



**AEMC®**  
INSTRUMENTS

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# Megohmmeter Model 1060 PART 2



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## Featured Product:

# Megohmmeter Model 1060 Introduction

## Part 2: Working with the DataView®

### Megohmmeter Control Panel

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In Part 1 of our article series on the AEMC® Megohmmeter Model 1060, we explain how to set up, run, and save an insulation measurement test. In Part 2, we now show you how to download the saved test data to a computer, using AEMC's DataView software.


This article assumes DataView with the Megohmmeter Control Panel has been installed on your computer. The DataView Megohmmeter Control Panel is the primary interface for connecting with the Model 1060, downloading test results, and viewing the data on the screen.

You can also use the Control Panel to set up tests, view measurement data in real-time, and configure the instrument.

## Connecting the instrument

The Model 1060 communicates through a serial cable that comes with the product. Insert one end of the cable into the instrument, and the other into the computer.

Next, turn the instrument ON by turning the dial to any setting.

Start the Megohmmeter Control Panel by opening the DataView folder on your desktop and clicking the Megohmmeter  icon. When the Control Panel is open, the Connection dialog box appears, which enables you to select the communication port and communication rate.

Select this port number from the Communications port drop-down list. Then select the communication rate. For the Model 1060, the default rate is 9600. This can be changed on the instrument; if you do so, ensure the rate you select in the Control Panel matches the instrument.

When you have completed both fields on the Connection dialog, click OK.

The Control Panel now connects to the instrument. When this is completed successfully, the word Connected appears in the lower right corner of the Control Panel status bar.

## Running a test on the instrument

A powerful feature of DataView® is its ability to set up and run a test from the computer. You can configure the test, and view measurements as they are made in real-time. You can then save the recorded test, and format its data as a report or spreadsheet.

To configure the test, ensure that the instrument is powered ON. Then select Instrument in the menu bar and click Configure. The Configuration dialog box appears. This is the main interface for configuring the instrument through DataView.

**Configuration**

**Test Run Settings**  
 Test run time: [⌚] 10:00 (min:s, 01:00 - 59:00)  
 Sample interval R(t): 0:05 (min:s, 00:05 - 59:00)

**PI Settings**  
 1st PI time: 1:00 (min:s, 01:00 - 59:00)  
 2nd PI time: 10:00 (min:s, 01:00 - 59:00)

**Test Voltage**  
 MΩ - 50 V ☐ Disable Voltage < 50.00 k 2 kΩ - 200 GΩ  
 MΩ - 100 V ☐ Disable Voltage < 100.0 k 4 kΩ - 400 GΩ  
 MΩ - 250 V ☐ Disable Voltage < 250.0 k 10 kΩ - 1 TΩ  
 MΩ - 500 V ☐ Disable Voltage < 500.0 k 20 kΩ - 2 TΩ  
 MΩ - 1000 V ☐ Disable Voltage < 1000 k 40 kΩ - 4 TΩ  
 400 kΩ < 100.0 k 0.01 - 400 kΩ  
 40 Ω < 2.000 0.01 - 40 Ω

**Alarm thresholds**

**Date Format**  
☒ USA MM/DD/YYYY  
☐ European DD/MM/YYYY

**Buzzer**  
☐ ON   
☒ OFF

**Auto Power OFF**  
☐ ON   
☒ OFF

**Lead Compensation**  
☒ ON   
☐ OFF

**Buttons:** Close, Write to instrument, Read from instrument, Save to Disk, Load from Disk, Defaults, Set Clock, Clear Memory, Help

Start by selecting the test duration. This can be from 1 minute up to 59 minutes. Next, select the sample interval. This determines how often during the test the instrument will save a measurement result.

The Configuration dialog box includes a number of other fields for setting features such as the calculation used to determine polarization index, alarm thresholds, lead compensation, and other features. These are all described in detail in the Help system that comes with the DataView Megohmmeter Control Panel. When finished, click Write to Instrument to update the instrument configuration, then click Close. With the setup complete, you can now start the test. Click Run Test in the navigation frame to display the Run Test dialog box.

Run Test

Test Operation

☒ 50 V

☐ 100 V

☐ 250 V

☐ 500 V

☐ 1000 V

☐ 400 kΩ

☐ 40 Ω

Start

Save

Print

Close

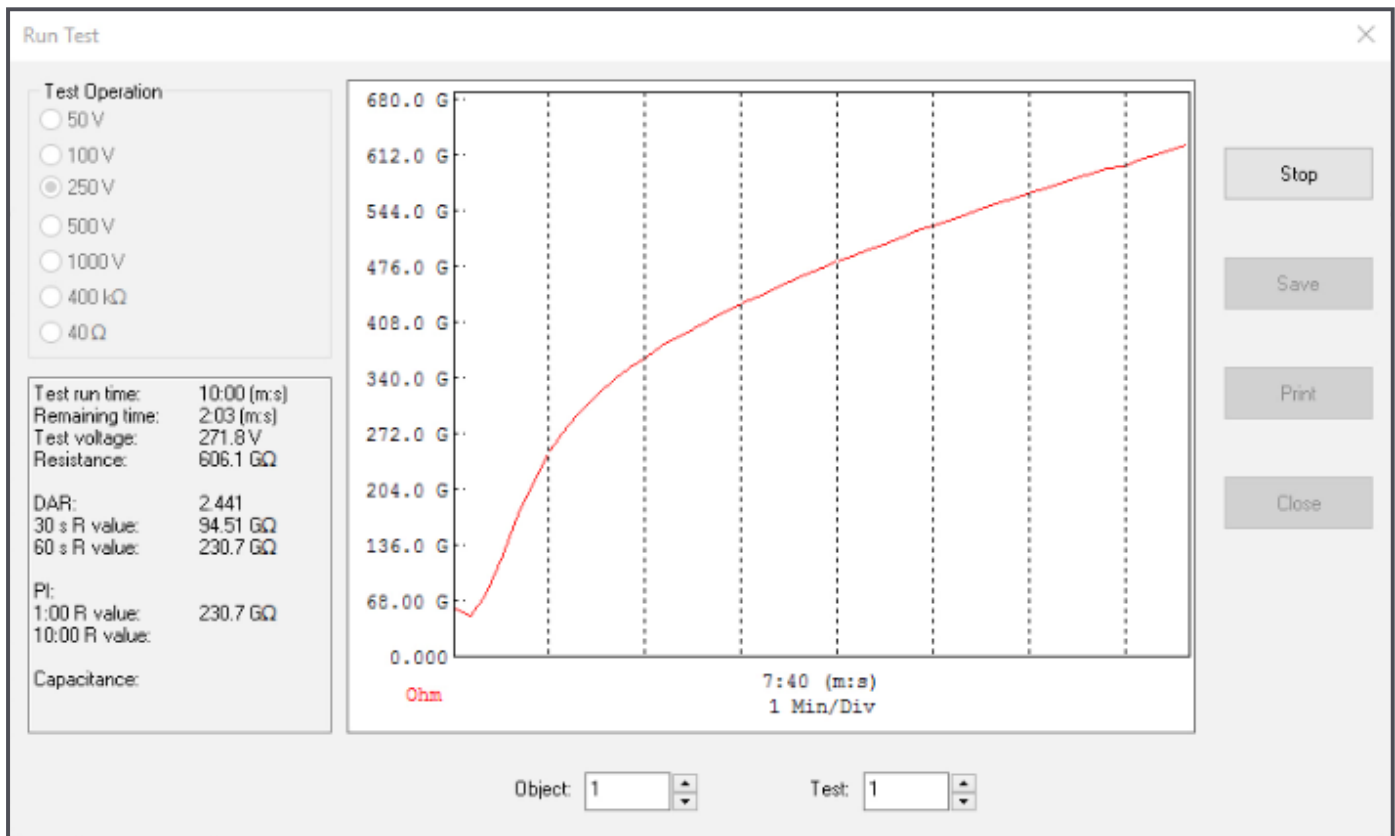
Object: 1

Test: 1

On the left side is a list of available test voltages from which you can select. Note that these will override the voltage selection indicated by the instrument's dial. You can also set a limit on allowable test voltages by disabling higher voltages via in the Configuration dialog box, as explained in the Help system.

