CLAIMS

1. A valve assembly comprising: a fluid conduit;

a sealing member configured to be movable between an open position and a closed position to open and close the fluid conduit; and

an actuator coupled to the sealing member to move the sealing member between the open position and the closed position, the actuator comprising a detector;

wherein the detector is a passive detector that senses an actuation signal generator; and wherein the actuator manipulates the sealing member in response to the detector sensing the actuation signal generator.

2. The valve assembly of claim 1, further comprising a power source coupled to the actuator.

3. The valve assembly of claim 1 or 2, further comprising a controller coupled to the detector, the controller having at least one processor and at least one memory, the at least one processor and the at least one memory perform logical operations and calculations in relation to the actuation signal generator sensed by the detector.

4. The valve assembly of any one of the preceding claims, wherein the sealing member comprises a ball having a throughbore and movably arranged within the fluid conduit, the ball movable between the open position, where the throughbore is axially aligned with the fluid conduit, and the closed position, where the throughbore is perpendicular to the conduit.

5. The valve assembly of any one of claims 1 to 3, wherein the sealing member comprises a sleeve valve.

6. The valve assembly of any one of the preceding claims, wherein the actuator comprises a hydraulic pump fluidly-coupled to the sealing member.

7. The valve assembly of any one of the preceding claims, wherein the actuation signal generator is selected from the group consisting of a light source, a magnetic field generator, a radioactive source, and an acoustic signal generator.

8. The valve assembly of any one of claims 1 to 7, wherein the actuation signal generator comprises a light source and wherein the detector comprises a photo sensor.

9. A contactless valve actuation system, the system comprising: a conduit;

a valve fluidly coupled to the conduit, the valve having a sealing member that is movable between an open position and a closed position;

a valve actuator coupled to the valve, wherein the valve actuator moves the sealing member between the open position and the closed position, the valve actuator comprising a sensor and a controller to generate a control signal in response to the sensor detecting an actuation signal generator; and

a pump fluidly-coupled to the housing, wherein the pump conveys fluid containing the actuation signal generator through the conduit of the housing.

10. The system of claim 9, wherein the valve actuator further comprises a local power source to provide power to a movable member.

11. The system of claim 9 or 10, wherein quantities of the actuation signal generator are released into fluid.

12. The system of any one of claims 9 to 11, wherein the valve actuator comprises a hydraulic pump fluidly-coupled to the valve.

13. The system of any one of claims 9 to 12 wherein the valve comprises a ball having a throughbore and movably arranged with the conduit, the throughbore

axially-aligned with conduit in the open position and perpendicular to the conduit in the closed position.

14. The system of any one of claims 9 to 12, wherein the valve is a sleeve valve.

15. The system of any one of claims 9 to 14, wherein the actuation signal generator is selected from the group consisting of a light source, a magnetic field source, a radioactive source, and an acoustic source.

16. The system of any one of claims 9 to 15, wherein the actuation signal generator comprises a light emitting diode and wherein the sensor comprises a photo sensor.

17. A method of actuating a valve, the method comprising:

conveying an actuation signal generator into a conduit of a downhole tool using a fluid; monitoring the conduit for entry of the actuation signal generator; and

actuating the valve if the actuation signal generator is detected in the conduit;

wherein the valve controls a sealing member arranged within the conduit and configured to move between an open position and a close position thereby regulating fluid flow therethrough.

18. The method of claim 17, further comprising the step of releasing the actuation signal generator into the fluid.

19. The method of claim 17 or 18, wherein the actuation signal generator is selected from the group consisting of a light source, a magnetic field source, a radioactive source, and an acoustic source.

20. The method of any one of claims 17 to 19, wherein the step of monitoring the conduit comprises detecting electromagnetic radiation from a light emitting diode using a photo-detector.