CareFusion

Alaris® Pump module FAQs

1. **What makes the Alaris® Pump module unique?**

   Unparalleled safety (Guardrails® Suite MX), modularity, common user interface, ease of use and versatility.

2. **Where are pump modules used most often?**

   Pump modules are typically used throughout healthcare facilities for large volume infusions and indicated for use on adults, pediatrics and neonates through clinically acceptable routes of administration such as: intravenous (IV), intra-arterial (IA), subcutaneous, epidural, enteral or irrigation of fluid spaces.

3. **What type of infusions are pump modules used for?**

   Pump modules are typically intended for facilities that utilize infusion pumps for the delivery of fluids, medications, blood and blood products using continuous or intermittent delivery.

4. **Can blood and blood products be infused through the Alaris® Pump module?**

   Yes. The Alaris® System causes no clinically significant hemolysis while infusing red cells or platelets.

   The following blood administration sets may be used to administer blood products:

   - *10013037 (180 micron filter): SmartSite® needle-free valve set*
   - *2177-0000 (180 micron filter): VersaSafe™ split septum port*
   - *2477-0000 (180 micron filter): SmartSite® needle-free valve set*
   - *2477-0007 (180 micron filter): SmartSite® needle-free valve set*
   - *2478-0000 (180 micron filter): SmartSite® needle-free valve set*

5. **Does the Alaris® Pump module require dedicated IV administration sets?**

   Yes, the Alaris® Pump module/Gemini infusion system administration sets were developed for specific use with the Alaris® Pump module. Alaris® products offers a wide variety of dedicated IV administration sets and custom sets applicable to the Alaris® Pump module. Use of any other sets may cause improper instrument operation, resulting in an inaccurate fluid delivery or other potential hazard.

6. **Do the Alaris® Pump module IV administration sets contain latex, or are they latex free?**

   Most all Alaris® Pump modules/Gemini infusion system administration sets are latex free. However, the injection port at the top of two burette sets is made of latex. The administration sets that contain latex are:

   - *2240-0600*
   - *2241-0600*

7. **Does CareFusion offer DEHP-free disposable IV sets for the Alaris® System?**

   Yes. CareFusion, Alaris® products offers an extensive line of DEHP-free products and can offer special sets to

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meet individual needs. The following sample of dedicated Alaris® Pump module/Gemini infusion sets are DEHP-free:

- *10010453*
- *10010454*
- *10010483*
- *2260-0500*
- *2403-0007*
- *2420-0007*
- *2441-0007*
- *2477-0007*

> ***Note:*** *Additional DEHP-free components, extension sets, gravity sets, add-on burette sets and secondary sets are available and are listed in our product catalog.*

8. Does the Alaris® Pump module IV administration set provide free-flow protection?

Yes, the primary administration set's safety clamp fitment is a unique clamping device on the pumping segment that prevents inadvertent free-flow when the administration set is removed from the instrument. When an Alaris® Pump module/Gemini infusion system administration set is removed from the pump module, the instrument automatically engages the safety clamp fitment in the closed position. In the closed position, flow is occluded.

9. Can I use a power injector with the Alaris® System tubing?

Only the SmartSite® needle-free valve (Model 2000E) and SmartSite® extension sets 20019E, 20039E and 20041E are labeled for use with low pressure power injectors up to 325 psi and maximum flow rate of 10 mL/sec. If you are using one of our other IV sets, you will have to disconnect and attach the power injector tubing directly to the hub of the catheter.

10. What is the maximum flow rate for the Alaris® Pump module?

The maximum flow rate for the Alaris® Pump module is 999 mL/hr.

11. What is the minimum flow rate for the Alaris® Pump module?

The minimum flow rate for the Alaris® Pump module is 0.1 mL/hr.

