

# OUTLOOK<sup>®</sup> ES SAFETY INFUSION SYSTEM

## OPERATOR'S MANUAL



Rx Only

**B | BRAUN**  
SHARING EXPERTISE



# OUTLOOK<sup>®</sup> ES

## OPERATOR'S MANUAL

THIS MANUAL MAY NOT, IN WHOLE OR IN PART, BE COPIED, PHOTOCOPIED, REPRODUCED, TRANSLATED, OR CONVERTED TO ANY ELECTRONIC OR MACHINE-READABLE FORM WITHOUT PRIOR WRITTEN CONSENT OF B. BRAUN MEDICAL INC.

© 2008 B. BRAUN MEDICAL INC. ALL RIGHTS RESERVED.

OUTLOOK IS A REGISTERED TRADEMARK AND DOSEGUARD, RATEGUARD, DOSESCAN, DOSECOM AND DOSETRAC ARE TRADEMARKS OF B. BRAUN MEDICAL INC. AND ITS AFFILIATES.





**TABLE OF CONTENTS**

**About the Pump.....1**  
    Intended Use ..... 1  
    Epidural Administration..... 1  
    Blood Infusion..... 2  
    Icons ..... 2  
**Warnings.....3**  
**Cautions .....4**  
**Attentions .....6**  
**Chapter 1: Pump Description .....7**  
    Important Keys..... 8  
    Front View ..... 9  
    Back View..... 9  
    Inside the Door View ..... 10  
**Chapter 2: Basic Pump Operation .....11**  
    Pole Clamp Operation..... 12  
    Turning ON the Pump..... 12  
    Daisy Chaining..... 12  
    Battery Operation ..... 12  
    Priming the Tubing ..... 13  
    Loading the Tubing..... 13  
    Unloading the Tubing ..... 14  
    Turning OFF the Pump ..... 14  
    Infusion Modes ..... 15  
    Pump Behavior..... 16  
**Chapter 3: Information Screen & Menus.....17**  
    Information Screen..... 18  
        Time Left ..... 18  
        Total Infused ..... 18  
        Occlusion Limit ..... 18  
        Dose ..... 18  
        DoseGuard™ Limits ..... 18  
        RateGuard™ Limits ..... 19  
        Location Name..... 19  
        Care Area Name..... 19  
    Working With Menus..... 19  
        Main Menu..... 19  
        Alternate Menu ..... 19  
        Biomed Options Menu..... 20  
        Accessing Menus ..... 20  
**Chapter 4: STANDARD & Piggyback Modes.....23**  
    STANDARD Mode..... 24  
    Changing the Rate..... 24  
    Changing the VTBD ..... 25  
    PIGGYBACK Mode..... 25  
    RateGuard™ Infusions ..... 26  
        Primary Channel RateGuard™ Infusions ..... 27  
        Piggyback Channel RateGuard™ Infusions..... 29  
    RateGuard™ in Standard Mode ..... 29

Roller Clamp Reminder.....	30
<b>Chapter 5: DOSE Mode .....</b>	<b>33</b>
DOSE Mode .....	34
Dose Data Entry Screen.....	36
Changing DOSE Mode Rate.....	38
Changing DOSE Mode Dose.....	39
Epidural in DOSE Mode.....	40
DoseGuard™ in DOSE Mode .....	40
Accessing DOSE Mode When Infusing .....	42
Exiting DOSE Mode.....	42
<b>Chapter 6: Bolus Delivery Modes .....</b>	<b>43</b>
Bolus Deliveries .....	44
Loading Dose.....	44
Loading Dose Setup.....	45
Bolus Ready Screen.....	47
Bolus Run Screen .....	47
Bolus Hold Screen.....	48
On-Demand Bolus .....	49
Programming a Bolus .....	49
RateGuard™ Bolus.....	50
Bolus Ready Screen.....	52
Bolus Run Screen .....	53
Bolus Hold Screen.....	53
Epidural Bolus Caution .....	54
<b>Chapter 7: DoseScan™ (Outlook® 200ES and Above) .....</b>	<b>55</b>
DoseScan™ .....	56
For STANDARD Mode & DOSE Mode Infusions.....	56
For Piggyback Infusions.....	57
For Labels with "0.0" and "Titrate" Bar Codes .....	57
For Labels with "0.0" for Patient Weight.....	58
Titration Checking.....	58
For Standard Mode Deliveries.....	59
For Dose Mode Deliveries.....	59
DoseGuard™ Matching.....	60
Single Care Area Match .....	61
Multiple Care Area Match.....	62
RateGuard™ Matching.....	62
Single Care Area Match .....	64
Multiple Care Area Match.....	64
Additional Scan Features.....	65
Scan Patient ID.....	65
Scan Authorized User ID.....	66
Run Authorization Scan .....	66
DoseGuard™ Override Scan .....	67
RateGuard™ Override Scan .....	68
Bolus Authorization Scan.....	68
Critical Med (Dual Scan).....	69
<b>Chapter 8: DoseCom™ (Outlook® 400ES Only) .....</b>	<b>71</b>
DoseCom™ .....	72

# Table of Contents

For STANDARD Mode & DOSE Mode Infusions .....	72
For Piggyback Infusions .....	73
For Data with "0.0" for Rate or Dose.....	73
For Data with "0.0" for Patient Weight.....	74
Titration Checking .....	74
For Standard Mode Deliveries .....	75
For Dose Mode Deliveries .....	75
DoseGuard™ Matching .....	76
Single Care Area Match.....	77
Multiple Care Area Match .....	78
RateGuard™ Matching .....	78
Single Care Area Match.....	80
Multiple Care Area Match .....	80
<b>Chapter 9: Profile Mode.....</b>	<b>83</b>
PROFILE Mode .....	84
Set PROFILE Parameters.....	84
PROFILE Mode .....	84
Review/Change PROFILE.....	85
Restart PROFILE .....	86
Immediate Ramp Down .....	86
Exiting PROFILE Mode .....	86
<b>Chapter 10: PROGRAM Mode .....</b>	<b>89</b>
PROGRAM Mode.....	90
Clearing Periods.....	91
Review/Change PROGRAM .....	91
Restart PROGRAM.....	92
Skip PROGRAM Periods.....	92
Exiting PROGRAM Mode.....	93
<b>Chapter 11: q(x) Schedule .....</b>	<b>95</b>
q(x) Schedule .....	96
To Change the Data.....	98
Exiting q(x) Schedule.....	98
<b>Chapter 12: Options.....</b>	<b>99</b>
OPTIONS .....	100
Panel Lock Out Switch .....	100
Clear Total Infused.....	100
Occlusion Limit.....	100
Occlusion Warning .....	101
Set Time and Volume .....	102
Schedule Next Run.....	102
To Change the Delay .....	102
To Change the Start Time .....	103
Check Battery Level.....	103
Change Alarm Volume .....	104
Select Max Pressure.....	104
Micro Rate/Limit.....	104
To Exit Micro Rate/Limit .....	105
Hold Extender .....	105
Site Trend.....	106
To Change Graphical Resolution.....	106

To Exit Site Trend .....	107
Calculate BSA .....	107
Piggyback Callback .....	107
Scrolling Dose Display .....	108
Trailing Zeros .....	108
Nurse Call Interface .....	108
Nurse Call Installation .....	109
<b>Chapter 13: Alarms &amp; Troubleshooting.....</b>	<b>111</b>
Alarms: Causes & Corrections .....	112
<b>Chapter 14: Maintenance.....</b>	<b>115</b>
Cleaning .....	116
Storage .....	116
<b>Chapter 15: Technical &amp; Clinical Support .....</b>	<b>117</b>
Technical Support.....	118
Clinical Support.....	118
<b>Chapter 16: Product Specifications .....</b>	<b>119</b>
Product Specifications .....	120
Accuracy Test Trumpet Curves .....	122
Trumpet Curve Creation .....	122
Trumpet Curve Interpretation .....	122



---

---

# ABOUT THE PUMP

## INTENDED USE

The Outlook® ES is intended for use with B. Braun Medical Inc. Horizon® Pump IV Sets to regulate the flow of primary and secondary fluids when positive pressure is required. The infusion system is capable of delivering fluid from a negative head height (when the IV fluid container is lower than the pump), and provides clinically accepted volumetric accuracy for all standard IV fluids, including blood, lipids, and Total Parenteral Nutrition (TPN).

Positive pressure is frequently a necessity, but clinical experience shows that high pressure limits may increase the severity of an infiltration without causing an alarm. Because there is a need to control pump pressure settings, the Outlook ES has user-selectable Occlusion Limit settings which start at 75 mmHg and extend to 500 mmHg. At rates of 400 ml/hr and higher, the pressure setting is automatically increased to 400 mmHg. For epidural infusions which require higher pressures, the pump has an extended occlusion limit setting of 750 mmHg.

The pump is equipped with distinct audible and visual alarm signals to indicate Keep Vein Open (KVO), low battery, and other alarm conditions.

## EPIDURAL ADMINISTRATION

The Outlook ES can be used for epidural administration of anesthetic and analgesic drugs.

For epidural administration of anesthetic drugs, use indwelling catheters specifically indicated for short-term (96 hours or less) anesthetic epidural drug delivery.

For epidural administration of analgesic drugs, use indwelling catheters specifically indicated for either short-term or long-term analgesic epidural drug delivery.

When the Outlook ES is being used for epidural infusions, the source container and administration set should be clearly differentiated from source containers and administration sets used for other routes of infusion.

Following an occlusion alarm, a small amount of fluid may be delivered. Use of a microbore set assures this is less than 0.1 ml.

The administration of drugs is restricted to those anesthetic and analgesic drugs labeled for continuous epidural administration.

## BLOOD INFUSION

The Outlook® ES may be used for infusion of blood and blood products. For blood infusion, a Horizon® Pump Blood Set should be used. Do not attempt to piggyback blood. The normal saline roller clamp on the blood tubing set must be clamped off. The high viscosity of blood will cause the saline to infuse before the blood if both clamps are left open.

## ICONS

The following icons identify the supplemental information contained in this manual.



**ATTENTION:** This icon will direct the user to consult additional information.

---



**NOTE:** This icon will provide additional information for a given topic in this manual.

---



**CAUTIONS or WARNINGS:** This icon will provide safety recommendations in order to prevent accident or injury to the user or the patient.

---

---

---



# WARNINGS

The following warnings should be followed in order to avoid patient/user injury.

- WARNING** This Operator's Manual contains detailed instructions and warnings on the use of the Outlook® ES. Please read it completely prior to using this device. This manual is intended to reinforce the teaching given to the user by a trained health care professional or an authorized B. Braun representative.
- WARNING** B. Braun will assume no responsibility for incidents which may occur if the product is not used in accordance with product labeling.
- WARNING** The Outlook ES has been designed to stop fluid flow to the patient under alarm conditions. Monitoring of the patient and infusion status is necessary to ensure the infusion is being delivered as anticipated. Prior to starting an infusion, verify no drops are falling in the drip chamber and the programmed information is correct. If drops are falling and the infusion has not begun, the set may be improperly loaded and further use may result in inaccurate infusion.
- WARNING** Do not connect the IV administration set to the patient while priming, as a bolus or over infusion may occur.
- WARNING** See EPIDURAL in DOSE Mode in Chapter 5: DOSE Mode for specific warnings and cautions related to epidural medication infusions.
- WARNING** To avoid mechanical or electronic damage, do not steam autoclave or immerse the pump in any fluids or cleaning solutions. Always disconnect the electrical power cord from the outlet before cleaning to prevent electrical shock.
- WARNING** Trained Biomedical professionals or B. Braun representatives must perform a full set-up of the pump before use in a clinical setting to ensure proper programming and function of device.
- WARNING** Do not use in the presence of flammable anesthetics, as a possible explosion hazard exists.
- WARNING** Avoid exposure to powerful sources of electromagnetic interference and strong magnetic fields such as Magnetic Resonance Imaging (MRI). Patient injury and equipment damage may result.



## CAUTIONS

The following cautions should be followed in order to avoid patient/user injury.

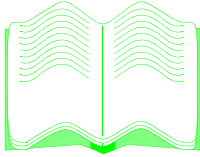
- CAUTION** Before using the pump in a clinical setting, the user should become thoroughly familiar with the proper use of the device as outlined in this manual. The Outlook® ES is not intended to substitute for regular patient observation and evaluation.
- CAUTION** The Outlook ES may have been damaged during shipping and handling. Do not use the pump if it appears damaged or fails the initial self test outlined in “Turning on the Pump” as patient injury or device damage may occur.
- CAUTION** To maintain stability, when attaching a single pump to a pole, it is recommended to place pump no higher than 40 inches above the ground (measured from the bottom of the pump). When placing multiple pumps on a pole it is recommended that the bottom pump be no higher than 40 inches above the ground.
- CAUTION** It is not recommended to place more than five pumps together on one IV pole as the pole may become unstable. When attaching this pump to a pole, make sure it is clamped securely to avoid damage to the device from falling.
- CAUTION** This device is intended for use with B. Braun Medical Inc. Horizon® IV Pump Sets only. The use of other sets renders the device inoperable.
- CAUTION** Do not clean, disinfect, or sterilize any part of the device by autoclaving or with ethylene oxide gas. Doing so may damage the device and void the warranty. Only external parts of the pump should be disinfected. See Chapter 14: Maintenance, for suggested cleaning solutions.
- CAUTION** The Outlook ES generates, uses and can radiate electromagnetic interference. Through testing to current US standards, the Outlook ES has shown emission levels to be acceptable. Testing has also shown that the device’s operation and performance is not adversely affected by electromagnetic interference. Given an environment in which the Outlook ES infusion device is operated in close proximity to equipment that emit high levels of radio frequency, it may be necessary to reorient or reposition the pump away from the source of the emissions. Should emissions from the Outlook ES adversely affect other equipment, it may be necessary to increase the distance between devices, or operate the Outlook ES on a separate power circuit from the affected device.

- CAUTION** Unless the pump is plugged into a hospital-grade electrical outlet, the reliability of the grounding cannot be assured.
- CAUTION** Perform testing and/or preventive maintenance as defined in the product Service Manual. It is necessary to perform all testing and preventive maintenance as defined in the product Service Manual, or the reliability and proper functionality of the unit cannot be assured.
- CAUTION** Where several infusion lines are connected, the possibility of their exerting a mutual influence on each other cannot be excluded.

## ATTENTIONS

- ATTENTION** The Daisy Chain outlet is for use with Outlook® ES pumps for the purpose of daisy chaining only. Do not daisy chain more than 5 pumps, as the total leakage current of a system containing more than 5 pumps may exceed 300uA.
- ATTENTION** The DB15 connector on the back of the Outlook ES pump is for use by authorized personnel only.
- ATTENTION** UL Classified Medical Equipment, with respect to Electrical Shock, Fire and Mechanical Hazards only, in accordance with UL2601-1, CAN/CSA C22.2 No. 601.1.

# CHAPTER 1: PUMP DESCRIPTION



### IN THIS CHAPTER YOU WILL LEARN:

- The important keys used to operate the pump.
- The location of displays and other items needed to operate the pump.

## IMPORTANT KEYS

An understanding of the function and location of these keys will assist in the use of the pump.



1. **POWER** turns the pump on and off.



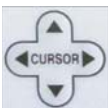
2. **RUN** keys begin the infusion of either the Primary or Piggyback channels.



3. **Channel Indicator** keys select either the Primary or Piggyback channels for data entry.



4. **DATA** keys allow input of numbers.



5. **CURSOR** keys move the cursor bar on the Information Screen.



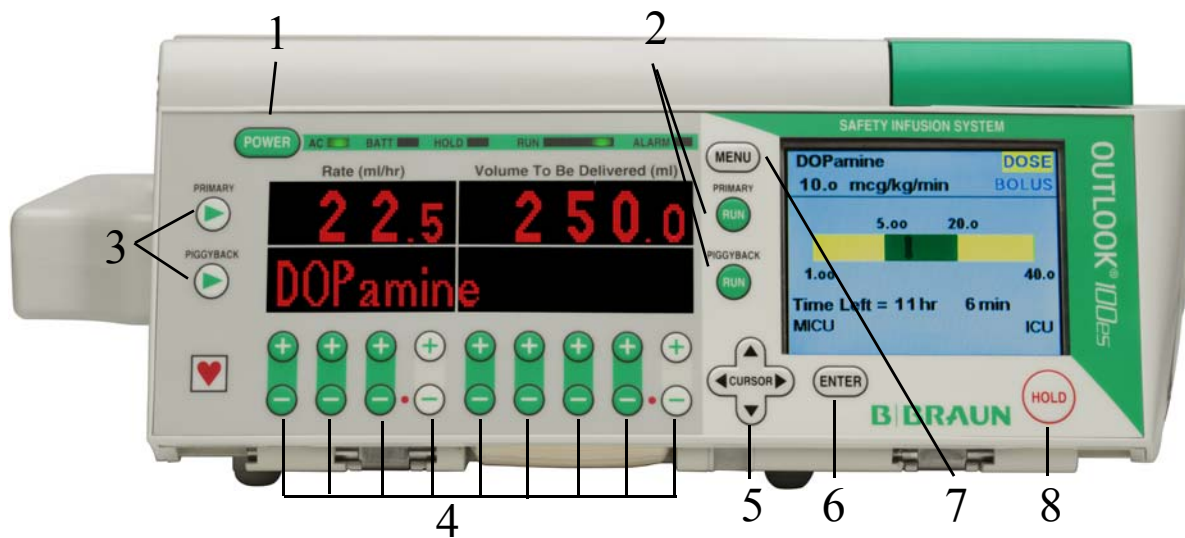
6. **ENTER** accepts data or the selection made.



7. **MENU** lets the user see other modes and options.



8. **HOLD** silences an alarm, stops an infusion, is a quick escape from the menu, and extends the Hold state an additional 3 minutes every time it is pushed.

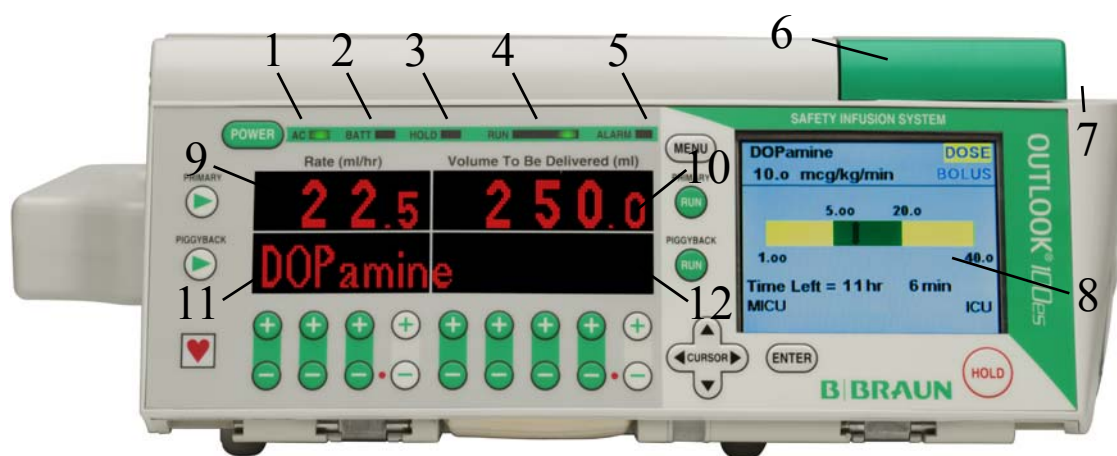




# Chapter 1: Pump Description

## FRONT VIEW

1. AC power indicator
2. Battery Indicator
3. Hold Indicator
4. Run Indicators
5. Alarm Indicator
6. Door Lever
7. Pole Clamp
8. Information Screen
9. Primary Rate Display
10. Primary Volume to Be Delivered Display
11. Piggyback Rate Display
12. Piggyback Volume To Be Delivered Display



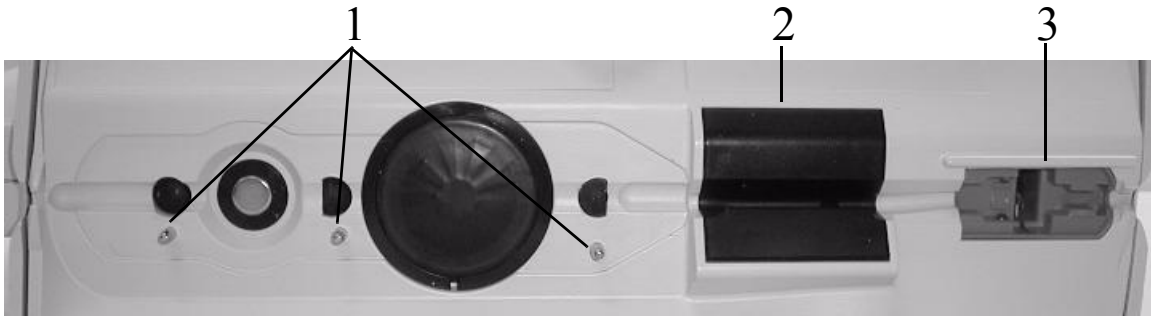
## BACK VIEW

1. Daisy Chain Outlet Access Door
2. Pump Management Port
3. Panel Lock Out Switch

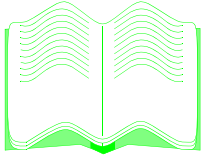


## INSIDE THE DOOR VIEW

1. Cassette Alignment Pins
2. Air-In-Line Detector
3. Free Flow Protection Clip Receptacle



# CHAPTER 2: BASIC PUMP OPERATION




### IN THIS CHAPTER YOU WILL LEARN:

- How to put the pump on a pole.
- How to turn the pump on and off.
- How to Daisy Chain pumps together.
- About battery operation.
- How to prime the set and load the tubing.
- About the five infusion modes of the pump.
- About the four operating states of the pump.

