPAP/PSV
PC-SIMV/CPAP/PSV		PC-SIMV/CPAP/PSV
Waveforms		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	
Loops	Ventilator loops	

Viasys BearCub 750 Infant Ventilator

NOTE:

- MIB connectivity for the Viasys BearCub 750 Infant Ventilator requires FDA 510(k) review and is not yet available commercially in the U.S.
- MIB connectivity for the Viasys BearCub 750 Infant Ventilator is not licensed in accordance with Canadian Medical Device Regulations.

Alarm Messages	Description	Displayed in...
Paw > HI LIM	Paw exceeds upper alarm limit	Main Screen - in the lower right hand corner of the top waveform channel Bed View - in the information area right below the menu buttons
Paw < LO LIM	Paw is below lower limit	
GAS SUPPLY?	Gas supply alarm	
RR > HI LIM	Respiratory rate exceeds upper alarm limit	
PEEP < LO LIM	Peak End Expiratory Pressure is below lower limit	
MVe < LO LIM	Minute volume is below lower limit	
APNEA	Apnea	
Battery	Low battery supply	
Cycle Failed	Fail to cycle	
Parameters		
PIP	Peak inspired airway pressure	Ventilator Settings screen (page 15-8)
PEEP	Peak End Expiratory Pressure	
Te	Expiratory time	
TVe	Tidal volume, expired	
Ti	Inspiratory time	
MVe	Minute volume, expired	
RRv	Respiratory rate	
TVi	Tidal volume, inspired	
MAP	Mean Airway Pressure	
O2 Supply Prsr	O2 Supply pressure	
Settings		
Ti set	Inspiratory time	Ventilator Settings screen (page 15-8)
Freq set	Breath rate	
Vlimit	Volume limit setting	
FLOW Trig set	Flow trigger setting	
iFLOW set	Inspiratory flow setting	

15: VentCentral Option

Ventilation Mode Display		
Ventilation Mode at Device		Mode at Infinity CentralStation
Assist Control		Asst Ctrl
PSV		PSV
SIMV/IMV		SIMV/IMV
CPAP		CPAP
SIMV/PSV		SIMV/PSV
SIMV (Flow Cycled)		SIMV-Flow Cycle
Flow Cycled A/C		Asst Ctrl-Flow Cycle
Waveforms		
Paw	Airway Pressure	Ventilator Screen (page 15-5)
Flow	Flow (Insp/exp)	
Loops	Ventilator loops	

Baxter Vigilance Cardiac Output Monitor

NOTE:

- MIB connectivity for the Baxter Vigilance Cardiac Output monitor requires FDA 510(k) review and is not yet available commercially in the U.S.
- MIB connectivity for the Baxter Vigilance Cardiac Output monitor is not licensed in accordance with Canadian Medical Device Regulations.

Parameters	Description	Displayed in...
BT	Blood Temperature	Ventilator Settings screen (page 15-8)
CCO	Continuous Cardiac Output	
CCI	Continuous Cardiac Output Index	
ICO	Intermittent Cardiac Output	
ICI	Intermittent Cardiac Output Index	
SaO2	Arterial Oxygen Saturation	
SvO2	Venous Oxygen Saturation	
SVR	Systemic Vascular Resistance	
SVRI	Systemic Vascular Resistance Index	
VO2	O ₂ Consumption	
DO2	O ₂ Delivery	
SV	Stroke Volume	
SVI	Stroke Volume Index	
EDV	End Diastolic Volume	
EDVI	End Diastolic Volume Index	
ESV	End Systolic Volume	
ESVI	End Systolic Volume Index	
EF	Ejection Fraction	

etCO₂/Respiratory Mechanics Pod

Parameters	Description	Displayed in...
PIP	Peak inspired pressure	Ventilator Settings screen (page 15-8)
PEEP	Peak end expiratory pressure	
MAP	Mean arterial pressure	
TVi s	Inspired tidal volume, spontaneous	
TVi m	Inspired tidal volume, mechanical	
TVe s	Expiratory tidal volume, spontaneous	
TVe m	Expiratory tidal volume, mechanical	
TVd aw	Dead space, airway	
MVe s/m	Expiratory minute volume spontaneous/mechanical	
MVe	Expiratory minute volume	
RR s/m	Respiratory rate, spontaneous/mechanical	
RRv	Respiratory rate	
Cdyn	Dynamic compliance	
C20/Cdyn	Dynamic compliance of the last 20% breath	
Raw e	Dynamic resistance	
PEF	Peak Expiratory Flow	
TValv	Alveolar tidal volume	
MValv s/m	Minute volume	
VCO2	CO2 production, minute volume	

16 Biomed Functions

This chapter describes the password-protected Biomed screens intended for biomedical or service personnel.

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Biomed Screen Selections

The Biomed functions are password-protected and intended only for the hospital's biomedical personnel or Dräger service representatives.

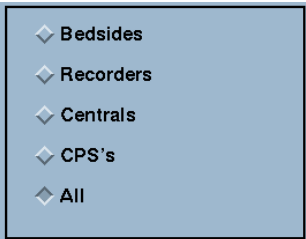
Selection	Description
Show Devices...	Allows your Biomed to view the status of network devices within the monitoring unit of the Infinity CentralStation
Configure Central...	Provides access to setup features
Configure Locked Options...	Allows your Biomed to enable available options
System Console...	Activates a window from where you can perform remote diagnostics, shut down the Infinity CentralStation, select Rest ECG report formats, etc.
Diagnostic Log	Displays log of 1000 hardware and software error conditions
Clinical Events Log	Displays log of 1000 clinically significant events, such as alarm detection, Alarm Silence requests, recording status, and remote control of bedside monitors.
Configure Telemetry...	Accesses Telemetry set up functions (page 16-13)

Accessing the Biomed Screens

1. Click on **Biomed** in the Main Screen menu bar.
2. Click on the desired menu selection.
The password popup window displays.
3. Enter the Biomed password in the password popup.
4. Click on **Accept** in the password popup.

Show Devices Screen

The **Biomed - Show Devices** screen lists status information for all network devices assigned to the monitoring unit of the specific Infinity CentralStation. To open the **Biomed - Show Devices** screen see page 16-2.