At the bottom are the Object and test numbers under which the test will be stored. These are derived by incrementing the Object and Test combination of the most recent test stored in the computer's memory. If no tests are in memory, by default the test will be stored as Test 1 in Object 1. To change this setting, use the Up and Down buttons next to the fields.

To start the test, click the Start button. After a few moments, real-time measurements are displayed as a graph in the center of the dialog box. In the lower left is a table showing the total duration of the test, the time remaining, the test voltage, most recent resistance measurement, and values for DAR, PI, and Capacitance. The DAR value appears after one minute, while PI and capacitance will appear at the completion of this test.



As the test progresses, the graph assumes the characteristic shape of the timed resistance test. In the preceding illustration the graph indicates that our test specimen, in this case a short wiring run, has adequate insulation. It also indicates that we have selected an appropriate test voltage. If instead the graph quickly rises to the top of the display and measurements are listed as out of range, stop the test and run a second test at a higher test voltage.

## Viewing and saving test results

You can print the displayed graph by clicking the Print button and completing the Print dialog box. To save the test, click Save. When you close the Run Text dialog box, saved tests appear under Data Files in the navigation frame.

When you open the test, you can augment its data by clicking Edit in the menu bar and then selecting the Edit option. This displays the Session Summary Properties dialog box. This dialog box consists of four tabs. The first is named Test, and it lets you enter explanatory information. For example, you can enter a more meaningful name, a one-line description, and additional descriptive comments.

The Object tab lets you change the name of the object in which one or more tests are stored.

The Operator tab enables you to enter information about the person who conducted the test. Initially this tab is blank. To enter data, click the Edit button near the bottom of the screen. You can enter a name, or choose from a list of previously created operator records. When this tab is complete, click OK.

The screenshot shows the 'Session Summary Properties' dialog box with the 'Operator' tab selected. The 'Operators list' contains: Jane Smith (selected), Joe McKinley, John Doe, and [None]. Below the list are buttons for 'New', 'Default', and 'Delete'. To the right is a form with the following fields: Company (Example Company), Operator (Jane Smith), Address (123 Technology Drive), City (Durham), State (NH), ZIP (03824), Phone (603-123-9876), Fax (603-123-0987), and e-mail (jane.smith@email.com). At the bottom right of the dialog is an 'Edit' button. The 'OK', 'Cancel', and 'Help' buttons are at the very bottom of the dialog.

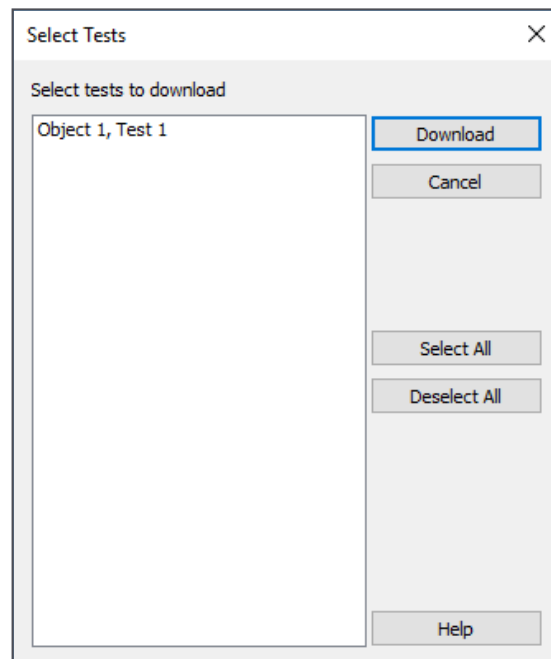
The final tab in the Session Summary Properties dialog box is labeled Site. This lets you enter data about the location where the test was performed. As with the Operator tab, you can complete the displayed fields, or select an existing name from the site list.

You can now view the complete test record. This includes information about the test operator, the test site, the instrument model and other test-related information, the test measurement data itself, and finally any additional comments. To save the complete updated test on the computer, click File in the menu bar and select Save. You will be prompted to enter a file name for the saved test data.

## Downloading tests

You can also download tests stored on the instrument itself. To do this, click Instrument in the menu bar and select Download. After a few moments, the Select Tests dialog box appears. This lists all tests currently stored in the instrument. You can download individual tests by selecting them, or use the Select All button to select all tests in the instrument's memory. Make your selection(s) and click Download.

When the download is complete, the navigation pane on the left side of the Control Panel window lists the object name, as well as any tests contained within the object. Clicking on the name of the test displays its measurement data in the data frame on the right side of the Control Panel window.



## Generating reports

Another important feature of DataView® is its ability to generate reports from test data stored in objects. Start by selecting the object in the navigation frame. All tests stored in the object are listed in the data frame. Choose each test to include in the report by clicking its checkbox in the Add to Report column. You must have at least one test selected to create a report.

Click File in the Control Panel menu bar and choose Create DataView report. You are asked to enter a filename for the report data, with the extension .dvb. Enter the filename and click Save. The Address Book dialog box appears, allowing you to change the operator and site information for this report.

DataView now creates a report from the selected test data. By default, this report consists of a Cover Sheet, a page for each selected test, and a Test Summary worksheet. To save the report to the computer, click File when viewing the report, and then click Save and specify a location for the saved report file.

Note that DataView includes a number of features that enable you to customize your reports, displaying your test results for a wide variety of users and purposes. These report generation features are described in detail in the DataView Help.

## Conclusion

This article concludes our two-part series on setting up, downloading, and analyzing test results for the AEMC® Megohmmeter Model 1060. For more information about this instrument, please visit the AEMC web site. And be sure to visit our YouTube channel for instructional videos about the many products offered by AEMC.



# AEMC® Static Ground and Test Kit

Accidents involving fuel tanker trucks and other vehicles transporting flammable liquids present major challenges to first responders. One of the most critical is the danger of electrostatic discharge, which can instantly turn a potentially hazardous situation into a life-threatening disaster.

To help mitigate this risk, standards such as NFPA 472 mandate that hazmat personnel set up, and bond the tankers to, a temporary grounding system before offloading flammable liquids from the damaged tanker to the receiving vehicle. The purpose of this grounding system is to create an equipotential plain between the two vehicles and all equipment used to pump the liquid from one to the other.

To make this process as easy and safe as possible, AEMC has introduced the Static Ground and Test Kit. This portable system contains all the necessary equipment for creating and testing a temporary grounding system for the transfer of hazardous materials, including a test instrument and accessories to ensure the system is fully functional and in compliance with relevant standards. The kit enables responders to ensure the safe transfer of hazardous liquids by minimizing the risk of spark ignition due to electrostatic discharge.

This article explains how to use the Static Ground and Test Kit. We begin by describing the kit's components. We then demonstrate how to use the kit to set up a temporary grounding system, and then test this system to ensure it provides the grounding performance required for your location. Finally, we explain how to connect the grounding system to the damaged and receiving tankers and other equipment.