### POLE CLAMP OPERATION

1. Press down on the pole clamp lever.
2. Position the pump on the pole (make sure the pole is up against the slot of the pump).
3. Release the pole clamp lever.
4. Lock by rotating the pole clamp lever 1/4 turn toward the back of the pump.
5. To remove the pump from the pole, rotate the pole clamp lever 1/4 turn toward the front of the pump to unlock it, then press down on the pole clamp lever.

### TURNING ON THE PUMP

1. Plug the pump into a hospital-grade electrical outlet or the AC Receptacle on the back of another Outlook® ES pump.
2. Press  .



**NOTE:** The Outlook ES will perform a self test which ensures proper system operation and alarm reporting. Within this process, the AC Power Indicator will light up, the pump will beep, and the Information Screen will light up. A successful self-test indicates operational readiness of the device.

### DAISY CHAINING

Daisy Chaining allows up to five (5) Outlook ES pumps to be plugged into each other with only one pump plugged into a wall outlet. On the back of each Outlook ES is the access door to an electrical outlet. Only another Outlook ES pump should be plugged into that outlet.



**ATTENTION:** The Daisy Chain outlet is for use with Outlook ES pumps for the purpose of daisy chaining only. Do not daisy chain more than 5 pumps, as the total leakage current of a system containing more than 5 pumps may exceed 300 uA.

### BATTERY OPERATION

The Outlook ES has been equipped with an internal, rechargeable battery which will power the pump automatically if the plug is disconnected during use. Battery power is provided as a back-up system only, and the length of the battery life is affected by the rate of delivery. Whenever possible, the pump should remain plugged into an electrical outlet. The Battery Indicator will be lit when the pump is operating on its battery.

The pump must remain plugged into a hospital-grade electrical outlet for at least 10 hours to fully recharge the battery from a totally discharged condition.

A Low Battery Warning will be displayed when there is no less than 30 minutes of battery life remaining. Every effort should be made to plug the pump into A/C power within this

## Chapter 2: Basic Pump Operation

timeframe. If the pump is not plugged into A/C power within the Low Battery Warning timeframe, a Plug In Alarm may be displayed. The Plug In Alarm alerts you to the fact that there is only 3 minutes of battery life remaining and you should immediately plug the device into an A/C outlet. If the battery discharges completely, the infusion will stop and you will need to plug the pump into an A/C outlet to restart the infusion and recharge the battery.



**NOTE:** The Low Battery Warning will be displayed when there is *no less* than 30 minutes of battery life remaining. Additional battery life is possible based on battery condition, delivery rate and other external factors but it is recommended that the pump be plugged into A/C power within the 30 minute timeframe to avoid shutdown.

### PRIMING THE TUBING



**WARNING:** Always read and follow the instructions which accompany the source container and IV administration sets you are using. Carefully follow the instructions for loading, removing and reloading the set.



**CAUTION:** Administration sets should be changed at an interval not to exceed 72 hours to maintain specified accuracy.

1. Close roller clamp on IV set.
2. Spike IV container and squeeze drip chamber until one-third or one-half full.
3. Prime the IV set by opening the roller clamp and letting fluid flow through the tubing with the cassette inverted (the pointed end of the cassette should be up).
4. Ensure all air is expelled from the cassette and IV tubing, then close the roller clamp.

### LOADING THE TUBING



**CAUTION:** Use only B. Braun Medical Inc. Horizon® Pump IV Sets.

1. Open the door on the front of the pump by pulling the Door Lever forward.
2. Position the cassette over the Cassette Alignment Pins, with the metal disc on the cassette towards the pump.
3. Thread the tubing through the Air-In-Line Detector.
4. Insert and press the Free Flow Protection Clip into the Receptacle.



**WARNING:** Unrestricted fluid flow may occur if the Free Flow Protection Clip is not properly installed in the Receptacle.


5. Close the door of the pump.
6. Open the roller clamp on the tubing.



NOTE: Do not use a pump with visible damage or with bent, damaged, or missing components.


---

### UNLOADING THE TUBING

1. Press  to stop the infusion.
2. Close the roller clamp on the tubing.
3. Open the pump door.
4. Grasp the tubing on the left hand side of the pump.
5. Grasp and gently pull the Free Flow Protection Clip from the Free Flow Protection Clip Receptacle while also pulling the tubing/cassette from the pump. Removing the Free Flow Protection Clip in this manner will automatically stop the flow of fluid in the tubing.
6. If gravity infusion is desired, close the roller clamp, open the Free Flow Protection Clip, and adjust the flow with the roller clamp.

### TURNING OFF THE PUMP

The Outlook® ES must be stopped before turning the device off.

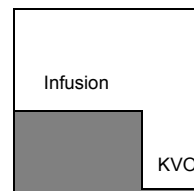
1. Press  to stop current infusion.
2. Press  .

# Chapter 2: Basic Pump Operation

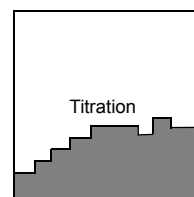
## INFUSION MODES

Developed in response to the special needs of all caregivers in the medical setting, the Outlook® ES has five different infusion modes which allow fluid delivery to be tailored to the patient's individual needs.

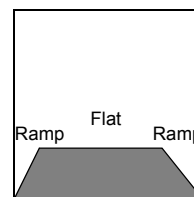
**STANDARD Mode** delivers a set volume of fluid at a constant rate. At the end of the infusion, the pump automatically switches to Keep Vein Open in order to maintain IV patency. In this mode, a secondary fluid, such as an antibiotic, may be administered using **PIGGYBACK** delivery.



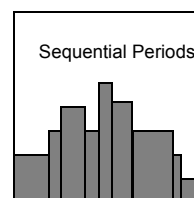
**DOSE Mode** calculates the concentration, rate, or dose information necessary with many critical drug infusions. The pump contains a library of commonly dosed IV drugs. Titration of the medication rate automatically leads to recalculation of the dosing parameter.



**PROFILE Mode** is used primarily for TPN infusions which require a ramping up phase, a flat rate during which the bulk of the infusion is delivered, and a ramp down phase.



**PROGRAM Mode** allows up to 9 periods to be entered. Each period contains its own rate and volume. The pump automatically gives each programmed period one after the other without user intervention. This mode is best suited for Intermittent, Variable, and Circadian infusions.






**q(x) Schedule** can be used for the intermittent infusion of antibiotics, chemotherapy, or other IV infusions according to a schedule set by the user. Assure there is a maintenance IV infusion in the intervals between doses.



## PUMP BEHAVIOR

The Outlook® ES behaves in any one of the following four ways.



### Hold

In general, when  is pressed, the infusion stops. Pressing  will also silence an alarm and stop the infusion. While in the menu system, pressing  will exit the user back to the current mode and stop the infusion (if running).



**NOTE:** In certain cases during programming, pressing the HOLD key will generate a pop up message that will instruct the user to continue programming or return the pump to the last accepted infusion parameters. This is a useful feature when infusion parameters need to be corrected or reinput during the programming sequence.


### Run

When the Run Indicators are blinking, the infusion is running at the entered rate. Pressing **PRIMARY**  or **PIGGYBACK**  will begin an infusion as long as all required parameters are entered. If the RATE or VTBD (Volume To Be Delivered) fields have been left at zero, the pump will alarm and prompt the user to enter a rate or volume to be delivered value.

### Alarm

The pump alarms when an error has occurred in the pumping process or when the Hold Time has been exceeded. During an alarm, the pump stops the infusion and an audible alarm sounds, different from the other audible tones of the pump.

### KVO

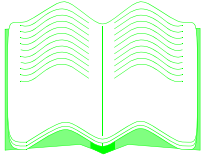
Keep Vein Open (KVO) allows the pump to transition from its primary infusion to a low delivery rate once the volume to be delivered value goes to zero. The pump will sound a KVO alert tone which is different from the other alarm tones. Pressing  will silence the KVO alert tone and stop the infusion. The KVO rates are as follows:

Infusion Rate < 3.0 mL/hr : KVO Rate = last infusion rate

Infusion Rate ≥ 3.0 mL/hr : KVO Rate = 3.0 mL/hr



# CHAPTER 3: INFORMATION SCREEN & MENUS



### IN THIS CHAPTER YOU WILL LEARN:

- What is displayed on the Information Screen during an infusion.
- About the 3 Menus in the pump.

## INFORMATION SCREEN

During an infusion, the Information Screen may display one or more lines of data specific to the infusion. The lines of data displayed are dependent on the Delivery Mode and are described in the individual sections for each Mode.

### Time Left

This displays the hours and minutes required to infuse the volume to be delivered at the current rate. As the rate and volume to be delivered are changed, the Time Left will be recalculated.



NOTE: If the Time Left is greater than 99 hours and 59 minutes, the Information Screen will not display the Time Left =.

### Total Infused

This displays the total volume infused in milliliters since the Total Infused value was last cleared. The Total Infused may be cleared while the pump is running. To clear the Total Infused, see “Clear Total Infused” in Chapter 12: Options.

### Occlusion Limit

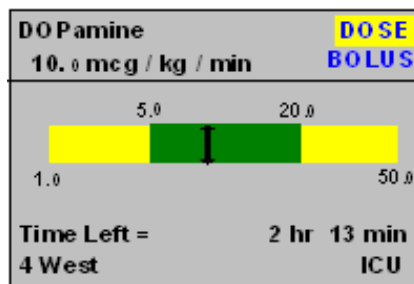
This displays the current Occlusion Limit setting. To change this setting see “Occlusion Limit” in Chapter 12: Options.

### Dose

This displays the current dose value with associated units. To change the current dose, see “Changing DOSE Mode Rate” in Chapter 5: DOSE Mode.

### DoseGuard™ Limits

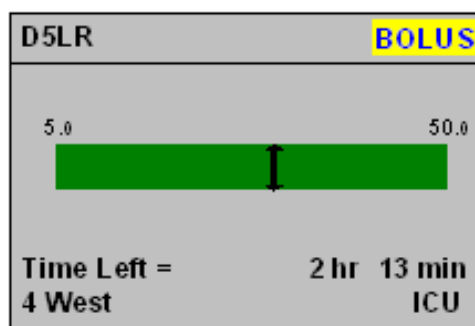
In DOSE Mode, this display indicates the maximum and minimum dosage values assigned to the current drug. Soft Limits will be displayed above the ends of the green indicator bar and Hard limits, if assigned, will be displayed below the ends of the yellow indicator bar. If no DoseGuard limits have been established, a white bar will appear in the with the words “No Limits” displayed. If no hard MIN and MAX values have been programmed only the green indicator bar with associated soft limit values will be displayed.



## Chapter 3: Information Screen & Menus

### RateGuard™ Limits

RateGuard Limits are displayed when a Standard Mode delivery is programmed using solutions from the RateGuard Solution List. The display indicates the maximum and minimum rate values assigned to the current solution. Soft Limits will be displayed above the ends of the green indicator bar and Hard limits, if assigned, will be displayed below the ends of the yellow indicator bar. If no DoseGuard limits have been established, a white bar will appear in the with the words “No Limits” displayed. If no hard MIN and MAX values have been programmed only the green indicator bar with associated soft limit values will be displayed.



### Location Name

The Location Name can be assigned from the Location List. If assigned, the Location Name will be displayed in the lower left corner of the Information Display. If not assigned, this space will be blank.


### Care Area Name

The Care Area Name is assigned via the DoseGuard Drug Library or RateGuard Solution list. If a drug or solution is assigned to the infusion, the Care Area Name will be displayed on the lower right corner of the Information Display. If not assigned, this space will be blank.

## WORKING WITH MENUS

There are three menus in which the special operating modes and other options available in the Outlook® ES may be found.

### Main Menu

The Main Menu is the first menu to appear when  is pressed. This menu usually contains the most frequently accessed modes and options.

### Alternate Menu

Located second from the bottom of the Main Menu is the Alternate Menu. The Alternate





Menu commonly holds items which are less frequently accessed.

### Biomed Options Menu


The Biomed Options Menu is located second from the bottom of the Alternate Menu and contains programming information and settings. The Biomed Options Menu requires an access code and is intended to be accessed only by those authorized to change the settings of the device.

### Accessing Menus

To access Menus complete the following steps:


1. Press  to see the Main Menu list of options.
2. Use the  to move the highlight and scroll through the list.
3. If the option desired is not found in the Main Menu, highlight “Alternate Menu,” then press .
4. Once you have found the desired mode or option, highlight it and press .



NOTE: To exit the Menus quickly, press . This will also stop the infusion.

---



NOTE: To scroll through a Menu a page at a time, press .

---

The following are modes and options which may be configured to either the Main or Alternate Menus. In some cases, the facility may wish to disable a mode or option; the disabled item would not appear in either the Main or Alternate Menus.

Modes
DoseCom™
DoseScan™
DoseGuard™ Drug Library
RateGuard™ Infusion

## Chapter 3: Information Screen & Menus

---

Modes
DOSE Mode
Set Time and Volume
PROFILE Mode
PROGRAM Mode
q(x) Schedule

Options		
<b>Clear Total Infused</b>	Change Alarm Volume	Site Trend
<b>Occlusion Limit</b>	Select MAX Pressure	Calculate BSA
Schedule Next Run	Micro Rate/Limit	Piggyback Callback
Check Battery Level	Hold Extender	

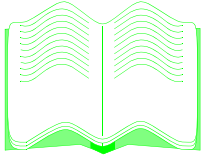


NOTE: Clear Total Infused and Occlusion Limit are not configurable Menu Options. They are assigned to the Main Menu and are displayed in the chart above to indicate their relative position when other Options are assigned to the Main Menu

---

THIS PAGE INTENTIONALLY LEFT BLANK.

# CHAPTER 4: STANDARD & PIGGYBACK MODES

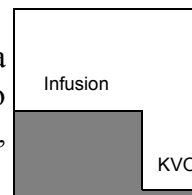





### IN THIS CHAPTER YOU WILL LEARN:





- How to set up a STANDARD (continuous) infusion.
- How to change the rate of an infusion.
- How to change the volume of an infusion.
- How to set up a PIGGYBACK (secondary) infusion.

## STANDARD MODE

STANDARD Mode allows for infusion of fluids when rate and volume to be delivered data is entered. For the Outlook® ES, this delivery is also known as a Basic Infusion. At the end of the infusion, the pump automatically switches to Keep Vein Open in order to maintain IV patency. In this mode, secondary fluid, such as an antibiotic, may be administered using a PIGGYBACK method of delivery. Piggyback infusions are allowed only in STANDARD Mode.



1. Press **PRIMARY CHANNEL INDICATOR** .
2. Use the  keys to enter the rate and volume to be delivered.
3. Press **PRIMARY**  to start the infusion. The green Run Indicators will light up.

	RATE ML/HR	VOLUME TO BE DELIVERED ML	
PRIMARY 	125.0	1000.0	PRIMARY 
PIGGYBACK 			PIGGYBACK 






**WARNING:** After pressing **PRIMARY** , make sure drops are falling in the drip chamber. If no drops are falling, make sure the roller clamp is open. If the roller clamp is open and still no drops are falling, remove and replace the set as it may be defective.



The Time Left, Total Infused, and Occlusion Limit are shown on the Information Screen. Monitor the infusion according to hospital policy. After the infusion is complete, the pump will alarm and go into KVO.

## CHANGING THE RATE

### With Pump Infusing

1. Press the  keys to change the rate.
2. Press  or **PRIMARY**  to confirm new rate.





**NOTE:** If  or **PRIMARY**  is not pressed within 4 seconds of entering a new rate, a series of error beeps will occur and the rate change will be cancelled. The pump will then display the message "Rate change aborted," and will continue to infuse at the old rate. An intermittent alarm will continue to sound to notify the user that a rate change has been attempted and cancelled. Pressing any key will silence the alarm.





## Chapter 4: Standard & Piggyback Modes

### With Pump Stopped

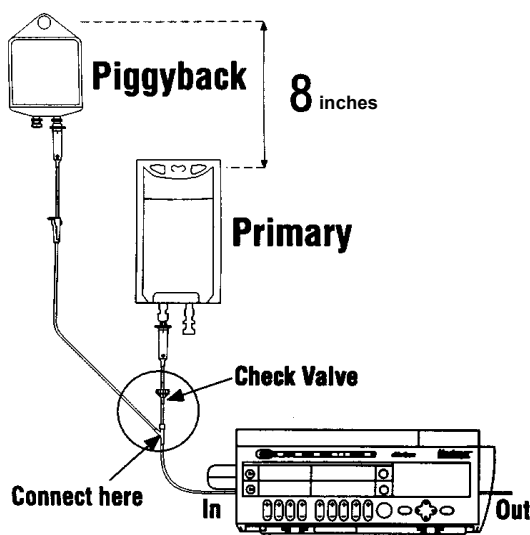
1. Press the  keys to change the rate.
2. Press **PRIMARY**  to start the infusion.

### CHANGING THE VTBD

### With Pump Stopped

1. Press the  keys to change the volume to be delivered.
2. Press **PRIMARY**  to start the infusion.



### PIGGYBACK MODE



1. Prepare IV fluids according to set package. Use primary sets with check valves.
2. Connect the piggyback set to the upper injection site (the site above the pump) on the primary set.
3. Lower the primary bag at least 8 inches.




**NOTE:** To minimize or prevent fluid flow from the primary container during a Piggyback infusion (sympathetic flow), it may be necessary to lower the primary bag more than 8 inches or clamp off the primary tubing. Sympathetic flow increases significantly when the Piggyback rate is greater than 125 mL/hr, and clamping the primary tubing is recommended at rates greater than 125 mL/hr.

4. Press **PIGGYBACK CHANNEL INDICATOR** .
5. Use the  keys to enter the piggyback rate and volume to be delivered.



**NOTE:** To prevent incorrect delivery, the programmed piggyback volume to be delivered must be equal to the amount of fluid in the piggyback container. Piggyback Mode is not intended for the infusion of fluids requiring flushing before or after administration.

6. Press **PIGGYBACK**  to start the infusion.
7. When the VTBD of the Piggyback channel goes to zero, the pump will change back to the Primary channel RATE and VTBD. Make sure the primary tubing is not clamped.



**CAUTION:** Do not attempt to infuse both primary and piggyback fluids simultaneously using this method; sympathetic flow may result. Use primary sets with check valves.



**NOTE:** The pump must be stopped to activate Piggyback Mode.



**NOTE:** If the piggyback container is not empty, the remaining piggyback fluid will be delivered at the Primary channel rate after the pump changes back to the Primary channel.





## RATEGUARD™ INFUSIONS


The Outlook® ES has the ability to assign RateGuard™ rate limits to solutions contained in the Solution Library. Rate limits can be assigned to solutions for both Primary and Piggyback Infusions. Soft rate limits, those that the clinician can override, and hard limits, those rate limits that the clinician cannot override, can be assigned to solutions contained in the Solution Library. Like drugs contained in the DoseGuard™ Drug Library, unique RateGuard limits can be assigned to the same solution in different Care Areas. Additional configuration options are also available for solutions contained in the solution library. On-Demand Bolus capabilities as well as additional scanning options can be configured on a per solution per Care Area basis. For more information on solution configuration options, refer to the Instruction for Use Guide for the Outlook ES Pump Configuration Editor. The following sections will describe the steps required to program solution deliveries with RateGuard Rate Limits:



# Chapter 4: Standard & Piggyback Modes


## Primary Channel RateGuard™ Infusions

To program a Primary Infusion with a Solution Name and RateGuard rate limits, perform the following steps:

1. Press **PRIMARY CHANNEL INDICATOR** .
2. Press **MENU** .
3. Use the  to highlight “RateGuard Infusions,” then press **ENTER** .



MAIN MENU	
DoseScan	
DoseGuard Drug Library	
<b>RateGuard Infusions</b>	
DOSE Mode	
Clear Total Infused	
Change Location	
Cursor  or MENU or ENTER	


4. Use the  to highlight the Care Area desired, then press **ENTER** .



Select Care Area	
<b>ICU</b>	OB/GYN
Anesthesia	Oncology
Med Surg	OR
Emergency	Epidural
Pediatric	-More-
Cursor  or MENU or ENTER	

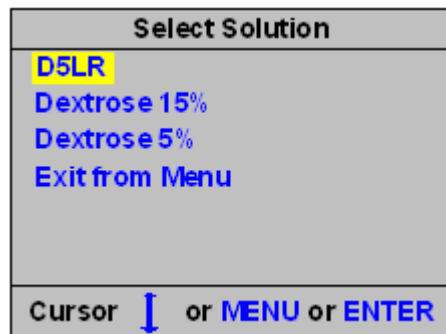



**NOTE:** Pressing **HOLD** in the Select Care Area screen will generate a pop up message that will allow the user to “start over” and/or return the pump to the last accepted infusion parameters.

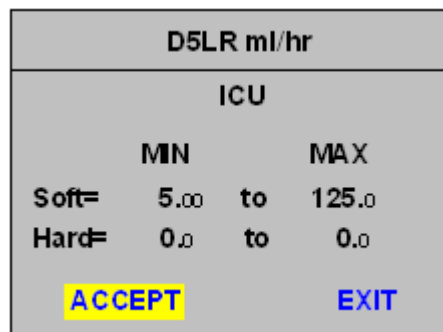
5. Use the  to highlight the first letter of the solution name you wish to infuse, then press **ENTER** .