Selection	Description
Show Central Status	Opens a popup with status information for the Infinity CentralStation
	Radio buttons for listing device-specific information
	Scrolls pages of information

Configure Central Screen

Biomed - Configure Central Screen Selections

Selection	Description	Available Settings	Factory Default
Hospital Name	Defines hospital name	25 character max.	
Language	Displays the language that was set during installation		
Biomed Password	Sets or modifies Biomed password	8 character max.	
Clinical Password ON/OFF	Enables/disables clinical password	ON / OFF	ON
Clinical Password	Sets or modifies clinical password	8 character max.	MVWS
Central Layouts Password	Enables/disables password protection If enabled, screen is password protected.	ON / OFF	OFF
Printer Connected	Sets printer connection	• OFF • Network (Central station is connected to a network printer.) • Local (Printer is connected directly to the Infinity CentralStation.)	OFF
Network Printer Address	Displays network printer IP address configured during installation (for viewing only)		
Cabrera	Permits activation/deactivation of the hex axial lead configuration When you turn Cabrera on, the leads are displayed in the hex axial display format. If you turn Cabrera off, the leads appear in standard mode.	ON/OFF	OFF
Event Class Editor	Permits editing of user-selectable event classification labels (page 16-5)	Edit / Hide	Hide
Patient Confidentiality	Determines whether a patient's name appears on Infinity CentralStation displayed screens	ON / OFF	OFF

Selection	Description	Available Settings	Factory Default
Restore Default Settings	Restores system default settings	NOTE: Whenever you restore defaults the Infinity CentralStation must be restarted. An entry is made to the clinical events log.	
Hospital Label	Identifies the hospital label for the network	7 character max	
Monitoring Unit Label	Identifies the monitoring unit to which the Infinity CentralStation is assigned	7 character max	
Care Unit Label	Identifies the care unit to which the Infinity CentralStation is assigned	Up to 7 characters	
Host Label	View only		

To edit Event Class:

1. Open the **Biomed - Configure Central** screen (page 16-2).
2. Click on the toggle button next to **Event Class Editor** so that it displays **Edit**. A popup displays with ten default labels.

Class Name	Class Description
AFIB	Atrial Fibrillation
ATAC	Atrial Tachycardia
BBB	Bundle branch block
PNC	Pacer not captured
PNP	Pacer not pacing
TRIG	trigeminy
MTI	Multifocal PVC
RONT	R-on-T
IRR	Irregular HR
NVTA	Non-sustained VTAC

3. After you make the desired changes, click on **Accept** to save changes or **Undo**.

To modify Configure Central selections:

1. Open the **Biomed - Configure Central** screen (page 16-2).
2. Select a button or text entry box to set and click.
3. After entering information and modifying settings click on **Accept** to save changes or **Undo**.

Configure Locked Options Screen

This screen lists software that must be purchased separately and can only be enabled with a unique password for each Infinity CentralStation. For a list of available software options, see Appendix C, Accessories.

Enabling Available Options

1. Open the **Configure Locked Options** screen (page 16-2).
2. Click on one of the available menu choices.
3. Enter the password for the option you wish to enable.
4. Click on **Accept**.
After an option is enabled, a popup displays the message:
The Infinity CentralStation must be restarted to allow the locked options to take effect.
5. Restart the Infinity CentralStation.

Whenever you lock or enable an option, a message is stored in the clinical events log.

Raid Option

With the Infinity CentralStation RAID Option, RAID 1 mirroring provides disclosure disk redundancy by writing all full/event disclosure data to two identical hard drives. With this option configured, all disclosure disk data is written to a second, identical hard drive in the background. Disk hot-swapping is available via a swappable drive housing, which lets you replace the disclosure disk hard drive, if necessary.

CAUTION: In the event of a RAID failure, a tone sounds and the message: *Contact Biomedical Engineering Dept. displays.*

System Console

This Biomed menu selection activates a console window with a prompt from which you can:

- Run remote diagnostics for all network devices,
- Shut down or restart the Infinity CentralStation,
- Review an alarm history log for telemetry patient channels consisting of the last 5000 events (with time and date of the alarm occurrences), and
- Select Rest ECG report formats

To open the **System Console** see page 16-2.

Rest ECG Reports

Rest ECG reports are available in several formats which you can customize. As soon as the data arrives from the bedside monitor, the Infinity CentralStation analyzes it and generates a printed report.

Whenever the Infinity CentralStation issues a report successfully, an entry is made in the clinical events log. If a report cannot be processed successfully, an entry is made in the diagnostic log (page 16-11). If multiple printing requests exist, the Rest ECG report is queued until the assigned printer becomes available.

WARNING: Diagnosis based on interpretation of 12-lead monitoring results should only be done by qualified personnel. Prior to final interpretation and diagnosis, qualified physicians should review suggested diagnostic statements and all other available information

Available Report Formats

The format of a Rest ECG report determines the layout and the type of information included in the report. For more detailed information on generating ECG reports, please refer to the bedside monitor documentation.

Report Type	Resolution	Diagnostic Statements Y/N	# of Pages	Orientation
6x2 waves, 2.5 s	50 mm/s	Y	1	Landscape
6x2 waves, 2.5 s		N	1	
6x2 waves, 2.5 s		Y	2	Landscape, cabrera
6x2 waves, 2.5 s		N	1	
Complexes and 3 waves (V1, II, V5) 7 s	Complexes: 50mm/s Waveforms: 25mm/s	Y	1	Portrait, standard
12 waveforms, each 5 s	50 mm/s	N	2	Cabrera
12 waveforms, each 5 s	50 mm/s	N	2	Landscape
12 waveforms, each 10s	50 mm/s	Y	1	
12 waveforms, each 10s	50 mm/s	N	2	
3x4 waveforms, each 2.5 s	25 mm/s	N	1	
3x4 waveforms, each 2.5 s	25 mm/s	Y	2	
6x2 waveforms, each 5 s	25 mm/s	Y	1	
6x2 waveforms, each 5 s	25 mm/s	N	1	

Accessing the Rest ECG Report Selection Menu

1. Open the **System Console** (page 16-2).
2. At the system prompt type the following:

rekgSelect

A selection list appears.

```
Biomed - System Console
$ rekgSelect

      ---- Rest ECG Report Selection Menu ----

1. 6x2 waves @ 2.5 secs, with diagnostics
2. 6x2 waves @ 2.5 secs, without diagnostics
3. 6x2 waves @ 2.5 secs, with diagnostics, cabrera format
4. 6x2 waves @ 2.5 secs, without diagnostics, cabrera format
5. Complexes & 3 waves @ 7 secs, matrix diags
6. 12 waves @ 5.0 secs, cabrera Format (2 pages)
7. 12 waves @ 5.0 secs (2 pages)
8. 3x4 waves @ 2.5 secs, without diagnostics
9. 3x4 waves @ 2.5 secs, with diagnostics
10. 6x2 waves @ 5.0 secs, with diagnostics
11. 6x2 waves @ 5.0 secs, without diagnostics
12. 12 waves @ 10.0 secs, with diagnostics (2 pages)
13. 12 waves @ 10.0 secs (2 pages)
14. 1 copy at printer
15. 2 copies at printer
99. Set or change hospital name

Select from 1 - 15, 99 or press <Enter> for the default (9)
Enter 0 or q to quit.
Select: █
```

3. Enter the number before the format or function you wish to select (1 - 15, 99) or press **<Enter>** for the default (9).

