What is claimed is:

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

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

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

the set of receptacle ports comprising a second spatial array configured to match a spatial array of the actuation 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 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 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 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.