This manual has been prepared for use by qualified service personnel only.
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Cardinal Health, 1180 Rolle, Switzerland

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General precautions

Please read the general Operating Precautions described in the Directions for Use carefully prior to using the Docking Station.

This Docking Station contains static-sensitive components. Observe strict precautions for the protection of static sensitive components when attempting to repair and service the Docking Station.

An explosion hazard exists if the Docking Station is used in the presence of flammable anaesthetics. Exercise care to locate the Docking Station away from any such hazardous sources.

An electrical shock hazard exists if the Docking Stations casing is opened or removed. Refer all servicing to qualified service personnel.

If the Docking Station is dropped, subjected to excessive moisture, humidity or high temperature, or otherwise suspected to have been damaged, remove it from service for inspection by qualified service personnel.

When connected to an external power source, a three-wire (Live, Neutral, Earth) supply must be used. If the integrity of the external protective conductor in the installation or its arrangement is in doubt, the Docking Station should be removed from service.

Use extreme caution when servicing equipment whilst it is connected to the AC mains.

Always visually inspect the tiles, power cord and plug for damage. If the power cord or plug are damaged they should be replaced.
The Docking Station provides the link of modularity between the Alaris® Syringe Pumps and Alaris® Volumetric Pumps. A common docking interface provides the mains supply and easy mechanical mounting in one action, without the need for cables. Only a single mains inlet is required. The power tile at the base of the Docking Station provides the AC Mains supply and the Potential Equalisation connector.

The Docking Station has a unique, flexible mounting system - the Medical Device Interface (MDI) - mountable to a trolley or any suitable horizontal rectangular bar.

The Docking Station is simple to set up with an adaptable modular design. The Docking Station has its own power distribution circuit. The AC power is supplied via a standard IEC connector into the power tile. An illuminated isolator mains switch shows when the power is on. There is a double fuse holder protecting the AC inlet. If the AC power switch does not illuminate when the Docking Station is switched on, suspect that either the power supply fuse in the AC plug, or the internal fuses have blown. First check the power supply fuse in the AC mains plug. If the AC power switch still does not illuminate remove the equipment from service.

**Electrical Safety Checks**

The following procedure is designed to test the electrical function and safety of the Docking Station. It should be performed on all units after any maintenance, and at least once per year.

**WARNING:** The following procedures use MAINS VOLTAGE and HIGH TEST CURRENTS. Appropriate precautions against electric shock should be taken at all times.

1. Connect the Docking Station to a mains supply. Move the power switch at the base of the Docking Station to the 'ON' position and check that it lights up.
2. Connect a medical grade electrical safety tester, (e.g. Metron QA-90) to a mains supply. Calibrate the Enclosure Lead, (see safety tester’s operating instructions) and then connect it to the PE point of the Docking Station. Plug the mains test lead from the safety tester into the mains inlet of the Docking Station.
3. Set up and perform a standard automatic electrical safety test to EN60601-1 Class I, using an Earth Continuity test current of 25A. The tester may require an applied part 'Type' to be entered. If this is the case, 'Type B' should be selected, but no applied parts should be specified. A hard copy of the test results should be printed. The required test result limits are as follows:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective Earth Resistance</td>
<td>&lt; 200mΩ</td>
</tr>
<tr>
<td>Current Consumption</td>
<td>&lt; 300mA</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>&gt; 200MΩ</td>
</tr>
</tbody>
</table>

**Earth Leakage current:**

- Open Supply - (OS) < 1000µA
- Normal Condition - (NC) < 500µA
- Open Supply Reverse Mains - (OSRM) < 1000µA
- Normal Condition Reverse Mains - (NCRM) < 500µA

**Enclosure Leakage current:**

- Open Supply - (OS) < 500µA
- Normal Condition - (NC) < 100µA
- Open Earth - (OE) < 500µA
- Open Supply Reverse Mains - (OSRM) < 500µA
- Normal Condition Reverse Mains - (NCRM) < 100µA
- Open Earth Reverse Mains - (OERM) < 500µA
4. If the medical grade electrical safety tester does not include a suitable test probe to permit testing of the outlet earth pin on each tile, a test lead may be constructed using the following equipment:
   1) 6mm Ring Tag e.g. 150-272 (Farnell) 1 off
   2) IEC Mains Lead (male, in-line) e.g. 257-813 (Farnell) 1 off
   3) 3:1 Heatshrink Adhesive lined e.g. 304-7234 (Farnell) 30mm off
   Ensure that the mains lead is cut as short as possible to minimise resistance.

5. Disconnect the Enclosure Lead from the Docking Station and apply it to the ring tag on the test lead. Connect the test lead to the mains outlet of each docking tile in turn and conduct an Earth Continuity test at 25A using the electrical safety tester. In all cases, the resistance to earth from each tile outlet should not exceed 0.2Ω. If possible, the results of these tests should be included on the hard copy output from the safety tester.