12. What are the Alaris® Pump module's flow rate programming increments?

Rate range calculated	***Increments (mL/hr) User input rates***	***Device (mL/hr) rates***
0.1 - 9.99	*0.1*	*0.01*
10 - 99.9	*0.1*	*0.1*
100 - 999	*1*	*1*

13. What are the steps to priming the Alaris® Pump module?

1) *Open administration set package, remove set and close roller clamp.*
2) *Insert administration set spike into fluid container, following accepted hospital/facility procedure and hang container 20 inches above pump module.*
3) *Fill drip chamber to 2/3 full.*
4) *If container requires venting, open vent cap on administration set spike.*
5) *Open roller clamp and slowly prime tubing (slow priming helps to minimize turbulence that can cause air bubbles to form).*
   - *To remove visible air from the SmartSite® needle-free valve, invert and tap the valve while fluid is passing.*
   - *To remove the 0.4 mL of air present when the valve is activated, attach a luer-lock syringe to the valve and aspirate the air.*
6) *Close the roller clamp.*

14. What are the steps I should follow for proper set loading of the Alaris® Pump module?

1) *Remove the blue sheath from the pumping segment of the tubing.*
2) *Open the Alaris® Pump module door by gently pulling the front latch toward you.*
3) *Hold the upper fitment above the receptacle at the top of the Alaris® Pump module and lower it into the receptacle. The grooves in the fitment should fit square in the upper fitment tubing retainer.*

4) *Ensure that the tubing is not twisted and insert the **safety clamp** on the pumping mechanism into the lower recess, with the arrow pointing into the Alaris® Pump module (when loaded properly, you do not have to manually close the safety clamp fitment on the pumping mechanism).*

> ***Safety clamp fitment***
>
> *The safety clamp on the pumping mechanism prevents inadvertent free flow when the administration set is removed from the module. The safety clamp is packaged in the open position for sterilization and allows easy set priming. The set can be loaded with the safety clamp on the pump mechanism in the open or closed position. The Alaris® Pump module door automatically opens and closes the safety clamp.*
>
> ***Warning:** to prevent free-flow, close set roller clamp when the safety clamp fitment is open. The roller clamp is the primary safety mechanism to regulate the infusion rate and to prevent or stop flow to the patient. The safety clamp fitment is the secondary safety mechanism.*

5) *Using a finger tip, firmly push tubing toward back of air-in-line detector.*

6) *While grasping the Alaris® Pump module housing with one hand, gently close the door and then lower the latch with the other hand. Open the roller clamp and verify that no fluid is flowing through the drip chamber.*

7) *Open roller clamp and verify no fluid is flowing through drip chamber.*

15. What are the steps I should follow in setting up a secondary infusion (piggybacking)?

1) *Secondary applications require the use of a check valve set on the primary IV line.*

2) *The secondary solution container must be hung so that the bottom of the secondary container is at least 9 ½ inches above the fluid level in the primary solution container.*

3) *Open secondary administration set clamp and prime set. Close clamp.*

4) *Attach secondary administration set to upper injection site on primary set.*

5) *The clamp on the secondary administration set must be opened prior to beginning the secondary infusion. If the clamp is not opened, the fluid will be delivered from the primary container.*

16. What are the pressure mode selections with the Alaris® Pump module?

There are two pressure modes available to determine the patient-side occlusion limit with the Alaris® Pump module:

***Pump Mode**, where downstream occlusion alarm threshold is 525mmHg at flow rates of 30 mL/hr or greater. For rates less than 30 mL/hr, the occlusion pressure is rate-dependant, to ensure rapid response to occlusions.*

***Selectable Pressure Mode**, where the downstream occlusion alarm threshold can be adjusted by the user in 25mmHg increments from 50mmHg up to the value, set as the Profile's Maximum Occlusion Pressure up to a maximum of 525 mmHg. Pressure must reach hospital-established pressure limit before occlusion warning will alarm.*

17. What is the Maximum Occlusion Pressure default for the Alaris® Pump module?

*This is a patient-side occlusion alarm threshold for the **Selectable Pressure Mode**. The instrument will default (with software versions 8 and above) to this setting when **New Patient** is selected. Your hospital may establish a default pressure setting for each profile as a starting limit with the ability to increase the pressure limit up to the Profile's maximum occlusion pressure.*

18. How does the dynamic pressure display work and what exactly is being displayed for the Alaris® Pump module?

The Dynamic Pressure Display provides a real time graphical display of the current patient-side downstream) pressure reading and the occlusion alarm threshold. This is useful to see graphically how close the pump is to reaching the occlusion alarm threshold and/or whether the pressure is increasing or decreasing.

