What is claimed is:

1. A manifold adaptor suitable to contain and convey pneumatic pressure and configured to connect a ~~pressure~~ pneumatic distribution manifold with a liquid-handling cassette assembly comprising:

a housing having a first side comprising a ~~first~~ set of transfer ports configured to connect to ~~actuation~~ output ports of the pneumatic distribution manifold, and having an opposing second side comprising a ~~second~~ set of receptacle~~transfer~~ ports configured to receive actuation ports of the liquid-handling ~~connect to actuation input ports of the~~ cassette assembly;

the ~~first~~ set of transfer ports comprising a first spatial array configured to match a spatial array of the ~~actuation~~ output ports of the pneumatic distribution manifold;

the ~~second~~ set of ~~transfer~~ receptacle ports comprising a second spatial array configured to match a spatial array of the actuation ~~input~~ ports of the liquid-handling cassette assembly;

wherein the first spatial array of transfer ports is characterized by a layout and distribution of the transfer ports on the first side of the housing in a geometric pattern that is different from a geometric pattern characterizing the layout and distribution of the receptacle ports of the second spatial array of ~~transfer~~ receptacle ports on the second side of the housing.

2. The manifold adaptor of claim 1, wherein the first spatial array covers an area of the first side of the manifold adaptor housing having a first length and a first width, and the second spatial array covers an area of the opposed second side of the adaptor housing having a second length and a second width, and wherein the second length is greater than the first length, and wherein ~~so that~~ the housing of the manifold adaptor overhangs a side of the pneumatic distribution manifold when the manifold adaptor is connected to the pneumatic distribution manifold and assembled in an operative configuration.

3. The manifold adaptor of claim 1, wherein the second side of the housing includes an elastomeric wiper gasket comprising a plurality of wiper seals, wherein each of said plurality of wiper seals is associated with a ~~transfer~~ receptacle port on the second side of the

manifold adaptor housing, wherein the wiper gasket is embedded under a top plate of the manifold adaptor housing and is configured to create a seal between actuation ports of the liquid-handling cassette and receptacle ports of the manifold adaptor.

4. The manifold adaptor of claim 1, wherein the housing comprises:

a plate, wherein the transfer ports pass through the plate; and

a block with at least one pneumatic channel on a first side of the block facing the plate, the at least one pneumatic channel providing fluid communication between the transfer ports and the receptacle ports;

wherein the plate is sealed to the first side of the block to fluidly isolate the at least one pneumatic channel.

5. The manifold adaptor of claim 1, wherein the housing comprises:

a plate with a first set of pneumatic ports;

a block comprising a second set of pneumatic ports that are aligned with the first set of pneumatic ports when the plate is assembled to the block; and

an elastomeric wiper gasket captured between the block and the plate, the wiper gasket comprising a plurality of wiper seals;

wherein the first set of pneumatic ports, the second set of pneumatic ports, and the wiper seals together form the receptacle ports of the second side of the housing of the manifold adaptor.

6. The manifold adaptor of claim 5, wherein each wiper seal encircles a pneumatic port of the second set of pneumatic ports and forms a conical recess toward the pneumatic port of the second set of pneumatic ports.

7. The manifold adaptor of claim 5, wherein the block further comprises a recess to receive the wiper gasket.

8. The manifold adaptor of claim 5, wherein the wiper gasket seals against an underside of the second plate.

9. The manifold adaptor of claim 4, further comprising a gasket located between the first plate and the block that is configured to seal the at least one pneumatic channel.

10. The manifold adaptor of claim 1, wherein the housing comprises:

a first plate wherein the transfer ports pass through the first plate;

a second plate with a first set of pneumatic ports;

a block comprising at least one pneumatic channel on a first side of the block facing the first plate, and a second set of pneumatic ports that are aligned with the first set of pneumatic ports when the second plate is assembled to the block, wherein the at least one pneumatic channel provides fluid communication between the transfer ports and the receptacle ports of the second side of the housing of the manifold adaptor; and

an elastomeric wiper gasket captured between the block and the second plate, the wiper gasket comprising a plurality of wiper seals;

wherein the first set of pneumatic ports, the second set of pneumatic ports, and the wiper seals together form the receptacle ports of the second side of the housing of the manifold adaptor.

11. The manifold adaptor of claim 10, further comprising connectors that engage the first plate with the block and/or the bottom plate.

12. The manifold adapter of claim 1, wherein the first spatial array is smaller than the second spatial array.

13. The manifold adapter of claim 1, wherein the pneumatic distribution manifold provides positive and negative pneumatic pressure to move liquid through the liquid-handling cassette assembly.