6. Disconnect the Enclosure Lead from the test lead. Attach a high current probe to the enclosure lead. Using the probe and electrical safety tester, conduct Earth Continuity tests on one screw on every IEC Mains Outlet and one screw on every tile plate. In all cases, the resistance to earth from each tile outlet should not exceed 0.2Ω. If possible, the results of these tests should be included on the hard copy output from the safety tester.
Routine Maintenance Procedures

To ensure that all parts of the Docking Station remain in good operating condition, it is important to keep it clean and perform the routine maintenance procedures described below. All servicing should only be performed by a qualified service engineer.

<table>
<thead>
<tr>
<th>Interval</th>
<th>Routine Maintenance Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>When turning ON</td>
<td>Check that the ON/OFF switch is illuminated when in the ON position.</td>
</tr>
<tr>
<td>When loading pumps</td>
<td>Check that each pump is properly located on its electrical connectors and is mechanically locked into position.</td>
</tr>
<tr>
<td>When removing pumps</td>
<td>Check that the red LED on the docking tile turns OFF when the pump is removed. If the LED stays ON, the Docking Station should be serviced by a qualified service engineer.</td>
</tr>
<tr>
<td>As required</td>
<td>Thoroughly clean external surfaces of the equipment before and after prolonged periods of storage</td>
</tr>
<tr>
<td>After servicing</td>
<td>On final assembly check that all connectors are correctly fitted and located, ensuring that all earth cables are tightly secured to the extrusion and that there are no loose items within the assembly. Check that all the labels are correctly located, that there are no scratches or damage.</td>
</tr>
<tr>
<td>12 Monthly</td>
<td>• Inspect AC outlets, communication connectors and the AC inlet for damage.</td>
</tr>
<tr>
<td></td>
<td>• Perform electrical safety checks (see ‘Test Procedures’). The complete unit leakage current must be measured. If more than 500µA the equipment should not be used, but should be serviced by a qualified service engineer.</td>
</tr>
</tbody>
</table>

If any item is dropped, damaged, subjected to excessive moisture or high temperature, take it out of service immediately for examination by a qualified service engineer.

Cleaning and Storage

Periodically during use, clean all exterior surfaces by wiping over with a lint-free cloth lightly dampened with warm water and a standard disinfectant / detergent solution.

<table>
<thead>
<tr>
<th>Cleaning and Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before cleaning always switch OFF the Docking Station, disconnect from the AC power supply and remove all pumps. Never allow liquid to enter the tiles or electrical contacts and avoid excess fluid build-up on the surface of the tiles. Do not use aggressive solvents or abrasive cleaning agents as these may damage the exterior surface of the Docking Station.</td>
</tr>
</tbody>
</table>

Disposal

Information on Disposal for Users of Waste Electrical & Electronic Equipment

This symbol on the product and/or accompanying documents means that used electrical and electronic products should not be mixed with household waste.

If you wish to discard electrical and electronic equipment, please contact your Cardinal Health affiliate office or distributor for further information.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

Information on Disposal in Countries outside the European Union

This symbol is only valid in the European Union. The product should be disposed of taking environmental factors into consideration. All components can be safely disposed of as per local regulations.
### Trouble Shooting Guide

**Docking Station has been dropped or damaged**
- If the equipment is damaged, the damaged parts should be identified and replaced before any further troubleshooting is carried out.
- During inspection, careful attention should be paid to the power tile and each docking tile, which may be damaged if the Docking Station is dropped.

**Docking Station has been exposed to fluids**
- Excessive fluid spills can lead to fluid ingress into the Docking Station. Even if the fluid dries out, deposits can be left which cause the equipment to fail.
- If fluid ingress is suspected the Docking Station should be inspected internally.
- Clean and dry out the equipment.
- Take care to ensure dried out deposits do not remain on the PCBs or other electrical components. Replace permanently damaged tiles.

**Docking Station will not power from AC mains**
- First check the function of the mains cable with another piece of working equipment.
- Check that the mains is switched on at the wall outlet, if applicable.
- Check that the power cord is seated properly in the mains inlet. Also check the fuse in the AC mains plug.
- If the AC Power switch does not illuminate when the pump is connected to a live AC cable, check the mains fuses at the mains inlet.

**No power present at pump**
- Check that the Docking Station is switched on and has power.
- Check that the pump is correctly seated on the tile.
- Hold a magnet next to the Infra-Red communications port on the tile. If the Warning LED does not light up the tile must be replaced. If the LED does light up, suspect a problem with the pump and remove from service to be examined by a qualified service engineer.

