

## NASA applies Distran Ultra Pro to Pinpoint International Space Station air leaks



NASA commercial cargo provider SpaceX has successfully launched its 100th Falcon 9 rocket and 21st Commercial Resupply Services mission (CRS-21) on December 6th, 2020. Aboard the newly redesigned Dragon cargo capsule, which docked to the International Space Station (ISS) twenty-six hours later, was a Distran Ultra Pro – a novel ultrasonic imaging device capable of pinpointing gas leaks based on the sound emitted.

The station's atmosphere is maintained at pressure comfortable for the crew members, and a tiny bit of that air leaks over time, requiring routine repressurization from nitrogen tanks delivered on cargo resupply missions. In September 2019, NASA and its international partners first saw indications of a slight increase above the standard cabin air leak rate. The leak has presented no immediate danger to the crew or the space station. The crew isolated sections of the station to monitor pressure changes to find and repair this air leak starting in August 2020.

The Distran Ultra Pro acoustic camera displays the leak location and estimates equivalent pinhole leakage rates and limit of detection in real-time. This Swiss-made technology detects ultrasounds emitted by air flow as it rushes through small holes, seams, and cracks. The acoustic imaging is overlaid on an optical image in real time, offering clear pinpointing of leaks. Ultra Pro records vacuum and jetting ultrasounds emitted by any type of leak (steam, CO2, CH4, H2, etc.) offering a wide range of applications.

Tests have shown that Ultra Pro's leak detection abilities are not impaired when the frequencies of noise-source energy are sufficiently far from the test frequency. Not all leaks produce ultrasound at the same frequency, and user selection of frequencies from 10-55 kHz is facilitated by an integrated, real-time spectrogram display. The Ultra Pro can potentially locate partially obstructed, hard-to-reach, or hidden leaks, potentially providing a great advantage as the ISS modules are filled with equipment racks, piping, cables, and experiment payloads.

Distran technology has been in use since 2013, mostly in the oil & gas industry, chemical manufacturing, and power plants. This versatile device, which can also pinpoint partial discharges, saves time and gas or electric consumable costs as well as it provides a safe manner to check for leaks from a distance.



### *About Distran*

Founded in 2013 in Zürich, Switzerland, Distran is the world leading ultrasonic camera manufacturer. Having invented the world's first ultrasonic camera in 2013, Distran has a growing distribution network and cameras are being used currently in more than 43 countries. Distran's team is composed of 18 people, including several field experts, former plant managers, and former commissioning engineers.

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