## Kit components

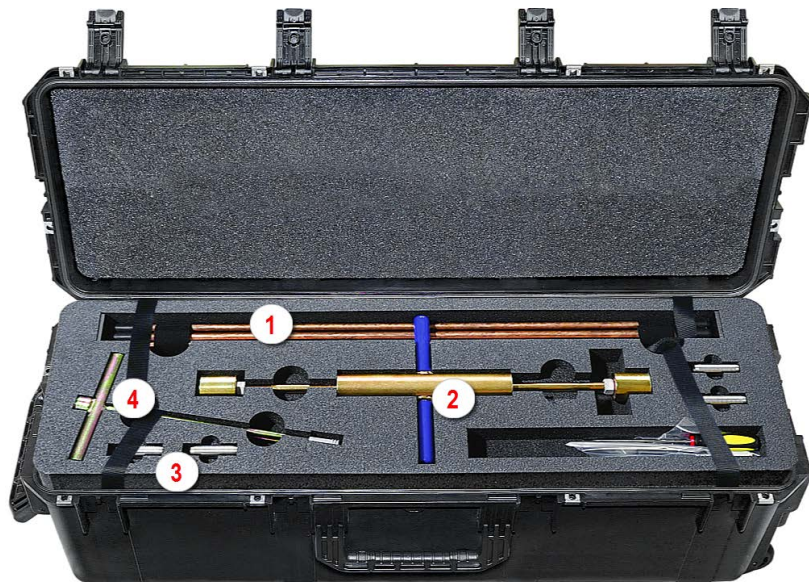
The kit is packaged in a hard-shell case designed for rugged environments, and consists of two parts. The first includes:

- Rods for creating a grounding system. These are steel rods with copper cladding to prevent corrosion and rust. The grounding system can consist of a single rod, or multiple connected rods. Typically, you will create one grounding field for the damaged tanker, and a second for the receiving tanker. You can also create a separate grounding field for the transfer pump, in cases where it is a portable standalone device not mounted to the fire truck.





- An insertion/extraction tool for installing and extracting the rods.
- Couplings for connecting rods in situations where the rods must be hammered to a greater depth to achieve the required resistance reading
- And auxiliary electrodes for testing the grounding system. These electrodes are used for injecting test current and measuring potential



### Kit Part 1

1. Grounding rods
2. Insertion/extraction tool
3. Rod couplings
4. Auxiliary electrodes

## The second part of the kit provides:

- The AEMC® Ground Resistance Tester Model 3640. You will use this instrument to verify that the grounding system meets local requirements, as explained later in this article.
- Color-coded leads for connecting the auxiliary electrodes to the Model 3640.
- Jumpers for connecting the tankers to their grounding systems, and to each other. These connections create the required equipotential plain. The jumpers consist of bare stainless steel wire to ensure they have no hidden breaks.
- Stainless steel jumpers for connecting rods together, in locations where multiple rods are necessary to create a satisfactory grounding system.
- And an easy-to-follow instruction sheet.



### Kit Part 2

1. Ground Resistance Tester Model 3640
2. Test leads
3. Tanker jumpers
4. Rod jumpers

## 1. Select a location

Our first task is to select a location for the damaged tanker's grounding system. Ideally, this is outside the "hot zone" that may exist around the tanker. This is the area in which flammable gasses may be present, for example evaporated fuel that has leaked onto the ground. You should first determine the extent of the hot zone with a gas detector designed to detect these gasses and display the Lower Explosive Limit (LEL) percentage. If at all practical, install the grounding system well outside any potential hot zone. Also, if possible choose a location uphill and upwind from the hot zone.



## 2. Install grounding rods

After a suitable site has been selected, you can install a grounding rod.

If soil conditions allow, you can insert the rod by hand. In hard or compacted soil, use the insertion/extraction tool that comes with the kit to install the rod.

Screw the threaded end of the rod into the tool, and then install the rod with a hammering motion, to a depth of 24 to 36 inches. Then unscrew the rod from the tool.





### 3. Measure ground resistance via Fall-of-Potential (FoP) test

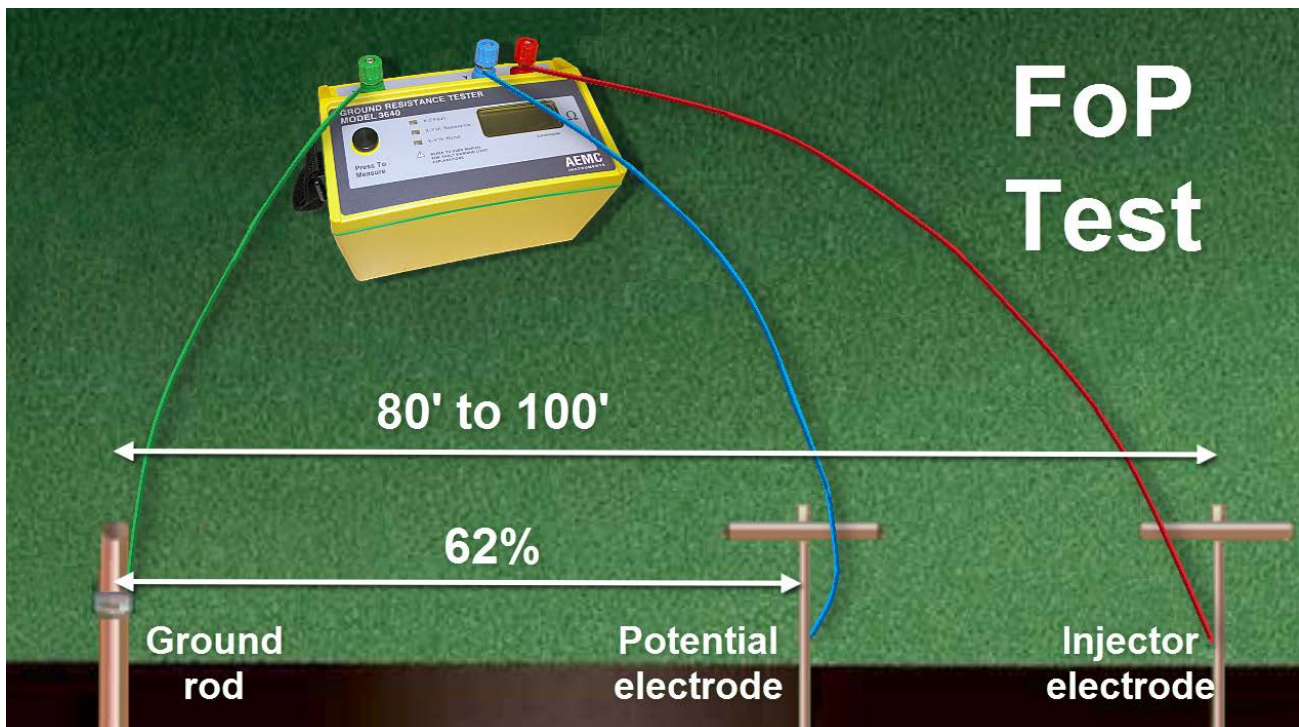
With the first rod installed, measure its effective resistance by performing a Fall-of-Potential test with the Model 3640, a simple-to-use ground tester that can perform a FoP test with a single push of a button. This involves injecting a low-level current into the ground at a distance from the grounding rod, and then measuring potential at a point between the grounding electrode and auxiliary injector electrode.



For more information about performing Fall-of-Potential tests, as well as ground resistance testing in general, see the workbook "Understanding Ground Resistance Testing," available free on the AEMC® website.

The Model 3640 runs on AA batteries. We recommend keeping an unused set of batteries in the responding vehicle and installing them on-site. This ensures the instrument always has fresh batteries to provide power. It is also good practice to remove the batteries after returning to the station, since the instrument generally will not be used on a frequent basis.

In the Fall of Potential test, the injector electrode should be inserted approximately 80 to 100 feet from the grounding rod, and the potential electrode placed 62% of the distance from the injector electrode to grounding rod. Both auxiliary electrodes should be placed outside the hot zone.



Connect the red lead to the injector electrode. Insert the spindle tool that comes with the kit into the spool to allow it to spin freely, and bring the spool back to the instrument. When a sufficient length of lead has been played out, push the lever on the spool to release the tool. Insert the red jumper into the spool's banana jack. In the other end of the jumper insert a provided spade clip, and attach the clip to the red terminal on the instrument, labeled Z. When you do this, ensure the metal jumper strap attached to the red terminal is not connected to the blue terminal. This jumper is not used when performing a Fall-of-Potential test.



Similarly, use the blue lead to attach the potential electrode to the instrument's blue Y terminal. Finally, use the green lead to attach the instrument's green X terminal to the grounding rod.

