SURFACE – condensation measuring tool

Development status

Phase 3

Technology validation and implementing it in real environment. Testing the technology outside of the laboratory and its adjustment to external conditions.

IP protection status

US Patent - US2018003758A1 CZ Patent - CZ 306 726

Partnering strategy

Collaboration, licensing

Institution

Palacký University Olomouc

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Challenge

Condensation of liquids on the surface of solid substrate occurs in wide range of industries. In the most of cases is condensation undesirable phenomenon, which must be prevented. In some special cases, on the other hand, can be surface condensation desirable, because it can serve as an indicator. Commonly used technologies for measuring of surface condensation are unfortunately relatively slow. The measurement itself is therefore time-consuming and does not allow monitoring of immediate change of liquid amount on the surface, which is often very important. Therefore scientists from Palacky University developed Surface technology, which eliminates mentioned disadvantages.

Description

Surface represents device for measuring of liquid condensation on solid surfaces. The measurement is carried out universally by attaching two electrodes on the solid surface. Compared to commonly used technologies Surface offers high dynamic range, immediate response and rules out the environmental interference. Surface therefore allows obtain immediate information about condensation and it is possible to observe even very rapid changes in amount of condensed liquid. The basic set allows easy connection of detector to almost every electrically non-conductive solid surface and detection of changes in condensation. The changes liquid amount on surface is represented by switching on and off diode array, on the display of detector, or on the monitor of computer connected to the detector. Precise measurement of absolute values of amount of condensed liquid on solid surface can be done after fixed connection of measuring electrodes to surface and calibration. Surface can be also used in special applications and can be implemented directly into a larger unit. Partner can therefore offer a device with Surface technology inside as his own.

Commercial opportunity

Surface technology can be used in wide spectrum of applications, where there is necessary to measure rapid changes in condensation on

solid substrates. This can be utilized in construction of autonomous systems preventing mist e.g. in automotive or aviation industry (reflectors, windshields, etc.). Even a small increase in condensation, which is not optically observable, can run anti-misting systems and prevent dangerous situations. On the other hand, misting may be desirable in some cases. Typical example is misting of breathing mask as proof of breathing. In this case can be surface used as sensor to monitor proper and continuous breathing. Finally, Surface can be used in many industrial plants, offices and other public spaces for monitor of air condition, heating, ventilation etc. The device is moreover fully portable, which opens up additional application possibilities.