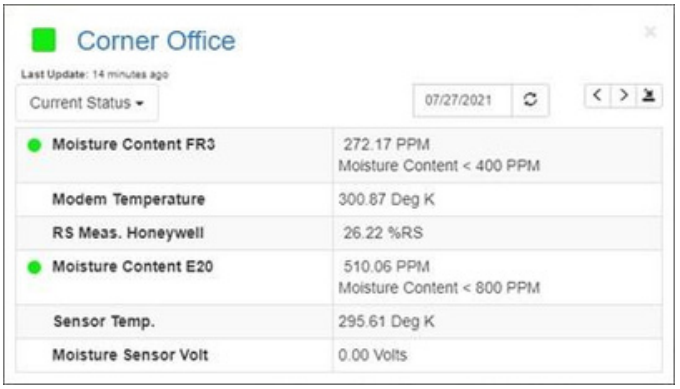
Remote Distribution Switchgear Oil Monitoring

An electric utility recently had an issue with a 15 kV switch in which the water content in the oil exceeded the level recommended by the manufacturer causing oil contamination and switch failure. The utility had performed the recommended preventative maintenance on the switch; however, the oil sample and subsequent analysis had not revealed the issue. It is suspected that the moisture level increased significantly after the most recent sample analysis. In order to prevent this in the future, PSStech was asked to develop a remote oil monitoring system.

The PSStech Solution

PSStech designed and developed a minimally invasive, remote monitoring system that allowed for the monitoring of, and alarming on, moisture levels in the oil. The monitoring system uses a moisture sensor that is installed in the oil level sight glass window port. PSStech designed and developed an adapter, as shown above, that allowed the moisture sensor to be installed in the oil level sight glass port while the sight glass remains intact. The monitoring system continuously samples the moisture content in the oil and alarms when the %RH or PPM meets or exceeds thresholds set by the switch manufacturer. If an alarm condition occurs, an e-mail is sent to the responsible party at the utility as well as PSStech engineers for evaluation.



Example alarm on the web-based dash board.