We claim:

1. A method (300) for determining when to verify a stiffness coefficient K (202, 204) in a Coriolis flowmeter (5), the method (300) comprising:

receiving a first stiffness coefficient K (202);

receiving a plurality of temperatures T (206), a plurality of response frequencies ω (208), and a plurality of driver currents I (210);

determining an average temperature T (212) and a standard deviation temperature T (214) based on the plurality of temperatures T (206);

determining an average response frequency ω (216) and a standard deviation response frequency ω (218) based on the plurality of response frequencies ω (208);

determining an average driver current I (224) and a standard deviation driver current I (226) based on the plurality of driver currents I (210);

receiving a first subsequent value (236), the first subsequent value (236) comprising a subsequent temperature T (228), a subsequent response frequency ω (230), or a subsequent driver current I (232); and

upon determining that the first subsequent value (236) is outside a first respective range (237) defined between a first respective average (238) minus a first respective threshold (234), and the first respective average (238) plus the first respective threshold (234), initiating a determination of a second stiffness coefficient K (204).

2. A method (300) as claimed in any one of the preceding claims, wherein the plurality of temperatures T (206), the plurality of response frequencies ω (208), and the plurality of driver currents I (210) are determined concurrently with the determination of the first stiffness coefficient K (202).

3. A method (300) as claimed in any one of the preceding claims, wherein the first respective threshold (234) comprises multiplying a first respective standard deviation (239) by a predetermined factor (268).

4. A method (300) as claimed in claim 3, further comprising:

receiving at least a second subsequent value (252), comprising the subsequent temperature T (228), the subsequent response frequency ω (230), or the subsequent

driver current I (232), the second subsequent value (252) being different from the first subsequent value (236), and

wherein determining that the first subsequent value (236) is outside the first respective range (237) further comprises determining that the second subsequent value (252) is outside a second respective range (254) defined between a second respective average (256) minus a second respective threshold (250), and the second respective average (256) plus the second respective threshold (250).

5. A method (300) as claimed in claim 4, further comprising:

receiving at least a third subsequent value (262) comprising the subsequent temperature T (228), the subsequent response frequency ω (230), or the subsequent driver current I (232), the third subsequent value (262) being different from the second subsequent value (252) and the first subsequent value (236), and

wherein determining that the first subsequent value (236) is outside the first respective range (237) further comprises determining that the third subsequent value (262) is outside a third respective range (264) defined between a third respective average (266) minus a third respective threshold (260), and the third respective average (266) plus the third respective threshold (260).

6. A method (300) as claimed in claim 1, wherein at least one of receiving the first stiffness coefficient K (202) or initiating the determination of the second stiffness coefficient K (204) further comprises:

receiving a vibrational response (240) from the flowmeter (5), with the vibrational response (240) comprising a response to a vibration of the flowmeter (5) at a substantially resonant frequency;

determining a vibrational response frequency ω (242);

determining a vibrational response voltage V (244) and a vibrational response drive current I (246);

measuring a decay characteristic ζ (248) of the flowmeter (5); and

determining the stiffness coefficient K (202, 204) from the vibrational response frequency ω (242), the vibrational response voltage V (244), the vibrational response drive current I (246), and the decay characteristic ζ (248).

7. A meter electronics (20) for a Coriolis flowmeter (5), the meter electronics (20) comprising an interface (201) for receiving a vibrational response (240) from the flowmeter (5), and a processing system (203) in communication with the interface (201), with the processing system (203) configured to:

receive a first stiffness coefficient K (202);

receive a plurality of temperatures T (206), a plurality of response frequencies ω (208), and a plurality of driver currents I (210);

determine an average temperature T (212) and a standard deviation temperature T (214) based on the plurality of temperatures T (206);

determine a subsequent response frequency ω (230) and a standard deviation response frequency ω (218) based on the plurality of response frequencies ω (208); and

determine an average driver current I (224) and a standard deviation driver current I (226) based on the plurality of driver currents I (210);

receive a first subsequent value (236), the first subsequent value (236) comprising a subsequent temperature T (228), a subsequent response frequency ω (230), or a subsequent driver current I (232); and

upon determining that the first subsequent value (236) is outside a first respective range (237) defined between a first respective average (238) minus a first respective threshold (234), and the first respective average (238) plus the first respective threshold (234), initiate a determination of a second stiffness coefficient K (204).

8. A meter electronics (20) as claimed in claim 7, wherein the plurality of temperatures T (206), the plurality of response frequencies ω (208), and the plurality of driver currents I (210) are determined concurrently with the determination of the first stiffness coefficient K (202).

9. A meter electronics (20) as claimed in any one of claims 7 to 8, wherein the first respective threshold (234) comprises multiplying a first respective standard deviation (239) by a predetermined factor (268).

