Claims

1. An air quality measurement unit comprising

a housing having an inlet for receiving an air flow and an outlet for venting said air flow;

a plurality of sensors positioned in said housing forming an array of sensors, each sensor having a sensor inlet for receiving a portion of the air flow and a sensor outlet for venting said portion of air flow;

each sensor arranged to measure an air quality parameter;

wherein said sensors are placed such that the sensor inlet is positioned adjacent to the inlet,

wherein said housing including at least one port arranged to removably receive a sensor module, and

a control system arranged to receive data from one or more sensor modules, and arranged to continually interrogate said port to determine if a sensor module is present, identify a type of the sensor module present, and receive data from the sensor module present;

a fan positioned within said housing and adjacent the outlet, said fan arranged to draw said air flow into the inlet, wherein said air flow includes an inflow and an outflow passing through the one or more sensor modules.

2. The air quality measurement unit according to claim 1, further including a filter placed on an inside face of the inlet, said filter arranged to block particles with the air flow greater than 1 mm.

3. The air quality measurement unit according to any one of claims 1 to 2, wherein at least one sensor includes a sensor outlet adjacent to the inlet.

4. The air quality measurement unit according to any one of claims 1 to 3, further including a visual display of an overall air quality.

5. The air quality measurement unit according to any one of claims 1 to 4, wherein the control system is further arranged to detect a replaced sensor module.

6. The air quality measurement unit according to any one of claims 1 to 5, wherein said control system is arranged to calibrate said received data;

   said calibration based upon one or a combination of:

   retrieving a calibration factor from a lookup table corresponding to the type of sensor module, comparing raw data to data from a calibration cell or receive calibration information from an external source.

7. The air quality measurement unit according to any one of claims 1 to 6, wherein the at least one sensor module is arranged to measure more than one air quality parameter.

8. The air quality measurement unit according to any one of claims 1 to 7, said housing includes a plurality of ports, each arranged to receive at least one sensor module.

9. The air quality measurement unit according to any one of claims 1 to 8, said housing includes at least one non-removable sensor module.

10. The air quality measurement unit according to any one of claims 1 to 9, further including a selectively removable test cell, the test cell containing a known concentration of a pollutant corresponding to the sensor module, said pollutant arranged to be injected into the unit and the control system arranged to receive raw data from the sensor module and determine a calibration factor for said sensor module, based upon said known pollutant concentration.

11. The air quality measurement unit according to any one of claims 1 to 10, wherein the sensor module has a separate inflow and outflow.

12. An air quality measurement system comprising

a remote data storage unit;

at least one air quality measurement unit according to any one of claims 1 to 11, wirelessly connected to said remote data storage unit;

wherein data collected by the at least one air quality measurement unit is arranged to be communicated to the remote data storage unit;

wherein said received data is arranged to be calibrated by the remote data storage unit and a calibrated factor sent to the respective air quality measurement unit.

13. The air quality measurement system according to claim 12, wherein the remote data storage unit is arranged to use the calibrated data to operate equipment corresponding to the at least one air quality measurement unit to adjust environmental conditions.

14. The air quality measurement system according to claim 12 or 13, wherein said remote data storage unit is wirelessly connected to a plurality of air quality measurement units, said remote data storage unit arranged to calibrate and store received data from each air quality measurement unit.

15. The air quality measurement system according to claim 14, wherein said remote data storage unit is arranged to operate equipment corresponding to each air quality measurement unit.

16. The air quality measurement system according to any one of claims 12 to 15, wherein said control system is arranged to combine data from at least two sensors, and to determine an index corresponding to said combined data.

17. The air quality measurement system according to claim 16, wherein said control system is further arranged to compare said index to a threshold for said index corresponding to the air quality measurement unit;

such that the control system is arranged to operate external equipment to adjust environmental conditions to meet the corresponding index.