

What is Claimed:

1. An apparatus, comprising:  
a housing having a first port and a second port, the second port being coupleable to an indwelling vascular access device;  
a catheter having a proximal end portion and a distal end portion, the catheter at least partially disposed in the housing such that the proximal end portion is received by the first port; and  
an actuator partially disposed in the housing to selectively engage a portion of the catheter in the housing, the actuator configured to be rotated an angular distance relative to the housing to move the distal end portion of the catheter a linear distance from a first position in which the distal end portion of the catheter is disposed in the housing, to a second position in which the catheter extends through the second port such that the distal end portion of the catheter is distal to the indwelling vascular access device when the second port is coupled thereto, the linear distance being greater than the angular distance.
2. The apparatus of claim 1, wherein a portion of the housing has a circular cross-sectional shape.
3. The apparatus of claim 2, wherein each of the first port and the second port extend from a circumferential surface of the housing.
4. The apparatus of claim 3, wherein an axis defined by a lumen of the first port is substantially parallel to an axis defined by a lumen of the second port.
5. The apparatus of claim 1, wherein the proximal end portion of the catheter is coupled to the first port and maintained in a fixed position when the catheter is moved from the first position to the second position.
6. The apparatus of claim 1, wherein the actuator has a first engagement structure and a second engagement structure disposed in the housing, the portion of the catheter in the housing

configured to extend from the first port, substantially wrap around each of the first engagement structure and the second engagement structure, and to the second port when the catheter is in the first position.

7. The apparatus of claim 6, wherein an inner surface of the first engagement structure and an inner surface of the second engagement structure define an inner channel therebetween, the portion of the catheter in the housing configured to extend from the first port, through the inner channel, and to the second port when the catheter is in the second position.

8. An apparatus, comprising:  
a housing having a first port and a second port, the second port being coupleable to an indwelling vascular access device;  
a catheter having a proximal end portion and a distal end portion, the catheter at least partially disposed in the housing such that the proximal end portion is received by the first port; and

an actuator partially disposed in the housing, the actuator defining an inner channel, the actuator and the housing collectively defining an outer channel, the actuator being rotatable relative to the housing to move the catheter between a first position and a second position different from the first position, the catheter in the first position extending within the housing from the first port, through the outer channel and the inner channel, and to the second port, the catheter in the second position extending within the housing from the first port, through the inner channel, and through the second port, wherein the actuator is configured to be rotated an angular distance relative to the housing to move the distal end portion of the catheter a linear distance when the catheter is moved from the first position to the second position, the linear distance being greater than the angular distance.

9. ~~The apparatus of claim 8, wherein the actuator is configured to be rotated an angular distance relative to the housing to move the distal end portion of the catheter a linear distance from a first position to the second position, the linear distance being greater than the angular distance.~~

~~1409~~. The apparatus of ~~claim 9~~ claim 8, wherein the distal end portion of the catheter is disposed in the housing when the catheter is in the first position and is distal to the indwelling vascular access device when the catheter is in the second position and the second port is coupled to the indwelling vascular access device.

~~1410~~. The apparatus of ~~claim 9~~ claim 8, wherein a distance between the first port and the second port via the inner channel is less than the linear distance.

~~14211~~. The apparatus of claim 8, wherein the proximal end portion of the catheter is fixedly coupled to the first port, the first port being coupled to a fluid reservoir via a secondary catheter, the secondary catheter being in fluid communication with the proximal end portion of the catheter.

~~14312~~. The apparatus of claim 8, wherein the actuator has a first engagement structure and a second engagement structure disposed in the housing, the first engagement structure having an outer surface and an inner surface, the second engagement structure having an outer surface and an inner surface,

a first portion of the outer channel being defined between the outer surface of the first engagement structure and an inner surface of the housing, a second portion of the outer channel being defined between the outer surface of the second engagement structure and the inner surface of the housing, and

the inner channel being defined between the inner surface of the first engagement structure and the inner surface of the second engagement structure.

~~14413~~. The apparatus of claim ~~14312~~, wherein the catheter in the first position extends from the first port, through the first portion of the outer channel, through the inner channel, through the second portion of the outer channel, and to the second port.

~~14514~~. The apparatus of claim ~~14413~~, wherein the actuator is rotated between a first angular position and a second angular position, the actuator in the first angular position having an orientation relative to the housing such that the catheter extends through the inner channel from a position closer to the second port to a position closer to the first port.

**1615.** The apparatus of claim **1514**, wherein the actuator in the second angular position having an orientation relative to the housing such that the catheter extends through the inner channel from the position closer to the first port to the position closer to the second port.

**1716.** A method of using a fluid transfer device, the fluid transfer device including a housing with a first port and a second port, a catheter having a proximal end portion fixedly coupled to the first port, and an actuator selectively engaging the catheter, the method comprising:  
coupling the second port of the fluid transfer device to an indwelling vascular access device;

rotating the actuator an angular distance about a central axis defined by the housing;

and

advancing, in response to the rotating the actuator, a distal end portion of the catheter a linear distance from a first position to a second position, the distal end portion of the catheter being in the housing when the catheter is in the first position, the distal end portion of the catheter being advanced linearly in a direction orthogonal to the central axis through the second port and the indwelling vascular access device as the catheter is moved to the second position, the distal end portion of the catheter being distal to the indwelling vascular access device when the catheter is in the second position, wherein the linear distance is greater than the angular distance.

~~18.—The method of claim 17, wherein the linear distance is greater than the angular distance.~~

**1917.** The method of claim **1716**, wherein the actuator has a first engagement structure and a second engagement structure disposed in the housing, a portion of the catheter in the housing extending from the first port, substantially wrapping around each of the first engagement structure and the second engagement structure, and to the second port when the catheter is in the first position.

**2018.** The method of claim **1917**, wherein an inner surface of the first engagement structure and an inner surface of the second engagement structure define an inner channel

therebetween, the portion of the catheter in the housing configured to extend from the first port, through the inner channel, and to the second port when the catheter is in the second position.

2419. The method of claim 2018, wherein a distance between the first port and the second port via the inner channel is less than the linear distance.

2220. The method of claim 1716, wherein ~~the~~ rotating the actuator the angular distance includes rotating the actuator 180° about the central axis from a first orientation relative to the housing to a second orientation relative to the housing.

2321. The method of claim 1716, further comprising:  
supporting the portion of the catheter within the housing during the advancing of the distal end portion of the catheter the linear distance.

2422. The method of claim 2321, wherein the support is tangential to an axial force exerted along the portion of the catheter within the housing.