If you want to change hospital name you must type the new information after making your selection, then press **<Enter>** on the keyboard.

Viewing Logs

The password-protected diagnostic and clinical events logs record hardware and software conditions and clinical events. The *Diagnostic log* contains a record of 1000 hardware and software error conditions and are helpful in determining system status. The *Clinical Events log* contains information on 1000 events of clinical significance.

Typical clinical events log entries may include:

- Transitions in/out of local alarm silence
- Infinity CentralStation Alarm State Change (e.g., Audible Alarm Annunciation Change from active to silenced or vice versa)
- Alarm Limit Change from the Infinity CentralStation
- Arrhythmia Setup Change from the Infinity CentralStation
- Bedside State Change (e.g., on-line, off-line)
- CPS/IDS State Change (e.g., on-line, off-line, duplicate IP address detected)
- Main Screen Layout Change
- Edits of Patient Demographics
- Alarm Volume Change
- Clinical Password Modification
- Language Change
- Restoration of Factory Default Settings
- Recording Status (other than cancellation of continuous or timed recordings)
- Recorder State Change (e.g., Recorder off-line, Recorder Failure, CPS/IDS Off-line)
- Time and Date Change
- Locked Options Change
- A request for SPO2 with no SPO2 license
- Infinity CentralStation detection of incompatible Infinity TeleSmart software
- Infinity TeleSmart self-test log entries

Log entries appear as separate lines and are displayed in chronological order with the most recent entry at the top. Each entry includes date, time, event class, event code, and event description.

To open the **Diagnostic** or **Clinical Events** logs, see page 16-2.

Copying Logs to Disk

1. Insert a 3.5” high-density disk into the disk drive of the Infinity CentralStation.

NOTE:

- You do not need to format the disk before copying logs.
- Both the Diagnostic *and* Clinical Events logs are copied during a copy request.

2. Access the log you wish to copy (page 16-11).
3. Click on **Copy Logs To Disk**. The Infinity CentralStation formats the disk automatically.

Logs are copied as individual files. During the copying process, the Infinity CentralStation is fully operational. However, the **Copy Logs To Disk** button remains ghosted until the process completes. If the operation fails, a status message displays and an advisory tone sounds.

Telemetry System Set Up

The following Biomed setup functions pertain exclusively to the Telemetry system. Before you can access these functions, the Telemetry option must be enabled (page 16-7).

Accessing the Telemetry Setup Screens

1. Click on **Biomed** in the Main Screen menu bar.
2. Click on **Configure Telemetry....**
3. Click on **TeleSmart List Setup** or **TeleSmart Setup**.
4. Enter the Biomed password in the password popup.
5. Click on **Accept** in the popup.
The selected screen displays.

You must use the Biomed password to access these screens.

Infinity TeleSmart List Setup Screen

The **TeleSmart List** screen permits the Biomed to configure up to 100 devices to use with the Infinity CentralStation.

1. Open the **TeleSmart List Setup** screen.
2. Click on the **New Device** button.
3. For each available device, enter the **MAC Address** and **IP address** in a row of the table.
4. Assign a unique **TeleSmart ID** (4 character maximum).
5. Repeat steps 2 and 3 for each device.
6. When you have added all the devices, click on the **Accept**.

Once you assign the *TeleSmart IDs*, those devices are available for selection from the **TeleSmart ID** section of the **Admit** screen (page 7-4).

Biomed - TeleSmart Setup Screen

NOTE: You can only configure the Infinity TeleSmart **Alarm Pause** key, **STAFF ALERT** key, **Record** key, and speaker for an individual patient (page 6-22) if *Per Patient* is selected during setup.

Biomed - TeleSmart Setup Screen Selections

Selection	Description	Settings	Default
Alarm Pause	Determines how the Infinity TeleSmart Alarm Pause key can be used If you want to be able to individually set this function for each patient, you must select <i>Per Patient</i> (page 6-22). If you select <i>All Off</i> you cannot individually set this function for each patient and the the Infinity TeleSmart Alarm Pause key will be disabled.	• All On • All Off • Per Patient	All Off
TeleSmart Record	Determines how the Infinity TeleSmart Record key can be used If you want to be able to individually set this function for each patient, you must select <i>Per Patient</i> (page 6-22). If you want to generate manual timed recordings when you press the Infinity TeleSmart Record key, you must select <i>All Record</i> or <i>All Record/Store</i> .	• All Record • All Off • All Record/Store • All Store • Per Patient	All Record
TeleSmart Staff Alert	Determines how the Infinity TeleSmart STAFF ALERT key can be used If you want to be able to individually set this function for each patient, you must select <i>Per Patient</i> (page 6-22). If you want to generate a STAFF ALERT alarm at the Infinity Central Station when you press the Infinity TeleSmart STAFF ALERT key, you must select <i>All On</i> .	• All On • All Off • Per Patient	All On
Speaker	Determines if the Infinity TeleSmart speaker can be enabled Unless you select <i>Per Patient</i> , you cannot individually set this function for each patient (page 6-22).	• All Enable • All Disable • Per Patient	All Disable
TeleSmart Volume	Determines volume of Infinity TeleSmart audible alarm If you select <i>OFF</i> you cannot enable this function for each patient (page 6-22) and the Infinity TeleSmart will not display a Volume screen.	• OFF • 10 - 100 %	OFF

Biomed - TeleSmart Setup Screen Selections

Selection	Description	Settings	Default
Display Shut Off Timer	Determines how long the Infinity TeleSmart display remains on with no user activity	• 1 min • 2 min • 3 min • 4 min • 5 min	2 min
ECG Notch Filter	Assigns Infinity TeleSmart ECG Notch filter setting	• 50 Hz • 60 Hz	60 Hz
Régulation	Sets French Homologation mode	• Par défaut • France	Par défaut
• Click on Accept or on Undo to return to previous settings.			

A Patient Preparation



This appendix provides information about patient preparation and electrode placement for telemetry monitoring.

General A-2
ECG Electrode Placement..... A-3
Lead Wire Color Codes..... A-4
Attaching the Pulse Oximeter..... A-5

General

Careful skin preparation and proper electrode placement ensure strong signals with minimal artifact. In case of a technical alarm (e.g., a detached lead), re-prepare the patient according to the following recommendations.

WARNING! Place the Infinity TeleSmart device safely to avoid any possibility of the device falling on or injuring patient.

