Claims

1. A dispenser mounting assembly (10) for a dispenser of consumables, the dispenser mounting assembly (10) comprising

a mounting unit (100) for attaching the assembly to a surface,

dispenser retaining means (200) configured to receive a dispenser (300), and

a sensor (140),

wherein the mounting unit (100) comprising guidance and retention means for operably engaging the dispenser retaining means (200),

wherein the sensor (140), mounting unit (100) and dispenser retaining means (200) are arranged such that the sensor (140) can monitor the quantity of consumables stored in any dispenser (300) attached to the dispenser retaining means (200),

wherein the dispenser mounting assembly (10) further comprises one or more additional sensors (140), wherein a plurality of said sensors (140) have different sensitivities across and overlapping range of inputs, wherein the dispenser mounting assembly (10) is configured to switch between the sensors depending on the value of the inputs detected.

2. The dispenser mounting assembly (10) of claim 1 wherein at least one of the plurality of sensors is one of a force sensing resistor, strain gauge, load cell, spring switch, and/or wherein at least one of the plurality of sensors is mounted on the mounting unit (100), and/or wherein at least one of the plurality of sensors is mounted on the dispenser retaining means (200), and/or wherein the inputs measured by the sensors are one or more of overall weight of the dispenser (300) and consumables, weight of the consumables held in said dispenser (300), amount of consumables, fill level of dispenser (300), type of consumable detected.

3. The dispenser mounting assembly (10) of any of claims 1 and 2 further comprising communication means (130), and wherein the communication means (130) comprise an RF transceiver.

4. A consumables monitoring system (1) comprising the dispenser mounting assembly (10) of any of claims 1-3 in communication with computing means (135),

wherein the dispenser mounting assembly (10) is configured to communicate sensor data to the computing means (135),

wherein the computing means (135) are configured to monitor the usage of the dispenser mounting assembly (10) using the sensor data.

5. The system of claim 4 further comprising a dispenser (300) attached to the dispenser retaining means.

6. A method for monitoring consumables within a dispenser mounting assembly (10), said dispenser mounting assembly (10) comprising a mounting unit (100), dispenser retaining means (200) configured to receive a dispenser (300), and a plurality of sensors (140), wherein the plurality of said sensors have different sensitivities across an overlapping range of inputs, configured to switch between the sensors depending on the value of the inputs detected,

the method comprising the steps of:

at the dispenser mounting assembly (10), measuring via the plurality of sensors in the dispenser mounting assembly, the quantity of consumable in a dispenser retained in the dispenser retaining means (200);

switching between the sensors depending on the value of the inputs detected; and

communicating the sensor data to computing means (135), wherein the computing means are configured to monitor the usage of the dispenser mounting assembly (10) using the sensor data.

7. The method of claim 6 wherein the communicating step is accomplished via communication means (130) in the dispenser mounting assembly (10).

8. The method of any of claims 6 and 7 wherein the inputs measured by the sensors are one or more of overall weight of the dispenser and consumables, weight of the consumables held in said dispenser, amount of consumables, fill level of dispenser, type of consumable detected.

9. The method of any of claims 6-8 further comprising the step of calibrating the plurality of sensors, wherein the output of the plurality of sensors is calibrated to the amount of consumables stored in the dispenser, wherein the calibration step comprises reading existing calibration data from memory within the dispenser mounting assembly, and/or wherein the calibration step comprises receiving calibration data from remote computing means, and/or wherein the calibration step further comprises the step of identifying the type of dispenser held by the dispenser mounting assembly (10) and looking up associated calibration data, wherein the identifying the type of dispenser is accomplished by detecting the weight of the dispenser when empty of consumables, and/or by reading identification means on the dispenser, wherein the identification means comprise at least one of an RF transmitter, serial number or barcode.

10. The method of claim 9 wherein the calibration step comprises taking a reading from the plurality of sensors (140) when the dispenser is empty of consumables, taking a reading when the dispenser is full of consumables and applying an interpolation so as to enable the mounting plate to determine the amount of consumables stored in the dispenser from the output of the plurality of sensors.

11. The method of any of claims 6-10 wherein the dispenser mounting assembly (10) polls the plurality of sensors at regular intervals for an updated reading of the amount of consumables stored in the dispenser (30), and/or wherein the computing means (135) prompt the dispenser mounting assembly (10) to poll the plurality of sensors (140) for an updated reading of the amount of consumables stored in the dispenser (300), and/or wherein use of the dispenser prompts the dispenser mounting assembly (10) to poll the plurality of sensors (140) for an updated reading of the amount of consumables stored in the dispenser, and/or further comprising the step of indicating, via the communication means (130), when the weight of consumables stored in the dispenser drops below a first threshold, or is above a second threshold.

12. The method of any of claims 6-11 further comprising the step of associating a change in the output of the plurality of sensors (140) with a dispenser usage event, a dispenser refill event, a partial dispenser refill event, or the removal of the dispenser from the dispenser mounting assembly (10).

13. The method of any of claims 6-12 further comprising the step of resolving the change in weight of consumables stored in the dispenser (300) associated with a single usage event, and estimating the number of remaining usage events before the weight of consumables stored in the dispenser drops below a first threshold, wherein estimating the number of remaining usage events comprises estimating the frequency of usage events based on historical usage data or data stored in memory, and estimating the amount of time before the weight of consumables stored in the dispenser drops below a first threshold.