To take the measurement, simply press the button and wait a few seconds for the reading on the display to stabilize. In some jurisdictions, a resistance under  $1000\Omega$  is acceptable for a temporary grounding system in this application. Other jurisdictions require the resistance to be under  $25\Omega$ . Be sure you know the requirements of your location before connecting any cables and pumping equipment to the damaged tanker.

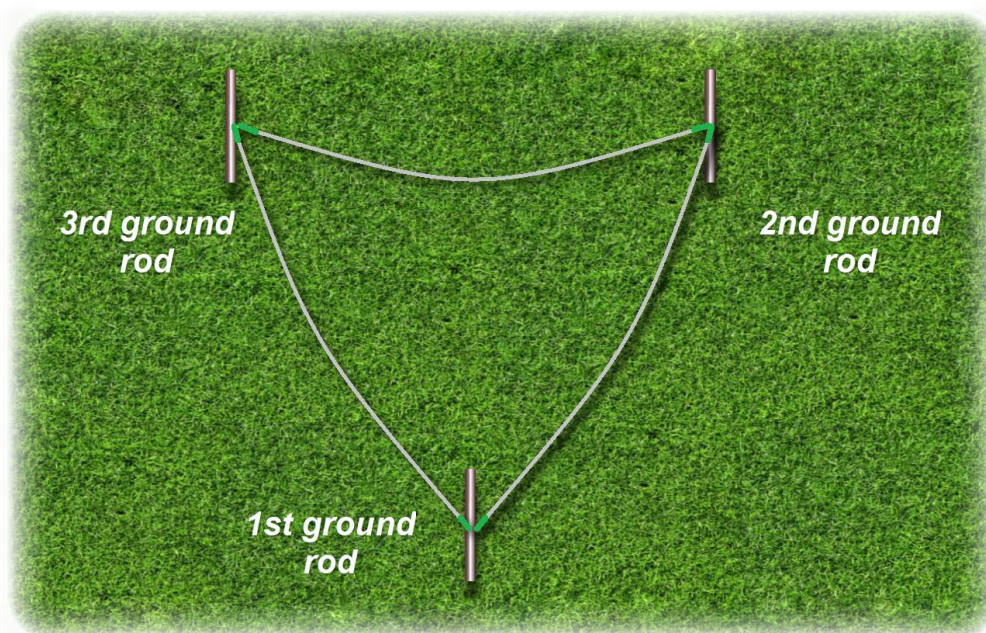


When performing a test, note the three fault indicators on the Model 3640's front panel. If any of these lights are lit, check all connections between the instrument, auxiliary electrodes, and grounding rod.



If the measurement does not meet the standard mandated by your area, there are a number of measures you can take. For example, to improve conductivity you can moisten the soil around the temporary grounding system by pouring water on it.

Another option is to add one or more additional ground rods. Insert the second ground rod a minimum of one rod length away from the first, and bond it to the original via the green jumper cable provided with the kit. Similarly you can add a third rod, placed a rod's length away from both the first and second rods.



You can also use the provided connectors to attach a second rod to the original, and then use the insertion/extraction tool to hammer them deeper into the ground.

And if a guard rail is available, use the jumpers to attach it to the grounding system. In some locations, the guard rail by itself can provide a satisfactory grounding system.

In every case, perform a Fall-of-Potential test afterward to ensure the grounding system meets your local requirements.

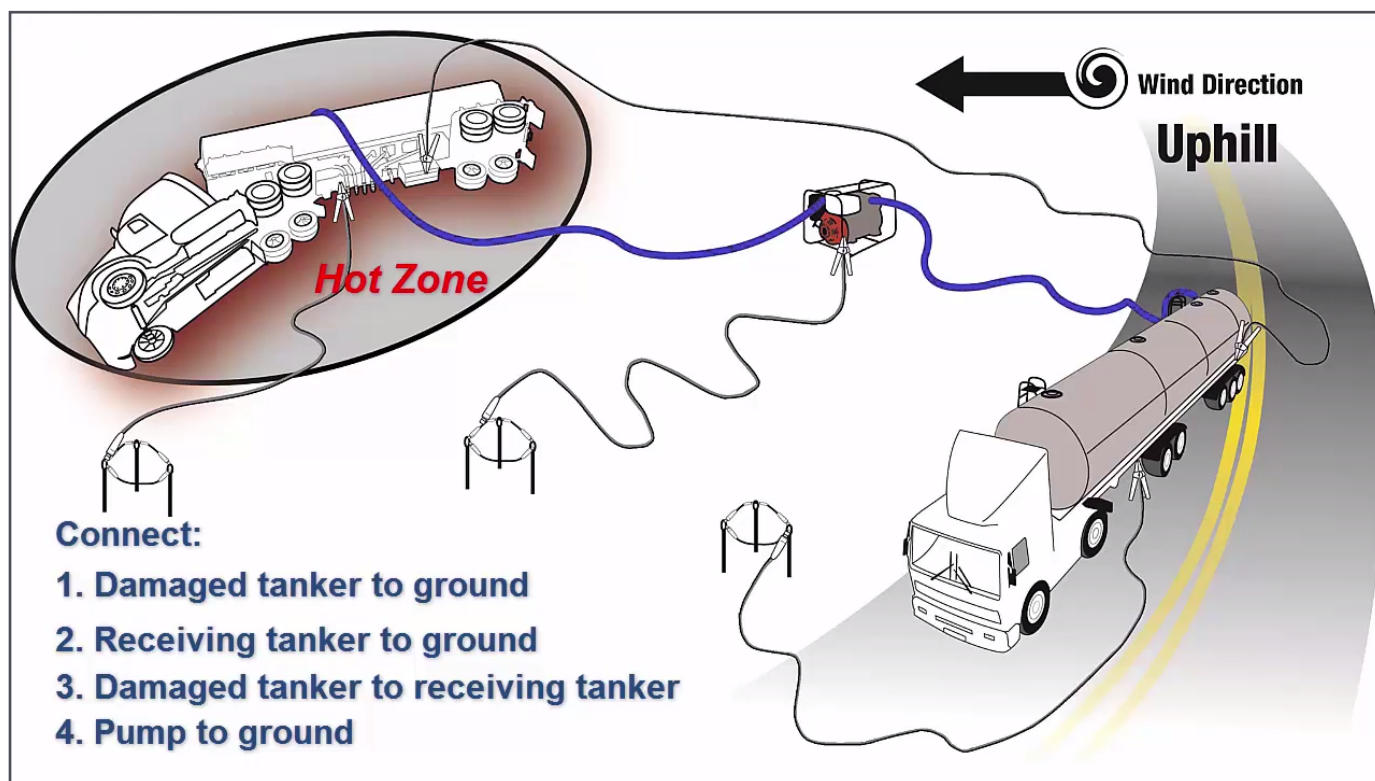
When the readings are acceptable – and if time permits – we recommend taking a few minutes to perform two additional measurements. These involve moving the potential auxiliary electrode to 52% and 72% of the distance between the injector electrode and grounding system, and taking a measurement at each location. If the three measurements are within 3% of each other, this confirms that the injector electrode is sufficiently distant from the grounding system to provide a reliable and accurate measurement.

After you have set up a grounding field for the damaged tanker, use the same procedure to create a separate grounding field for the receiving tanker. Although it's possible to use a single grounding field for both the damaged and receiving tankers, we recommend separate fields for each to ensure redundancy – for example, in case a cable is accidentally disconnected during liquid transfer. And as an extra safety measure, you can also create a separate grounding field for the transfer pump equipment.

## 4. Connect grounding system to tankers

The final step is to connect the grounding fields to the tankers. Start with the damaged tanker. Connect the grounding jumper to a point on the tanker directly welded to the vehicle frame. The reason we connect the damaged tanker first is to ensure that any electrostatic spark created as a result of the connection occurs outside the hot zone. Connect the other end of the grounding jumper to the grounding field.