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The Pressure Display uses a rectangle bar that extends from the left to the right side of the screen, and in the case of the Alaris® Pump module, represents a range of 0-525 mmHg (0 -10.2 psi). The bar is filled in up to a point representing the baseline downstream pressure reading at the beginning of an infusion or the current downstream pressure reading during an infusion. A line marker is also shown representing the current occlusion alarm limit. The pressure display information is updated every 10 seconds, but does not update when the instrument is Paused or in Alarm.

19. When more than one pump module channel is running on the Alaris® System, why is the initial baseline pressure reading on the Pressure Display different for each channel?

At the beginning, or shortly after the beginning of an infusion the baseline pressure is measured. There are four variables that may affect the initial displayed baseline pressure reading:

1) *Fluid pressure in each line, which may be different due to different programmed rates and/or amounts of restriction.*
2) *Fluid container height of each line relative to the pump.*
3) *Disposable pumping segment variables for each line.*
4) *Sensor variables on each channel.*

20. What should a clinician be looking at on the pressure display to monitor pressure changes in the line for the Alaris® Pump module?

To monitor changes in the patient-side pressure, the clinician should observe the range (or space) between the current pressure reading (filled bar) and the occlusion alarm limit marker. If this space is getting smaller, the pressure is increasing and vice-versa. When the pressure bar reaches the occlusion alarm limit marker, an occlusion alarm will be triggered.

22. How can the clinician adjust the pressure limit or pressure mode on the Alaris® Pump module?

1) *Press **Channel Select** on the channel you wish to adjust the pressure limit or pressure mode.*
2) *Press **Options**. Note: current pressure limit listed in mmHg.*
3) *Under Pressure Limit Selection, press **Selectable**.*
4) *Press **Up** or **Down**.*

Note: With each key press, the pressure limit will increase or decrease by 25 mmHg increments.

5) *Once you have reached the desired new pressure limit press **Confirm**.*

Note: Change in tick mark on pressure bar graph on Main Display for the channel.

23. Does the Alaris® System alarm for in infiltration?

No. The Alaris® Pump module is not designed or intended to detect infiltration.

24. How many Alaris® Pump modules can be attached to one Alaris® PC unit?

Anywhere from one to four modules in any configuration (i.e., all on one side of the Alaris® PC unit, or two on each side, etc.).

25. What type of pump mechanism does the Alaris® Pump module use?

Linear, dual stage, positive displacement, flow compensated.

26. Does the Alaris® Pump module have a battery?

No. The Alaris® Pump module requires an Alaris® PC unit for power and operation.

27. What kind of battery does the Alaris® PC unit have, and what is the battery run time?

The battery type is nickel metal hydride.

*Battery run time is a function of the number of modules attached and module activity. With a new, fully charged battery, the system will operate as follows before a "**Battery Discharged**" message occurs:*

- *8 hours with one pump module infusing at 25 mL/hr.*
- *4 hours with four modules infusing at 25 mL/hr.*
- *Battery recharge time: three hours to 90 percent, 6 hours to 100 percent while running.*

The battery will have the longest life if the instrument is plugged in and battery use is infrequent. Frequent use of battery power and insufficient battery charge cycles will significantly decrease the life of the battery.

28. What is the Alaris® Pump module's rate accuracy?

The Alaris® Pump module's instrument accuracy is +/- 5% at rates between 1 and 999 mL/hr and +/- 5.5% at rates <1 mL/hr.

29. What are the Alaris® Pump module's configurable settings that are shared with the Alaris® Syringe module?

Configurable settings that will be shared with the Alaris® Syringe module include:

- *Delay options*
- *Drug calculation*
- *Drug calculation bolus mode*
- *Multidose*
- *Pressure dynamic*
- *Priming*
- *Volume/duration*

30. Does the Alaris® Pump module offer delay options?

*Yes, an infusion can be **delayed for** a minimum of one minute up to 120 minutes or **delayed until** a minimum of one minute up to 23 hours and 59 minutes.*

A "callback" or audio-visual alert may be programmed for before, after or before and after a delayed infusion has been completed:

Before: "callback" can be scheduled to occur when the delay is completed and infusion needs to be initiated.