Follow hospital protocol for preparing the patient's skin. To ensure a good quality signal, change electrodes every 24 to 48 hours (or in accordance with manufacturer's instructions). Electrodes may have to be changed more frequently under the following conditions:

- ECG signal degradation
- Excessive patient perspiration
- Patient skin irritation

A wide selection of reusable and single-use electrodes is available. Select the best electrode for the monitoring situation. Dräger recommends Ag/AgCl single-use electrodes. If you are using pre-gelled electrodes, verify that there is enough gel in the electrode gel-filled area. Never use disposable electrodes after their expiration date or when the gel has dried out.

Choose electrode sites in the configuration that will provide the best ECG based on the patient's underlying cardiac condition and the number of leads you wish to monitor. (P- and T-wave amplitudes should be no more than one third of the QRS amplitude.) Select flat, non-muscular sites to maximize electrode contact and minimize muscle artifact. Avoid joints or bony protrusions. Consider the following special conditions when selecting sites for electrode placement:

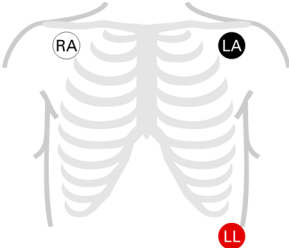
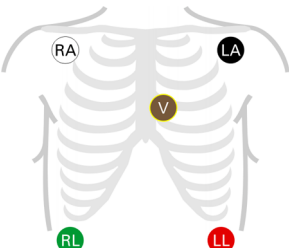
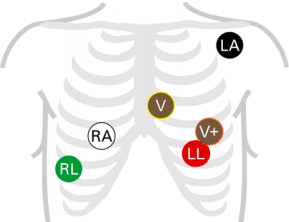
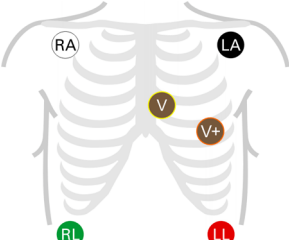
Surgery — Keep the electrodes as far from the surgical site as possible.

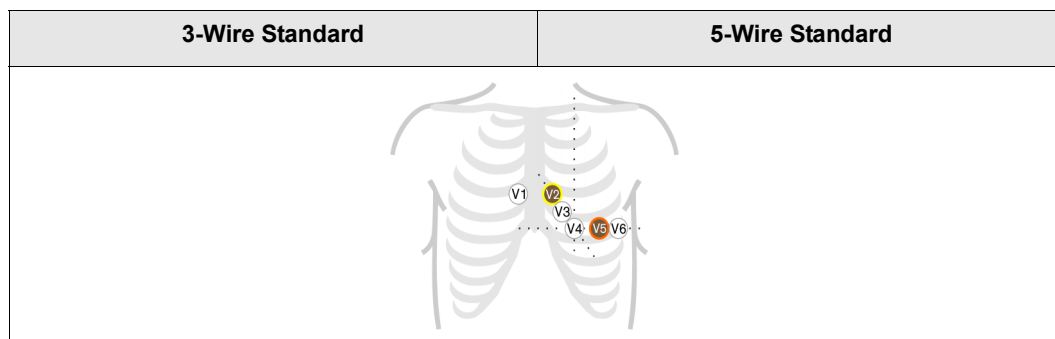
Burn Patients — Use sterile electrodes. Clean the equipment thoroughly. Follow hospital infection control procedures.

ECG Electrode Placement

WARNING! When placing electrodes, ensure all connecting wires are placed safely and cannot injure the patient.

The following illustrations show typical ECG electrode placement for 3-, 5-, and 6-wire lead sets:

3-Wire Standard	5-Wire Standard
	
Paced	6-Wire Standard
 V+ is only used with 6-wire monitoring. Dräger recommends that you do not use this modified placement for TruST monitoring.	 Select 2 chest lead positions for V and V+ (page 6-21).
Chest Lead Standard	



Lead Wire Color Codes

Lead wire color codes designated by the IEC and the AHA/AAMI appear in the table that follows.:

ECG Lead	AHA/AAMI	IEC
LA	Black	Yellow
LL	Red	Green
RA	White	Red
RL	Green	Black
V	Brown	White
V+	Gray and Brown	Gray and White

Attaching the Pulse Oximeter

1. Select a well perfused site such as a finger or a toe where patient movement is minimum.
2. Remove any nail polish (if present).
3. Cover the sensor with an opaque material to prevent interference from direct sunlight (when applicable).

B: Technical Specifications

NOTE:

- Specifications are subject to change.
- The telemetry system complies with the Radio Equipment and Telecommunications Terminal Equipment Directive (1999/5/EC).

Technical Data B-2

Infinity CentralStation B-2

Infinity CentralStation Optional Touch Screen B-4

Uninterruptible Power Supply (350VA, 120V, 220V) B-4

Laser Printer B-5

Strip Recorder B-5

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Technical Data

Infinity CentralStation	
Display Specifications	
Display Size	432 mm (17 in.), 533 mm (21 in.) diagonal, CRT or TFT
Resolution	1280 x 1024 pixels (native resolution)
User Controls	
Input Device Controls	PS/2-compatible keyboard and PS/2-compatible optical mouse included in country-specific kit. Optional Dräger Medical supplied touch screen is also supported.
Central Processing Unit (CPU)	
Processor	Intel® Xeon™ Processor 3.20 GHz
Storage	• (1) GB RAM, 1.44 Mb 3.5 in. floppy drive • (1) DVD/CDRW • (2) 73 GB hard drives
Disk Array	SCSI Raid 1 (optional) in locked drive bay
Software Updates	• 1.44 MB 3.5 inch floppy disk drive • CD-ROM
Connections	• 1 IEEE 1284 parallel port • 2 Asynchronous RS-232 serial ports • 2 GB LAN connections • 4 USB ports
Network Connectivity	• Infinity Network • Infinity TruST Telemetry Network
Video Output	Dual Head PCI 32M graphics board, 1280 x 1024 @ 75 Hz
Audio Output	Dräger Medical supplied speakers required
Alarm Grades	Life-threatening, Serious, Advisory (Audible and visual indicators)
Number of patients supported per CPU	• 16 patients with single display • 32 patients with two displays
Electrical Specifications	
Power consumption	115V / 230V 4.0A/2.0A
Power Output	Up to 460W

Infinity CentralStation (continued)	
Environmental Requirements	
Cooling	Passive heatsink moved across 1 - 120 mm fan SCA drive array and power supply cooled by dedicated 80 mm fans
Operation Temperature	0 to 45°C (32 to 113°F)
Non-Operating Conditions	-20 to 50°C (-4 to 122°F)
Altitude	<i>Operating:</i> 3500 m (11000 feet) <i>Storage:</i> 10600 m (35000 feet)
Acoustic Noise	< 60 dBA
Physical Attributes	
Size (H x W x D)	426.7 x 218.4 x 508.0 mm (16.8 x 8.6 x 20.0 in.)
Weight	22.5 kg (50 lbs.)
Chassis Color	Black
Regulatory Standards	
Compliances	UL/CSA/CE Certification as required per Original Equipment Manufacturers (OEM). Infinity CentralStation is CE marked in accordance with the requirements of the 93/42/EEC Medical Device Directive.

