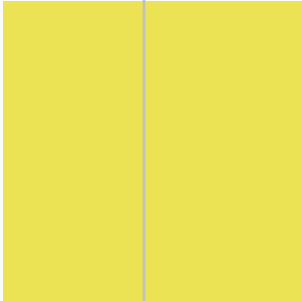


New Uses for TruIDL™ E-Coat Process Data Logger

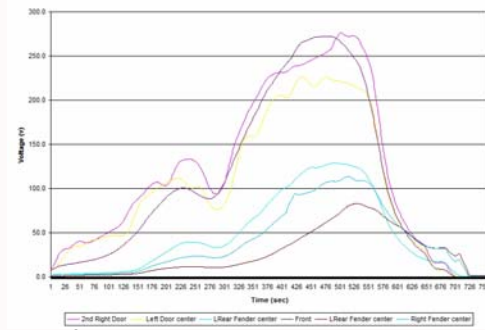
Service Reference



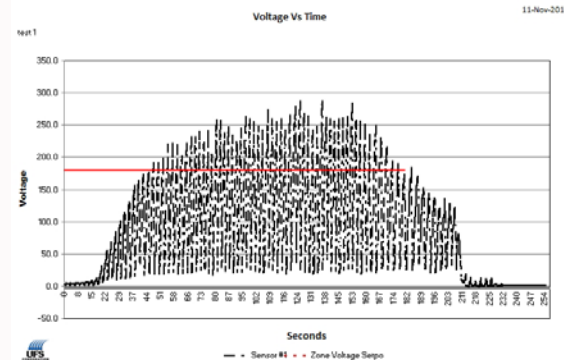
We are discovering new uses for the TruIDL E-coat Process Data Logger. A recent run at a customer's E-coat tank uncovered an issue with the DC Rectifier. The chart of Voltage Vs time showed evidence of very high AC ripple. Afterward an electrician measured the AC and DC voltage of the rectifier and confirmed the high level of AC ripple.

AC ripple is always going to be present in the DC output of the rectifier and should be under 5 %. Under 1% would be ideal. AC ripple is present because the DC power is made from AC current. Usually there is a filter bank, or equal, in the design of the rectifier that tries to minimize the amount of AC ripple. Sometimes these components fail and need to be replaced.

In an E-coat system with 5% or less AC ripple the curves of Voltage Vs time will look smooth and be generally upward trending, as shown below. Once the sensor moves past the last anode cell the voltages will begin to fall off.



E-coat system with 5% or less AC ripple



E-coat system where AC ripple is not suppressed

On the other hand, if the AC ripple is not being suppressed because of some trouble in the rectifier, the curve of Voltage Vs time will look a lot different, as shown above. Note there is only one sensor curve being shown to improve clarity for this example.

In the situation above the AC ripple was measured at about 48%. The detrimental affects of AC ripple are:

- loss of efficiency – not all the time is being spent at the required voltage.
- paint film defects – if the voltage peaks get high enough, film defects may begin to occur.

With this information, the customer is empowered to take the appropriate steps to correct deficiencies with their E-coat electrical system.

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