

Suited for explosive zones

The iON stream Fusion product line for electrostatic discharging from Hildebrand Technology is now also available for usage in explosive areas

In 2011, Hildebrand Technology (St. Gallen, Switzerland) was considered a pioneer in the electrostatic discharge industry when the company presented its iON stream FUSION series, an industry 4.0-compliant, fully integrated, intelligent, independently monitoring 24 V DC system for electrostatic discharge.

Thanks to the integration of the HV generators and the control system into the profile of the iONstream FUSION electrode, bulky external modules and HV cables, which up to this point were state-of-the-art in the industry for many years for controlling electrostatics, were no longer required.

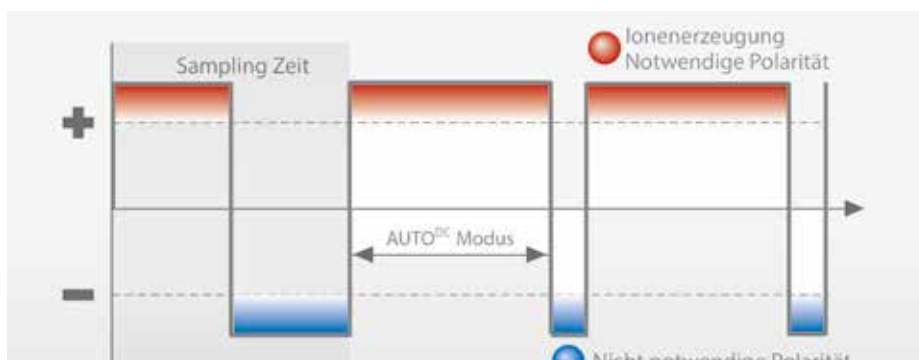
Today Hildebrand Technology takes the next step in the field of electrostatic control with the introduction of a new version of the iONstream FUSION for hazardous areas. This device is certified according to the latest EU directive 2014/34/EU, II 2G IIB T6 for solvents and II 2D IIIB T 85 °C for dust.

Stand-alone monitoring

iONstream FUSION is equipped with advanced, integrated, self-monitoring technology. The system starts in pulsed DC mode and shoots a fast sequence of positive and negative ion pulses at the target material to determine whether a dominant polarity is present.

If a dominant polarity, for example a negative charge, is detected on the target material, the system switches from pulsed DC mode to AUTO DC mode. In Auto DC mode, the integrated control system increases the throughput of the generator for ions with opposite polarity – in our example the generator for positive ions – so that a long 90% pulse of the required positive ions is emitted to discharge the target material electrostatically.

At the end of this long pulse, a short 10% pulse of negative ions is emitted to check whether anything has changed at the dominant polarity since switching to Auto DC mode. If no change is detected, the system continues in Pulsed DC mode. If a change in polarity is detected on the



The function principle of AUTO DC

material, the iONstream FUSION electrode switches back to pulsed DC mode and checks the electrostatic field again.

This long pulse of ions with the required polarity, followed by a very short pulse of ions with the same polarity as the target material, results in a very efficient electrostatic discharge at the surface of the target material.

Greater efficiency

According to the manufacturer, the advantages of iONstream FUSION with Auto DC are particularly evident in comparison to other systems on the market: In contrast to AUTO DC with 90% right and 10% wrong ions, other common technologies such as DC ripple current with 50% right and 50% wrong ions (and thus about 50% efficiency), or AC systems with 50% right and 50% wrong ions, but only about 30% efficiency (due to the zero passage and the resulting emission pauses), offer a lower performance. A low or no residual charge is very important due to the potential explosion hazard of the volatile liquids used, especially in potentially explosive atmospheres.

The version of the iONstream FUSION for hazardous areas is equipped with all functions of the standard system:

1. Electrostatic discharge with AUTO DC mode
2. 24V DC power supply with HV modules (6kV or 12kV) integrated in the profile of the electrode (no external components in the explosive area).
3. Network communication through Bluetooth to the iONpilot App or through the iONGate gateway.
4. Intelligent monitoring of discharge performance in the iONpilot app as well as decentralised colour change LED on each iONstream Fusion device. This includes a warning activation if the electrode is contaminated: "Clean Bar Warning" (soon to be cleaned) for 40% contamination, "Clean Bar Now" (clean electrode immediately) for 60% contamination. The display is made either via the LED on the electrode, in real time via the iONpilot App or via the iONGate Gateway to the customer's internal digital network or PLC.
5. Shock-resistant, current-limited emitter tips.
6. Integrated overall error warning for SPS notification.
7. Electrostatic discharges over wide distances.
8. 100% electrostatic discharging in non-explosive zones when using iONstream FUSION in True DC mode with the external surveillance device iONSense. ■



iONstream FUSION in action