ICU	SOLN
A B C <b>D</b> E F G H I J	
K L M N O P Q R S	
T U V W X Y Z Other	
Cursor  & Press ENTER	

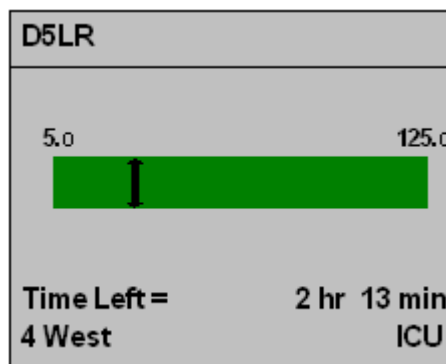
6. Use the  to highlight the solution name, then press  to select the solution.



7. Review the RateGuard limits for the selected solution and press  to ACCEPT.




8. Press **PRIMARY**  to begin the infusion.



NOTE: The Green bar displays the MIN/MAX rate limits for the selected solution. The indicator bar shows the the programmed rate for the infusion and will update dynamically during titration.





NOTE: You can program the Rate and/or VTBD either before or after selecting the solution. If you press  prior to programming either the Rate or VTBD, an error message will be displayed prompting you to program the missing infusion parameter(s).


## Chapter 4: Standard & Piggyback Modes

### Piggyback Channel RateGuard™ Infusions

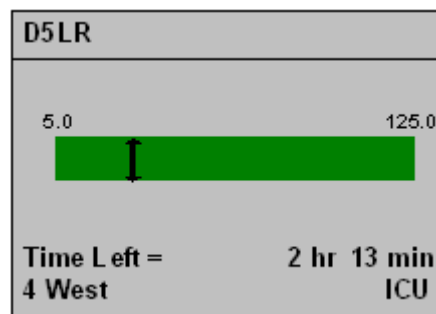
Programming a RateGuard infusion on the Piggyback Channel is identical to the process for the Primary Channel. The only difference is in Step 1. Change Step 1 to read as follows:

1. Press **PIGGYBACK CHANNEL INDICATOR** .
2. Complete the programming process as described in the previous section and press **PIGGYBACK**  to begin the infusion.

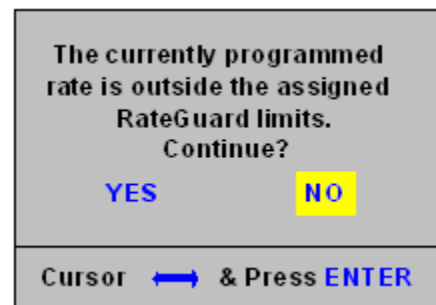
### RATEGUARD™ IN STANDARD MODE

The Outlook® ES is equipped with a special feature which alerts the caregiver when a solution infusion is being set outside the rate parameters specified by the institution. When the user attempts to validate the rate by pressing , the pump will compare the programmed rate against the RateGuard™ minimum and maximum parameters.

If the rate parameters are within the RateGuard limits, a screen similar to the following will be displayed.

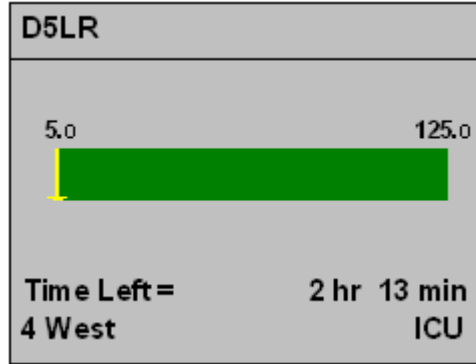


If the values are outside of the set parameters, a pop-up screen will appear with a message:

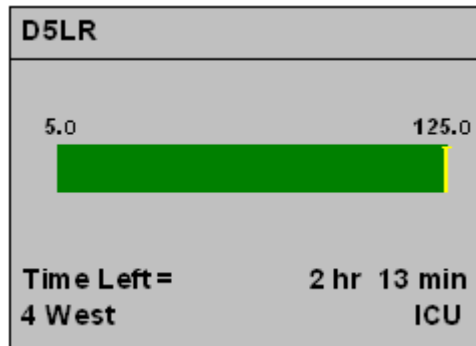


After confirming the parameters are acceptable as entered, the caregiver may then select "YES" to proceed with the infusion. The choice to override the RateGuard™ limit will generate one of the following notification screens:

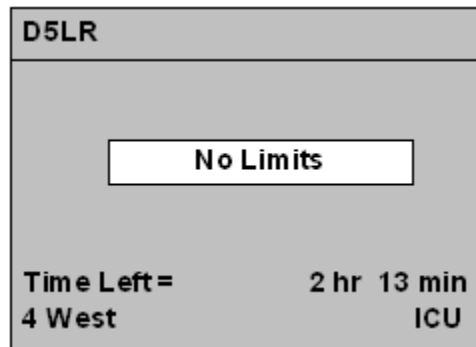
If the rate is less than the minimum RateGuard™ limit, the following screen will appear.




If the rate is greater than the maximum RateGuard limit, the following screen will appear.



If no RateGuard limits have been specified, the following screen will appear.



## ROLLER CLAMP REMINDER

The Roller Clamp Reminder is a configuration option that will remind the user to open the roller clamp on the secondary line prior to starting a piggyback infusion. It is a configuration option in the Biomed Menu that, when activated, will display the Roller Clamp Reminder message as shown below when **PIGGYBACK**  is pressed.

## Chapter 4: Standard & Piggyback Modes

---

---

ROLLER CLAMP REMINDER
1) Lower Primary Bag 2) Raise Secondary Bag 3) OPEN ROLLER CLAMP
Press <b>PIGGYBACK RUN</b>



NOTE: The Roller Clamp Reminder can be configured ON/OFF in the Biomed Options Menu of the pump.

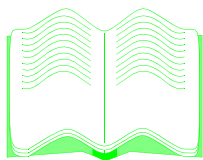
---

Press **PIGGYBACK**  after the Roller Clamp Reminder message is displayed to begin the secondary infusion.

THIS PAGE INTENTIONALLY LEFT BLANK.



# CHAPTER 5: DOSE MODE

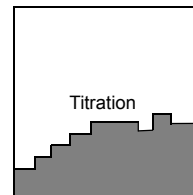


### IN THIS CHAPTER YOU WILL LEARN:

- How to begin a DOSE Mode infusion.
- How to change the dose and have the rate automatically calculated.
- How to change the dosage, concentration and body weight units.
- About cautions and warnings for giving epidural drugs in DOSE Mode.
- What the DoseGuard™ default parameters are.

## DOSE MODE

DOSE Mode calculates the concentration, rate, or dose information necessary with many critical drug infusions. This data may include infusion specific parameters such as patient weight, drug dosage, and drug concentrations. Titration of the medication automatically leads to recalculation of the dosing parameter. The pump contains a library of commonly dosed IV drugs which may be customized into area specific categories and concentrations.







DOSE Mode may be used with or without a drug name label. Displaying the drug name, rate, and dose allows the user to view valuable information. As a safety precaution, DOSE Mode cannot be used with any other operating modes. The user must **ACCEPT** all data entries prior to beginning an infusion.



**NOTE:** DOSE Mode is a calculation and labeling feature only. Physician orders will always govern the appropriate patient dosage.



**NOTE:** DOSE Mode may be placed in either the Main or Alternate Menus.

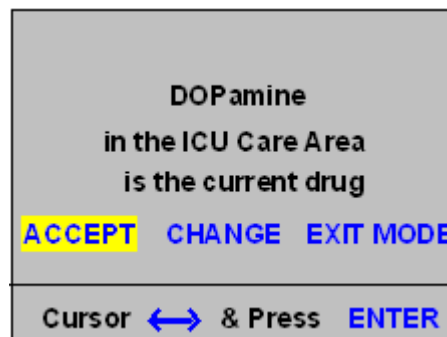
1. Press .
2. Press .
3. Use the  to highlight “DOSE Mode,” then press .

One of two screens will appear, depending on whether or not DOSE Mode was used previously.



**If the pump had the DOSE Mode used previously, a screen similar to the following may appear:**

### TO ACCEPT THE CURRENT DRUG



1. Use the  to highlight “Accept,” then press .
2. See “DOSE DATA ENTRY SCREEN.”




### TO CHANGE TO A DIFFERENT DRUG

1. Use the  to highlight “Change,” then press .

## Chapter 5: DOSE Mode

2. Use the  to highlight the Care Area desired, then press .


Select Care Area	
<b>ICU</b>	OB/GYN
Anesthesia	Oncology
Med Surg	OR
Emergency	Epidural
Pediatric	-More-
Cursor  or MENU or ENTER	





NOTE: Pressing **HOLD** in the Select Care Area screen will generate a pop up message that will allow the user to “start over” and/or return the pump to the last accepted infusion parameters.



HINT: To access the Care Area screen more directly you can use the DoseGuard Drug Library option on the Main Menu as shown below:


MAIN MENU
DoseScan
<b>DoseGuard Drug Library</b>
RateGuard Infusions
DOSE Mode
Clear Total Infused
Change Location
Cursor  or MENU or ENTER

3. Use the  to highlight the first letter of the drug name you wish to infuse.

ICU	DRUG
A B C <b>D</b> E F G H I J	
K L M N O P Q R S	
T U V W X Y Z Other	
Cursor  & Press ENTER	





NOTE: Only those drug names starting with the letters shown in blue are contained in the selected Care Area. Black letters indicate there are no drugs starting with that letter in the Care Area.

4. Use the  to highlight the desired drug name and dosage units, then press



Select Drug
Diltiazem
DOBUtamine
<b>DOPamine</b>
Drotrecogin
Exit from Menu
Cursor ↓ or MENU or ENTER

5. Use the  to highlight the desired concentration, then press .

DOPamine mcg/kg/min		
<b>Conc 1 = 400 mg / 250 ml</b>		
Conc 2 = 800 mg / 250 ml		
	MIN	MAX
Soft =	5.00	20.0
Hard =	1.00	50.0
Cursor ↓ & Press ENTER		

6. See “DOSE DATA ENTRY SCREEN.”



NOTE: Pressing **HOLD** in the concentration screen will generate a pop up message that will allow the user to “start over” and/or return the pump to the last accepted infusion parameters.







NOTE: No data entry can be done on this screen. The concentration may be changed later: see DOSE DATA ENTRY SCREEN.



NOTE: Changing to a different drug can also be performed from the DOSE DATA ENTRY SCREEN; see “TO CHOOSE A DIFFERENT DRUG” on page 38.




### TO CLEAR THE CURRENT DRUG

1. Use the  to highlight “Change”, then press .
2. Use the  to highlight “CLEAR DRUG,” then press .
3. See “DOSE DATA ENTRY SCREEN.”



NOTE: For drugs not appearing on the list, clear the drug name and just use the DATA ENTRY SCREEN.

If this is a new pump or a pump recently serviced by Biomedical Services, a screen similar to the following may appear.

1. Use the  to highlight “DRUG,” then press .
2. Follows steps 2-4 in To Change To A Different Drug above, then press .
3. See “DOSE DATA ENTRY SCREEN.”




DOSE DATA ENTRY		
Body Weight = 0.0 kg		
Conc = 0.0 mg / 0 ml		
Dose = 0.0 mcg / kg / min		
Rate = TOO HIGH		
<b>ACCEPT</b>	DRUG	<b>SETUP</b>

### DOSE DATA ENTRY SCREEN

The DOSE DATA ENTRY SCREEN is the “worksheet” into which the dosing parameters are entered. The fields to be completed will include concentration, dose and units, rate, and may include height and/or weight. All fields may be changed when this screen is active.






**NOTE:** Concentration, dose, and rate are dependent on each other for their numeric values. Specifying the amount of two of the parameters causes the third parameter to be calculated.

1. Use the  to highlight the field to be completed.
2. Use the  keys to enter data.
3. Press  key to move to the next field.

Example:

Specifying a weight of 70 kg, a concentration of 400 mg of DOPamine in 250 ml of fluid at a dose of 10.0 mcg/kg/min results in a calculated rate of 26.3 ml/hr.

4. Use the  to highlight “ACCEPT,” then press .
5. Press **PRIMARY**  to begin the infusion.

DOSE DATA ENTRY		
DOPamine		ICU
4 WEST		
Body Weight = 70.0 kg		
Conc = 400.0 mg / 250 ml		
Dose = 10.0 mcg / kg / min		
Rate = 26.3 ml / hr		
<b>ACCEPT</b>	DRUG	<b>SETUP</b>







**NOTE:** Pressing **HOLD** in the Dose Data Entry screen will generate a pop up message that will allow the user to “start over” and/or return the pump to the last accepted infusion parameters.





**NOTE:** Concentration, Dose, and Rate are dependent on each other for their numeric values. Specifying the amount of two parameters causes the third parameter to be calculated. Either the Concentration (Conc), Dose, or Rate parameter is calculated. Rate is the parameter calculated unless another parameter is chosen.

### TO CHOOSE ANOTHER PARAMETER TO BE CALCULATED






1. Use the left  to highlight the parameter to be calculated (Conc, Rate, or Dose).
2. Press the right  . An underline will appear under the parameter to be calculated.
3. Use the  keys to enter data in all other required fields.
4. Press  key to move to the next field.

### TO CHOOSE A DIFFERENT DRUG

1. Use the  to highlight “DRUG” then press  .
2. Follow steps 2-5 in “To Change To A Different Drug” on page 34.

### TO CHANGE UNITS ON THE DATA ENTRY SCREEN




Critical medications require units for calculation of doses, for example mcg/mg/min. Three categories of units are Dosage, Concentration (Conc), and Body. Each of these can be independently selected and changed. Match the dosage and concentration as ordered by the physician.

1. Use the  to highlight “SETUP,” then press  .
2. Use the left and right  keys to highlight the parameter to be changed.
3. Use the up and down  keys to change the parameter.
4. Press  .



<u>DOSE</u>	<u>CONC</u>	<u>BODY</u>
mcg/kg/min	mg	kg
↓ change	↔ move	
Press <b>ENTER</b> When Done		

## CHANGING DOSE MODE RATE

The rate may be titrated while the pump is infusing.








1. Use the  keys to change the rate. The dose will be recalculated depending on the new rate entered.
2. Press  or **PRIMARY**  to confirm the new rate and dose and begin the infusion.

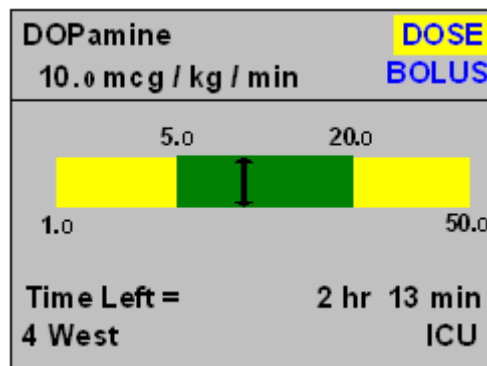


NOTE: If  or **PRIMARY**  is not pressed within 4 seconds of entering a new rate and dose, a series of error beeps occurs and the rate/dose change is cancelled. The pump then displays the message “Rate change aborted,” and continues to infuse at the old rate. An intermittent alarm continues to sound to notify the user a rate change was attempted and cancelled. Pressing any key will silence the alarm.

## CHANGING DOSE MODE DOSE

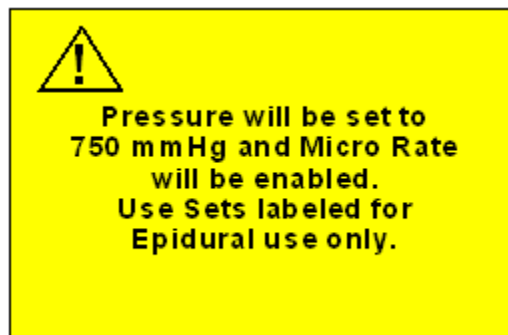
The dose can be titrated while the pump is infusing.

1. Use the  to highlight the DOSE field in the upper right corner of the Information Screen, then press .
2. On the DOSE DATA ENTRY SCREEN, use the  to highlight the Dose field.
3. Use the  keys to change the dose, then press .
4. Use the  to highlight “ACCEPT,” then press . The rate will be recalculated depending on the new dose entered.



## EPIDURAL IN DOSE MODE

When the Epidural category from the Drug List is selected, the following screen will appear:



**CAUTION:** Whenever a pump is used for epidural infusion, the pump's secondary features should not be used.



**CAUTION:** To prevent inadvertent infusion of drugs which are not indicated for epidural use, only Horizon® micro-bore administration sets without injection sites are specified for epidural administration of drugs.

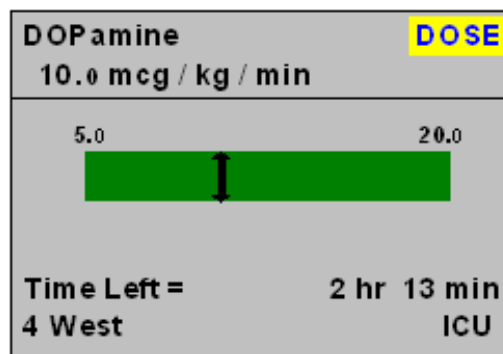


**WARNING:** Serious injury to the patient may result from epidural administration of drugs other than those specifically labeled for epidural use.

## DOSEGUARD™ IN DOSE MODE

The Outlook® ES is equipped with a special feature which alerts the caregiver when a dosed infusion is being set outside the infusion parameters specified by the institution. When the user attempts to validate the Dose Data Entry screen, the pump will compare the entered dose values against the DoseGuard™ minimum and maximum parameters.

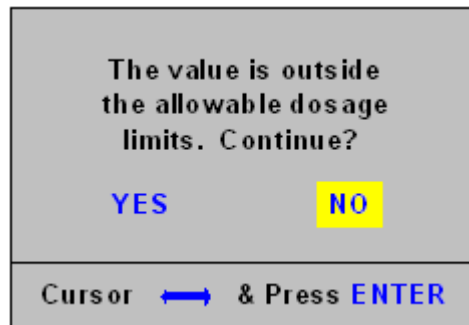
If these dose parameters are within the DoseGuard limits, a screen similar to the following will be displayed.





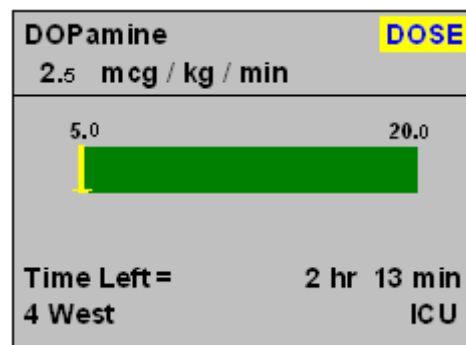
## Chapter 5: DOSE Mode

If the values are outside of the set parameters, a pop-up screen will appear with a message:

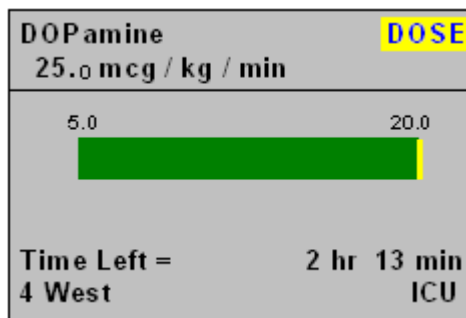


After confirming the parameters are acceptable as entered, the caregiver may then select “YES” to proceed with the infusion. The selection to override the DoseGuard™ limit will generate one of the following notifications screens:

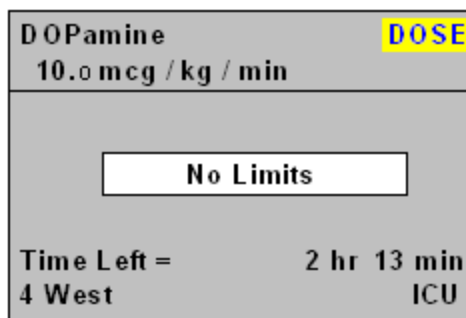
If the dose value is less than the minimum DoseGuard limit, the following screen will appear.



If the dose value is greater than the maximum DoseGuard™ limit, the following screen will appear.



If no DoseGuard limits have been specified, the following screen will appear.





NOTE: Changes to accepted infusion parameters made in the DOSE Mode Data Entry or SETUP screen (e.g. concentration units, patient weight units, etc.) may deactivate the DoseGuard feature. If this occurs, the user will be notified via pop-up alert.

## ACCESSING DOSE MODE WHEN INFUSING

DOSE Mode can be accessed while the pump is running in STANDARD Mode. This option can be used to assign a drug label and dose to the current infusion. The STANDARD Mode rate will be the default parameter in the DOSE Mode Data Entry screen.

The dose will be calculated based on the Drug and Concentration selected. Once confirmed and accepted, the infusion will continue to run at the programmed rate.






NOTE: This option is not available if there are no drugs configured in the Drug Library or if the STANDARD Mode rate is greater than the micro-rate limit when a drug is selected from the Epidural category.

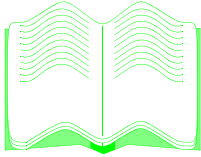


NOTE: Confirming a dose outside the assigned DoseGuard limits will generate the DoseGuard Alert pop-up message.

## EXITING DOSE MODE

1. Press  .
2. Use the  to highlight “Exit DOSE Mode,” then press  .

# CHAPTER 6: BOLUS DELIVERY MODES



### IN THIS CHAPTER YOU WILL LEARN:

- How to perform a bolus delivery
- How to program a loading dose
- How to program an on-demand bolus for a drug
- How to program an on-demand bolus for a solution.
- How to place a bolus on Hold.
- How to cancel a bolus delivery
- How to change the dosage, concentration and body weight units.
- About cautions and warnings for bolus deliveries using drugs and solutions in the Epidural Care Area.

