CLAIMS

1. A method of operating a liquid crystal device (LCD) rotator, the method comprising the steps of:

operating the LCD rotator in an operation state with a rotation angle corresponding to a reference capacitance of the LCD rotator;

tracking a capacitance of the LCD rotator using an electrical connection to the LCD rotator; and

controlling a driver setting to the LCD rotator to vary an operating voltage applied to the LCD rotator in the operation state using the same electrical connection to maintain the capacitance of the LCD rotator at the reference capacitance to achieve temperature independent operation.

2. The method of claim 1, wherein the tracking of the capacitance comprises measuring the capacitance using an modified RC relaxation oscillator circuit with a digital potentiometer, and the driver setting of the LCD rotator is simultaneously controlled by driving the LCD rotator using a charge-discharge wave of the modified RC relaxation circuit.

3. The method of claim 2, comprising implementing a proportional–integral–derivative, PID, loop using the modified RC relaxation oscillator circuit.

4. The method of claim 1, comprising probing the LCD rotator for tracking the capacitance in one part of a duty-cycle and operating the LCD rotator by controlling the driver setting during a remaining part of the duty cycle.

5. The method of claim 4, wherein controlling the driver setting of the LCD rotator comprises using a formula and/or a look-up table expressing a temperature dependence variable of the LCD rotator.

6. The method of claim 3, wherein controlling the driver setting comprises using a tuned PID loop to lock to a reference capacitance.

7. The method of claim 1, wherein the driver setting comprises an input voltage to the LCD rotator.

8. A control circuit for a liquid crystal device (LCD) rotator, comprising:

a sensing portion configured for tracking a capacitance of the LCD rotator via an electrical connection to the LCD rotator with the LCD rotator in an operation state with a rotation angle corresponding to a reference capacitance; and

a control portion for controlling a driver setting to the LCD rotator to vary an operating voltage applied to the LCD rotator in the operation state using the same electrical connection to maintain the tracked capacitance of the LCD rotator at the reference capacitance for the LCD rotator's temperature independent operation.

9. The control circuit of claim 8, wherein the sensing portion comprises an RC relaxation oscillator circuit modified with a digital potentiometer, and the control portion is configured to simultaneously control the driver setting by driving the LCD rotator using a charge-discharge wave of the modified RC relaxation circuit.

10. The control circuit of claim 9, wherein the sensing portion is implemented as a proportional–integral–derivative, PID, loop using the modified RC relaxation oscillator circuit.

11. The control circuit of claim 8, wherein the control circuit is configured for probing the LCD rotator for tracking the capacitance in one part of a duty-cycle and operating the LCD rotator by controlling the driver setting during a remaining part of the duty cycle.

12. The control circuit of claim 11, wherein the control portion is configured for controlling the driver setting using a formula and/or a look-up table expressing a temperature dependence variable of the LCD rotator.

13. The control circuit of claim 11, wherein the control portion is configured for controlling the driver setting using a tuned PID loop to lock to a reference capacitance.

14. The control circuit of claim 8, wherein the driver setting comprises an input voltage to the LCD rotator.