CLAIMS

1. A safety switch system for a projectile launcher, the safety switch system comprising:

a safety switch comprised of a magnet, wherein the safety switch transitions between at least a first position and a second position;

a first sensor comprised of a first polarity detector, a first sensor connector, and a signal output, wherein the first sensor outputs a default indication based at least on the safety switch being disposed in the first position and outputs an activation indication based at least on the safety switch being disposed in the second position;

a second sensor comprised of a second polarity detector and a second sensor connector, the second sensor connector electrically coupled with the first sensor connector, wherein the second sensor is configured to activate the first sensor based at least on the safety switch being in the second position such that the second polarity detector detects the magnet; and

a control circuit, the control circuit configured to determine whether the safety switch is in the first position or the second position, wherein:

the control circuit determines that the safety switch is in the first position based at least on the default indication received from the first sensor via the signal output;

the control circuit determines that the safety switch is in the second position based at least on the activation indication received from the first sensor via the signal output; and

the control circuit determines an operation mode for the projectile launcher based at least on the safety switch being disposed in the first position or the second position.

2. The safety switch system of claim 1, wherein the safety switch transitions between the first position and the second position based at least on a user input associated with the safety switch.

3. The safety switch system of claim 2, wherein transitioning the safety switch between the first position and the second position causes the magnet to translate between the first position and the second position.

4. The safety switch system of claim 1, wherein:

the magnet is comprised of a first portion and a second portion; the first portion associated with a first magnetic field and the second portion associated with a second magnetic field;

the first magnetic field having a first polarity; and

the second magnetic field having a second polarity different from the first polarity.

5. The safety switch system of claim 4, wherein:

a housing associated with the projectile launcher comprises a safety track having a first end of the safety track and a second end of the safety track, the first position associated with the first end and the second position associated with the second end;

the first portion of the magnet is disposed between the first end of the safety track and the second portion of the magnet; and

the second portion of the magnet is disposed between the second end of the safety track and the first portion of the magnet.

6. The safety switch system of claim 4, wherein:

the first position of the safety switch is configured to prevent the second magnetic field of the second portion from satisfying a field threshold of the second sensor;

the second position of the safety switch is configured to provide the second magnetic field of the second portion to the second sensor and satisfy the field threshold; and

the second position of the safety switch is configured to provide the first magnetic field of the first portion to the first sensor and satisfy an additional field threshold of the first sensor.

7. The safety switch system of claim 1, wherein the second sensor is configured to:

detect a second magnetic field of the magnet having a second polarity via the second polarity detector;

determine whether a field threshold associated with the second polarity detector is satisfied by the second magnetic field; and

provide a first indication to the first sensor via the second sensor connector.

8. The safety switch system of claim 7, wherein the field threshold associated with the second polarity detector is a minimum field strength threshold that is satisfied based at least on the second

magnetic field being detected at a second magnetic field strength equal to or greater than the minimum field strength threshold.

9. The safety switch system of claim 8, wherein the first indication provided to the first sensor is an active low indication based at least on the minimum field strength threshold being satisfied by the second magnetic field, the active low indication activating the first sensor.

10. The safety switch system of claim 7, wherein the field threshold associated with the second polarity detector is a minimum field strength threshold that is satisfied based at least on the second magnetic field being detected at a second magnetic field strength less than the minimum field strength threshold.

11. The safety switch system of claim 10, wherein the first indication provided to the first sensor is an inactive high indication based at least on the minimum field strength threshold being satisfied by the second magnetic field, the inactive high indication deactivating the first sensor.

12. The safety switch system of claim 1, wherein the first sensor is configured to:

receive, based at least on a first indication received from the second sensor, an electrical current across a magnetic field sensing component of the second sensor;

detect a first magnetic field of the magnet having a first polarity via the first polarity detector;

determine whether a field threshold associated with the first polarity detector is satisfied by the first magnetic field; and

provide, based at least on the field threshold being satisfied, a second indication to the control circuit via the signal output.

13. The safety switch system of claim 12, wherein the field threshold associated with the first polarity detector is a minimum field strength threshold that is satisfied based at least on the first magnetic field being detected at a first magnetic field strength equal to or greater than the minimum field strength threshold.

14. The safety switch system of claim 1, wherein:

the safety switch secures the magnet in the first position at a first time;

the first position of the safety switch causes the magnet to provide a second magnetic field to the second sensor such that a second magnetic field strength is less than a second field threshold of the second sensor; and

the first position of the safety switch causes the magnet to provide a first magnetic field to the first sensor such that a first magnetic field strength is less than a first field threshold of the first sensor.

15. The safety switch system of claim 14, wherein:

the second sensor provides, based at least on the second magnetic field strength being less than the second field threshold, a second indication to the first sensor that prevents the first sensor from detecting the first magnetic field; and

the first sensor provides, via the signal output, a first indication to the control circuit based at least on the second sensor preventing the first sensor from detecting the first magnetic field, wherein the first indication is a default output of the first sensor.