Uninterruptible Power Supply (350VA, 120V, 220V)	
Connections	Infinity CentralStation, Infinity TruST Telemetry Receiver
Audio output	< 45 dB at 1 m (3 ft.)
Physical Specifications	
Size (H x W x D)	165 x 114 x 368 cm (6.5 x 4.5 x 14.5 in.)
Weight	11.3 kg (25 lbs.)
Electrical Specifications	
Inverter Waveform	Low distortion sine wave
Input voltage	115, 220, 230, 240 VAC $\pm$ 20% (nominal, user-selectable)
Input frequency	50/60 Hz $\pm$ 5%

B: Technical Specifications

Uninterruptible Power Supply (350VA, 120V, 220V) (continued)	
Noise Rejection Isolation	With unit under power and an ANSI/IEEE C62.41 Cat. A pulse applied either normal or common mode at the input, the noise output voltage will be <10 normal mode and < 0.5V common mode in all 4 quadrants (CM-NM, NM-NM, CM-CM, NM-CM).
Surge Voltage Withstand Capability	Tested under power to ANSI/IEEE C62.41 Cat. A & B (formerly IEEE 587-1980). Cat. A 6000V @ 200 amps, 0.5 usec risetime, 100 kHz decay, Cat. B 6000V @ 500 amps, 0.5 usec risetime, 100 kHz decay.
Battery charging time	3 to 8 hours
Backup time	6 to 20 minutes (half/full loaded)
Internal batteries	2 -12 volt user hot-swap batteries, recharge time 4 hours
Indicators	LEDs for Load level, voltage manager boost, voltage manager nominal, voltage manager buck, on battery, replace battery, overload
Regulatory Standards	
Compliances	UL 1778, cUL 1778

Laser Printer
Infinity R50N Network Strip Recorder provides two-channel strip recordings of automatically captured arrhythmia or alarm events or manually initiated recordings.

Strip Recorder
Infinity R50N Network Strip Recorder provides two-channel strip recordings of automatically captured arrhythmia or alarm events or manually initiated recordings.

Infinity Telemetry System

Infinity TeleSmart Programming Cable	
Connections	PC via 3m or optional 20m Serial cable
H x W X D	44.0 x 96.5 x 96.4 mm (1.7 x 3.8 x 3.8 in.)
Weight	450 g (1 lb.)
Method	Directly to PC and toSpO2 connector of Infinity TeleSmart

Infinity TeleSmart	
Physical Specifications	
Size, H x W x D	139.7 x 76.2 x 30.4 mm (5.6 x 3 x 1.2 in)
Weight	276.4 g (9.75 oz) with battery
Cooling	Convection
Disposal	All materials must be disposed of or recycled properly and in accordance with local regulations. There are no known special disposal requirements for any accessories.
Connections	ECG, SpO2, Programming Cable
Environmental Specifications	
Atmospheric Pressure	Operating: -647 - 1060 hPa Storage: -500 - 1060 hPa
Temperature	Operating: 0 to 40° C (32 to 104 °F) Storage: -30 to 70° C (-22 to 158 °F)
Shock IEC 68-2-27	50 g half-sine waveform, 11 mS duration, 3 shocks in each +/- directions/axis, 18 total shocks, 3 mutually perpendicular axes
Frequency Response	0.5 - 40 Hz: ± 3 dB
Sinusoidal Vibration IEC 68-2-6	5-10 Hz @ 0.098 DA, 100-500 Hz @ 2 G 10 sweep cycles/axis, 3 axes, 1 octave / minute
Random Vibration IEC 60068-2-36	Reproducibility Medium ASD 10 to 20 Hz: 0.05 g ² /Hz, -3dB/Octave ASD 20 to 150 Hz: 0.05 g ² /Hz, -3dB/Octave Duration/axis/mounting: 30 min Total acceleration: 1.6g (rms)

B: Technical Specifications

Infinity TeleSmart (continued)	
Bump IEC60068-2-29	Peak acceleration: 15 g Pulse duration: 6 ms Number of bumps: 1000 Direction: Vertical (normal operating position)
Free Fall IEC 60068-2-32, Procedure 1	Height of fall: 1 m Number of falls: 1 on each of six surfaces
Drop	Per IEC68-2-31, Packaged drop- 30"
Water Resistance	Per EN 60529 rating IPX7
Electrical Characteristics	
Power Source	Rechargeable lithium ion battery
Mode of operation	Continuous
Typical Battery Run Time ECG+SpO2	24 hours
User Interface	
User Interface	6 fixed keys: alarm pause, view screen, staff alert, record/mark event, up/down screen scroll, Audio annunciator, LCD Display
Alarm Indicator	LED Battery Charging Indicator, Visual Alarm Banners on LCD, Audible alarms via speaker
Display	
Type	Color Liquid Crystal Display (LCD)
Communications	
Network	Direct Sequence Spread Spectrum (802.11b)
Operating Frequencies	ISM-2.4: 2400MHz to 2483.5MHz
Arrhythmia	
Leads Analyzed	Any user-selected, non-derived single lead or Lead II and V
Detected Events/Rhythms	Asystole, Ventricular Fibrillation, Ventricular Tachycardia, Sinus Bradycardia, Ventricular Run, Accelerated Idioventricular Rhythm, Supraventricular Tachycardia, Ventricular Couplet, Ventricular Bigeminy, Sinus Tachycardia, Pause, Artifact, PVC/min
ECG	
Available leads- Adult/Pediatric	I, II, III, aVL, aVR, aVF, V, V+V1, V2, V3, V4, V5, V6, dV1, dV2, dV3, dV4, dV5, dV6 (dVx leads using TruST 12-lead algorithm K030738)

Infinity TeleSmart (continued)	
Measurement Range	15 to 300 bpm
Accuracy	± 2 beats/minute or $\pm 1\%$, whichever is greater
Degree of protection against electrical shock	Type BF
Defibrillation Protection	≤ 360 Joules
Event Storage	
Automatic	Alarm violation or arrhythmia trigger
Manual	"Recording" key activation
Central Monitor WorkStation and Input Controls ¹	Draeger Medical Systems Infinity CentralStation (K# to be assigned) Keyboard, mouse, touchscreen
¹ Additional predicate devices which specially support optional touchscreen input for a patient monitoring central stations are: · Philips Medical Systems: Intellivue Information Center - K050742 · GE Medical Systems: CIC Pro Clinical Information Center - K053356	

