

CLAIMS:

1. A mast mountable to a ceiling structure of an associated building comprising:

a base;

a base tube supported by the base;

at least one telescoping tube section supported to provide axial movement within the base tube between a retracted position and an extended position; and

a motor operatively coupled to the at least one telescoping tube section and configured to provide extending and retracting the at least one telescoping tube section within the base tube;

whereby a payload supported by the mast can be positioned at a plurality of heights within the associated building.

2. The mast of claim 1, or any other claim, further comprising an actuating cable extending between the motor and the at least one telescoping tube section configured to extend or retract the at least one telescoping tube section depending on a direction of rotation of the motor, and a spring supported in the at least one telescoping

tube section and coupled to the actuating cable, wherein said spring is loaded by the actuating cable when the actuating cable is in tension.

3. The mast of claim 2, or any other claim, wherein the spring includes a coil spring.

4. The mast of claim 1, or any other claim, further comprising at least one power or control cable and at least one cable guide configured to guide the at least one power or control cable around an exterior surface of the mast.

5. The mast of claim 4, or any other claim, wherein the at least one power or control cable spirals around an exterior surface of the mast when the at least one tube section is in an extended position.

6. The mast of claim 1, or any other claim, wherein the base tube includes a guy plate configured to connect one or more support cables.

7. The mast of claim 6, or any other claim, wherein the guy plate is supported on the base tube at an opposite end from the connection of the base tube to the base.

8. The mast of claim 1, or any other claim, wherein the motor is supported within the base.

9. The mast of claim 1, or any other claim, wherein the motor is supported on an exterior of the base.

10. The mast of claim 1, or any other claim, further comprising an actuating cable extending between the motor and the at least one telescoping tube section configured to extend or retract the at least one telescoping tube section depending on a direction of rotation of the motor, and a cable tension control system configured to restrict operation of the motor in response to a level of tension in the actuating cable.

11. The mast of claim 10, or any other claim, wherein the cable tension control system includes a cable carriage supported to provide reciprocating movement relative to the base and a first sensor configured to sense an over-tension condition; wherein the actuating cable is configured to move the cable carriage in a first direction in response to a tension in the actuating cable exceeding an upper threshold tension level, the cable carriage triggering the first sensor to restrict operation of the motor.

12. The mast of claim 11, or any other claim, further comprising a second sensor configured to sense an under-tension condition, and a biasing element configured to bias the cable carriage in a second direction opposite the first direction, wherein the biasing element is configured to move the cable carriage in the second direction in

response to tension in the cable being below a lower threshold tension level, the cable carriage triggering the second sensor to restrict operation of the motor.

13. The mast of claim 12, or any other claim, wherein the first and second sensors include limit switches.

14. A cable tension control system for an associated telescoping mast having an actuating cable configured to extend and retract the mast; the cable tension system comprising a cable carriage supported to provide reciprocating movement relative to a housing component, and a first sensor configured to sense an over-tension condition of the cable, wherein the actuating cable is configured to move the cable carriage in a first direction in response to a tension in the actuating cable exceeding an upper threshold tension level, the cable carriage triggering the first sensor to restrict operation of a motor of the associated telescoping mast.

15. The cable tension control system of claim 14, further comprising a second sensor configured to sense an under-tension condition of the actuating cable, and a biasing element configured to bias the cable carriage in a second direction opposite the first direction, wherein the biasing element is configured to move the cable carriage in the second direction in response to tension in the actuating cable being below a lower threshold tension level, the cable carriage triggering the second sensor to restrict operation of a motor of the telescoping mast.

16. The cable tension control system of any one of claims 14-15, wherein the first and second sensors include limit switches.

17. A mast mountable to a ceiling structure of an associated building comprising:

a base;

a base tube supported by the base;

a plurality of telescoping tube sections supported to provided axial movement within the base tube between a retracted position and an extended position;

a motor operatively coupled to an innermost tube section of the plurality of telescoping tube sections by an actuating cable and configured to extend and retract the plurality of telescoping tube sections within the base tube depending on a direction of rotation of the motor;

a spring supported in the innermost tube section, wherein said is loaded by the actuating cable when the actuating cable is under tension;

at least one power or control cable and at least one cable guide associated with each of the plurality of telescoping tube sections configured to guide the at least one power or control cable around an exterior surface of the mast, the cable guides being radially offset such that the at least one power or control cable spirals around an exterior surface of the mast when the plurality of telescoping tube sections are in an extended position; and

a cable tension control system having:

a cable carriage supported to provide reciprocating movement relative to the base, and a first sensor configured to sense an over-tension

condition of the actuating cable, wherein the actuating cable is configured to move the cable carriage in a first direction in response to a tension in the actuating cable exceeding an upper threshold tension level, the cable carriage triggering the first sensor to restrict operation of a motor of the associated telescoping mast; and

a second sensor configured to sense an under-tension condition of the actuating cable, and a biasing element configured to bias the cable carriage in a second direction opposite the first direction, wherein the biasing element is configured to move the cable carriage in the second direction in response to tension in the actuating cable being below a lower threshold tension level, the cable carriage triggering the second sensor to restrict operation of a motor of the telescoping mast.

18. The mast of claim 17, wherein the first and second sensors include limit switches.

19. The mast of any one of claims 17-18, wherein the base tube includes a guy plate configured to connect one or more support cables.

20. The mast of any one of claims 17-19, wherein the guy plate is supported on the base tube at an opposite end from the connection of the base tube to the base.