Next, connect the receiving tanker to its grounding field. Then connect the damaged tanker to the receiving tanker. Again connect to the damaged tanker first, to avoid electrostatic spark within the hot zone. Finally, connect the transfer pump to its grounding field if you have created one for it, and then connect the damaged tanker to the pump.



You have now created an equipotential plane that will minimize the risk of static spark during flammable liquid transfer. Note that you can use this plane to ground any buckets used to capture leaks from the damaged tanker. To do this, place the bucket outside the hot zone, connect a grounding jumper to the tanker, and connect the other end to the bucket. You can now bring the bucket into the hot zone to catch any leaking fluid.

## 5. Disconnect system

When all fluid has been offloaded, remove all connecting wires from the ground rods, tankers, and other equipment. As you do so, be aware that volatile vapors may still be present on or around the empty damaged tanker. Then extract the rods using the insertion/extraction tool provided with the kit.



## Conclusion

Let's take a moment to review the main tasks required to create a temporary grounding system that provides an equipotential plane for the offloading of hazardous liquids:

- 1.** Determine an appropriate location for the grounding systems, outside the Hot Zone that may surround the damaged tanker.
- 2.** Install the ground fields, using the grounding rods supplied with the kit. Create separate fields for the two tankers, and ideally the pumping equipment.
- 3.** Perform a Fall-of-Potential test to ensure each field provides satisfactory grounding. If not, install additional rods to lower the resistance of the field.
- 4.** Connect each grounding field to its tanker, and the pumping equipment.
- 5.** After offloading, disconnect the grounding fields, dismantle them, and return all components to the kit.

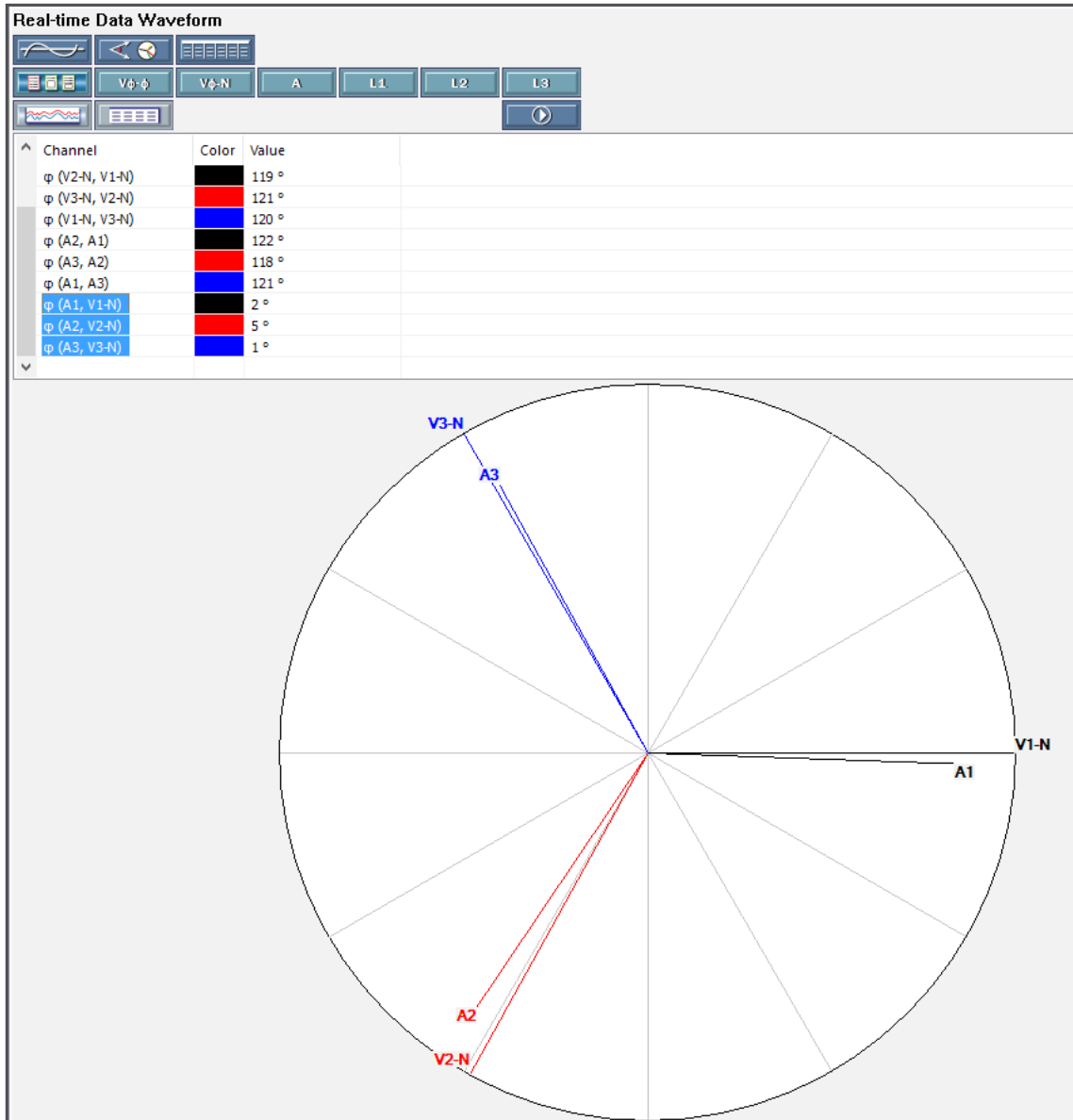
This concludes our demonstration of the Static Ground and Test Kit. For more information about the kit or the Model 3640, visit the AEMC® web site.

## Customer Support Tip:

# Phase Shift Defined

Phase shift (also called phase angle) is the time difference between the voltage and current waveforms. This is usually expressed in degrees and is represented by the mathematical symbol  $\Phi$ .

For example, consider the following phasor diagram, displayed by the DataView® PowerPad® III Control Panel connected to a PowerPad III Model 8336:



In the preceding illustration, phase shift values are shown both graphically and in tabular format (upper left). In this case, the phase shift between current and voltage for phase 2 (A2 and V2, shown in red in the phasor diagram) is 5°, as listed in the table.

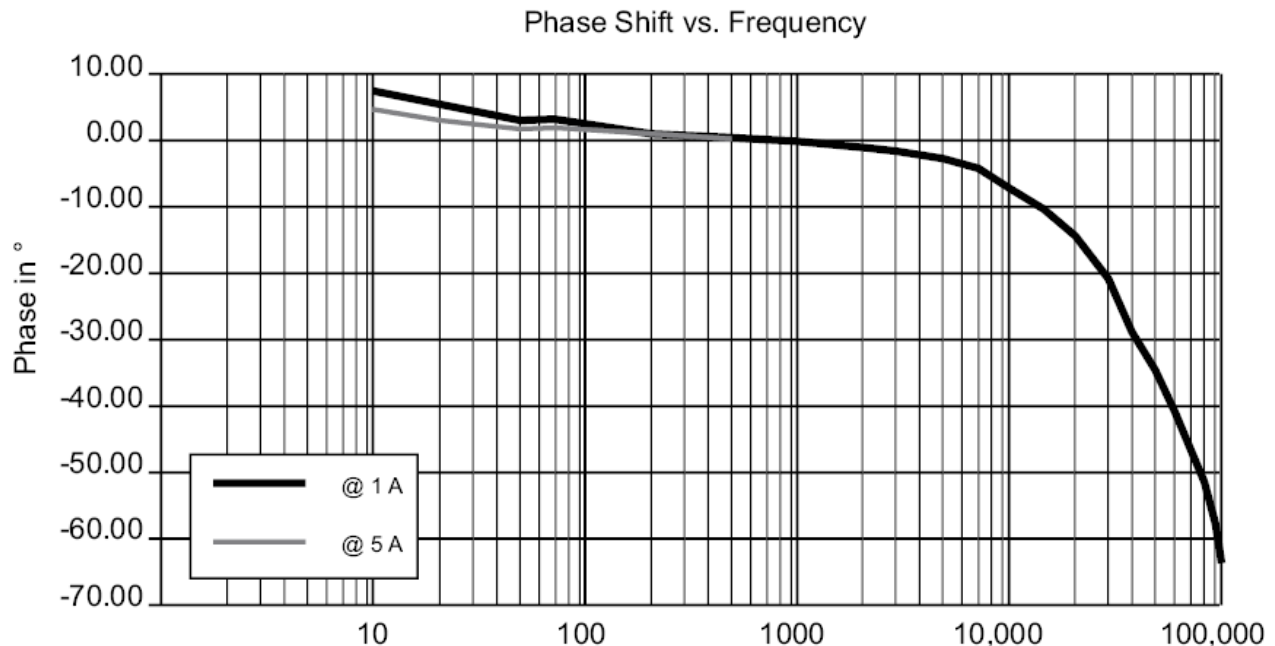
The causes of phase shift include reactance from inductive or capacitive loads. In a capacitive circuit, the current waveform leads the voltage, producing a positive phase shift such as the one shown in the illustration. In an inductive circuit, current lags voltage, resulting in a negative phase shift. In a purely capacitive circuit, phase shift is  $90^\circ$  while in a purely inductive circuit phase shift is  $-90^\circ$ . The amount and direction of phase shift can therefore help you determine whether the circuit under test is capacitive or inductive, and to what degree.