After: "callback" can be scheduled to occur when the delayed infusion is complete.

Note: If the After option is not selected, there will be no audio or visual alert when delayed infusion is complete.

*Before and After: "callback" can be scheduled to occur when delay is completed and infusion needs to be initiated **and** when delayed infusion is complete.*

Note: When the delay option is used, the infusion will not revert to KVO mode when completed.

31. Does the Alaris® Pump module offer multidose capabilities?

Yes. When enabled, the multidose mode allows two to 24 doses to be programmed at equally spaced intervals on the same Alaris® Pump module over a 24-hour period.

32. What are the configurable settings for the Alaris® Pump module?

Configurable settings for the Alaris® Pump module include:

- *Accumulated Air-in-Line*
- *Air-in-Line*
- *Auto-Restart Attempts*
- *KVO Rate Adjust*
- *Max Occlusion Pressure*
- *Max Occlusion Pressure Default*
- *Maximum Rate*
- *Maximum VTBI*
- *Pressure Mode Lock Status*
- *Pressure Mode Selection*
- *SEC-PRI Audio Alert*
- *Secondary Infusion*

33. Does the Alaris® Pump module offer a KVO option?

Yes. When enabled, infusions will automatically switch into KVO mode upon completion. The KVO rate is configurable between 0.1 and 20 mL/hr. This will determine the rate of fluid flow after "Infusion Complete" has occurred.

34. Does the Alaris® Pump module work with anesthesia mode?

Yes. Anesthesia mode is available with the Alaris® Pump module.

35. Can the Alaris® Pump module be used during MRI?

No. The Alaris® infusion devices, as well as most other large volume infusion devices have metallic components that are not compatible with the MRI technology. Bringing an instrument into the MRI field could both

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harm the instrument and affect the quality of the medical image. When infusions need to be maintained, customers will add long extension sets and leave the instrument outside of the room.

36. Is the Alaris® System recommended for use during ECMO?

No. The Alaris® System is not recommended in this use. Even though the Alaris® System's accuracy is not affected by pressures of +300 mmHg for the Alaris® Pump module, we can not recommend specific therapies. ECMO is a therapy used in hospitals and our testing and documentation is not therapy-specific.

37. How should the Alaris® System and modules be cleaned?

- *Do not allow cleaning or IV solutions to collect on/in the instrument.*
- *Do not spray fluids directly onto the instrument or into rear case of the instrument or into the inter-unit interface (IUI) connectors.*
- *Do not use hard, abrasive or pointed objects to clean any part of the instrument. A soft-bristled brush may be used to clean hard-to-reach and narrow areas.*
- *Do not allow the cleaning solution to contact the IUI connectors when cleaning the instrument.*
- *Do not connect a module until the IUI connectors are thoroughly dry.*
- *Do not use compressed air to dry the instrument; this could force fluid into the instrument.*
- *Do not steam autoclave, EtO_2 sterilize, immerse the instrument in fluids or allow fluids to enter the instrument case.*

Steps to cleaning: Refer to the Directions for Use for a complete list of acceptable cleaning solutions at http://www.carefusion.com/customer-support/Alaris-Document/clinical-documentation.aspx

1) *Before cleaning, turn the instrument off and unplug the AC power source.*
2) *Keep instrument upright and do not allow any part to become saturated with or submerged in fluid during cleaning.*
3) *Use a soft cloth dampened with warm water and a mild, non-abrasive cleaning solution to clean all exposed surfaces. For sanitizing or anti-bacterial treatment, use 10 percent bleach solution and water.*
4) *Use a soft cloth dampened with water to rinse off cleaning solution.*

Note: Failure to follow these instructions may result in an electrical hazard and/or may damage the instrument.

38. What are the Alaris® Pump module's dimensions?

The Alaris® Pump module's dimensions are 3.3"W x 8.9"H x 5.5"D.

39. How much does the Alaris® Pump module weigh?

The Alaris® Pump module weighs approximately 2.5 lbs.

40. Can the Alaris® Pump module be turned upside down?

To ensure proper operation, Alaris® System must remain in an upright position.

To learn more about Alaris® infusion technologies**, please contact your local sales representative at **1.800.684.8880

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