Infinity TeleSmart (continued)	
ST Segment Analysis (Adult/Pediatric)	
Available Leads for display on patient worn device	Choice of any ECG lead being monitored
Isoelectric Point	Adjustment range: Start of QRS complex to fiducial point Default: QRS onset - 28msec
ST Measurement Point	Adjustment range: Fiducial point to end of QRS complex Default: QRS offset + 80msec
ST Complex Length	900 msec (-300 to +600 msec from fiducial point)
Update Interval	15 secs $\pm$ 1, 1 normal beat required
ST Level Alarm Adjustment Range	-15.0 to 15.0 mm, -1.5 to 1.5 mV
ST Accuracy	$\pm$ 0.1 mm ($\pm$ 0.01 mV)
ST Measurement Range	-15.0 to 15.0 mm, -1.5 to 1.5 mV
ST Measurement Resolution	$\pm$ 0.1 mm ($\pm$ 0.01 mV)
Sampling Rate for Averaged ECG	250 samples/s
Pulse Oximetry (optional)	
Parameter Display	Saturation (%SpO2), pulse rate
Measurement method	Absorption-spectrophotometry
Measurement range	SpO2: 1 - 100% Pulse rate: 30-250 bpm
Measurement accuracy, Adult Mode ¹ :	SpO2: 0 to 69% not specified 70 to 100% sensor-specific as follows: <i>Dräger</i> : OxiSure Sensor - D $\pm$ 2 <i>Nellcor</i> : ^{2,3} D-25/D-25L, D-20, I-20, N-25, OxiMAX MAX-A, OxiMAX MAX-AL, OxiMAX MAX-P, OxiMAX MAX-N, OxiMAX MAX-I $\pm$ 2 <i>Nellcor</i> : DS100A $\pm$ 3 <i>Masimo</i> : ^{2,3} LNOPADT, LNOPPED, LNOPNEO, LNOPNEO SS, LNOP-YI $\pm$ 2 <i>Masimo</i> : LNOP-DCI, LNOP-DCIP, NR125 $\pm$ 2, EAR $\pm$ 3.5 Pulse Rate: $\pm$ 3 beats/min

Infinity TeleSmart (continued)	
Measurement accuracy, Neonatal mode ^{1, 2, 3, 4}	SpO ₂ : 0 to 69% not specified 70 to 100% sensor-specific as follows: <i>Nellcor:</i> N-25, OxiMAX MAX-N±3 <i>Masimo:</i> LNOPNEO, LNOPNEO SS, LNOP-YI±3 Pulse Rate: ±3 beats/min
¹ SpO ₂ accuracies are expressed as ± "X" digits between indicated saturation levels. Accuracy of the SpO ₂ measurement is specified with 1 SD (standard deviation), which represents approximately 68% of the population. ² Saturation: decrease accuracy by ±1 digit during motion (5, 6) (ECG monitoring required). ³ Pulse Rate: decrease accuracy by ±2 beats/min during motion (5, 6) (ECG monitoring required). ⁴ Accuracy of saturation measurements on neonates is increased by ±1 digit as compared to accuracy on adult patients to account for the theoretical effect on oximeter measurements of fetal hemoglobin in neonatal blood. ⁵ For Masimo devices, motion is defined as either: • Periodic rubbing/tapping with an amplitude of 1-2 cm. at a periodic frequency of 2-4 Hz. - or: • Aperiodic motion with amplitude of 2-3 cm. at a frequency of 1-5 Hz. ⁶ For Nellcor devices, motion is defined as aperiodic rubbing/tapping motion with amplitude of 1-2 cm. at a frequency of 1-4 Hz.	
QRS Detection	
Amplitude	0.5 to 5 mV
Duration - Adult/Pediatric	40 to 120 msec
Pacer Detection Leads (Adult/Pediatric)	I, II or III
Pacer Detection Amplitude	±2 to ±900 mV
Pacer Detection Width	0.1 to 2.0 msec
Trends	
Trended Telemetry Parameters	HR, ST, PVC/min, % paced, SpO ₂ , PLS, STI, STII, STIII, STaVR, STaVL, STaVF, STV1 to STV6, STdV1 to STdV6, STVM, and STCVM
Storage Time	72 Hours
Resolution	1 minute interval

Infinity TeleSmart Bedside Charger

Connections	Infinity TeleSmart (supports 10 devices concurrently)
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B: Technical Specifications

Infinity TeleSmart Bedside Charger (continued)	
Physical Attributes	
Dimensions	3.3 x 159.7 x 76.7 mm (.13 x 6.29 x 3.02 in)
Weight	226.7 g (8.0 oz)
Disposal	All materials must be disposed of or recycled properly and in accordance with local regulations. There are no known special disposal requirements for any accessories.
Electrical Specifications	
Input Voltage	115, 220, 230, 240 VAC $\pm$ 20% (nominal, user selectable)
Input frequency (Hz)	50/60 Hz $\pm$ 5%
Protection Class	From specified Class II power supply
Mode of Operation	Continuous
Power Output	Provides power to Infinity TeleSmart via magnetic coupling
Environmental Requirements	
Atmospheric Pressure	Operating: -647 hPa to 1060 hPa Storage: -500 hPa to 1060 hPa
Temperature	Operating: 0 to 40° C (32 to 104 °F) Storage: -30 to 70° C (-22 to 158 °F)
Humidity (non condensing)	Operating: -2 to 95% Storage: -2 to 95%
Shock IEC 68-2-27	• 50 g half-sine waveform, 11 mS duration, • 3 shocks in each +/- directions/axis, 18 total shocks, • 3 mutually perpendicular axes
Sinusoidal Vibration IEC 68-2-6	• 5-10 Hz @ 0.098 DA, 100-500 Hz @ 2 G • 10 sweep cycles/axis, 3 axes, 1 octave / minute
Random Vibration IEC 60068-2-36	• Reproducibility Medium • ASD 10 to 20 Hz: 0.05 g² /Hz, -3dB/Octave • ASD 20 to 150 Hz: 0.05 g² /Hz, -3dB/Octave • Total acceleration: 1.6g (rms) • Duration/axis/mounting: 30 min
Bump IEC60068-2-29	• Peak acceleration: 15 g • Pulse duration: 6 ms • Number of bumps: 1000 • Direction: Vertical (normal operating position)
Free Fall IEC 60068-2-32, Procedure 1	• Height of fall: 1 m • Number of falls: 1 on each of six surfaces

Infinity TeleSmart Bedside Charger (continued)	
Drop	Per IEC68-2-31, Packaged drop- 30"
Water Resistance	IPX0 & IPX4
Standards	
Compliances	EN60601-1, UL60601-1, CSA 22.2 No. 601.1 M90, EN60601-1-2