## Phase shift and current probes

Measurement current probes can introduce artificial phase shift into the measurement. Their electronics and other internal components can produce inductive or capacitive loads into the circuit, affecting the accuracy of the measurement. Another factor is the probe's core material. Steel and other ferrous materials can contribute to artificial phase shift. This error can be especially significant in circuits with high THD, or when measuring low current.

For example, suppose you are measuring a circuit with no phase angle (in other words, current and voltage waveforms are peaking simultaneously). The Power Factor (PF) for this circuit is 1. If the current probe introduces an artificial phase shift of  $5^\circ$ , PF would be calculated 0.9962, a measurement error of 0.38%.

Phase shift error can become especially acute at higher frequencies. This is due to the fact that as the wavelength grows shorter, the phase shift represents an increasingly larger percentage of that waveform. For instance, the following graph shows how increasing frequency correlates with increasing phase angle:



As you can see, at frequencies such as 120 or 240 Hz, phase shift represents a very low percentage. At higher frequencies (such as those produced by high-order harmonics), phase angle rises significantly.

To reduce measurement errors, you can select probes specially designed to reduce artificial phase shift. AEMC offers a number of probes with low phase shift. For example, the AC Current probe Model SR752 provides low phase shift ( $\leq 2^\circ$  in the current range 1 to 10A,  $\leq 1^\circ$  above 10A, under typical reference conditions).



**AEMC® SR752**

For more information about these and all other AEMC products, please visit our web site.

# Downloading a PowerPad® III Model 8336 Recording

In an earlier article, we explain how to set up, run, and save a recording session on the AEMC® PowerPad III® Model 8336. In this article, we now show you how to download the saved data to a computer and perform other tasks using AEMC's DataView software.

This article assumes DataView with the PowerPad III Control Panel has been installed on your computer. The DataView PowerPad III Control Panel is the interface for connecting with the Model 8336, downloading test results, and viewing the data on the screen. You can also use the Control Panel to set up recording sessions, view measurement data in real-time, and configure the instrument.



## Connecting to the instrument

The Model 8336 communicates through a USB cable that comes with the product. Use this cable to connect the instrument to the computer.

Next, turn the instrument on.

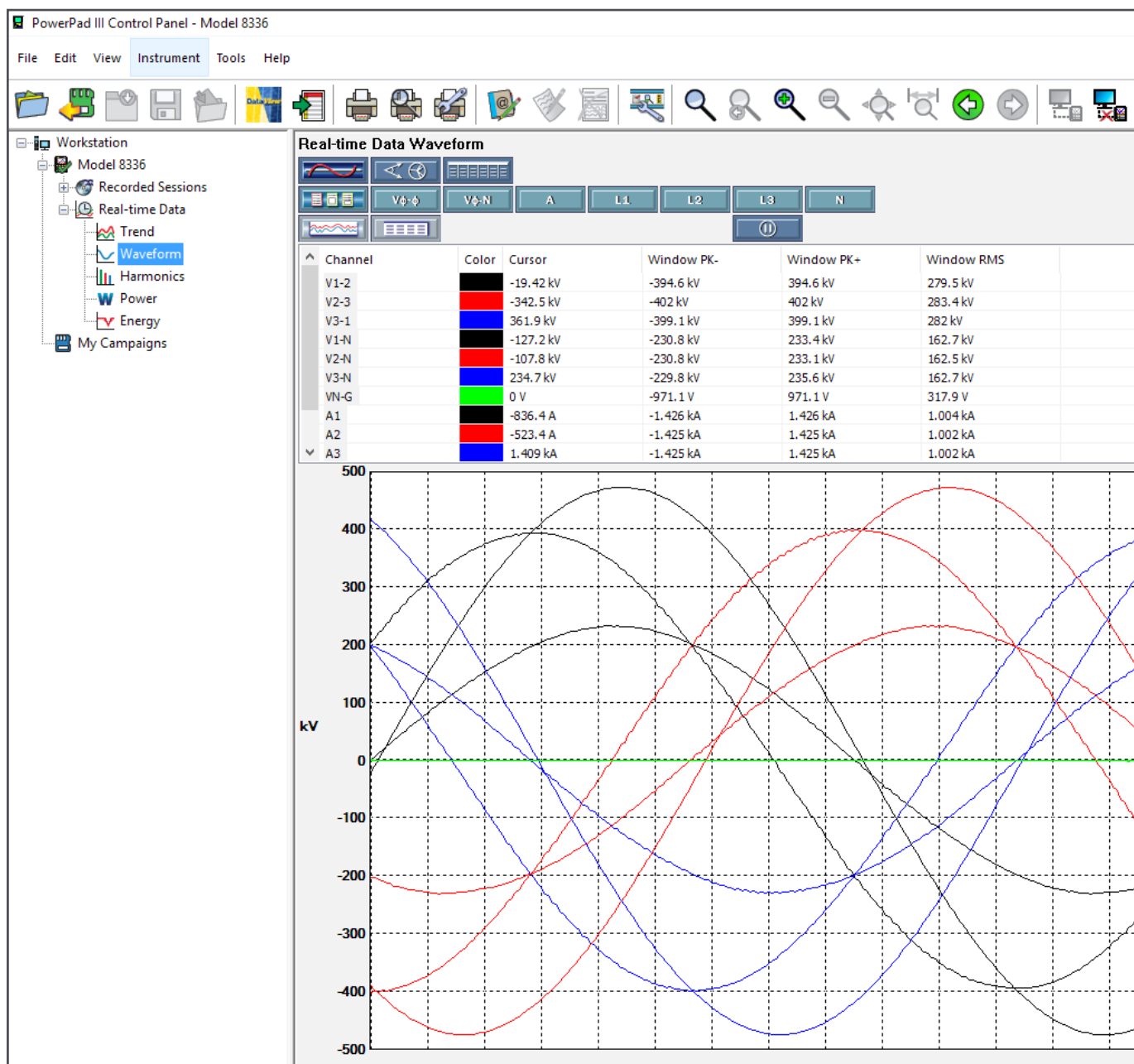
Start the PowerPad III Control Panel by opening the DataView folder on your desktop and double-clicking the PowerPad III icon. When the Control Panel is open, click Instrument in the menu bar, and select Connect an instrument. The Connect an Instrument Wizard dialog box appears.

The name of the instrument is displayed in the Instrument field. Click Next.

The Control Panel connects to the instrument. When this is completed successfully, click Finish. The words Connected to Instrument appear in the Control Panel status bar.