## BOLUS DELIVERIES

The Outlook® ES allows for programming bolus deliveries for both drugs contained in the DoseGuard™ Drug Library and solutions contained in the RateGuard™ Solution List. For more information on how to configure drugs and solutions for bolus delivery, refer to the Instructions for Use manual of the Outlook ES Pump Configuration Editor application. The following rules govern the use of the Bolus function:

1. Both Loading Dose and On-Demand bolus deliveries can be configured for drugs contained in the DoseGuard Drug Library
2. Dose units for bolus deliveries for drugs configured in the DoseGuard Drug Library can be the same or different dosing units than the continuous infusion.
3. Unique DoseGuard dose limits can be assigned to both a Loading Dose and On-Demand bolus.
4. Only On-Demand bolus deliveries can be configured for solutions contained in the RateGuard Solution List.
5. All units for bolus deliveries of solutions configured in the RateGuard Solution List are in ml/hr.
6. Unique RateGuard rate limits can be assigned to On-Demand solution bolus deliveries.
7. The time unit for all bolus programs is Min(utes).
8. Range checking for DoseGuard dose limits and RateGuard rate limits is performed after confirming the Total Dose or Total Volume values for the respective bolus.

## LOADING DOSE



The Loading Dose option will allow you to automatically deliver a specific dose of medication over a given period of time before beginning the continuous infusion.

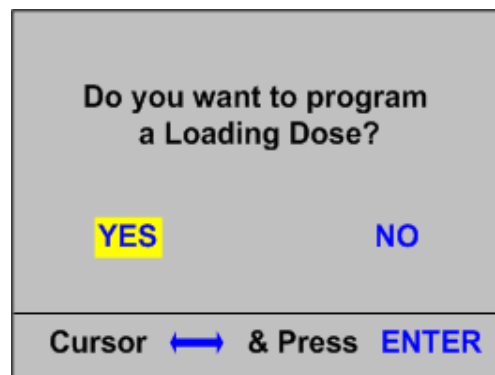


**NOTE:** Valid infusion parameters must be entered for the continuous infusion prior to programming dose and time data for a loading dose.


If a drug is configured for a Loading Dose, the following screen will be displayed when you ACCEPT the continuous infusion data and press

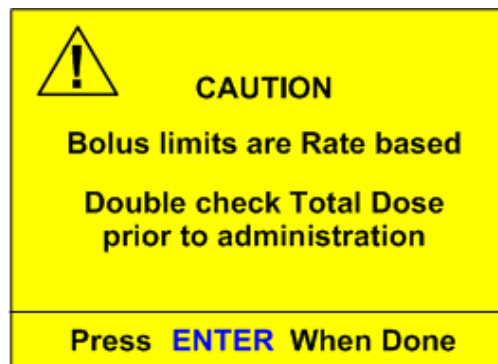


1. Use  to highlight YES.
2. Press .



## Chapter 6: Bolus Delivery Modes

- The following message will be displayed to remind you to confirm the Total Dose value that you programmed per the Physician Order.
- Press  and the Loading Dose Setup screen will be displayed.



### LOADING DOSE SETUP

Loading doses can be programmed with or without patient weight units. The loading dose can also be the same or different dosing units than the continuous infusion. Unique soft/hard DoseGuard™ dose limits can also be assigned for loading Dose Deliveries. Examples of the Loading Dose Setup Screens with and without patient weight units are shown below:

LOADING DOSE SETUP	
Tot Dose =	1.5 mg/kg
Time =	0 min
Pt Wt =	0 kg
Eq Dose =	0.0 mg/kg/min
Soft =	1.0 15.0
Hard =	0.0 0.0
ACCEPT	BACK

LOADING DOSE SETUP	
Tot Dose =	15.0 mg
Time =	0 min
Eq Dose =	0.0 mg/min
Soft =	10.0 50.0
Hard =	0.0 0.0
ACCEPT	BACK











NOTE: If the continuous infusion is weight-based, the Pt Wt (Patient Weight) field is pre-populated with the value from the continuous infusion. You will not be able to change this value.




NOTE: If the continuous infusion is not weight-based but the loading dose contains a Pt Wt (Patient Weight) field, the user must input the patient weight (in kg) to complete the Loading Dose Setup screen.

To program a Loading Dose:


- Press  to enter a Tot Dose (Total Loading Dose).
- Press  to highlight Time.

3. Press  to enter a Time (in minutes).
4. If applicable, press  to highlight the Pt Wt (Patient Weight) field.
5. Press  to enter the patient weight in kg.
6. Press  to highlight ACCEPT or...
7. Press  to highlight BACK
8. Press  to confirm your selection.


---

 NOTE: "Eq Dose" is defined as the Equivalent Dose. This is a calculated value derived from the data entered in the Loading Dose Setup screen.

---

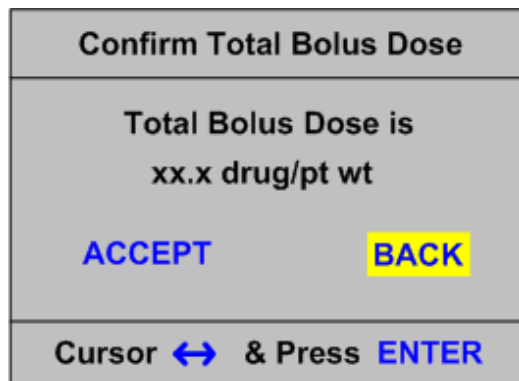
 NOTE: The DoseGuard<sup>™</sup> dose limits for the Loading Dose are in the same units as the Eq Dose or Equivalent Dose.




---

 NOTE: Selecting BACK will cancel the Loading Dose delivery and return the screen to the previous continuous infusion display.

---

9. If the equivalent dose is within the limits will display the following confirmation screen:



10. Press  to highlight ACCEPT or...
11. Press  to highlight BACK
12. Press  to confirm your selection.

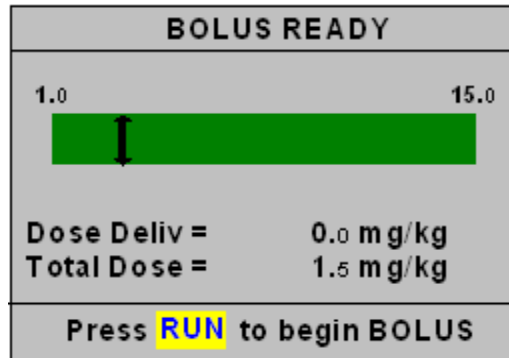
# Chapter 6: Bolus Delivery Modes



NOTE: Selecting BACK will cancel the Loading Dose delivery and return the user to the Bolus Setup screen.

## BOLUS READY SCREEN

When the loading dose parameters are confirmed, the pump will display the BOLUS READY screen as shown below. For this example we are assuming a weight-based loading dose.



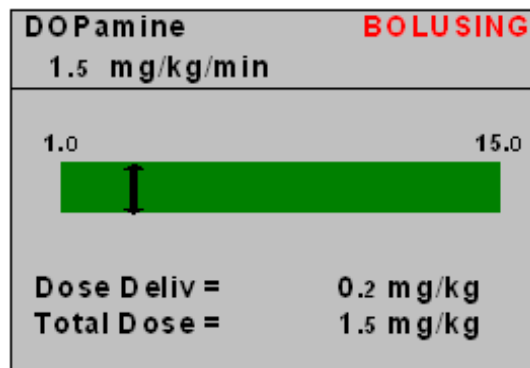
NOTE: The Dose Deliv(ered) for the Loading Dose will count *UP* from 0.0 with the Total Dose value is the programmed dose for the bolus and will remain static.

To start the Loading Dose:

1. Press **PRIMARY** .

## BOLUS RUN SCREEN

After starting the Loading Dose, a screen similar to the one shown below will be displayed:





NOTE: The drug name and the bolus dose will be displayed with the proper bolus units



NOTE: DoseGuard™ indicators specific to the loading dose will be displayed on the indicator bar.








NOTE: During a Loading Dose or On-Demand bolus, the word **BOLUSING** will appear in upper right hand corner of the display




NOTE: Although not shown in the example above, the drug name on the Red LCD and the word “Bolusing” will alternately be displayed until the bolus delivery is complete.

## BOLUS HOLD SCREEN

To pause the bolus delivery perform the following steps:

1. Press  to pause the bolus.
2. Press  to RESUME the delivery.
3. If applicable, press  to highlight CANCEL.
4. Press  to cancel the bolus.
5. Press  to start the selected infusion.

An example of the Bolus Hold Screen is shown below:

BOLUS HOLD	
Bolus Vol Deliv =	2.5 ml
Total Bolus Vol =	15.0 ml
Time Left =	0 min 52 sec
<b>RESUME</b>	<b>CANCEL</b>
Cursor  & Press <b>ENTER</b>	



NOTE: Canceling the bolus will return the infusion to the continuous infusion parameters and associated display.

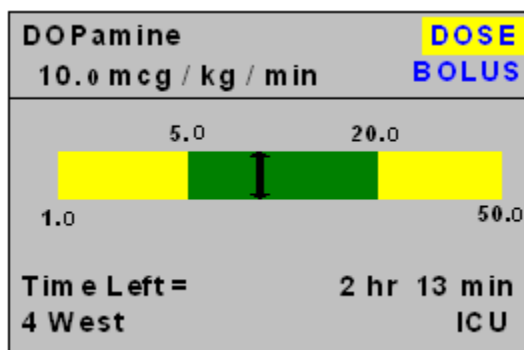


## Chapter 6: Bolus Delivery Modes

### ON-DEMAND BOLUS

The Outlook® ES also allows for programming both weight based and non-weight based “on-demand” bolus deliveries for both drugs contained in the DoseGuard™ Drug Library. In contrast to a loading dose, on-demand boluses are those boluses initiated during the course of the continuous infusion. Like Loading Dose, the On-Demand Bolus can be pre-programmed with the same or different dosing units as the continuous infusion. Unique, soft and hard DoseGuard™ dose limits can also be assigned to the On-Demand bolus. For more information on how to configure drugs and solutions for On-Demand bolus delivery, refer to the Instructions for Use manual of the Outlook ES Pump Configuration Editor application.



A drug has been configured for an On-Demand Bolus if the word **BOLUS** appears below the word **DOSE** in the DOSE Mode Run screen. See the example below:

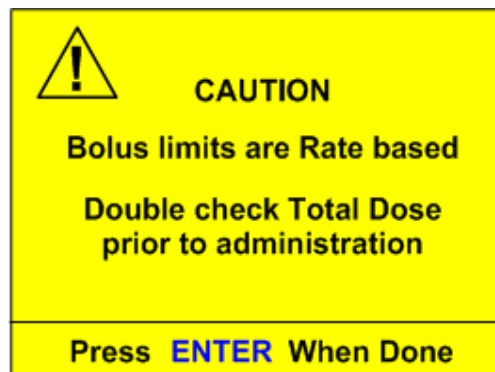



The process to configure an On-Demand Bolus is very similar to the programming of a Loading Dose. Many of the screens have the same look and feel and provide for consistent bolus programming between the different bolus types. The next section will describe the steps in detail.

### PROGRAMMING A BOLUS

To program an On-Demand Bolus complete the following steps:

1. Use  to highlight **BOLUS**.
2. Press .
3. The following message will be displayed to remind you to confirm the Total Dose value that you program per the Physician Order.



4. Press  and the Bolus Setup screen will be displayed.
5. Complete the programming sequence as previously described in the LOADING DOSE sections of this Manual.

BOLUS SETUP	
Tot Dose =	■■■ 1.5 mg/kg
Time =	0 min
Pt Wt =	0 kg
Eq Dose =	0.0 mg/kg/min
Soft =	1.0      15.0
Hard =	0.0      0.0
ACCEPT	BACK



NOTE: If a bolus for the drug had been previously programmed, the BOLUS SETUP screen will be pre-populated with the previous values. Amend the values as required for the new bolus delivery.

## RATEGUARD™ BOLUS

On-Demand bolus deliveries can also be initiated for solutions contained in the RateGuard™ solution list. Unique soft and hard RateGuard rate limits can be assigned to the solution bolus. If a solution is configured for a (On-Demand) bolus, the word **BOLUS** will appear on the continuous infusion run screen as shown below:



NOTE: Loading Dose Bolus deliveries are not configurable for solutions contained in the RateGuard solution list.












NOTE: All infusion parameters for RateGuard solutions and (On-Demand) bolus deliveries will be in ml/hr.

D5LR		BOLUS
5.0	<div style="background-color: green; width: 100%; height: 20px; position: relative;"> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 10px;">I</div> </div>	50.0
Time Left =	2 hr 13 min	
4 West	ICU	

To Program a solution bolus, complete the following steps:

## Chapter 6: Bolus Delivery Modes

1. Press .
2. The following message will be displayed to remind you to confirm the Total Volume that you program per the Physician Order.
3. Press  and the Bolus Setup screen will be displayed.
4. The Bolus Setup screen requires a total bolus volume and time.
5. Press  to enter a bolus volume.
6. Press  to highlight Time.
7. Press  to enter the duration of the bolus in minutes.
8. Press  to highlight ACCEPT or...
9. Press  to highlight BACK.
10. Press  to confirm your selection.

 **CAUTION**

**Bolus limits are Rate based**

**Double check Total Volume prior to administration**

Press **ENTER** When Done

**BOLUS SETUP**

Volume = 15.0 ml

Time = 0 min


Rate = 0.0 ml/hr

Soft = 5.0                      50.0

Hard = 0.0                      0.0


ACCEPT                                      BACK

---

 NOTE: The bolus delivery rate is a calculated field derived from the volume and time data entered.

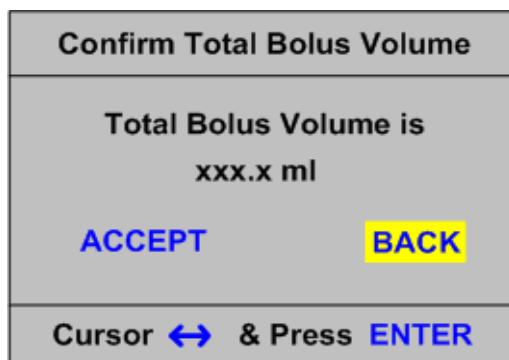
---


---

 NOTE: Selecting BACK will cancel the bolus delivery and return the screen to the previous continuous infusion display.


---

11. Pressing ACCEPT will display the following confirmation screen:



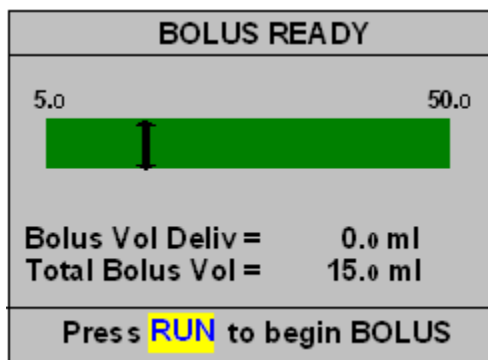
12. Press  to highlight ACCEPT or...

13. Press  to highlight BACK


14. Press  to confirm your selection.

## BOLUS READY SCREEN

When the bolus parameters are confirmed, the pumps will display the BOLUS READY screen as shown below:




---

 NOTE: The Bolus Vol(ume) Deliv(ered) counts UP from zero while the Total Bolus Vol(ume) is the programmed volume for the bolus and will remain static.

---

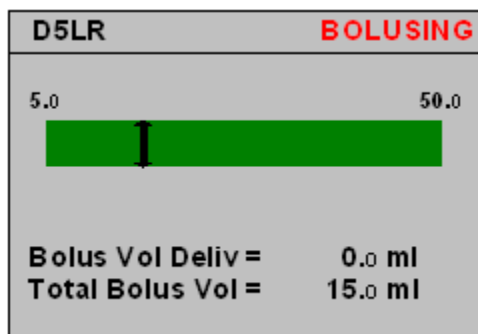
To start the bolus:

1. Press  .

## Chapter 6: Bolus Delivery Modes

### BOLUS RUN SCREEN

After initiating the bolus, the Bolus Run Screen shown below will be displayed:



NOTE: DoseGuard™ indicators specific to the bolus will be displayed on the indicator bar.








NOTE: During a bolus, the word **BOLUSING** will appear in upper right hand corner of the display




NOTE: Although not shown in the example above, the solution name on the Red LCD and the word “Bolusing” will alternately be displayed until the bolus delivery is complete.

### BOLUS HOLD SCREEN

To pause the bolus delivery perform the following steps:

1. Press  to pause the bolus.
2. Press  to RESUME the delivery.
3. If applicable, press  to highlight CANCEL.
4. Press  to cancel the bolus.
5. Press  to start the selected infusion.

An example of the Bolus Hold Screen is shown below:

BOLUS HOLD	
Bolus Vol Deliv =	2.5 ml
Total Bolus Vol =	15.0 ml
Time Left =	0 min 52 sec
<b>RESUME</b>	<b>CANCEL</b>
Cursor  & Press <b>ENTER</b>	

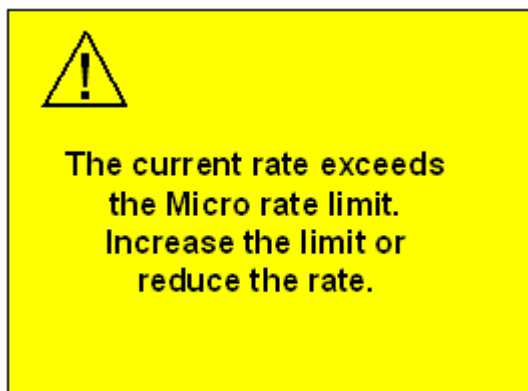


NOTE: Canceling the bolus will return the infusion to the continuous infusion parameters and associated display.

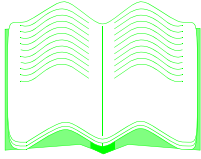
---

### EPIDURAL BOLUS CAUTION

The Micro Rate Limit feature is automatically invoked when a drug or solution is programmed from the Epidural Care Area of the Drug Library. The Micro Rate Limit feature limits the delivery rate of either the continuous infusion or bolus delivery to a maximum of 99.9 ml/hr. Your facility may have set a lower Micro Rate limit. It also automatically increases the delivery pressure to 750 mmHg. If the programmed rate exceeds the Micro Rate limit a warning screen will be displayed similar to the screen shown below:



# CHAPTER 7: DOSESCAN™



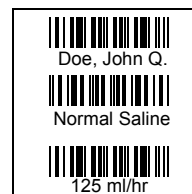
## IN THIS CHAPTER YOU WILL LEARN:

- How to set up an infusion using DoseScan™.

## DOSESCAN™ (OUTLOOK® 200ES AND ABOVE)

The DoseScan™ safety feature was designed to reduce the potential for IV medication errors by reducing the number of manual keystrokes required to program infusion parameters. This is especially beneficial when infusing critical medications that require the use of more advanced programming features like those contained in DOSE Mode.

DoseScan activates either the bar code scanner located in the handle of the pump or an optional hand held scanner. Information contained on the bar coded drug label will be used to configure the infusion in STANDARD Mode (Primary and Piggyback infusions), or DOSE Mode. The facility has the option to choose if an Authorized User ID and Patient ID are required for data entry. The pump only prompts the user to scan in required information.






**NOTE:** The DoseScan™ option can only be activated while the pump is in either STANDARD or DOSE Mode Hold state.



Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

## FOR STANDARD MODE & DOSE MODE INFUSIONS

1. Press .
2. Use the  to highlight "DoseScan™" then press .



**NOTE:** If the hand held scanner is used, press the trigger on the scanner after each line is successfully scanned. The scanner will only remain active for 30 seconds. If the scanner turns off, the user will need to reactivate the scanner.



**NOTE: SCANNING SEQUENCE:**





- 1) Authorized User ID, and/or
- 2) Patient Identification, and/or
- 3) Patient Identification on Medication Label, and/or
- 4) Medication Information



**NOTE:** An audible tone will sound after all the data is scanned to confirm the data has been accepted.

3. Scan Authorized User identification.








- The Information Display will ask if this is a new patient. Use the  to highlight either “YES” or “NO”, then press .
- Scan Patient identification.
- Scan Patient identification information on the medication label.
- Scan the IV medication data on the medication label. The infusion data will be displayed on the Information Display.
- Review the data, highlight “ACCEPT”, then press .
- Press  to start the infusion.



NOTE: Any modifications made to the infusion parameters after accepting scanned bar code data may result in the deactivation of certain features (e.g. DoseGuard™ dose limits, drug name display, etc.).

### FOR PIGGYBACK INFUSIONS

- Scan in Primary Infusion data as directed above.
- Press **PIGGYBACK CHANNEL INDICATOR** .
- Press .
- Use the  to highlight “DoseScan™,” then press .
- Follow steps 4-8 in STANDARD & DOSE Mode Infusions above to scan in the Piggy-back infusion data.
- Press **PIGGYBACK** .

### FOR LABELS WITH "0.0" AND "TITRATE" BAR CODES

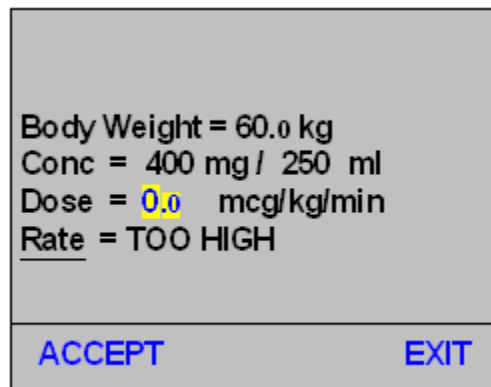
The DoseScan™ feature has the ability to accept both 0.0 and Titrator bar codes in those cases where the starting infusion rate or dose has not been specified. After completing the scanning sequence described in the previous section, one of the following validation screens will appear.

Rate = 0.0 ml/hr VTBD= 250.0 ml	
ACCEPT	EXIT

If either the starting infusion rate or dose is 0.0, the appropriate field will be highlighted when the scan is complete. The following steps should be completed to proceed with the infusion programming sequence.