**Warning LED remains lit when pump is removed from tile**
- Remove and check that the tile relay body is not distorted by trapped cable loom(s). If relay body is distorting reposition cable loom(s) away from the relay body.
- Replace the complete tile, following the instructions in 'Spare Parts Replacement Procedures.'
Power Tile

Replacement Procedure
1. Release the four M4x30 screws on the power tile and the four M4 screws on the adjacent pump tile.
2. Unscrew the two earth cables from the extrusion.
3. Remove the 15V DC supply connector (PL5) from the adjacent pump tile. Also disconnect the Live and Neutral (SC1 and SC2) connectors from the adjacent tile.
4. The complete power tile module can now be removed and replaced with the new power tile. Slide the new power tile into the extrusion. Reconnect the 15V DC supply, live and neutral to PL5, SC1 and SC2 on the adjacent pump tile.
5. Refit the two earth cables to the extrusion.
6. Check that all connectors are correctly fitted and located. Ensure that all earth cables are tightly secured to the extrusion.
7. Lower the pump tile into position in the extrusion and secure both the adjacent pump tile and the new power tile, using the M4 screws with loctite 243 on the screw threads and fastened to 40cNm.

Docking Tile

Replacement Procedure
1. Remove the four M4x10 screws on the tile.
2. Remove connectors PL5 and PL2. Disconnect Live and Neutral (SC1 and SC) and the IEC Mains Outlet earth cable (PL3).
3. Fit the new tile. Ensure that the tile spacer is flush to the tile above.
4. Reconnect all cables.
5. Before fitting the four M4x10 screws ensure that screw threads have loctite 243 on, then fully fasten down to 100cNm.
Spare Parts Replacement Procedures (continued)

Bar Mounting Kit

Replacement Procedure

This instruction details the fitting of the bar mounting kit to a Docking Station to enable the Docking Station to be secured to either a bar mounting wall or trolley mounting.

1. Place the Docking Station face down on a surface or bench, ensuring that the surface is clean and will not scratch or damage the Docking Station. If the Docking Station is fitted with a horizontal section care must be taken not to rest the weight of the Docking Station on the bag hooks. The bag holder should be either rotated so it is pointing upwards or the Docking Station should be positioned so that the bag hooks overhang the end of the table or bench.

2. Disassemble the mounting kit and drop one of the two square nuts into each channel in the rear of the extrusion. See below.

3. Using a tool, such as a screwdriver, slide the nuts along the channels so that they are parallel in the position required.

4. Fit the mounting blocks over the top of each of the square nuts and place the bar mount across the two blocks, ensuring that the screw holes line up on each side.

5. Fit the two hex screws through the bar mounting and through the mounting blocks. Line up the end of the screws with the thread of the square nuts, turn the screws until the threads engage and then screw up as normal.

6. Tighten up both screws ensuring that the mounting kit is level and secure.

7. Cut a section of sealing cord to a length suitable to fill the channel between the mounting kit and the end of the extrusion.

8. Press one end of the cord into the channel at the end of the extrusion. Carefully stretch the cord and press it into place.

9. Repeat the operation for the remaining sections of channel.
Pole Mounting Kit

Fitting Procedure

1. Remove Sealing Cord from the channel. Using an Allen key, remove the fasteners from the pre-fitted Square Nuts (A) in the extrusion channel. Using a screwdriver or similar pointed tool, slide the loosened Square Nuts along the channel to the required position.

2. Insert the two Screws (B) through the Clamp (C) and Spacers (D).

3. Tighten the Screws ensuring that the mounting kit remains level.

4. Insert the Mounting Knobs (E) into the Clamp.

5. Repeat the process for the second kit.

6. Cut a length of Sealing Cord to fill the channel between the mounting kit and the end caps.

7. Carefully press the cord into place.

8. Repeat the operation for the remaining sections of the channel.
Spare Parts Replacement Procedures (continued)

Trolley Mounting Kit

Fitting Procedure

1. Remove the plastic coating from the inner and outer surfaces of the Ring Clamp (A).
2. Slide one ring clamp over each trolley pole.
3. Align the Cross Bar (B) fixing holes with those in each of the Ring Clamps.
4. Insert the Fixing Screw (C) through the assembly positioning washers (D) and (E) as shown.
5. Position the support bar and tighten the Thin Nut (G), Dome Nut (F) and screw to 3Nm.

Installation to the Trolley

1. When fixing the Docking Station to the trolley, the mounting kits should be positioned and tightened so that the mount clamps align with the 10 x 25mm bars on the trolley.
2. The Docking Station should then be mounted so both top and bottom mount clamps fit over the 10 x 25mm bar of the trolley.
3. The knobs should be tightened in order to fully restrain the Docking Station into position.
Spare Parts Replacement Procedures (continued)

**Horizontal Extrusion**

**Replacement Procedure**

For more information refer to the mechanical assembly drawings in this section.