16. The safety switch system of claim 14, wherein:

the safety switch secures the magnet in the second position at a second time;

the second position of the safety switch causes the second magnetic field of the magnet to be provided at the second sensor such that the second magnetic field strength is greater than or equal to the second field threshold; and

the second position of the safety switch causes the first magnetic field of the magnet to be provided at the first sensor such that the first magnetic field strength is greater than or equal to the first field threshold of the first sensor.

17. A projectile launcher comprising:

a projectile launcher housing, the projectile launcher housing defining an exterior surface of the projectile launcher;

a switch disposed on the exterior surface of the projectile launcher and configured to translate between at least a first state and a second state;

a sensor circuit configured to determine whether the switch is in the first state or the second state, the sensor circuit comprising a first sensor configured to determine whether a first magnetic field of the switch satisfies a first field threshold and a second sensor, activatable by the first sensor, configured to determine whether a second magnetic field of the switch satisfies a second field threshold; and

a control circuit associated with the sensor circuit and one or more projectiles, wherein:

the control circuit determines whether the switch is in the first state or the second state based at least on one or more indications output by the second sensor;

the control circuit prevents the one or more projectiles from being deployed based at least on the sensor circuit indicating that the switch is in the first state; and

the control circuit enables the one or more projectiles to be deployed based at least on the sensor circuit indicating the switch is in the second state.

18. The projectile launcher of claim 17, further comprising a trigger that receives a user input to deploy the one or more projectiles, wherein:

the control circuit prevents the user input from deploying the one or more projectiles based at least on the one or more indications output by the second sensor indicating that the switch is in the first state; and

the control circuit deploys the one or more projectiles based at least on the user input and the one or more indications output by the second sensor indicating that the switch is in the second state.

19. The projectile launcher of claim 17, wherein:

the first state of the switch is associated with the switch being disposed in a first position of the exterior surface;

the second state of the switch is associated with the switch being disposed in a second position of the exterior surface; and

the switch is comprised of a first magnet portion associated with the first magnetic field and a second magnet portion associated with the second magnetic field, the first magnet portion disposed between the second magnet portion and the second position and the second magnet portion disposed between the first magnet portion and the first position.

20. The projectile launcher of claim 19, wherein:

the first state of the switch is configured such that the first position maintains a minimum distance between the first magnet portion and the sensor circuit such that the first field threshold is unsatisfied by the first magnetic field;

the second state of the switch is configured such that a midpoint between the first magnet portion and the second magnet portion is disposed between the first sensor and the second sensor; and

disposing the midpoint between the first sensor and the second sensor causes the first field threshold to be satisfied by the first magnetic field of the first magnet portion and the second field threshold to be satisfied by the second magnetic field of the second magnet portion.

21. The projectile launcher of claim 17, further comprising a power supply in electrical communication with at least the sensor circuit, wherein:

the power supply provides a power supply voltage to a first power supply contact of the first sensor;

the power supply provides the power supply voltage to a second power supply contact of the second sensor;

the first sensor prevents an electrical current from being induced at the second sensor by providing the power supply voltage at a ground contact of the second sensor based at least on the first field threshold being unsatisfied by the first magnetic field; and

the first sensor enables the electrical current being induced at the second sensor by providing a ground voltage at the ground contact of the second sensor based at least on the first field threshold being satisfied by the first magnetic field.

22. The projectile launcher of claim 17, wherein the first state of the switch is associated with a safe mode of the projectile launcher.

23. The projectile launcher of claim 17, wherein the second state of the switch is associated with a fire mode of the projectile launcher.

24. The projectile launcher of claim 17, the switch configured to translate to a third state from the second state and the sensor circuit comprising a third sensor, activatable by the first sensor, configured to determine whether the first magnetic field of the switch satisfies a third field threshold.

25. The projectile launcher of claim 24, wherein the third sensor is activated by the first sensor based at least on the second magnetic field satisfying a fourth field threshold of the second sensor.

26. The projectile launcher of claim 24, wherein:

the control circuit determines whether the switch is in the third state based at least on one or more additional indications output by the third sensor the control circuit receives; and

the control circuit activates one or more projectile launcher functions based at least on the one or more additional indications indicating that the switch is in the third state.

27. A method comprising:

determining, at a first time and based at least on a first set of indications received from a sensor circuit, whether a first field threshold of a first sensor is satisfied by a first magnetic field of a safety switch;

determining, based at least on the first set of indications, that a projectile launcher is to be maintained in a safe operating mode;

causing, based at least on the safe operating mode; a user input to be suppressed;

determining, at a second time and based at least on a second set of indications received from the sensor circuit, whether the first field threshold of the first sensor is satisfied by the first magnetic field of the safety switch;

determining, at the second time and based at least on the second set of indications received from the sensor circuit, whether a second field threshold of a second sensor is satisfied by a second magnetic field of the safety switch;

determining, based at least on the second set of indications, that the projectile launcher is to be maintained in an activated operating mode; and

causing, based at least on the activated operating mode; an additional user input to deploy one or more projectiles from the projectile launcher.

28. The method of claim 27, wherein:

the first set of indications comprises a default indication provided by the second sensor; and

the second set of indications comprises an activated indication provided by the second sensor.