10. A meter electronics (20) as claimed in any one of claims 7 to 9, wherein the processing system (203) is further configured to:

receive at least a second subsequent value (252) comprising the subsequent temperature T (228), the subsequent response frequency ω (230), or the subsequent driver current I (232), the second subsequent value (252) being different from the first subsequent value (236), and

wherein determining that the first subsequent value (236) is outside the first respective range (237) further comprises determining that the second subsequent value (252) is outside a second respective range (254) defined between a second respective average (256) minus a second respective threshold (250), and the second respective average (256) plus the second respective threshold (250).

11. A meter electronics (20) as claimed in claim 10, wherein the processing system (203) is further configured to:

receive at least a third subsequent value (262) comprising the subsequent temperature T (228), the subsequent response frequency ω (230), or the subsequent driver current I (232), the third subsequent value (262) being different from the second subsequent value (252) and the first subsequent value (236), and

wherein determining that the first subsequent value (236) is outside the first respective range (237) further comprises determining that the third subsequent value (262) is outside a third respective range (264) defined between a third respective average (266) minus a third respective threshold (260), and the third respective average (266) plus the third respective threshold (260).

12. A meter electronics (20), as claimed any one of claims 7 to 11, wherein at least a first of receiving the first stiffness coefficient K (202) and initiating the determination of the second stiffness coefficient K (204) further comprises:

receiving a vibrational response (240) from the flowmeter (5), with the vibrational response (240) comprising a response to a vibration of the flowmeter (5) at a substantially resonant frequency;

determining a vibrational response frequency ω (242);

determining a vibrational response voltage V (244) and a vibrational response drive current I (246);

measuring a decay characteristic ζ (248) of the flowmeter (5); and

determining a stiffness coefficient K (202, 204) from the vibrational response frequency ω (242), the vibrational response voltage V (244), the vibrational response drive current I (246), and the decay characteristic ζ (248).

13. A system (500) for determining when to verify a stiffness coefficient K (202, 204) of a Coriolis flowmeter (5), the system (500) comprising:

a stiffness coefficient K module (502) configured to determine a first stiffness coefficient K (202) and to determine a second stiffness coefficient K (204);

a learning module (504) configured to receive a plurality of temperatures T (206), a plurality of response frequencies ω (208), and a plurality of driver currents I (210), determine an average temperature T (212) and a standard deviation temperature T (214) based on the plurality of temperatures T (206), determine a subsequent response frequency ω (230) and a standard deviation response frequency ω (218) based on the plurality of response frequencies ω (208), and determine an average driver current I (224) and a standard deviation driver current I (226) based on the plurality of driver currents I (210); and

a monitoring module (506) configured to receive a first subsequent value (236), the first subsequent value (236) comprising a subsequent temperature T (228), a subsequent response frequency ω (230), or a subsequent driver current I (232), and upon determining that the first subsequent value (236) is outside a first respective range (237) defined between a first respective average (238) minus a first respective threshold (234), and the first respective average (238) plus the first respective threshold (234), initiate a determination of a second stiffness coefficient K (204).

14. A system (500) as claimed in claim 13, wherein the plurality of temperatures T (206), the plurality of response frequencies ω (208), and the plurality of driver currents I (210) are determined concurrently with the determination of the first stiffness coefficient K (202).

15. A system (500) as claimed in any one of claims 13 to 14, wherein the first respective threshold (234) comprises multiplying a first respective standard deviation (239) by a predetermined factor (268).

16. A system (500) as claimed in any one of claims 13 to 15, wherein the monitoring module (506) is further configured to:

receive at least a second subsequent value (252) comprising the subsequent temperature T (228), the subsequent response frequency ω (230), or the subsequent driver current I (232), the second subsequent value (252) being different from the first subsequent value (236), and wherein determining that the first subsequent value (236) is outside the first respective range (237) further comprises determining that the second subsequent value (252) is outside a second respective range (254) defined between a second respective average (256) minus a second respective threshold (250), and the second respective average (256) plus the second respective threshold (250).

17. A system (500) as claimed in claim 16, wherein the monitoring module (506) is further configured to:

receive at least a third subsequent value (262) comprising the subsequent temperature T (228), the subsequent response frequency ω (230), or the subsequent driver current I (232), the third subsequent value (262) being different from the second subsequent value (252) and the first subsequent value (236), and wherein determining that the first subsequent value (236) is outside the first respective range (237) further comprises determining that the third subsequent value (262) is outside a third respective range (264) defined between a third respective average (266) minus a third respective threshold (260), and the third respective average (266) plus the third respective threshold (260).

18. A system (500) as claimed in any one of claims 13 to 17, wherein the stiffness coefficient K module (502) is further configured to receive a vibrational response (240) from the flowmeter (5), with the vibrational response (240) comprising a response to a vibration of the flowmeter (5) at a substantially resonant frequency, determine a vibrational response frequency ω (242), determine a vibrational response voltage V

(244) and a vibrational response drive current I (246), measure a decay characteristic ζ (248) of the flowmeter (5), and determine the stiffness coefficient K (202, 204) from the vibrational response frequency ω (242), the vibrational response voltage V (244), the vibrational response drive current I (246), and the decay characteristic ζ (248).