

# UFS Corporation

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[www.ufsc.com](http://www.ufsc.com)

## TruIDL™ Logger Frequently Asked Questions

*Q. How does voltage (V), resistance (R), and current (I) relate to each other?*

A. Recall from Ohm's Law that  $V = I \times R$ . So the product of current x resistance equals the voltage drop across the circuit in question.

*Q. For a given voltage sensor located in the interior of the ware, why does the voltage take longer to develop than a voltage sensor placed on the outside of the same ware?*

A. The Zone voltage (i.e. DC rectifier) is the potential energy available to perform work (deposit E-coat). Once this potential voltage is established in the E-coat bath, DC current will follow the path of least resistance and flow to the closest (from the Membrane Electrode Cells) portions of the ware. The TruIDL sensors at these locations will detect and record the voltage which is the product of the current flow and the resistance that is created as the electrocoat film builds in thickness. As time goes on, the current is 'encouraged' to move further away (i.e. from the ME Cells) to places on the ware with no E-coat film and less resistance. At this 'longer' point in the process, sensors at these locations will start to measure voltage.

*Q. How many voltage sensors do I need?*

A. If you have a small ware, then maybe 5 would be sufficient – in this case select the TU5. If your ware is large, you want to place sensors throughout an entire rack, make fewer runs and take advantage of the 10 voltage sensors - select the TU10.

*Q. Can I use fewer voltage sensors that come with the model I select?*

A. Yes, The first way is to place the un-used voltage sensors on the ware carrier/rack. The other method is to order a custom voltage sensor harness with just the number of sensors you need for your ware.

*Q. What is the wire length of the voltage sensors?*

A. The standard length is 3 m (10 ft) for all voltage sensors and then 1.5 m (5 ft) for the auxiliary ground clamp.

*Q. Are there any E-coat paint defects caused by the TruIDL Logger?*

A. Yes, The module has 2 x 19 mm (3/4 inch) round magnets and each voltage sensor has the same size magnet as well.

*Q. Can the TruIDL Logger go through an oven?*

A. No, The maximum operating temperature is 82 C (180 F).

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## *Q. How long does the battery last?*

A. The lithium polymer battery has 1000 mAh, which represents about 5 data logging runs.

## *Q. How do I "power on" the control unit?*

A. The unit never goes completely off unless the battery loses its charge. There is a tilt switch that will wake the unit up when the module is tilted toward you once.

## *Q. How do I configure the TruIDL?*

A. Microsoft Excel is used as a communication portal and you can think of it as the dashboard for the TruIDL. UFS provides an Excel file that allows you to configure the parameters for a data logging run and then it's uploaded to the TruIDL via a USB cable.

## *Q. Can I use an Apple computer?*

A. Yes as long as you use Microsoft Excel.

## *Q. How do I retrieve the logged data?*

A. After the data logging run, the saved data has to be downloaded to the TruIDL folder on your computer and then a macro button moves it back into the Excel file you created when the configuration file was created.

## *Q. What is smoothing rate?*

A. Smoothing rate of 1 means that just one sample is taken and then recorded (i.e., no smoothing). A smoothing rate of 4, 8, or 16 means that 4, 8, or 16 readings are taken and only the average is then recorded. A smoothing number of 8 is recommended for many because it will tend to suppress some of the 'electrical noise' that may be present.

## *Q. How do I clean the module after a data logging run?*

A. Rinse module and sensors with D.I. water and clean with isopropyl alcohol only. Do not use solvents. Use a lab squeeze bottle with DI water to irrigate the weep holes at the four corners to push any trapped paint solids out.

## *Q. Can I travel with this in an airplane?*

A. Yes, as checked baggage

## *Q. Can I ship the unit by air?*

A. Pack it securely in a box (preferably the box UFS shipped it to you in). The module does have a 4.2 volt and 1000 mAh lithium polymer battery (i.e. like a cell phone battery) and can be shipped under the 2010 IATA regulations. There are strong magnets in the voltage sensor wiring harness. Magnets are considered a Class 9 category must be properly packaged so a paperclip will not stick to the exterior of the shipping box. It should have a sticker saying magnets are inside the box.

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## *Q. How long can I record?*

A. This depends on the seconds per sample. The approximate maximum number of records is about 2400. So at 0.25 seconds/sample the maximum time is about 10 minutes. At a slower sampling rate of 1 second/sample the maximum recording time is 40 minutes.

## *Q. What do the different color LEDs indicate?*

A. The red LED indicates the battery is being charged. The green LED means the module is awake. The blue LED indicates a configuration file is loaded. Flashing green and blue LEDs mean the module is armed. Amber blinking LED indicates one of several different status codes.

## *Q. Can I upgrade the firmware?*

A. No. The module has to be sent back to UFS Corporation for upgrades.

## *Q. Can I upgrade the TU5 to the TU10?*

A. Yes. You will have to send the module back to UFS Corporation for new firmware and you will have to purchase a new 10 position harness.