## Viewing real-time data

The Control Panel interface includes a navigation frame on the left and a data frame on the right. The content of the data frame depends on the selection in the navigation frame. For example, to view waveform data currently being measured by the connected instrument, click Real-time Data in the navigation frame, and then click Waveform. The waveform data appears in the data frame, in both tabular and graphical format.



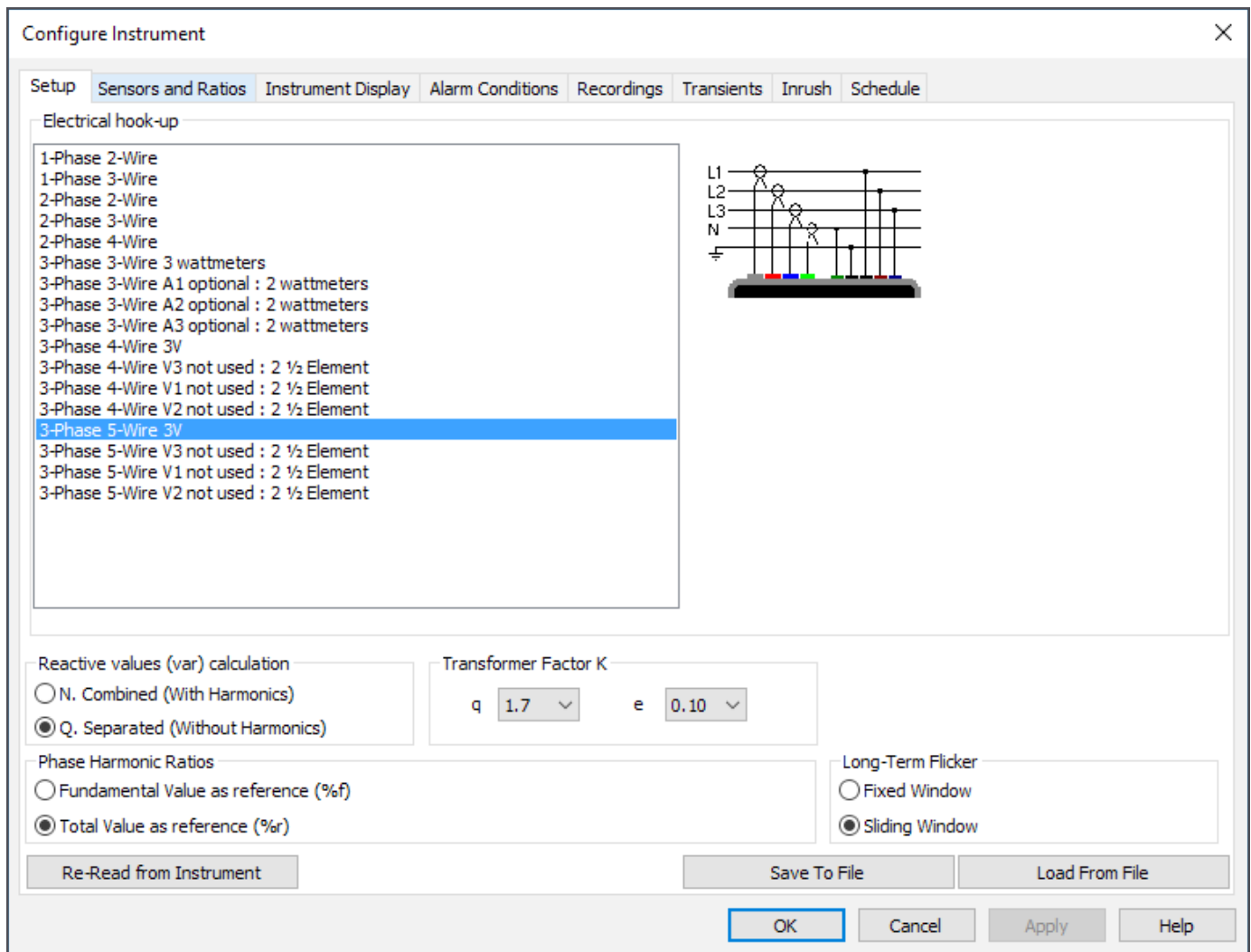
The buttons at the top of the data frame allow you to view this data several different ways. You can also view selected subsets of the data, freeze the updating of measurements on the screen, and display a phasor diagram. These and other features are described in the Help system that comes with the Control Panel.



## Configuring the instrument

A convenient feature of the Control Panel is its ability to configure the instrument from a computer. For example, you can save an instrument configuration, and use it to configure one or more other instruments. This lets you quickly and easily set up multiple instruments with identical configurations.

With the instrument connected, click Instrument in the menu bar and then select Configure. The Configure Instrument dialog box appears. This is the primary interface for changing settings on the instrument.



The dialog box consists of eight tabs for setting basic parameters, sensors and ratios, alarms, instrument display, and many other settings. You can also set up and schedule a recording session on the instrument, a topic we will discuss next.

## Recording sessions

To configure and run a recording session, click the Recordings tab of the Configure Instrument dialog box.

**Configure Instrument**

Setup | **Sensors and Ratios** | Instrument Display | Alarm Conditions | **Recordings** | Transients | Inrush | Schedule

Configuration Number: ☐ 1 ☐ 2 ☐ 3 ☐ 4

Aggregation period: 10 min

All | None

**Data to Record**

<input checked="" type="checkbox"/> V $\phi$ - $\phi$ rms	<input checked="" type="checkbox"/> V $\phi$ - $\phi$ DC	<input checked="" type="checkbox"/> V $\phi$ - $\phi$ pk+	<input checked="" type="checkbox"/> V $\phi$ - $\phi$ pk-	<input checked="" type="checkbox"/> V $\phi$ - $\phi$ CF	<input checked="" type="checkbox"/> V $\phi$ - $\phi$ THDf	<input checked="" type="checkbox"/> V $\phi$ - $\phi$ THDr
<input checked="" type="checkbox"/> V $\phi$ -N rms	<input checked="" type="checkbox"/> V $\phi$ -N DC	<input checked="" type="checkbox"/> V $\phi$ -N pk+	<input checked="" type="checkbox"/> V $\phi$ -N pk-	<input checked="" type="checkbox"/> V $\phi$ -N CF	<input checked="" type="checkbox"/> V $\phi$ -N THDf	<input checked="" type="checkbox"/> V $\phi$ -N THDr
<input checked="" type="checkbox"/> A rms	<input checked="" type="checkbox"/> A DC	<input checked="" type="checkbox"/> A pk+	<input checked="" type="checkbox"/> A pk-	<input checked="" type="checkbox"/> A CF	<input checked="" type="checkbox"/> A THDf	<input checked="" type="checkbox"/> A THDr
<input checked="" type="checkbox"/> P (W)	<input checked="" type="checkbox"/> P DC (W)	<input checked="" type="checkbox"/> Q (var)	<input checked="" type="checkbox"/> D (var)	<input checked="" type="checkbox"/> S (VA)		
<input checked="" type="checkbox"/> PF	<input checked="" type="checkbox"/> Cos $\phi$ (DPF)	<input checked="" type="checkbox"/> Tan $\phi$				
<input checked="" type="checkbox"/> Pst	<input checked="" type="checkbox"/> Plt	<input checked="" type="checkbox"/> FHL	<input checked="" type="checkbox"/> FK	<input checked="" type="checkbox"/> V $\phi$ -N unb (u2)	<input checked="" type="checkbox"/> Aunb (u2)	<input checked="" type="checkbox"/> Hz

**Harmonic Values to Record.**

<input checked="" type="checkbox"/> V $\phi$ -N H	0	to	50	<input type="checkbox"/> Odd harmonics only
<input checked="" type="checkbox"/> V $\phi$ - $\phi$ H	0	to	50	<input type="checkbox"/> Odd harmonics only
<input checked="" type="checkbox"/> A H	0	to	50	<input type="checkbox"/> Odd harmonics only
<input checked="" type="checkbox"/> S (VA) H	0	to	50	<input type="checkbox"/> Odd harmonics only

Re-Read from Instrument | Save To File | Load From File

OK | Cancel | Apply | Help

This defines what data should be captured during recording sessions. You can create up to four different recording configurations; the Configuration Number radio button field at the top of the tab selects the configuration. The other fields in this tab are as follows:

- Data to Record displays all the available quantities that can be recorded. Select the quantities you want by checking its check box. You can select all the recordings by clicking the All button, or deselect all of them by clicking None.
- Harmonic Values to Record lists available harmonic quantities. Select the ones you want to record by clicking the adjacent check boxes. When you select a quantity, fields appear for entering the harmonic range; allowable values are 0 through 50. You can also choose to record only odd harmonics by clicking the associated check box.