1. Enter a valid, non-zero value for rate or dose (as applicable)

2. Use the  to highlight "Accept", then press



NOTE: The highlight cursor will return to the appropriate rate or dose field if the 0.0 value has not been changed to a valid, non-zero value.

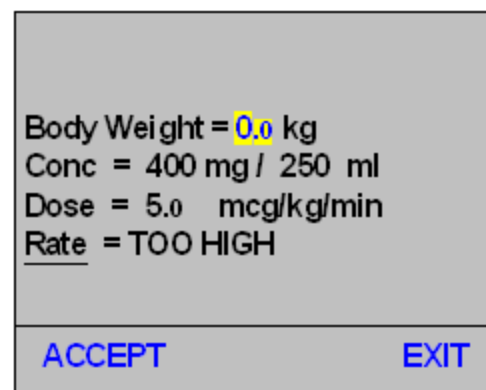
## FOR LABELS WITH "0.0" FOR PATIENT WEIGHT

The DoseScan™ feature also has the ability to accept a 0.0 (zero) value for patient weight in those cases where the patient weight has not been specified. After completing the scanning sequence described in the previous section, the following validation screens will appear.

The following steps should be completed to proceed with the infusion programming sequence.

1. Enter a valid, non-zero value for Body Weight.


2. Use the  to highlight "Accept", then press




NOTE: The highlight cursor will return to the weight field if the 0.0 value has not been changed to a valid, non-zero value.




## TITRATION CHECKING


The DoseScan™ feature also has the ability to check scanned information with the previous infusion parameters. This is especially useful in those circumstances where multiple bags of the same medication are sent to the care unit for sequential delivery. Changes in rate or dose could be an indication of a titration. Titration checking provides a means to confirm the proper rate or dose for the scanned medication. The process is completed as follows:

1. Scan the IV medication label as described in the DoseScan™ section outlined on page 26.
2. Enter a valid, non-zero value for rate or dose if applicable.
3. Validate the scanned information by moving the Cursor to Accept and press .
4. The titration checking routine commences as follows:


### For Standard Mode Deliveries




- If the Patient ID and Drug Name match the previous infusion information, the rate value is compared.
- If the rate values are equal, the rate and VTBD are displayed as scanned and the infusion can be started by pressing .
- If the rate values are not equal, the following Titration Alert will be displayed:


1. Use the  to highlight the correct rate, then press .
2. Begin the infusion by pressing .

Titration Alert	
Rate Was	Input Is
50.0	80.0
ml/hr	
Cursor  & Press <span style="color: blue; font-weight: bold;">ENTER</span>	

### For Dose Mode Deliveries

- If the Patient ID, Drug Name, Dose units, and Drug Concentration match the previous infusion information, the dose value is compared.
- If the dose values are equal, the scanned information is displayed and the infusion can be started by pressing .
- If the dose values are not equal, the following Titration Alert will be displayed:

1. Use the  to highlight the correct dose, then press .
2. Begin the infusion by pressing .

Titration Alert	
Dose Was	Input Is
50.0	80.0
mcg/kg/min	
Cursor  & Press <span style="color: blue; font-weight: bold;">ENTER</span>	

## DOSEGUARD™ MATCHING

The DoseScan™ feature provides the clinician the ability to assign DoseGuard™ dose limits to scanned medications. For more information on DoseGuard, refer to “DoseGuard™ in DOSE Mode” on page 40.

If the DoseGuard Matching feature is turned ON under DoseScan options in the BIOMED menu, scanned medications will be compared with those medications configured in the drug library. If DoseGuards are assigned to those medications, the dose limits or Care Areas will be displayed for selection and assignment.

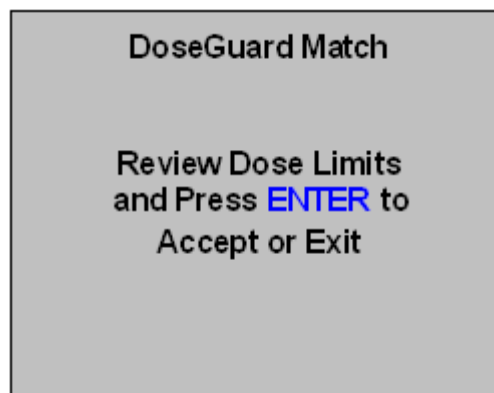
If the scanned solution is not contained in the drug library or there are no DoseGuards assigned, the following screen will be displayed.

- Choosing “Accept” will accept the scanned data without DoseGuard protection.
- Choosing “Exit” will reject all the scanned data.

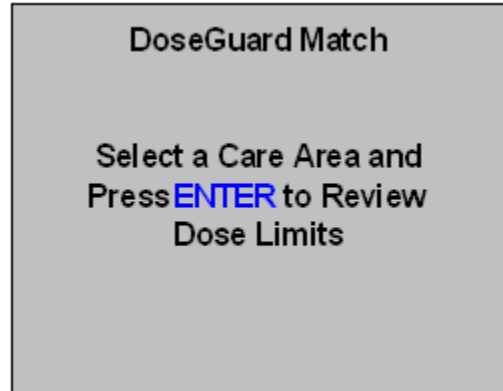


If, however, the scanned drug matches the name, concentration and dose units of a medication configured in the drug library, one of the following notification messages will be displayed.

This message will be displayed if the scanned drug matches a medication in a configured Care Area.



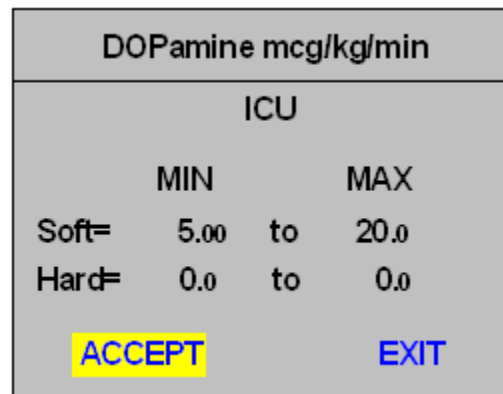
This message will be displayed if the scanned drug matches a medication configured in more than one Care Area.



### Single Care Area Match



If the scanned drug matches a medication configured in one Care Area, the Care Area, drug name, and dose limits will be displayed for selection by the clinician. A screen similar to the following will be displayed.


- Choosing “Accept” will assign the programmed DoseGuards to the scanned medication.
- Choosing “Exit” will generate the notification message shown.



### Multiple Care Area Match

If the scanned drug matches a medication configured in multiple Care Areas, the Care Areas will be displayed for viewing and selection. A screen similar to the one shown will be displayed.

- Use the  to highlight the appropriate Care Area.
- Press  to review the Dose limits.

Select Care Area	
ICU	OB/GYN
Anesthesia	Oncology
Med Surg	OR
Emergency	Epidural
Pediatric	--More--
Cursor  or MENU or ENTER	

Once a Care Area is selected, the clinician has the ability to “Accept” or “Exit” as described in the Single Care Area Match.

The clinician also has the option to go “Back” to choose another Care Area to review alternate dose limits as shown in the example screen.

DOPamine mcg/kg/min			
ICU			
	MIN		MAX
Soft=	5.00	to	20.0
Hard=	0.0	to	0.0
BACK	ACCEPT		EXIT



NOTE: The pump will transition into the KVO state when the infusion has been completed. Pressing HOLD to silence the KVO alarm will deactivate the drug name display if no DoseGuard™ match exists or if no DoseGuard limits have been assigned to the scanned medication.

### RATEGUARD™ MATCHING

DoseScan feature provides the clinician the ability to assign RateGuard™ rate limits to scanned medications. For more information on RateGuard, refer to “DoseGuard™ in DOSE Mode” on page 40.

If the RateGuard Matching feature is turned ON under DoseScan options in the BIOMED menu, scanned medications will be compared with those medications configured in the solution list. If RateGuards are assigned to those solutions, the rate limits or Care Areas will be displayed for selection and assignment.

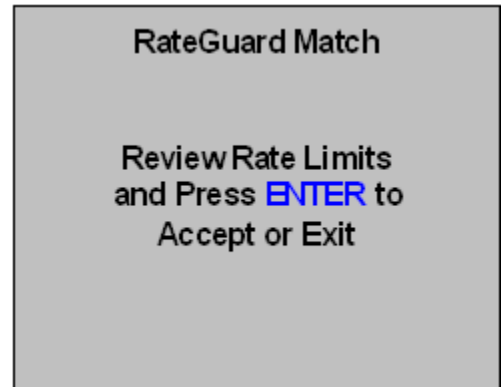
If the scanned solution is not contained in the solution list or there are no RateGuards assigned, the following screen will be displayed.

- Choosing “Accept” will accept the scanned data without RateGuard™ protection.
- Choosing “Exit” will reject all the scanned data.

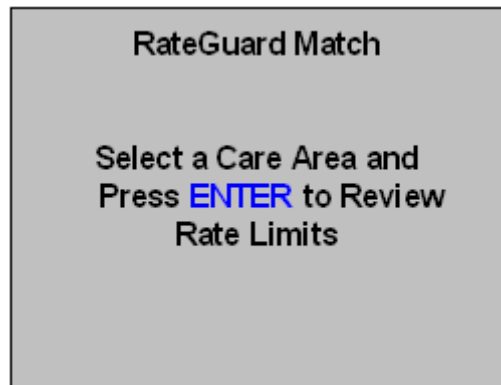


If, however, the scanned solution matches the name of a solution configured in the solution list, one of the following notification messages will be displayed.

This message will be displayed if the scanned solution matches a solution in a configured Care Area.



This message will be displayed if the scanned solution matches a solution configured in more than one Care Area.



### Single Care Area Match

If the scanned solution matches a solution configured in one Care Area, the Care Area, solution name and rate limits will be displayed for selection by the clinician. A screen similar to the following will be displayed.

- Choosing “Accept” will assign the programmed RateGuards to the scanned solution.



D5LR ml/hr			
ICU			
	MIN	to	MAX
Soft=	50.00	to	200.0
Hard=	0.0	to	0.0
<b>ACCEPT</b>		<b>EXIT</b>	


- Choosing “Exit” will generate the notification message shown.

	
<b>WARNING</b>	
No RateGuards Assigned	
<b>ACCEPT</b> <b>EXIT</b>	

### Multiple Care Area Match

If the scanned solution matches a solution configured in multiple Care Areas, the Care Areas will be displayed for viewing and selection. A screen similar to the one shown will be displayed.

- Use the  to highlight the appropriate Care Area.
- Press  to review the Rate limits.

Select Care Area	
<b>ICU</b>	OB/GYN
Anesthesia	Oncology
Med Surg	OR
Emergency	Epidural
Pediatric	--More--
Cursor  or <b>MENU</b> or <b>ENTER</b>	



Once a Care Area is selected, the clinician has the ability to “Accept” or “Exit” as described in the Single Care Area Match.

The clinician also has the option to go “Back” to choose another Care Area to review alternate RateGuard™ limits as shown in the example screen.

D5LR ml/hr		
ICU		
	MIN	MAX
Soft=	50.00	to 200.0
Hard=	0.0	to 0.0
<b>BACK</b>	<b>ACCEPT</b>	<b>EXIT</b>



Note: The pump will transition into the KVO state when the infusion has been completed. Pressing HOLD to silence the KVO alarm will deactivate the drug name display if no RateGuard™ match exists or if no RateGuard limits have been assigned to the scanned medication.

### ADDITIONAL SCAN FEATURES

The Outlook® 200ES and above have additional scan features that can be configured individually or in tandem with other scan options. Some features are Menu configurable and some are configurable per drug or solution per Care Area to enable specific scans for individual drugs. These features are enabled outside the standard DoseScan™ steps and can help add bar code safety to your infusion programming protocols. The following sections list those additional scan features and provide instructions on how to access and perform each function.

#### Scan Patient ID

The Scan Patient ID feature is located in the Main Menu. The purpose of this Scan is to ‘attach’ or associate a Patient ID with a specific infusion. The Patient ID is stored in the data log of the pump and is transmitted as part of the outbound data stream in the Outlook 300ES and 400ES. To Scan Patient ID, perform the following steps:

1. Press to place pump on Hold.
2. Press to display the Main Menu.
3. Press to highlight Scan Patient ID
4. Press .
5. At the prompt, Scan the Patient ID.
6. Press to Accept the New ID.

MAIN MENU
Clear Total Infused
Change Location
Occlusion Limit
Scan Patient ID
Scan Authorized User ID
Clear Drug Name
Cursor  or MENU or ENTER








Note: When the scan is accepted, the New Patient ID will be displayed on the Red LCD on the left hand side of the pump to allow you to confirm the ID number prior to accepting the scan.

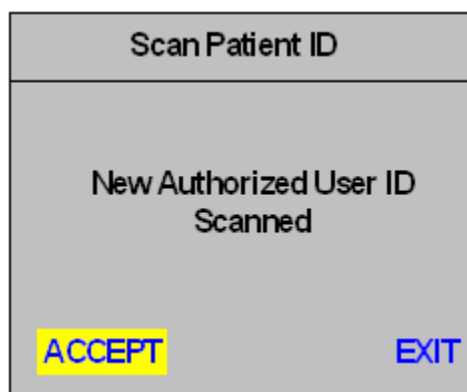


Note: Like DoseScan™ options, three invalid scans will terminate the Scan Patient ID option and return the user to the Main Menu. The user will be prompted to rescan the Patient ID if the scan was invalid.

### Scan Authorized User ID

The Scan Authorized User ID feature is located in the Main Menu. The purpose of this Scan is to ‘attach’ or associate an Authorized User ID with a specific infusion. The Authorized User ID is stored in the data log of the pump and is transmitted as part of the outbound data stream in the Outlook® 300ES and 400ES. To Scan Authorized User ID, perform the following steps:

1. Press  to place pump on Hold.
2. Press  to display the Main Menu.
3. Press  to highlight Scan Authorized User ID
4. Press  .
5. At the prompt, Scan the Authorized User ID.
6. Press  to Accept the New ID.




Note: When the scan is accepted, the New Authorized User ID will be displayed on the Red LCD on the left hand side of the pump to allow you to confirm the ID number prior to accepting the scan.



Note: Like DoseScan™ options, three invalid scans will terminate the Scan Authorized User ID option and return the user to the Main Menu. The user will be prompted to rescan the Authorized User ID if the scan was invalid.

### Run Authorization Scan

The Run Authorization Scan is a “global” scanning option. *Every time* the clinician presses the  key they will be prompted to Scan their Authorized User ID. The steps are similar to those as described in Scan Authorized User ID above but once the Autho-

---

---

Authorized User ID has been validated the infusion will automatically start.



Note: The Run Authorization Scan has an “Override” option that will allow the user to begin the infusion without scanning their Authorized User ID. This option is for those emergency cases where the Authorized User ID may not be readily accessible.



Note: “Override” events are logged in the Operations Log of the infusion device.

The following Scan Features are activated per Drug and/or Solution using the Outlook ES Pump Configuration Editor. For additional information on how to configure drugs and solutions for these options, refer to the Instructions for Use guide that accompanies the application.

### **DoseGuard™ Override Scan**

The DoseGuard Override Scan is a drug specific, Care Area specific scan configuration. This option can be enabled for a specific drug in one or more Care Areas. For example, you may choose to not activate this option for DOPamine in the ICU Care Area, but you may want additional authorization to override the dose limits for DOPamine used in the MED SURG Care Area. If activated for a particular drug, the user will be prompted to scan their Authorized User ID when they override hospital defined dose limits.



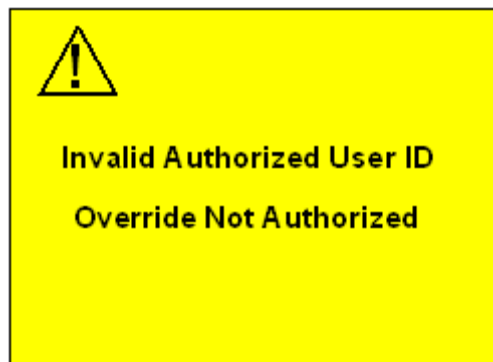
Note: DoseGuard Override scans are logged in the Operations Log of the infusion device.



Note: Exiting the DoseGuard Override Scan prompt will invalidate the override and return the user to the previous delivery parameters.



Note: Three invalid scans will also invalidate the override and return the user to the previous delivery parameters.



### RateGuard™ Override Scan

The RateGuard Override Scan is a solution specific, Care Area specific scan configuration. This option can be enabled for a specific solutions in a one or more Care Areas. For example, you may choose not to activate this option for KCl in the ICU Care Area, but you may want additional authorization to override the rate limits for KCl used in the MED SURG Care Area. If activated for a particular solution, the user will be prompted to scan their Authorized User ID when they override hospital defined dose limits.



Note: RateGuard Override scans are logged in the Operations Log of the infusion device.




Note: Exiting the RateGuard Override Scan prompt will invalidate the override and return the user to the previous delivery parameters.



Note: Three invalid scans will also invalidate the override and return the user to the previous delivery parameters.

### Bolus Authorization Scan

If a drug or solution is configured for a Loading Dose or On-Demand Bolus they can also be configured to require an Authorization Scan to initiate the bolus delivery. When  is pressed to initiate a bolus from the LOADING DOSE READY or BOLUS READY screen, the user will be prompted to scan their Authorized User ID. Upon successful validation of the ID scan the bolus infusion will begin.



Note: Bolus Authorization scans are logged in the Operations Log of the infusion device.




Note: Exiting the Bolus Authorization Scan prompt will invalidate the override and return the user to the previous delivery parameters.

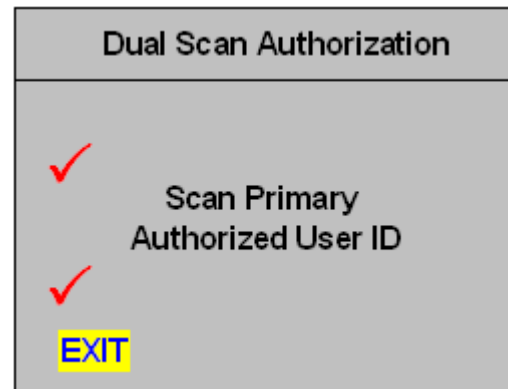


Note: Three invalid scans will also invalidate the override and return the user to the previous delivery parameters.

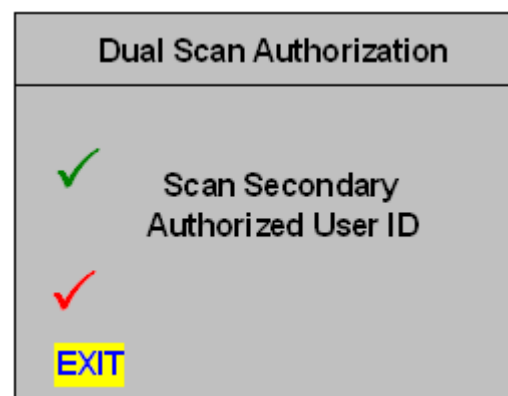
### Critical Med (Dual Scan)

The Critical Med or Dual Scan is configured for those drugs or solutions where verification of the infusion parameters is required prior to initiating the infusion. If a drug or solution is configured for a Critical Med scan perform the following steps to complete the infusion.

1. Press  to begin the infusion.
2. Scan the Primary Authorized User ID. The check mark will change color from red to green to indicate a successful scan.



3. Scan the Secondary Authorized User ID as shown in the figure. The check mark will change color from red to green to indicate a successful scan.
4. After two successful scans, the infusion will begin.





Note: Critical Med scans require two (2) unique Authorized User ID numbers. Scanning the same ID twice will invalidate this option and return the user to the previous state.

---



Note: Critical Med scans are logged in the Operations Log of the infusion device.

---



Note: Exiting the Critical Med Scan prompt at any point will invalidate the infusion and return the user to the previous state.

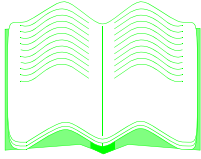
---



Note: Three invalid scans of either the Primary or Secondary Authorized User ID will also invalidate the override and return the user to the previous delivery parameters.

---

# CHAPTER 8: DOSECOM™



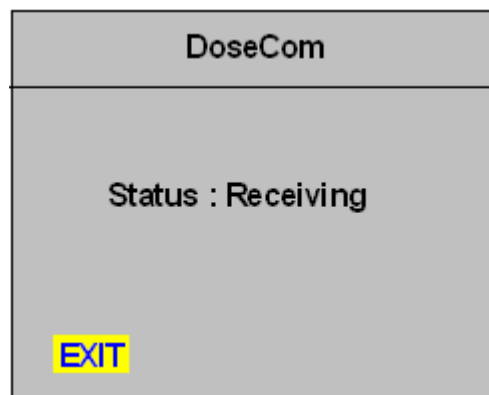
## IN THIS CHAPTER YOU WILL LEARN:

- How to set up an infusion using DoseCom™.

## DOSECOM™ (OUTLOOK® 400ES)




The DoseCom™ feature was designed to enable the user to program the infusion parameters using information transmitted from a hospital's bedside medication administration system. The DoseCom feature helps reduce the number of manual keystrokes required to program infusion parameters. This is especially beneficial when infusing critical medications that require the use of more advanced programming features like those contained in DOSE Mode.

Activating the DoseCom feature puts the pump in “receive” mode, awaiting properly formatted infusion data to be transmitted to the identified Outlook® 400ES infusion device. Information contained in the transmitted data will be used to configure the infusion in STANDARD Mode (Primary and Piggyback infusions), or DOSE Mode. The facility has the option to choose if a User ID, Patient ID, Patient ID on the medication label and/or medication data are included in the data stream. The pump prompts the user to confirm the infusion information after all the properly formatted data is received and displayed.