Infinity TeleSmart Central Charger	
Connections	Infinity TeleSmart (supports 10 devices concurrently)
Physical Attributes	
Dimensions	520.7 x215.9 x 190.5 mm (20.5 x 8.5 x 7.5 in)
Weight	6.5 Kg (13.2 lb)
Cooling	Convection
Disposal	All materials must be disposed of or recycled properly and in accordance with local regulations. There are no known special disposal requirements for any accessories.
Electrical Specifications	
Input Voltage	115, 220, 230, 240 VAC $\pm$ 20% (nominal, user selectable)
Input frequency (Hz)	50/60 Hz $\pm$ 5%
Protection Class	From specified Class 1 power supply
Mode of Operation	Continuous
Power Output	Provides power to Infinity TeleSmart via magnetic coupling
Environmental Requirements	
Atmospheric Pressure	Operating: -647 to 1060 hPa Storage: -500 to 1060 hPa
Temperature	Operating: 0 to +40 ° C (32 to 104 °F) Storage: -30 to +70° C (-22 to 158 °F)
Humidity (non condensing)	Operating: -20 to 95% Storage: -20% to 95%
Shock IEC 68-2-27	• 50 g half-sine waveform, 11 mS duration, • 3 shocks in each +/- directions/axis, 18 total shocks, • 3 mutually perpendicular axes
Sinusoidal Vibration IEC 68-2-6	• 5-10 Hz @ 0.098 DA, 100-500 Hz @ 2 G • 10 sweep cycles/axis, 3 axes, 1 octave / minute

B: Technical Specifications

Infinity TeleSmart Central Charger (continued)	
Random Vibration IEC 60068-2-36	• Reproducibility Medium • ASD 10 to 20 Hz: 0.05 g² /Hz, -3dB/Octave • ASD 20 to 150 Hz: 0.05 g² /Hz, -3dB/Octave • Total acceleration: 1.6g (rms) • Duration/axis/mounting: 30 min
Bump IEC60068-2-29	• Peak acceleration: 15 g • Pulse duration: 6 ms • Number of bumps: 1000 • Direction: Vertical (normal operating position)
Free Fall IEC 60068-2-32, Procedure 1	• Height of fall: 1 m • Number of falls: 1 on each of six surfaces
Drop	Per IEC68-2-31, Packaged drop- 30"
Water Resistance	IPX1 - Protected against harmful effects of dripping water.
Standards	
Compliances	EN60601-1, UL60601-1, CSA 22.2 No. 601.1 M90, EN60601-1-2

Electromagnetic Compatibility

The separation distances are written with regard to the Infinity CentralStation with Infinity Telemetry and Infinity TeleSmart. The numbers provided will not guarantee faultless operation but should provide reasonable assurance of such. This information may not be applicable to other medical electrical equipment, and older equipment may be particularly susceptible to interference.

General Notes

Medical electrical equipment needs special precautions regarding electromagnetic compatibility (EMC) and needs to be installed and put into service according to the EMC information provided in this manual.

Portable and mobile radio frequency (RF) communications equipment can affect medical electrical equipment.

Cables and accessories not specified within the instructions for use are not authorized. Using other cables and/or accessories may adversely impact safety, performance and electromagnetic compatibility (increased emission and decreased immunity).

The equipment should not be used adjacent to or stacked with other equipment; if adjacent or stacked use is inevitable, the equipment should be observed to verify normal operation in the configuration in which it will be used.

When using wireless networking, be aware that the system operates at 2.4 GHz range. Other equipment, even if compliant with CISPR emission requirements, could interfere with reception of wireless data. When selecting new wireless systems (e.g. cell phones, pager systems, cordless phones etc) for use in installations where wireless networking is used, care should always be used to insure that operating frequencies are compatible. For example, selecting cordless phones that operate at 2.4 GHz will likely cause difficulty with the phones and networking components.

NOTE: Detailed radio frequency characteristics: 2412-2472 MHz, Direct-sequence spread spectrum (DSSS) IEEE 802.11b compliant, limited to 100 mW. Applicable to both access points and client adaptors. When used with 802.15.1 wireless, the device will transmit with the following characteristics: 2400-2485 MHz, Frequency Hopping Spread Spectrum (FHSS), limited to 2.5 mW. See the documentation that accompanies the wireless products for further details.

Low level signals such as ECG are particularly susceptible to interference from electromagnetic energy. While the equipment meets the testing described below, it is not a guarantee of perfect operation, the 'quieter' the electrical environment the better. In general, increasing the distance between electrical devices decreases the likelihood of interference.

B: Technical Specifications

NOTE: The Infinity CentralStation with Infinity Telemetry and Infinity TeleSmart are intended for use in the electromagnetic environments specified below. The user of this equipment should assure that is used in such an environment.

Electromagnetic Emissions		
Emissions	Compliance according to...	Electromagnetic environment
RF emissions (CISPR 11) Infinity CentralStation and Infinity TeleSmart	Group 1	The Infinity CentralStation and receiver use RF energy only for internal function. Therefore, their RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.*
CISPR Emissions Classification	Class B	The equipment is suitable for use in all establishments including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions (IEC 61000-3-2)	Class A	
Voltage fluctuations / flicker (IEC 61000-3-3)	Complies	
*Note that when used with the wireless options, the Infinity TeleSmart emits electromagnetic energy in order to communicate with the Infinity Network. Nearby electronic equipment may be affected. Radio frequency characteristics are specified above. See the documentation that accompanies the wireless products for further details.		

Electromagnetic Immunity			
Immunity against...	IEC 60601-1-2 test level	Compliance level (of this device)	Electromagnetic environment
Electrostatic discharge, ESD (IEC 61000-4-2)	Contact discharge: $\pm 6 \text{ kV}$	$\pm 6 \text{ kV}$	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be kept at levels to reduce electrostatic charge to suitable levels.
	Air discharge: $\pm 8 \text{ kV}$	$\pm 8 \text{ kV}$	
Electrical fast transients / bursts (IEC 61000-4-4)	Power supply lines: $\pm 2 \text{ kV}$	$\pm 2 \text{ kV}$	Mains power quality should be that of a typical commercial or hospital environment.
	Longer input / output lines: $\pm 1 \text{ kV}$	$\pm 1 \text{ kV}$	
Surges on AC mains lines (IEC 61000-4-5)	Common mode: $\pm 2 \text{ kV}$	$\pm 2 \text{ kV}$	Mains power quality should be that of a typical commercial or hospital environment.
	Differential mode: $\pm 1 \text{ kV}$	$\pm 1 \text{ kV}$	
Power frequency magnetic field 50/60 Hz (IEC 61000-4-8)	3 A/m	3 A/m	Equipment which emits high levels of power line magnetic fields (in excess of 3A/m) should be kept at a distance to reduce the likelihood of interference.