1. Where a horizontal extrusion is already fitted, remove the screws at the rear and base of the T-piece.
2. Remove pole hanger assembly, end cap mouldings, castings, slip catch and end cap intermediate.
3. Remove the tile at the far right of the extrusion. Disconnect cables PL5 and PL2. The extrusion can now be removed and replaced with a new extrusion.
4. Replace the horizontal extrusion to the vertical by aligning the screw threads on the bottom face of the horizontal extrusion with the plastic T piece moulding, also the rear of the T piece. Fasten the screws to 70cNm. Replace end cap intermediate, castings and slip catch.
5. Loosen the tile on the far right-hand side of the new extrusion. Reconnect cables PL5 and PL2 to the tile in the far right-hand position. Refit the tile to the extrusion.

**Fuse**

**Replacement Procedure**

1. Using a flat-bladed screwdriver, unscrew the fuse holder. Each holder has a separate socket.
2. Replace the blown fuse or fuses with the same type and rating of fuse.
3. Slide the holder back into the fuse socket in the power tile and twist to secure.
The following Assembly Drawings contain details of all component parts for the Docking Station. To order replacement parts, locate the component part on the drawing and order the associated spare parts kit listed.
Notes

1. Apply Loctite 263 in accordance with manufacturer instructions.
### Spare Parts Replacement Procedures (continued)

<table>
<thead>
<tr>
<th>SKU No</th>
<th>Part No</th>
<th>Item No</th>
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<td>80083UN00-43</td>
<td>80083UN00-44</td>
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<td>80083UN00-62</td>
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<tr>
<td>80083UN00-82</td>
<td>80083UN00-83</td>
<td>80083UN00-84</td>
</tr>
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</table>

![Diagram](image-url)
Notes
1. Sequence of assembly - Assemble Item 220 prior to fitting screws.
2. Apply Locitite 243 in accordance with manufacturer instructions.
See Note 1

Notes
1. Apply Loctite 243 in accordance with manufacturer instructions.
Notes

1. Place tile spacers item 140 in position prior to fitting tiles.

2. Do not fully tighten tile fixing screws until all the assemblies are connected and in place.

3. Ensure no cables are trapped when fitting item 150.

4. For connection details and cable selection see wiring diagram in this section.

5. Apply Loctite 243 in accordance with manufacturer instructions.
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>1000SP00502</td>
<td>DS Tile Board Spare</td>
</tr>
<tr>
<td>1000SP00503</td>
<td>DS PSU Spare</td>
</tr>
<tr>
<td>1000SP00504</td>
<td>DS / IDS End Cap Spare</td>
</tr>
<tr>
<td>1000SP00505</td>
<td>DS / IDS T-Piece Spare</td>
</tr>
<tr>
<td>1000SP00506</td>
<td>DS / IDS Trim Strip Spare</td>
</tr>
<tr>
<td>1000SP00507</td>
<td>DS / IDS Pole Hanger Spare</td>
</tr>
<tr>
<td>1000SP00508</td>
<td>DS / IDS 2 Way Pole Hanger</td>
</tr>
<tr>
<td>1000SP00509</td>
<td>DS / IDS 3 Way Pole Hanger</td>
</tr>
<tr>
<td>1000SP00510</td>
<td>DS Cable Kit Spare</td>
</tr>
<tr>
<td>1000SP00511</td>
<td>DS Hardware Spare Kits</td>
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<td>1000SP00533</td>
<td>DS Front Cover Spares Kit</td>
</tr>
<tr>
<td>1000ME00409</td>
<td>Spacer Horizontal DS / IDS</td>
</tr>
<tr>
<td>1000SP00347</td>
<td>Assy Mains Inlet DS / IDS</td>
</tr>
<tr>
<td>1000LB01447</td>
<td>Alaris DS Label Set</td>
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<tr>
<td>1000SP01187</td>
<td>Mounting Kit Assembly DS Trolley</td>
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<tr>
<td>0000ME00432</td>
<td>Nut Square M6 DS</td>
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<td>1000SP00665</td>
<td>DS Pole Clamp Assy - Extended</td>
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<td>1000SP00303</td>
<td>Mounting Assy Kit Asena DS/IDS</td>
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<tr>
<td>1000SP00169</td>
<td>Assembly P/Clamp Docking Station Asena</td>
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## Document History

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<th>CO No.</th>
<th>Author</th>
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<tr>
<td>1</td>
<td>November 2006</td>
<td>6596</td>
<td>Ian Tyler</td>
<td>Initial release supersedes 1000PB00842.</td>
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<tr>
<td>2</td>
<td>November 2007</td>
<td>7885</td>
<td>Ian Tyler</td>
<td>Update test procedures.</td>
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