**NOTE:** The DoseCom™ option can only be activated while the pump is in either STANDARD or DOSE Mode Hold state.

### FOR STANDARD MODE & DOSE MODE INFUSIONS

1. Press .
2. Use the  to highlight “DoseCom™” then press .





**NOTE:** The wireless receiver will only remain active for 30 seconds. If the receiver turns off, the user will need to reactivate the DoseCom option.



**NOTE:** An audible tone will sound after all the data is transmitted to confirm the data has been accepted.

3. Access the specific patient's order from the hospital's bedside medication administration system.
4. Press or activate the “Send Data to Pump” (or similar function) on the hospital's bedside medication administration system.
5. The infusion data will populate the display of the Outlook 400ES.



- Review the data, highlight “ACCEPT”, then press .
- Press **PRIMARY**  to start the infusion.








NOTE: The exact programming sequence of your hospital’s bedside medication administration system may vary. For example, you may be asked to scan the serial number or IP address of the specific infusion device you wish to program as part of the infusion data transmission sequence.



NOTE: Any modifications made to the infusion parameters after accepting transmitted data may result in the deactivation of certain features (e.g. DoseGuard™ dose limits, drug name display, etc.).

### FOR PIGGYBACK INFUSIONS

- Press **PIGGYBACK CHANNEL INDICATOR** .
- Press .
- Use the  to highlight “DoseCom™,” then press .
- Follow steps 3-6 in STANDARD & DOSE Mode Infusions above to scan in the Piggyback infusion data.
- Press **PIGGYBACK**  to start the infusion.

### FOR DATA WITH "0.0" FOR RATE OR DOSE

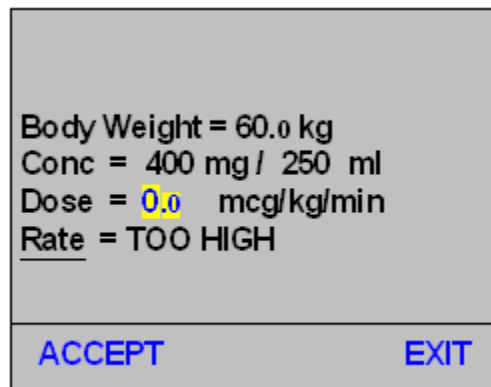
The DoseCom™ feature has the ability to accept a 0.0 value for those cases where the starting infusion rate or dose has not been specified. After completing the sequence described in the previous section, one of the following validation screens will appear.

Rate = 0.0 ml/hr VTBD= 250.0 ml	
ACCEPT	EXIT

If either the starting infusion rate or dose is 0.0, the appropriate field will be highlighted when the transmission is complete. The following steps should be completed to proceed with the infusion programming sequence.

1. Enter a valid, non-zero value for rate or dose (as applicable)

2. Use the  to highlight "Accept", then press



NOTE: The highlight cursor will return to the appropriate rate or dose field if the 0.0 value has not been changed to a valid, non-zero value.

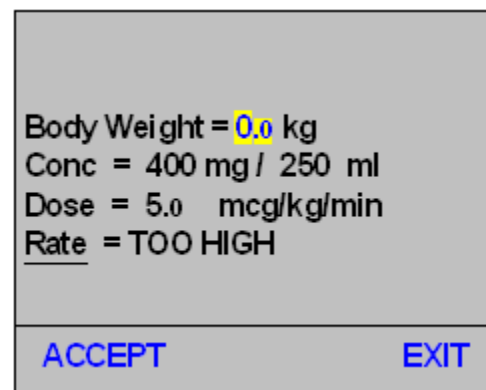
## FOR DATA WITH "0.0" FOR PATIENT WEIGHT

The DoseCom™ feature also has the ability to accept a 0.0 (zero) value for patient weight in those cases where the patient weight has not been specified. After completing the programming sequence described in the previous section, the following validation screens will appear.

The following steps should be completed to proceed with the infusion programming sequence.

1. Enter a valid, non-zero value for Body weight.

2. Use the  to highlight "Accept", then press




NOTE: The highlight cursor will return to the weight field if the 0.0 value has not been changed to a valid, non-zero value.


## TITRATION CHECKING




Like the DoseScan™ feature, the DoseCom™ feature also has the ability to check transmitted information with the previous infusion parameters. This is especially useful in those circumstances where multiple bags of the same medication are sent to the care unit for

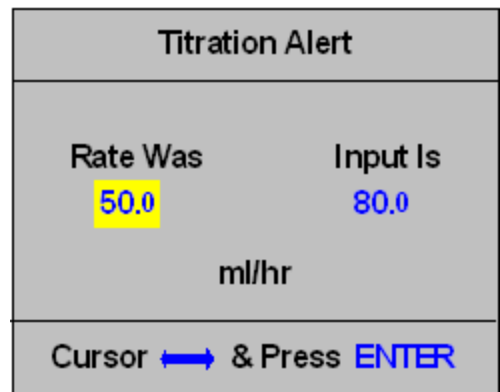
sequential delivery. Changes in rate or dose could be an indication of a titration. Titration checking provides a means to confirm the proper rate or dose for the titrated medication. The process is completed as follows:

1. Transmit the infusion data to the pump as described in the previous sections.
2. Enter a valid, non-zero value for rate or dose if applicable.
3. Validate the transmitted infusion data by moving the Cursor to Accept and press .
4. The titration checking routine commences as follows:


### For Standard Mode Deliveries




- If the Patient ID and Drug Name match the previous infusion information, the rate value is compared.
- If the rate values are equal, the rate and VTBD are displayed as transmitted and the infusion can be started by pressing .
- If the rate values are not equal, the following Titration Alert will be displayed:

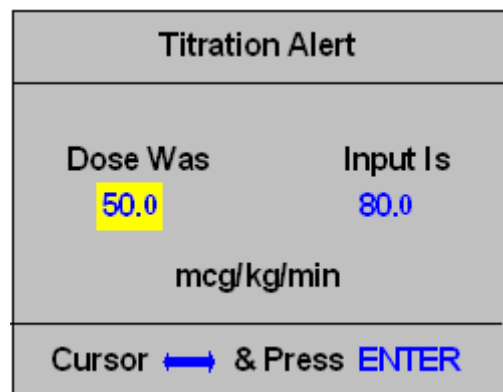
1. Use the  to highlight the correct rate, then press .
2. Begin the infusion by pressing .



### For Dose Mode Deliveries

- If the Patient ID, Drug Name, Dose units, and Drug Concentration match the previous infusion information, the dose value is compared.
- If the dose values are equal, the infusion information is displayed and the infusion can be started by pressing .
- If the dose values are not equal, the following Titration Alert will be displayed:

1. Use the  to highlight the correct dose, then press .
2. Begin the infusion by pressing .



## DOSEGUARD™ MATCHING

The DoseCom™ feature provides the clinician the ability to assign DoseGuard™ dose limits to transmitted medications. For more information on DoseGuard, refer to “DoseGuard™ in DOSE Mode” on page 40.

If the DoseGuard Matching feature is turned ON under DoseCom options in the BIOMED menu, transmitted medications will be compared with those medications stored in the drug library. If DoseGuards are assigned to those medications, the dose limits or Care Areas will be displayed for selection and assignment.

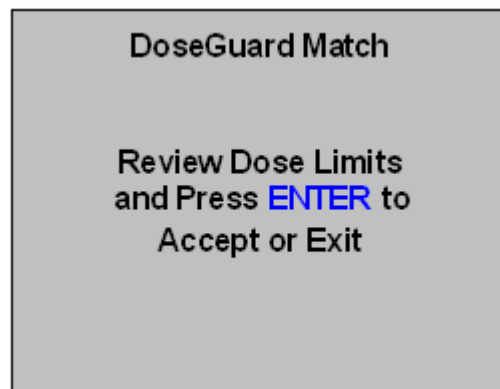
If the transmitted drug is not contained in the drug library or there are no DoseGuards assigned, the following screen will be displayed.

- Choosing “Accept” will accept the transmitted data without DoseGuard protection.
- Choosing “Exit” will reject all the transmitted data.

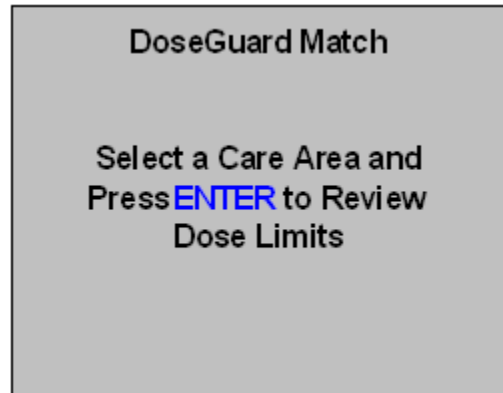


If, however, the transmitted drug matches the drug name, dose units and concentration of a medication configured, one of the following notification messages will be displayed.

This message will be displayed if the transmitted drug matches a medication in a configured Care Area.



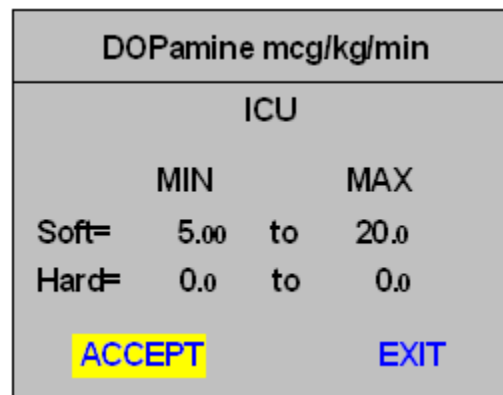
This message will be displayed if the transmitted drug matches a medication configured in more than one Care Area.



### Single Care Area Match



If the transmitted drug matches a medication configured in one Care Area, the Care Area, drug name, and dose limits will be displayed for selection by the clinician. A screen similar to the following will be displayed.


- Choosing “Accept” will assign the programmed DoseGuards to the transmitted medication.
- Choosing “Exit” from the DoseGuard™ matching screen will generate the notification message shown.
- Choosing “Accept” will accept the transmitted data without DoseGuard protection.
- Choosing “Exit” will reject all the transmitted data.



### Multiple Care Area Match

If the transmitted drug matches a medication configured in multiple Care Areas, the Care Areas will be displayed for viewing and selection. A screen similar to the one shown will be displayed.

- Use the  to highlight the appropriate Care Area.
- Press  to review the Dose limits.

Select Care Area	
ICU	OB/GYN
Anesthesia	Oncology
Med Surg	OR
Emergency	Epidural
Pediatric	--More--
Cursor  or MENU or ENTER	

Once a Care Area is selected, the clinician has the ability to “Accept” or “Exit” as described in the Single Care Area Match.

The clinician also has the option to go “Back” to choose another Care Area to review alternate DoseGuard limits as shown in the example screen.

DOPamine mcg/kg/min			
ICU			
	MIN	to	MAX
Soft=	5.00	to	20.0
Hard=	0.0	to	0.0
<b>BACK</b>	<b>ACCEPT</b>		<b>EXIT</b>



NOTE: The pump will transition into the KVO state when the infusion has been completed. Pressing HOLD to silence the KVO alarm will deactivate the drug name display if no DoseGuard™ match exists or if no DoseGuard limits have been assigned to the transmitted medication.

### RATEGUARD™ MATCHING

The DoseCom™ feature also provides the clinician the ability to assign RateGuard™ rate limits to transmitted medications. For more information on RateGuard, refer to “DoseGuard™ in DOSE Mode” on page 40.

If the RateGuard Matching feature is turned ON under DoseScan options in the BIOMED menu, transmitted medications will be compared with those medications configured in the solution list. If RateGuards are assigned to those solutions, the rate limits or Care Areas will be displayed for selection and assignment.

If the transmitted solution is not contained in the solution list or there are no RateGuards assigned, the following screen will be displayed.

- Choosing “Accept” will accept the transmitted data without RateGuard™ protection.
- Choosing “Exit” will reject all the transmitted data.



If, however, the transmitted solution matches the name of a solution configured in the solution list, one of the following notification messages will be displayed.

This message will be displayed if the transmitted solution matches a solution in a configured Care Area.



This message will be displayed if the transmitted solution matches a solution configured in more than one Care Area.



### Single Care Area Match

If the transmitted solution matches a solution configured in one Care Area, the Care Area, solution name and rate limits will be displayed for selection by the clinician. A screen similar to the following will be displayed.

- Choosing “Accept” will assign the programmed RateGuards to the transmitted solution.



D5LR ml/hr			
ICU			
	MIN	to	MAX
Soft=	50.00	to	200.0
Hard=	0.0	to	0.0
<b>ACCEPT</b>		<b>EXIT</b>	


- Choosing “Exit” will generate the notification message shown.

	
<b>WARNING</b>	
No RateGuards Assigned	
<b>ACCEPT</b> <b>EXIT</b>	

### Multiple Category Match

If the transmitted solution matches a solution configured in multiple Care Areas, the Care Areas will be displayed for viewing and selection. A screen similar to the one shown will be displayed.

- Use the  to highlight the appropriate Care Area.
- Press  to review the Rate limits.

Select Care Area	
<b>ICU</b>	OB/GYN
Anesthesia	Oncology
Med Surg	OR
Emergency	Epidural
Pediatric	--More--
Cursor  or <b>MENU</b> or <b>ENTER</b>	



Once a Care Area is selected, the clinician has the ability to “Accept” or “Exit” as described in the Single Care Area Match.

The clinician also has the option to go “Back” to choose another Care Area to review alternate RateGuard™ limits as shown in the example screen.

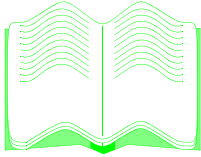
D5LR ml/hr			
ICU			
	MIN	to	MAX
Soft=	50.00	to	200.0
Hard=	0.0	to	0.0
<b>BACK</b>	<b>ACCEPT</b>		<b>EXIT</b>



Note: The pump will transition into the KVO state when the infusion has been completed. Pressing HOLD to silence the KVO alarm will deactivate the drug name display if no RateGuard™ match exists or if no RateGuard limits have been assigned to the transmitted medication.

THIS PAGE INTENTIONALLY LEFT BLANK.

# CHAPTER 9: PROFILE MODE



### IN THIS CHAPTER YOU WILL LEARN:

- How to set up a PROFILE Mode (or TPN) infusion.
- How to set the PROFILE Parameters.
- How to review, change, or restart PROFILE Mode.
- About the Immediate Ramp Down feature.

## PROFILE MODE

The PROFILE Mode is designed to deliver infusions with gradual ramp up and taper down rates. The pump automatically calculates the rate increase and decrease required to match the total volume, time and ramp up / ramp down time parameters. First the PROFILE Parameters must be set, then PROFILE Mode can be accessed.













NOTE: PROFILE Mode may only be entered when the pump is stopped in STANDARD Mode.



NOTE: PROFILE Mode and Set PROFILE Parameters may be found in either the Main or Alternate Menus, or may have been disabled and therefore unavailable.

### SET PROFILE PARAMETERS












1. Press .
2. Use the  to highlight "Set PROFILE Parameters," then press .
3. Use the  keys to enter the Ramp Up time in hours and minutes.
4. Use the  to highlight the Ramp Down fields.
5. Use the  keys to enter the Ramp Down time in hours and minutes.
6. Use the  to highlight the Max Rate field.
7. Use the  keys to enter the maximum rate at which the Profile infusion may run.
8. Use the  to highlight "ACCEPT Parameters," then press .

Set PROFILE Parameters	
Ramp Up =	1 hr 0 min
Ramp Down =	1 hr 0 min
Max Rate =	300.0 ml/hr
<b>ACCEPT PARAMETERS</b>	







NOTE: The minimum Ramp time is 10 minutes; the maximum Ramp time is 2 hours. The maximum Max Rate is 400 ml/hr.

### PROFILE MODE

1. Press .
2. Use the  to highlight “PROFILE Mode,” then press .
3. Use the  keys to enter the total volume of the infusion.
4. Use the cursor to highlight the Time field.
5. Use the data keys to enter the total time of the infusion.
6. Use the  to highlight “ACCEPT PROFILE,” then press .
7. Press **PRIMARY** .
8. The GRAPH field in the upper right corner of the Information Screen is highlighted; press . A graph of the infusion will be displayed.
9. The TEXT field in the upper right corner of the Information Screen is highlighted; press . The text display will return.
10. If the pump is turned off while in PROFILE Mode, the Information Display will indicate “PROFILE Operation was Interrupted” when the pump is turned back on. Use the  to highlight one of the following, then press .
  - Resume current PROFILE
  - Restart PROFILE
  - Exit PROFILE Mode


PROFILE Mode	
Volume =	0.0 ml
Time =	0 hr 0 min
ACCEPT PROFILE	





### REVIEW/CHANGE PROFILE

1. Press .
2. Use the  to highlight “Review/Change PROFILE,” then press .
3. Use the  to highlight the Volume field.



NOTE: The PROFILE Volume cannot be changed after PROFILE Mode has been started.







4. Use the  keys to enter the new volume.

5. Use the  to highlight the Time field.
6. Use the  keys to enter the new time.
7. Use the  to highlight “ACCEPT PROFILE,” then press .

## RESTART PROFILE



**NOTE:** Choosing Restart PROFILE will cancel the present infusion and the pump will begin at the beginning of the Profile run.

1. Press .
2. Press .
3. Use the  to highlight “Restart PROFILE,” then press .
4. A screen will appear with the message: The “Restart PROFILE” option will cancel the present run. Is this OK? Use the  to highlight “YES,” then press .





The “Restart PROFILE” option will cancel the present run. Is this OK?

YES

NO

Cursor  & Press ENTER

## IMMEDIATE RAMP DOWN

1. Press .
2. Press .
3. Use the  to highlight “Immediate Ramp Down,” then press .

IMMEDIATE RAMPDOWN is displayed on the Information Screen.



**NOTE:** The Immediate Ramp Down Time is 30 minutes or less.





## EXITING PROFILE MODE

The infusion must be stopped in order to exit PROFILE Mode.

1. Press .

## Chapter 9: Profile Mode

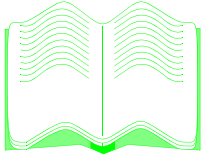
---

2. Press  .
3. Use the  to highlight “Exit PROFILE Mode,” then press enter.
4. A screen may appear with the message: The “Exit PROFILE Mode” option will cancel the present run. Is this OK?
5. Use the  to highlight “YES,” then press  .

THIS PAGE INTENTIONALLY LEFT BLANK.



# CHAPTER 10: PROGRAM MODE

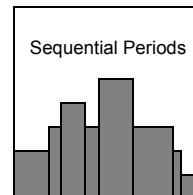


### IN THIS CHAPTER YOU WILL LEARN:

- How to set up a PROGRAM Mode infusion.
- How to clear periods.
- How to review and change a PROGRAM.
- How to restart PROGRAM Mode.
- How to skip periods.

## PROGRAM MODE







This mode is for infusions requiring a non-standard delivery pattern. PROGRAM Mode allows up to 9 periods to be entered. Each period contains its own rate and volume. The pump automatically gives each programmed period, one after the other.



NOTE: PROGRAM Mode may only be entered when the pump is stopped in STANDARD Mode.






NOTE: PROGRAM Mode may be found in either the Main or Alternate Menus, or may have been disabled and therefore unavailable.

1. Press .
2. Use the  to highlight "PROGRAM Mode," then press .
3. Use the  keys to enter the rate and volume for the first period.
4. Use the down  to highlight the next Rate and Volume fields.
5. Use the  keys to enter the rate and volume.
6. Repeat steps 4 and 5 until all of the infusion information is entered.

Pd.	Rate	Volume	
1	100.0	200.0	
2	50.0	100.0	
3	75.0	50.0	
4	50.0	100.0	ZERO
5	0.0	0.0	
<b>ACCEPT</b>		<b>Total = 450.0 ml</b>	



NOTE: If less than 9 steps of infusion information entered, the last line of data will always be zero. The total volume infused will be displayed.

7. Use the  to highlight "ACCEPT TOT=," then press .
8. Press **PRIMARY** .





NOTE: The pump will begin infusing the Period 1 volume at the Period 1 rate. The pump will then go to Period 2 and so forth without user intervention.

## Chapter 10: Program Mode







NOTE: ACCEPT cannot be selected when 0 data is present in the **middle** of a program. For example, Pd. 1 and 3 may have data, but Pd. 2 is zeros. The pump will not allow ACCEPT to be selected with zero values in the middle of the program.

9. Use the  to highlight the GRAPH field in the upper right corner of the Information Screen, then press . A graph of the infusion will be displayed.





NOTE: Each period is represented by a vertical bar which fills as the fluid is infused. The height of the bar represents the rate of infusion in that particular period. The period presently being infused is displayed in the upper left corner. If the vertical bar appears to be missing, the rate in that period is much less compared to the other periods.

10. Use the  to highlight the TEXT field in the upper right corner of the Information Screen, then press . The text display will return.
11. If the pump is turned off while in PROGRAM Mode, the Information Display will indicate “PROGRAM Operation was Interrupted” when the pump is turned back on. Use the  to highlight one of the following, then press .

- Resume current PROGRAM
- Restart PROGRAM
- Exit PROGRAM Mode

### CLEARING PERIODS








The periods in PROGRAM Mode may be cleared.

1. Use the  to highlight ZERO at the end of the period line to be cleared then press .
2. Repeat step 1 until all periods are cleared.

### REVIEW/CHANGE PROGRAM









NOTE: Program Volumes cannot be changed after PROGRAM Mode has been started.