Electromagnetic Immunity			
Immunity against...	IEC 60601-1-2 test level	Compliance level (of this device)	Electromagnetic environment
Voltage dips and short interruptions on AC mains input lines (IEC 61000-4-11)	Dip >95%, 0.5 periods	>95%, 0.5 periods	Mains power should be that of a typical commercial or hospital environment. If user requires continued operation during power mains interruptions insure that batteries are installed and charged. Insure that battery life exceeds longest anticipated power outages or provide additional uninterruptible power source.
	Dip 60%, 5 periods	60%, 5 periods	
	Dip 30%, 25 periods	30%, 25 periods	
	Dip >95%, 5 seconds	>95%, 5 seconds	
Conducted RF RF coupled into lines (IEC 61000-4-6)	150 kHz – 80 MHz:	3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter as below. Recommended separation distance: $d=1.2/\sqrt{f}\sqrt{P}$ $d=1.2/\sqrt{P}$ $d=2.3\sqrt{P}$ 80 MHz to 800MHz 800 MHz to 2.5 GHz <i>where 'P' is the maximum output power rating of the transmitter in watts according to the transmitter manufacturer and 'd' is the recommended separation distance in metres.</i> Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ¹ , should be less than the compliance level in each frequency range ² . Interference may occur in the vicinity of equipment marked with the wireless symbol: 
Radiated RF (IEC 61000-4-3)	80 MHz – 2.5 GHz	3 V/m	

¹Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the equipment is used exceeds the applicable RF compliance level above, the equipment should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the equipment.

²If the frequency range is 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the equipment			
Rated maximum output power of Transmitter (watts)	Separation distance according to frequency of transmitter (meters)		
	150 kHz to 80 MHz $d=1.2/\sqrt{P}$	80 MHz to 800MHz $d=1.2/\sqrt{P}$	800 MHz to 2.5 GHz $d=2.3/\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed, the recommended separation distance 'd' (in meters) can be estimated using the equation applicable to the frequency of the transmitter, where 'P' is the maximum output power rating of the transmitter (in watts) according to the transmitter manufacturer.			
NOTE: - At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. - These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			

C: Cleaning



This appendix provides general instructions for cleaning the Infinity CentralStation, the accessories, and peripherals.

***CAUTION!** Do not sterilize any components.*

- Cleaning the Infinity CentralStation..... D-2
- Cleaning and Disinfecting Transceivers D-3
 - Recommended Cleaning Agents D-3
 - Patient Cables D-4
 - Reusable ECG Electrodes D-4
 - Reusable SpO2 Sensor..... D-4
- Cleaning the MicroO2/MicroO2+[®] Oximeter..... D-5
 - Oximeter..... D-5
 - Reusable Sensor D-5

Cleaning the Infinity CentralStation

CAUTION!

- *Do not immerse the CPU or its peripherals.*
- *Do not pour or spray cleaning solution directly on equipment surfaces.*
- *Do not allow fluids to contact electrical connectors or drip into ventilation openings.*

During normal use the display, CPU, accessories, and peripherals may become soiled. Clean these components according to the original manufacturer's *Instructions For Use* or hospital protocol for computer equipment and peripherals.

Cleaning and Disinfecting Infinity TeleSmart

CAUTION!

- *Do not use disinfectants other than those recommended by Dräger. The use of non-approved disinfectants can damage the device.*
- *Do not use disinfectants containing phenol. Do not use strong aromatic ketone, ether, or ester solvents, or sharp tools and abrasives. These will damage the device.*
- *Do not gas sterilize, steam autoclave, immerse, or rinse the device in fluids. If you accidentally spill liquid on the device, remove the battery and contact your Biomed regarding the continued safety of the unit before placing it back in operation.*

1. Clean the device with gauze moistened in soapy water.
2. Thoroughly dry with a lint-free cloth.
3. Disinfect the device with gauze moistened in a cleaning agent.
4. Thoroughly dry with a lint-free cloth.

Recommended Cleaning Agents

Dräger recommends the following cleaning agents.

- Diluted isopropyl alcohol 70%
- Sodium hypochlorite 2.5%
- Cidex Plus™ 28 Day Solution
- Cidex® OPA Solution
- Cidex® OPA Solution High Level Disinfectant
- Cidex® Activated Dialdehyde Solution
- Sporidicin Sterilizing and Disinfecting Solution
- Terralin 0.5%
- Incidin® Plus 1%

CAUTION! *Do not use Incidin® Plus 2% on Infinity TeleSmart. This agent will damage the device.*

- Lysoformin 3000 1%
- Buraton 10F 1%

- Enzol (Cidezyme)
- Cetylcode-G[®] Concentrate and Diluent Concentrate
- Metricide[®] 28 Long-Life Activated Dialdehyde Solution
- Compliance[®]

Patient Cables

- Clean the patient cables with a gauze pad moistened with a soap solution.
- Dry thoroughly with a lint-free cloth.
- To disinfect patient cables, wipe the cables with a gauze moistened with diluted alcohol or a gluteraldehyde-based disinfectant.
- Dry thoroughly with a lint-free cloth.

Reusable ECG Electrodes

- Clean grabber-wire clips regularly with a toothbrush.
- Remove any gel residue from the electrode by brushing it off under running water.
- Clean the electrodes with a gauze moistened with a soap solution.
- Dry thoroughly with a lint-free cloth.
- Disinfect the electrodes with a gauze moistened with diluted alcohol or a gluteraldehyde-based disinfectant.
- Dry thoroughly with a lint-free cloth.

Reusable SpO₂ Sensor

See the cleaning instructions and recommendations provided with the sensor.

Cleaning the MicrO2/MicrO2+[®] Oximeter

Oximeter

1. Turn the oximeter off.
2. Clean the oximeter with gauze moistened in soapy water.
3. Thoroughly dry with a lint-free cloth.
4. Disinfect the oximeter with gauze moistened in diluted isopropyl alcohol (70%), or sodium hypochlorite (2.5%).
5. Thoroughly dry with a lint-free cloth.

Reusable Sensor

1. Unplug the sensor from the oximeter.

NOTE: Disposable sensors are intended for single-use only and should not be reprocessed.

2. Clean reusable sensors according to the instructions supplied with the sensor

CAUTION!

- *Do not use disinfectants containing phenol. Do not use strong aromatic ketone, ether, or ester solvents, or sharp tools and abrasives. These will damage the oximeter.*
- *Do not use disinfectants other than those recommended. The use of non-approved disinfectants can damage the oximeter.*
- *Do not gas sterilize, steam autoclave, immerse, or rinse the oximeter and its reusable sensor in fluids. If you accidentally spill liquid on the device, remove the battery and contact your Biomed regarding the continued safety of the unit before placing it back in operation.*

In the United States:

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Dräger Medical reserves the right to make modifications to equipment without prior notice.

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TUV Draft

DRAFT