TITLE

AUTOMATED FLUID DISPENSER WITH DRIVER AND DISPOSABLE PROBE

PRIORITY CLAIM

[0001] The present application claims priority to and the benefit of Indian provisional application no. 202141042483, filed on September 20, 2021, the entire contents of which are hereby incorporated by reference and relied upon.

BACKGROUND

[0002] Dispensing devices or dispensers are used to dispense controlled amounts of fluids. In a medical context, the dispensed fluids may include a biological sealant, such as a hemostatic matrix or other sealant, which is applied on a biological tissue as a tissue adhesive to control bleeding or reduce risks associated with blood clots. During cardiac surgeries or other surgeries that involve cutting / repairing blood vessels for example, there is an increased risk of forming blood clots that can potentially cause deep vein thrombosis or pulmonary embolism. A dispensing device can be used to mitigate these types of risks by dispensing a hemostatic matrix (or other sealant) on a blood vessel or other biological tissue.

[0003] Dispensers are commonly used in surgeries and in other medical procedures to apply biological sealants. Unfortunately, manual dispensers are burdensome to medical professionals. For example, a medical professional might accidentally trigger release of an incorrect amount of sealant from the manual dispenser. As another example, a surgeon might begin applying a sealant to a wound without realizing that the remaining amount of the sealant in the dispenser is not sufficient for adequately sealing the wound. It can be burdensome for the surgeon to evaluate how much sealant is available in the dispenser quickly and accurately, especially during a surgical procedure. A manual dispenser might also be accidentally used with more than one patient, which could pose a hazard to patients.

SUMMARY

[0003a] There is disclosed a dispensing device comprising: a probe unit that includes a housing configured to receive and store a sealant in a fluid state, a cannula extending from a distal end of the housing, the cannula in fluid communication with the sealant stored inside the housing, an identification tag configured to wirelessly transmit an identifier that identifies the probe unit, and a magnet configured to provide a magnetic field; and a driver unit, wherein the probe unit is detachably mounted on the driver unit, the driver unit including at least one rail positioned on a top side of the driver unit and configured to provide a track for receiving and retaining the probe unit when the probe unit is mounted on the driver unit, a hall sensor arranged to detect the magnet in response to the probe unit being mounted on the driver unit, a controller configured to obtain the identifier from the identification tag of the probe unit in response to the hall sensor detecting the magnet, and a display configured to display an indication of the identifier of the probe unit.

[0004] The present disclosure provides a dispensing device or dispenser for dispensing and applying a sealant. The dispenser disclosed herein provides feedback about an amount of sealant currently available in the dispenser, which allows a user to more accurately and quickly evaluate whether a sufficient amount of sealant is present prior to (and/or while) dispensing the