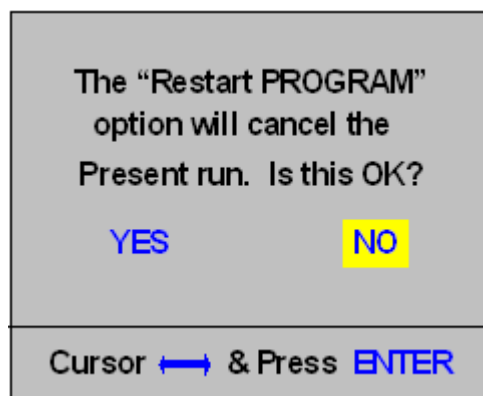
1. Press .
2. Use the  to highlight “Review/Change PROGRAM,” then press .
3. Use the  to highlight the Rate field of the period to be changed.
4. Use the  keys to enter the new rate.
5. Use the  to highlight “ACCEPT,” then press .

## RESTART PROGRAM









NOTE: Choosing Restart PROGRAM will cancel the present infusion and the pump will begin infusing at Period 1 again.

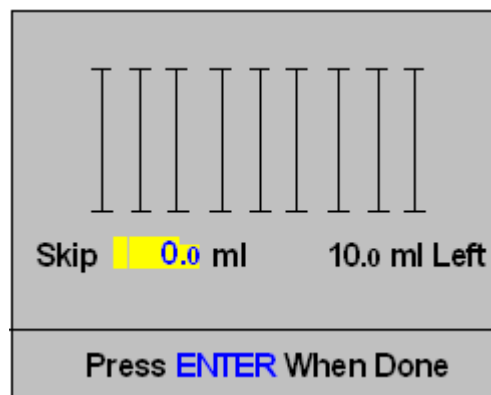
1. Press .
2. Press .
3. Use the  to highlight “Restart PROGRAM,” then press .
4. A screen will appear with the message: The “Restart PROGRAM” option will cancel the present run. Is this OK? Use the  to highlight “YES,” then press .



## SKIP PROGRAM PERIODS

This option allows a portion (volume) of the mode to be skipped. The pump must be stopped in order to skip periods.

1. Press .
2. Press .
3. Use the  to highlight “Skip PROGRAM Periods,” then press .
4. Use the  keys to enter the volume to be skipped, then press .



## Chapter 10: Program Mode

---

---







5. Press **PRIMARY**  .



NOTE: As you enter volumes to skip the PROGRAM periods will autofill the volumes in each period with a Green bar.

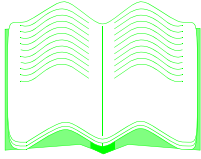
### EXITING PROGRAM MODE

The infusion must be stopped in order to exit PROGRAM Mode.

1. Press  .
2. Press  .
3. Use the  to highlight “Exit PROGRAM Mode,” then press  .
4. A screen may appear with the message: The “Exit PROGRAM Mode” option will cancel the present run. Is this OK? Use the  to highlight “YES,” then press  .

THIS PAGE INTENTIONALLY LEFT BLANK.

# CHAPTER 11: q(x) SCHEDULE

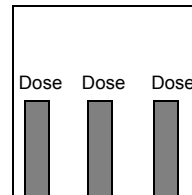



### IN THIS CHAPTER YOU WILL LEARN:


- How to set up a q(x) (Intermittent) infusion.


## q(x) SCHEDULE








**q(x) Schedule** can be used for the intermittent infusion of antibiotics, chemotherapy, or other IV infusions. The user inputs the total number of doses, the amount per dose, and the interval between doses.




 NOTE: q(x) Schedule may only be entered when the pump is stopped in STANDARD Mode.



 NOTE: q(x) Schedule may be found in either the Main or Alternate Menus, or may have been disabled and therefore unavailable.


 Since there is no KVO between doses, assure there is a maintenance IV infusion in the intervals between doses.

1. Press .
2. Use the  to highlight “q(x) Schedule,” then press .
3. Use the  to highlight “OK,” then press .
4. Use the  to highlight the Dose q(x) fields.
5. Use the  keys to enter the time interval, in hours and minutes, between the start of each dose.

q(x) Schedule	
DOSE q(x) =	06 hr 00 min
# Doses =	4
Dose Rate =	125.0 ml/hr
Dose Vol =	75 ml
Press ENTER When Done	





 NOTE: The time interval can be 1 to 24 hours. There must be at least 15 minutes between each dose.

6. Use the  to highlight the #Doses field.
7. Use the  keys to enter the total number of doses to be delivered.

 NOTE: The total number of doses may not exceed 40.










## Chapter 11: q(x) Schedule

8. Use the  to highlight the Dose Rate field.
9. Use the  keys to enter the rate at which each dose is to be administered.
10. Use the  to highlight the Dose Vol field.
11. Use the  keys to enter the volume to be delivered for each dose.




NOTE: The Dose Volume for each dose has to be greater than 1 ml, but not more than 2000 ml.

12. Press .
13. Check the Present Time. If it is incorrect, use the  to highlight the Present Time is field.
14. Use the  keys to enter the correct present time **in military format**. Use 00:00 to represent midnight and 12:00 to represent noon.
15. Use the  to highlight the Start dose at field.
16. Use the  keys to enter the time, **in military format**, at which the first dose will begin.
17. Use the  to highlight “ACCEPT,” then press .

q(x) Schedule
Present Time is 20:26 P
Start Dose at 20:26 P
ACCEPT

At the q(x) Start time, the pump will begin the infusion. The number of doses remaining is shown on the Information Display. After the infusion is complete, the pump will automatically return to the waiting period. The pump will continue to “infuse and wait” for the total number of doses entered.





NOTE: After pressing , the pump goes into a waiting period. “Schedule Delay” shows on the Piggyback channel Display. No fluid is infusing during this waiting period.



NOTE: A “q(x) Schedule Overlap” message appears when doses entered are not at least 15 minutes apart. When this occurs, q(x) Schedule must be exited to cancel the present infusion regimen.

## TO CHANGE THE DATA




1. Use the  to highlight the DATA field in the upper right corner of the Information Screen, then press .
2. Follow steps 4-17 above to change the data.



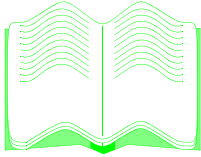
NOTE: Only the Dose Rate may be changed after the q(x) Schedule has begun.

---

## EXITING q(X) SCHEDULE

1. Press .
2. Use the  to highlight “Exit q(x) Schedule,” then press .

# CHAPTER 12: OPTIONS



### IN THIS CHAPTER YOU WILL LEARN:

- How to lock out the pump key pad.
- How to clear the Total Infused.
- How to change the Occlusion Limit.
- About the Occlusion Warning feature of the pump.
- How the pump can calculate the rate when given the time and volume.
- How to delay the beginning of an infusion.
- How to check the battery level.
- How to adjust the alarm volume.
- How to set the pump to its Maximum Pressure of 750 mmHg.
- How to rate limit the pump for Micro operation.
- How to put the pump on hold for up to two hours.
- About Site Trending.
- How the pump can calculate a patient's Body Surface Area.
- What Piggyback Callback is.

## OPTIONS

The Outlook® ES offers other features which allow the pump to be customized to each patient's particular needs.








**NOTE:** These features may be found in either the Main or Alternate Menus, or may have been disabled and therefore unavailable.


### PANEL LOCK OUT SWITCH

This option allows the keypad to be deactivated. While Panel Lock Out is activated, **no** keys are functional.

1. While the pump is infusing, press the Panel Lock Out Switch on the back of the pump.
2. To unlock the keypad, press the Panel Lock Out Switch again.

### CLEAR TOTAL INFUSED

1. Press .
2. Use the  to highlight "Clear Total Infused," then press . The Primary, Piggyback and Total Volume Infused values will be displayed. The Information Screen will display a message asking if the volumes should be cleared.
3. The default response is "NO".
4. Use the  to highlight "YES" to clear the volumes.
5. Press  to confirm your selection.

Clear Total Infused	
Primary Vol Inf	6.5 ml
Pgybk Vol Inf	3.3 ml
Total Vol Inf	9.8 ml
Clear Volumes?	
YES	NO
Cursor  & Press ENTER	



**NOTE:** The Clear Total Infused option may be used while the pump is infusing.









**NOTE:** Selecting YES will clear all Volume Infused Lines.

### OCCLUSSION LIMIT

This feature allows the user to change the occlusion limit to 75, 100, 200, 300, 400, or 500 mmHg. The occlusion limit is set by default but can be adjusted at the discretion of the clinician based on the clinical situation. When the pump is powered OFF and ON, the occlusion limit will return to the default setting.



CAUTION: The higher the pressure limit, the less sensitive the pump is to changes in fluid resistance which may be caused by positional IVs or infiltrations. High pressure limits can increase the severity of an infiltration without an alarm condition.

1. Press  to stop the infusion.
2. Press  .
3. Use the  to highlight “Occlusion Limit,” then press  .
4. Use the  keys to change the occlusion limit value.
5. Press  .

### EXAMPLE:

If the Occlusion Limit is set to 300mmHg, the pump will infuse at the lowest pressure possible but will alarm if the pressure required to infuse the IV fluid rises above the 300mmHg value.



NOTE: A gravity infusion of D5W with the IV container 3 feet above the IV site is approximately 75 mmHg.



NOTE: The Occlusion Limit will automatically change to 400 mmHg to accommodate fluid resistance at rates greater than 400 ml/hr.

## OCCLUSION WARNING

The occlusion warning feature gives an audible warning (3 beeps) and a visual indication in the Volume To Be Delivered Display to let the user know an occlusion is occurring downstream from the pump. The warning occurs 6 times at 5 second intervals before the pump alarms “Occlusion.” If the occlusion is cleared before alarming, the warning tones will stop and the infusion will continue. This feature is designed to alert the user of downstream resistance before an alarm occurs which stops the infusion.










During an occlusion warning, inspect the downstream tubing for kinks or closed clamps. Remove the kinks or open the clamps and the warning tones will stop.



NOTE: The Occlusion Warning option must be turned on in the Biomed Menu by an authorized person.

## SET TIME AND VOLUME

This option calculates the rate of the infusion when the infusion time and volume are entered.

1. Press .
2. Use the  to highlight “Set Time and Volume,” then press .
3. Use the  to highlight Time= “hr” or “min”
4. Press  keys to enter the correct hours and/or minutes.
5. Use the  to highlight Volume= field.
6. Use the  keys to enter the volume.
7. Use the  to highlight “ACCEPT”, then press .




Set Time and Volume
Time = 00 hr 00 min
Volume = 0.0 ml
Rate = TOO LOW
ACCEPT

## SCHEDULE NEXT RUN



This feature lets the user delay an infusion from STANDARD, PIGGYBACK, DOSE, PROGRAM, or PROFILE Mode for up to 24 hours.



NOTE: All of the Mode information must be entered and a set must be in the pump before accessing this feature.

1. Press .
2. Use the  to highlight “Schedule Next RUN”, then press .

### TO CHANGE THE DELAY





1. Use the  to highlight the Delay “hr” or “min” fields.
2. Use the  keys to set the hours and minutes.


Schedule Next RUN
Time is 17 : 10 P
Delay = 01 hr 48 min
Start at 17 : 30 P
ACCEPT 01 hr 00 min Delay

### TO CHANGE THE START TIME






NOTE: The time is displayed in military time. Use 00:00 to represent midnight and 12:00 to represent noon.

1. Use the  to highlight Start at fields.
2. Use the  keys to change the start time.
3. Use the  to highlight “ACCEPT XXH XXM DELAY”, then press .

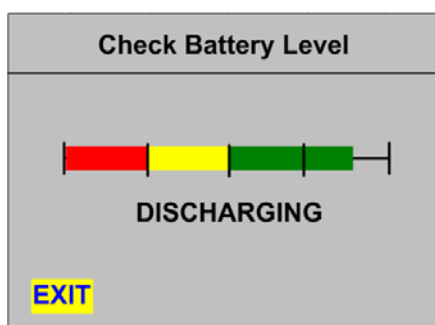
The information is displayed on the Information Screen, “Delay” is shown, and the yellow Hold LED will blink. Press  to cancel Schedule Next RUN.

### CHECK BATTERY LEVEL

Two states of the battery are possible: discharging or charging. Prior to unplugging the pump for transport purposes, this feature makes determining charge level of the battery easy.

1. Press .
2. Use the  to highlight “Check Battery Level,” then press .

The screen display will provide information as to which state the pump is in and indicate if the pump is operating on the internal battery. An example is shown below:



- DISCHARGING: The pump is unplugged and running on battery.
- CHARGING: The pump is plugged in and the battery is charging.








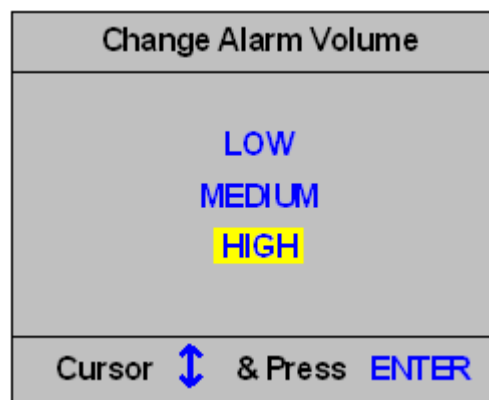
NOTE: As battery life is dependent on delivery rate, it is recommended that you plug the pump into an AC power source when the battery life indicator displays a charge indication in the yellow portion of the bar.

To Exit the Battery Level screen, press .

## CHANGE ALARM VOLUME





The volume of the pump alarm can be changed to low, medium, or high.

1. Press .
2. Use the  to highlight “Change Alarm Volume,” then press .
3. Use the up and down  to highlight “LOW,” “MEDIUM,” or “HIGH.”
4. Press  to confirm the new volume setting.



## SELECT MAX PRESSURE

The Outlook® ES can be used for epidural administration of anesthetic and analgesic drugs. Use this feature when the maximum pressure of 750 mmHg is required for infusion.

1. Press  to stop the infusion.
2. Press .
3. Use the  to highlight “Select MAX Pressure,” then press .

The Occlusion Limit is now set to 750 mmHg. To change the Occlusion Limit from 750 mmHg, turn the pump off and then on again, or See “Occlusion Limit” to change the value.

## MICRO RATE/LIMIT








This option is useful in environments where low rates are critical. For patient safety, the maximum rate limit can be set from 5.0 ml/hr to 99.9 ml/hr.

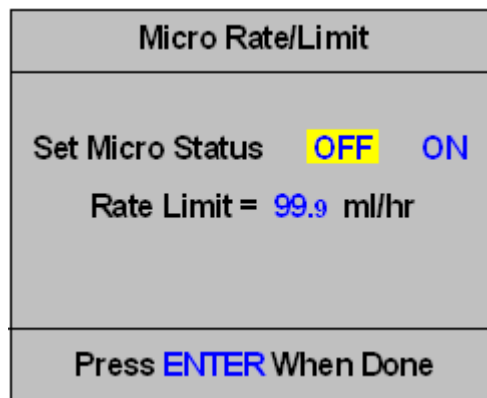



NOTE: If the pump is turned on with Micro Rate/Limit activated, a teddy bear symbol shows on the Information Display for 4 seconds.











1. Press  to stop the infusion.
2. Press .
3. Use the  to highlight “Micro Rate/Limit,” then press .
4. Use the  to highlight “ON.”
5. Use the down  to highlight the Rate Limit field.
6. Use the  keys to enter the maximum rate the pump will be allowed to run.



 **NOTE:** If a rate currently exists in a mode that is higher than the Micro Rate/Limit set, an audible signal occurs. The user will need to either exit Micro Rate/Limit and lower the offending rate, or increase the Micro Rate/Limit.




7. Press  .  will appear in the upper left corner of the Information Display.

### To Exit Micro Rate/Limit

1. Press menu.
2. Use the  to highlight “Micro Rate/Limit,” then press .
3. Use the  to highlight “OFF,” then press .

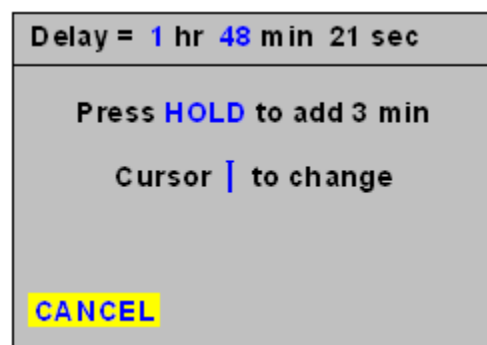
## HOLD EXTENDER





Hold Extender allows the user to pause the infusion for up to 2 hours. Once the timer goes down to zero, the pump will alarm to notify the user the infusion must either be started or put on hold again.

1. Press  to stop the infusion.
2. Press  again. This will put the pump on hold for 3 minutes. Each additional press of  will add another 3 minutes onto the Delay time.




OR

1. Press .




2. Press .
3. Use  to highlight “Hold Extender,” then press .
4. Use the  keys to enter the hold time.

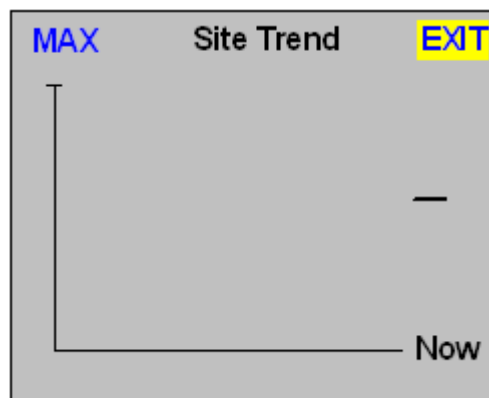
“Hold” is displayed in the Rate Display.


- Press  to cancel the hold extender and begin infusing.
- Press  to cancel the hold extender and return to the standard 3 minute hold.
- Press  to cancel the hold extender and access the menu system.

## SITE TREND


Site Trend graphically displays the resistance to downstream fluid flow for three intervals of time: 10 min, 1 Hr and 2 Hr.


1. Press .
2. Use the  to highlight “Site Trend,” then press .



 NOTE: Data is shown from right to left. The word “Now” reinforces the most current data is represented on the right side of the graph. The arrow’s position, whether pointing upward or downward, indicates either an increase or a decrease in the downstream fluid resistance.

## TO CHANGE GRAPHICAL RESOLUTION

1. Press the up and down  to change from MIN, MED or MAX resolution.




 NOTE: MAX is the default setting. MAX displays more data points compressed along the horizontal axis for a representation of a long- term trend. MIN displays less data points in the same area for a short-term trend.

### TO EXIT SITE TREND

1. Use the  to highlight “Exit,” then press .


### CALCULATE BSA

This option is used to calculate a patient’s Body Surface Area (BSA) in square meters.

1. Press .
2. Use the  to highlight “Calculate BSA”, then press .








NOTE: Height can be measured in centimeters (cm) or inches (in). Weight can be measured in grams (g), kilograms (kg) or pounds (lb). The height and weight parameters are changed by pressing

the left/right  to select the parameter and pressing up/down








to change the units.


3. Use the  to select Height and Weight fields.
4. Use the  keys to enter the information.
5. To change the Height and Weight units, use the left and right  to highlight the units, and the up and down  to change the units.
6. The BSA value is displayed in square meters (m<sup>2</sup>).
7. Press  to exit.

Calculate BSA
Height = 250.0 cm
Weight = 0.0 kg
BSA = 0.00 m <sup>2</sup>
Press ENTER When Done

### PIGGYBACK CALLBACK

Piggyback Callback continues the primary infusion at a KVO rate and causes the pump to alarm. This feature may be accessed during the Run or Hold states.

1. Press .
2. Use the  to highlight “Piggyback Call-  
back”, then press .
3. Use the  to highlight “On”, then press .

Piggyback Callback
<p><b>When Piggyback Callback is ON, KVO will alarm as soon as the Piggyback is done.</b></p>
<p>Set Callback: <span style="background-color: yellow; padding: 2px;">OFF</span> ON</p>
<p>Cursor  &amp; Press <span style="color: blue;">ENTER</span></p>



**NOTE:** Piggyback Callback will return to OFF when the pump is turned off.

## SCROLLING DOSE DISPLAY

As part of the Customize Pump Features option in the Outlook® ES Pump Configuration Editor you can set the Scrolling Dose Display to Yes or No. The Scrolling Dose Display option will scroll the Drug Name and the associated dose value and dose units in the Secondary display of the Red LCD. This option is only available in DOSE Mode and provides a greater viewing distance for the dose value and associated units. The default value for this option is No.

## TRAILING ZEROS

Another option of the Customize Pump Features option in the Outlook® ES Pump Configuration Editor, you can configure the screen to display or hide “trailing zeros”. Trailing zeros are those zero decimal values that are at the end of a input or display value. For instance, a Rate value of 12.0 would be displayed as 12. The default value for this option is “Yes” to display the trailing zeros as they are displayed in a smaller font for easy differentiation. This also helps during programming as the decimal resolution of the particular value is always displayed.



**NOTE:** When configured to “NO”, the decimal point will be displayed for all whole number values in the display.

## NURSE CALL INTERFACE

The Nurse Call Interface is an accessory designed to allow an Outlook ES infusion pump to activate a nurse call signal in the event of a pump alarm. While there is no direct provision in the Outlook ES for remote alarm indications, this interface will detect an audio signal to determine if an alarm is present.