~~4. A seating apparatus for a cassette having a plug-in side and an opposing mounting side, the seating apparatus comprising:~~

~~a stationary frame member connected to a movable cassette mount by a plurality of linkages on a first side of the cassette mount and on an opposing second side of the cassette mount, the linkages on the first side of the cassette mount connected to a first stationary flange of the stationary frame member, and the linkages on the second side of the cassette mount connected to a second stationary flange of the stationary frame member;~~

~~the linkages each comprising a swing-arm having a first end pivotally coupled to the stationary flange and a second end coupled to an elongate slot in the cassette mount;~~

~~the second end of the swing-arm being configured to move in an arcuate path to move the cassette mount, wherein~~

~~the elongate slot restricts movement of the cassette mount by the swing arm to a linear motion toward or away from the stationary frame member.~~

~~5. The seating apparatus of claim 4, wherein the cassette mount comprises a first moveable flange and a first rail at the first side of the cassette mount, and a second moveable flange and a second rail at the second side of the cassette mount, each said moveable flange having a surface generally parallel to the direction of movement of the cassette mount, the elongate slot being formed in the moveable flange and oriented perpendicular to the direction of movement of the cassette mount, and wherein the first and second rails are configured to hold the mounting side of the cassette.~~

~~6. The seating apparatus of claim 5, comprising a handle assembly pivotally connected to the cassette mount, so that movement of a handle of the handle assembly in a direction away from the stationary frame member moves the cassette mount away from the stationary frame member, and movement of the handle in a direction toward the stationary frame member moves the cassette mount toward the stationary frame member.~~

~~7. The seating apparatus of claim 6, wherein the pivotal connection of the handle assembly comprises a first pivotal connection of a first handle arm to the first stationary flange, a second pivotal connection of a second handle arm to the second stationary flange, a third pivotal connection of the first handle arm to a handle swing arm connected to the first moveable flange of the cassette mount, a fourth pivotal connection of the second handle arm to a handle swing arm connected to the second moveable flange of the cassette mount, wherein the first and third pivotal connections and the second and fourth pivotal connections are spaced apart from each other on the first and second handle arms.~~

~~8. The seating apparatus of claim 6, comprising a third stationary flange of the stationary frame member, said third stationary flange facing the handle assembly and generally perpendicular to the first and second stationary flanges, wherein the handle~~

assembly includes a spring-loaded plunger configured to engage a hole or recess in the third stationary flange, so that the cassette mount may be locked into a retracted position when the handle of the handle assembly is moved toward the stationary frame member.

9. A method of controlling a pneumatically actuated diaphragm pump comprising:

opening a valve that fluidically connects a pneumatic pressure source to an actuation chamber of the diaphragm pump;

monitoring one or more pressures of a gas in the actuation chamber of the diaphragm pump;

closing the valve when the pressure in the actuation chamber is equal to or greater than a target pressure; and

opening the valve when an average magnitude of the monitored pressures is less than the target pressure.

10. A method according to claim 9, further comprising the act of averaging the monitored pressures after the valve closes.

11. A method according to claim 10, further comprising the act of setting the average pressure to zero before the valve closes.

12. A method according to claim 9, wherein the valve is a binary valve.

13. A method according to claim 9, wherein the pressure is monitored by a controller with a pressure sensor fluidically connected to the actuation chamber.

14. A method according to claim 13, wherein the controller receives pressure information from the pressure sensor and uses said pressure information to control the valve.

15. A method for controlling a fluid flowrate of a pneumatically actuated diaphragm pump comprising;

opening a valve a first time, the valve fluidically connecting a pneumatic pressure source to an actuation chamber of the diaphragm pump;

~~monitoring one or more pressures of a gas in the actuation chamber of the diaphragm pump;~~

~~marking the time of the first valve opening;~~

~~closing the valve when the pressure in the actuation chamber is equal to or greater than a target pressure;~~

~~opening the valve when an average magnitude of the monitored pressures drops below the target pressure;~~

~~detecting an end of a pump stroke based on the monitored pressures;~~

~~marking the time of the end of the pump stroke; and~~

~~changing the target pressure based on a difference between a stroke duration and a predetermined target stroke duration, wherein the stroke duration is the difference in time between the end of the pump stroke and the first valve opening.~~

~~16. A method according to claim 15, further comprising the step of averaging the monitored pressures after the valve closes.~~

~~17. A method according to claim 16, further comprising the step of setting the average pressure to zero before the valve closes.~~

~~18. A method according to claim 17, wherein the valve is a binary valve.~~

~~19. A method according to claim 15, wherein the pressure is monitored by a controller using a pressure sensor fluidically connected to the actuation chamber.~~

~~20. A method according to claim 19, wherein the controller controls the valve using information from the pressure sensor.~~

~~21. A method of controlling a pneumatically actuated diaphragm pump comprising:~~

~~opening a valve that fluidically connects a pneumatic pressure source to an actuation chamber of the diaphragm pump;~~

~~monitoring one or more pressures of a gas in the actuation chamber of the diaphragm pump;~~

~~closing the valve when the pressure in the actuation chamber is equal to or greater than a target pressure; and~~

~~opening the valve when an average magnitude of the monitored pressures is less than the target pressure by a pre-determined value, wherein the pre-determined value varies during a stroke of the diaphragm pump.~~

~~22. A method according to claim 21, wherein the pre-determined value varies according to the number of valve openings during the stroke.~~

~~23. A method according to claim 21, wherein the pre-determined value varies according to whether the diaphragm pump is filling or emptying.~~