particular, electrical tensioners have a more rapid response time and greater precision of control than hydro-pneumatic tensioners. The quick response time may be advantageously employed to perform anti-recoil functions. This anti-recoil control design for a riser hybrid tensioning system provides increased precision and flexibility in control, as well as additional possibilities for test scenarios, thus enhancing reliability and safety.

[0012a] According to a first aspect of the present invention, there is provided an apparatus, comprising: a vessel; a drilling riser; a plurality of wires coupled to the drilling riser; a first and second electrical tensioner coupled to the drilling riser via a first and second wire of the plurality of wires; a first data logging system coupled to the vessel, configured to generate first data regarding the properties of the vessel; a second data logging system coupled to the drilling riser, configured to generate second data regarding the properties of the riser; and a controller coupled to the first and the second electrical tensioners and coupled to the first and the second data logging systems and configured to perform steps comprising: receiving the first data from the first data logging system; receiving the second data from the second data logging system; comparing the first data with the second data; determining a tension for the first and the second electrical tensioners based, at least in part, on the comparison of the first data with the second data to control a position of the drilling riser with respect to a reference point; and controlling the first and the second electrical tensioners to apply the determined tension to the first and the second wires.

[0012b] According to a second aspect of the present invention, there is provided a method, comprising: receiving first data regarding the properties of a vessel; receiving second data regarding the properties of a drilling riser; comparing the first data with the second data; determining a tension for a plurality of electrical tensioners based, at least in part, on the comparison of the first data with the second data to control a position of the drilling riser with respect to a reference point; and controlling a plurality of electrical tensioners to apply the determined tension to a plurality of wires.

[0012c] According to the third aspect of the present invention, there is provided an apparatus comprising: a controller configured to perform steps comprising: receiving first data from the first data logging system; receiving second data from the second data logging system; comparing the first data with the second data; determining a tension for a first and a second

electrical tensioner based, at least in part, on the comparison of the first data with the second data to control a position of the drilling riser with respect to a reference point; and controlling the first and the second electrical tensioners to apply the determined tension to a first and a second wire.

[0013] The system may include a drilling riser, a vessel, a first data logging system coupled to a vessel, a second data logging system coupled to the top of the drilling riser, an array of electrical tensioners coupled to the drilling riser via an array of wires, one or more hydro-pneumatic tensioners coupled to the drilling riser via one or more wires, and a controller, coupled to and controlling the tensioners and receiving data from the first and second data logging systems. The first data logging system sends data to the controller regarding the acceleration, velocity, and position of the vessel itself. The second data logging system sends data to the controller regarding the acceleration, velocity, and position of the top of the drilling riser. The controller then estimates the properties of the entire drilling riser based on the data regarding the top of the drilling riser and data as to the properties of the drilling riser that are constant. A vessel as referred to throughout this document may refer to a ship, a platform, or any other sea capable structure or vehicle.

[0014] When the drilling riser disconnects from a blowout preventer, the first goal of the anti-recoil system is to create as much distance between the lower marine riser package, or the bottom of the drilling riser, and the blowout preventer as possible. To that effect, when the data as to the acceleration, velocity, and positon of the drilling riser relative to the position of the blowout preventer indicates that a disconnect has occurred, the controller is configured to cause the electrical tensioners to apply a maximum tension to the wires to which they are coupled in order to create a maximum distance between the drilling riser and the blowout preventer as fast as possible. The goal is to prevent a collision between the lower marine riser package and the blowout preventer.