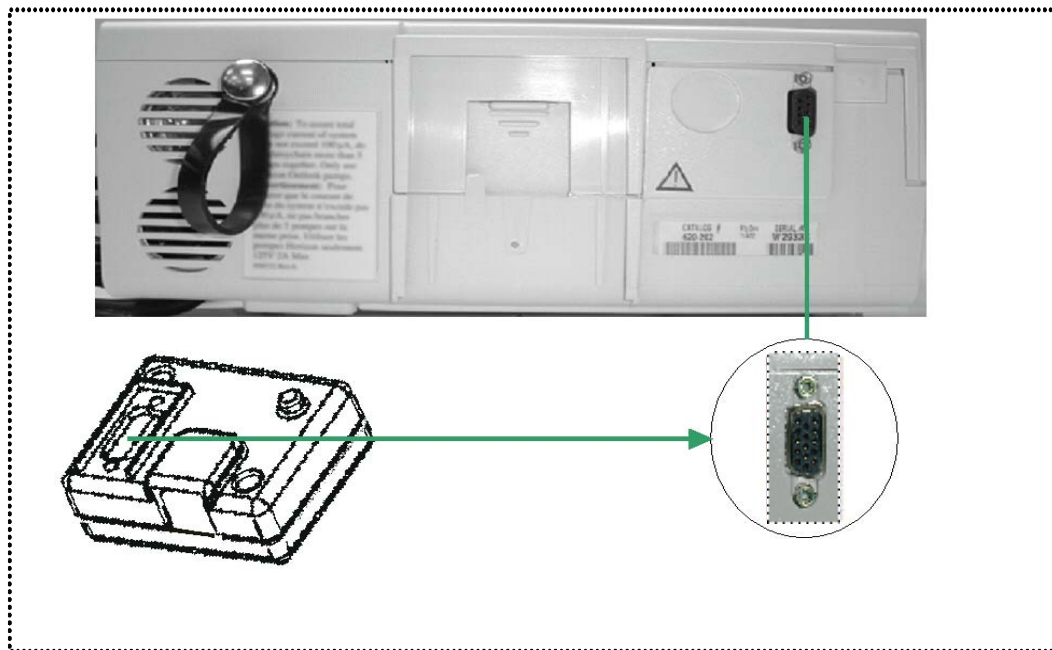
CAUTION: When the Outlook® ES is configured with the Nurse Call option installed, the “**Alternate Alarm**” setting in the “Audible Signal Option” must be set to “**OFF**”. The Nurse Call will not report Alarm Conditions when this option is set to “ON”.

The Nurse Call Interface also provides a "mute" function that will ignore all audio alarms during the first few seconds after the unit is powered On as well as those audio signals that are not attributed to alarm states. In addition to monitoring the alarm signals, the Nurse Call Interface has the ability to notify the Nurse Call System in an event of power loss to the pump.

### NURSE CALL INSTALLATION

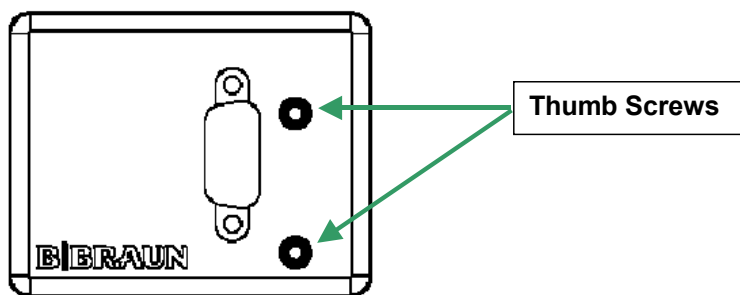
The following describes the installation process of the Nurse Call Interface unit. Note that for installation purposes, the Infusion pump can be either turned ON or OFF.

1. Begin by plugging the Nurse Call Interface unit to the back of the Outlook® ES pump.

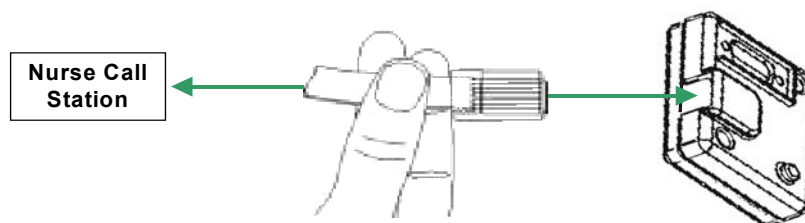


2. To secure the Nurse Call unit to the pump, fasten the thumb screws located on

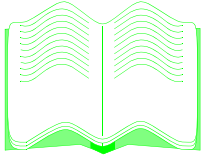
the front of the Nurse Call unit.



3. Next insert the cord coming from the nurse station into the RJ-45 connector on the Interface unit.




# CHAPTER 13: ALARMS & TROUBLESHOOTING








### IN THIS CHAPTER YOU WILL LEARN:

- How to silence pump alarms.
- How to correct pump alarms.




## ALARMS: CAUSES & CORRECTIONS

The Information Screen notifies the user an alarm has occurred and displays information regarding the alarm. When  is pressed, the correction messages contained in the “Correction” column of the following Troubleshooting Guide table will appear.

There are three types of alarms:

- Operation Alarms: Press  to see the Help Screen which contains the guidelines in the Correction column of the Alarm Troubleshooting table below. Clear the alarm by pressing .
- System Alarms: Press , then press  to restart the infusion.
- Repair Instrument Alarms: Press  and turn the pump off and then on again (similar to rebooting a personal computer). If the alarm recurs, return the pump to a Biomedical Professional for service.

When an alarm condition occurs, the following steps are recommended:

1. Read the message displayed on the Information Screen.
2. Press  to silence the alarm.
3. Press  with HELP highlighted to display the correction messages contained in the Correction column below.
4. Correct the cause of the alarm.
5. Press  to continue the infusion.
6. Monitor the process according to institution policy.

ALARM	MESSAGE	CAUSES	CORRECTION
Air-in-Line	Air	The pump will generate an Air-in-Line alarm when an air bubble has been detected in the Air-in-Line detector.	Air in downstream tubing Tubing improperly inserted in Air-In-Line Detector
Battery Very Low	Plug In	The battery is low.	Plug into AC power NOW to continue operation
Close Roller Clamp	Check Set	This alarm is generated when the user attempts to start an infusion without an IV set installed, or if the IV set is improperly installed.	CLOSE ROLLER CLAMP. Then open door. Check placement of Secure Flow Clamp.

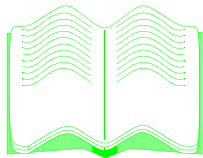


## Chapter 13: Alarms & Troubleshooting

<b>ALARM</b>	<b>MESSAGE</b>	<b>CAUSES</b>	<b>CORRECTION</b>
Container Is Empty	Solution Empty	The pump is not receiving fluid from the source container.	Check for air in set Check fluid level Check upstream clamp Check cassette installation
Downstream Occlusion	Occlusion	The pump allows the user to set an occlusion detection limit in the user menu system. If the pump determines it cannot deliver fluid at a fluid pressure lower than the user set limit, the pump will generate an Occlusion alarm.	Clamp closed or filter blocked Tubing kinked IV positional or infiltrated Catheter or vein too small Check occlusion limit
Door Open	Door Open	If the user attempts to start an infusion while the door is open, or if the door is opened during an infusion, the pump will generate a Door Opened During Delivery alarm.	The door must be shut to deliver fluid.
Hold Time Exceeded	Hold	The pump will generate a Hold Time Exceeded alarm when there has been no key panel activity for 3 minutes.	Pump on hold with the door closed for more than 3 mins.
KVO	3.0 or current rate	When the Volume to be Delivered (VTBD) decrements to zero, the pump will continue to deliver fluid at a Keep Vein Open (KVO) rate. A KVO alarm will be generated by the pump when the KVO rate begins.	KVO: infusion complete.
Low Battery Warning	Plug In	The internal battery is low.	Battery too low; plug in AC

<b>ALARM</b>	<b>MESSAGE</b>	<b>CAUSES</b>	<b>CORRECTION</b>
System Error	Error	This alarm is generated when there has been an internal pump malfunction.	Turn the pump off and return to Biomedical Professional for service
Set Primary Rate	Flashing 0.0	This alarm is generated when the user tries to start a primary channel infusion and has not set a primary rate.	Set a Primary Rate.
Set Piggyback Rate	Flashing 0.0	This alarm is generated when the user tries to start a piggyback channel infusion and has not set a piggyback rate.	Set a Piggyback Rate.
Set Primary Volume	Flashing 0.0	This alarm is generated when the user tries to start a primary channel infusion and has not set a primary VTBD.	Set a Primary VTBD.
Set Piggyback Volume	Flashing 0.0	This alarm is generated when the user tries to start a piggyback channel infusion and has not set a piggyback VTBD.	Set a Piggyback VBTD.

# CHAPTER 14: MAINTENANCE



IN THIS CHAPTER YOU WILL LEARN:

- How to clean the pump.
- Under what conditions to store the pump.

## CLEANING

Clean the pump with a soft, lint-free cloth or swab dampened with soap and water, a general nonstaining chemical disinfectant, or isopropyl alcohol (90% concentration or less).

As a general recommendation for cleaning and disinfecting this device, use a lint free cloth dampened (not soaked) with a 0.5% bleach (Sodium Hypochlorite) solution (one part bleach with nine parts water). The solution is most effective when prepared weekly and allowed to remain on the device for approximately 10 minutes prior to wiping off.

**DO NOT** use acetone solutions containing glutaraldehyde or abrasive cleansers on the pump. If necessary, Betadine or Iodine solutions may be used, but they will stain the pump.

**DO NOT** use abrasive cleaning tools or pressurized spraying devices as these may damage the device.

**DO NOT** sterilize the pump using ethylene oxide (EtO) gas as this may damage the device.



**WARNING:** To avoid mechanical or electronic damage, do not steam autoclave or immerse the pump in any fluids or cleaning solutions.



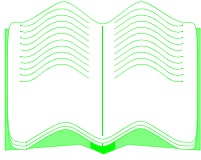
**CAUTION:** To avoid electrical shock, turn off the pump and disconnect it from the electrical outlet before cleaning.

## STORAGE

To prolong the life of the Outlook® ES:

- Store the pump away from excessive heat, cold, or humidity.
- Keep devices plugged into electrical power during storage.

# CHAPTER 15: TECHNICAL & CLINICAL SUPPORT



IN THIS CHAPTER YOU WILL LEARN:

- How and when to contact Technical Support.
- How to contact Clinical Support.

### TECHNICAL SUPPORT

If the pump fails to respond to the operating or troubleshooting procedures listed in this manual and the cause cannot be determined, discontinue use and forward it to an authorized B. Braun Service Center.

Should it be necessary to return the pump for repair, contact Technical Support at B. Braun Customer Service at (800) 627-PUMP. A Returned Materials Authorization number will be provided. Carefully pack the pump (preferably in the original packing), and ship it prepaid to the address below. B. Braun cannot assume any responsibility for loss or damage to returned instruments while they are in transit.

Service and product performance information, operation training, service training, and service manuals may be obtained from the manufacturer by contacting:

**B. Braun Medical Inc.**  
1601 Wallace Drive, Suite 150  
Carrollton, TX 75006  
Attn: Service Manager  
or call (800) 627-PUMP

Product complaints may be sent to the Quality Assurance Manager at the above address.

With each complaint, please include:

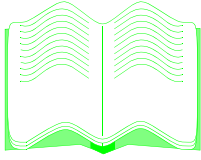
- the pump's serial number and software revision,
- a description of the difficulty experienced,
- the pressure limit setting,
- the rate setting,
- the initial volume(s) to be infused,
- the type of fluid(s),
- the amount of time between the start of the infusion and the time the difficulty was noticed,
- the message displayed at the time the difficulty occurred,
- the catalog and lot number of the set(s) in use,
- the diagnostic code (if applicable), and
- any other information which might aid in the investigation of the complaint.

Authorization to return products must be received from B. Braun prior to shipment. Please contact Customer Service at the above phone number for a Returned Materials Authorization Number.

### CLINICAL SUPPORT

The customer may speak with a Registered Nurse for clarification of operating instructions or clinical applications for the Outlook® ES. A Clinical Support Specialist may be reached at (800) 854-6851.


# CHAPTER 16: PRODUCT SPECIFICATIONS



IN THIS CHAPTER YOU WILL LEARN:

- About the product specifications.

**PRODUCT SPECIFICATIONS**

Type of Unit	Volumetric (Non Drop-Counting), Positive Pressure Displacement Reservoir
Classification	Class 1-Internally Powered, CF type, IPX1 drip-proof, not suitable in the presence of flammable anesthetic and intended for continuous use in accordance with UL2601-1.
Bar Code Scanner	Class 2 in accordance with IEC 60825-1 Maximum Output=1mW, Scan Rate=42 scans/sec.
Moisture Protection	<b>IPX1</b> ; drip protected for horizontal usage
EMI/EMC Compliance	Meets or exceeds EN60601-1-2:2001 for Class B, emissions and immunities standard.
Ground Impedance	Less than 0.2 ohms (tested per UL2601-1)
Electrical Shock Protection	 Type CF shock protection in accordance with UL2601-1.
Power Requirements	120 VAC, 2A, 60 Hz excluding accessories
Grounding Resistance	Meets UL Standard 2601-1
Leakage Current	Less than 300uAmps earth leakage (tested per UL 2601-1)
Plug	Hospital Grade (3 pin)
Dimensions (approx.)	Width =12", Height=4.5", Depth=8.75"
Weight	Approximately 11 pounds
Pole Size Range	0.875"-1.25"
Operating Time of Battery with a Fully Charged Battery	7 hours @ 25 ml/hr (100ES/200ES) 5 hours @ 25 ml/hr (300ES/400ES)
Delivery Rate Range	0.1 to 999.9 ml/hr, in 0.1 ml/hr increments Micro Mode: 0.1 to 99.9 ml/hr
Volume to be Delivered Range	0.1 to 9999.9 ml, in 0.1 ml increments
Occlusion Limit Settings	75, 100, 200, 300, 400, 500 and 750 mmHg. Standard default is 300 mmHg.
Keep Vein Open Rate	3.0 ml/hr or selected rate, whichever is lower
Volume Delivered Accuracy	± 5%
Fluid Types	All standard IV fluids



## Chapter 16: Product Specifications

Alarms	Air-In-Line, Battery Very Low, Close Roller Clamp, Container Empty, Downstream Occlusion, Door Open, Hold Time Exceeded, KVO, Low Battery Warning, System Error.
Air-in-Line Alarm	$\geq 100$ microliter bubble
Free-Flow Protection	Passive, set-based
Memory	Permanent data retention after the pump is turned off unless the battery is depleted or disconnected, or unless the Data Retention Defaults have been otherwise selected in the Biomed Options.
Environmental Operating Limits	65° F to 105° F (18° C to 40° C)
Maximum Bolus Volume (Microbore Tubing)	0.047 ml at 399 ml/hr (75 mmHg) 0.086 ml at 399 ml/hr (750 mmHg) 0.053 ml at 500 ml/hr (400 mmHg) 0.097 ml at 750 ml/hr (750 mmHg)
Maximum Time to Occlusion Alarm	24 min at 0.1 ml/hr (75 mmHg) 33 sec at 399 ml/hr (75 mmHg) 6 hours at 0.1 ml/hr (750 mmHg)
Maximum Volume Under Single Fault Condition	Incremental volume in case of single fault condition will not exceed 1.0 ml at a rate of 999.9 ml

## ACCURACY TEST TRUMPET CURVES

The Outlook® ES, operated with B. Braun Medical Inc. Horizon® IV Pump Sets, maintains a volumetric accuracy with delivery errors not exceeding +/-5% for any one hour period over a 72 hour period. The following graphs (or Trumpet Curves) are provided to illustrate the results of Outlook ES volumetric accuracy tests. Additional testing results may be obtained from the manufacturer upon request.

## TRUMPET CURVE CREATION

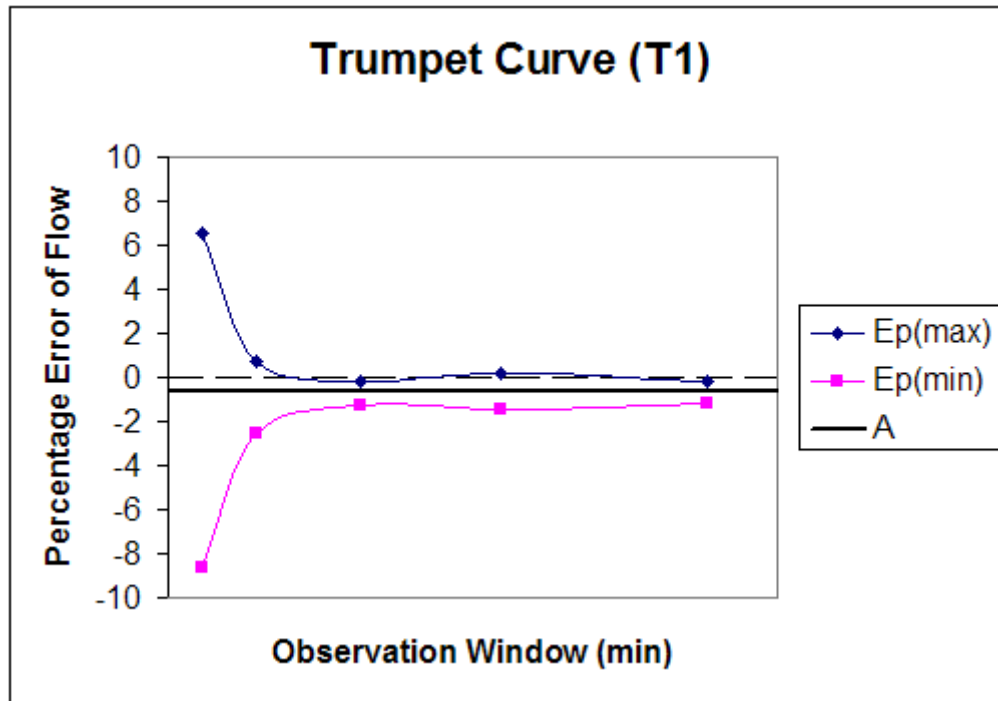
The Trumpet Curves were developed in accordance with IEC 601-2-24, dated 1998, which defines data collection and manipulation methods.

- The Trumpet Curves were created in the following manner:
- Fluid from the Outlook is collected at the set flow rates over a defined time period.
- Every 30 seconds, the cumulative weight of the fluid is recorded.
- The data from the second hour of delivery (shown as T1 here) are divided into observation windows and the average flow rate accuracy within those windows is calculated.
- The maximum positive and negative flow rate accuracy values (as they deviate from the set rate) are then picked out of the thirty accuracy values and plotted on the curve at the 2-minute interval.
- Continuing on, this same data from the second hour of delivery are divided into twelve 5-minute windows. The flow rate accuracy is calculated for each window. The maximum positive and negative accuracy values are picked out of the twelve accuracy values and plotted on the curve at the 5-minute interval.
- The same procedure is repeated for time intervals of 11, 19, and 31 minutes and the resulting maximum positive and negative flow rate accuracy values are plotted on the curve at their respective time intervals.
- Lines are then drawn to connect the plotted points to create the Trumpet Curve. This process is repeated for the last period of delivery.

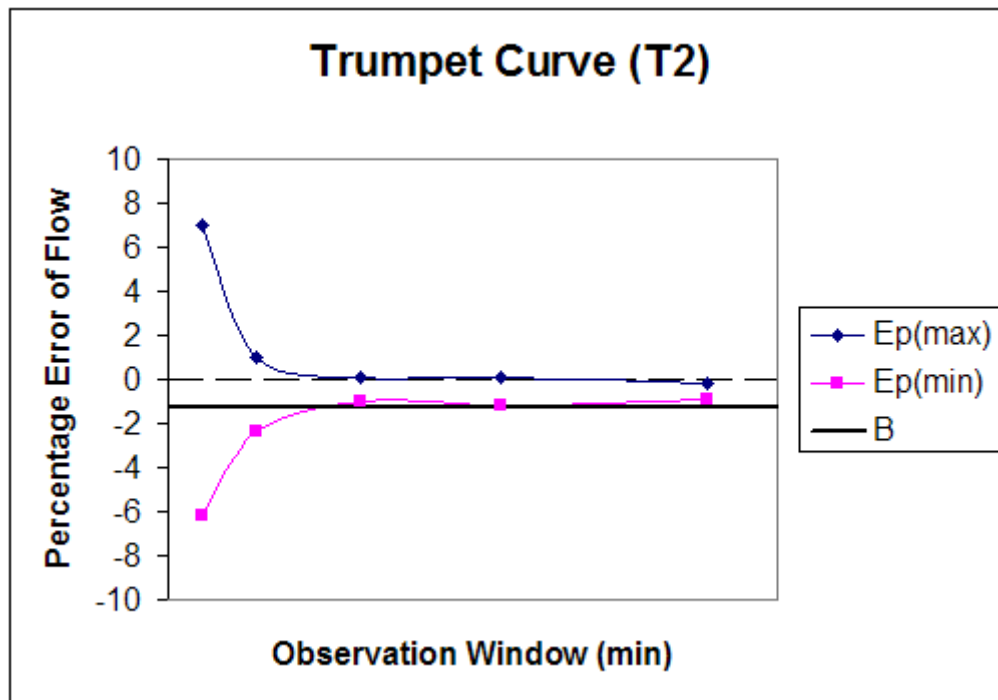
## TRUMPET CURVE INTERPRETATION

Trumpet Curves provide a graphical view of the maximum deviation in flow from the programmed delivery rate for specific segments of delivery time. The horizontal axis represents discrete delivery times as defined in the standard. The widest area of the Trumpet Curve (greatest deviation) reflects the beginning of the test which consists of the smallest sampling intervals or observation windows. As the number of sampling intervals increases, the deviations in flow from the programmed delivery rate are reduced. The deviations spread out over time resulting in the narrowing of the Trumpet Curve. The entire Trumpet Curve represents a more realistic representation of the device's average flow rate accuracy over

longer intervals of time.



*Trumpet Curve, 2nd Hour of Delivery*



*Trumpet Curve, Last Hour of Delivery*

THIS PAGE INTENTIONALLY LEFT BLANK.



**B. Braun Medical Inc.**

824 Twelfth Avenue  
Bethlehem, PA 18018  
[www.bbraunusa.com](http://www.bbraunusa.com)