- Aggregation Period defines the time interval over which measurements are aggregated. Select the appropriate period from the drop-down list. Options range from one second to 15 minutes.

Note the Transients and Inrush tabs. These provide options for configuring the recording of transients and inrush events respectively. For our demonstration, we will leave these tabs unchanged.

Next, click the Schedule tab. This controls when recording sessions start and stop. These can be general sessions that record the data specified in the Recordings tab. They can also be specific searches for transients, inrush, or alarm events.

**Configure Instrument**

Setup **Sensors and Ratios** Instrument Display Alarm Conditions Recordings Transients Inrush **Schedule**

Electrical hook-up: 3-Phase 5-Wire

Instrument Clock  
1/10/2018 6:41:37 AM = 6 min before PC clock Set

☐ Record Now

☐ Use the same dates, times and names for the recordings and searches

	Starting Time	Ending Time	Name
<input type="checkbox"/> Schedule Recording	1/10/2018 6:45 AM	1/10/2018 6:46 AM	
<input type="checkbox"/> Schedule Transient Search	1/10/2018 6:45 AM	1/10/2018 6:46 AM	
<input type="checkbox"/> Schedule Inrush Search	1/10/2018 6:45 AM		
<input type="checkbox"/> Schedule Alarm Search	1/10/2018 6:45 AM	1/10/2018 6:46 AM	

Name is up to 8 chars and contains "A-Z", "0-9", " ".

You have not currently scheduled any recording type.

Re-Read from Instrument Save To File Load From File

OK Cancel Apply Help

At the top of this tab is a read-only field that displays the electrical hook-up, as defined in the Setup tab. The remaining fields on this tab are as follows:

- Instrument Clock displays the current time of the instrument's system clock. You can change this by clicking the Set button and completing the Date/Time dialog box.

- Record Now when checked starts a recording immediately when the configuration is written to the instrument. When you select this option, the Duration field is displayed to allow you to set the length of the recording session. Options range from 30 minutes (the default) up to 8 weeks. Selecting Record Now also automatically checks the "Use the same dates, times, and names for the recordings and searches" and Include Recording options.
- Use the same dates, times, and names for the recordings and searches specifies that all recordings and searches start and stop at the same date and time, and also are stored under the same session name. When this option is selected and Record Now is deselected, the Starting Time and Ending Time fields appear, allowing you to define when the recording and searches start and stop. The session name can be up to eight alphanumeric characters long.

The remaining fields in this tab enable you to select and schedule a recording session, transient search, inrush search, or alarm search. (Note that you cannot schedule both an inrush search and alarm search at the same time. If one of these options is selected, the other is automatically deselected.) If you deselect the "Use the same dates, times and names..." field, you can define a separate schedule and name for each recording or search.

Note that if a recording session is already in progress or scheduled, the button End Trends Recording is displayed. You must click this button to end the active or scheduled recording before you can start or schedule a new one.

When you have completed the Schedule tab, click OK. The recording and searches will run on the instrument, either immediately or at the schedule times.

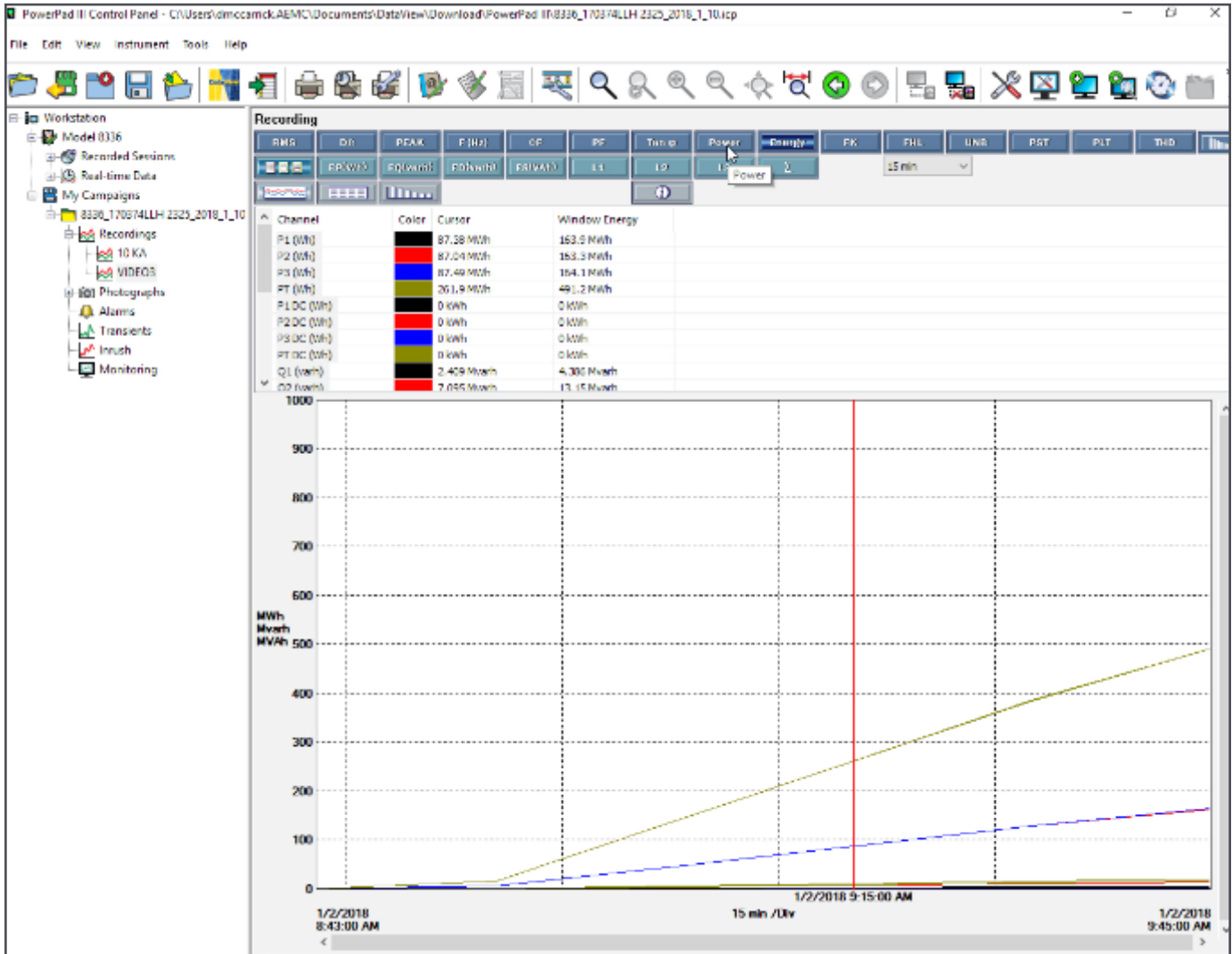
## Downloading recordings

You can download recordings stored on the instrument. To do this, first ensure that real-time data is not being displayed in the data frame; downloading is disabled while real-time data is being displayed. Then click Instrument in the menu bar and select Download Recorded Data, and click Yes when asked to download all data. The Downloads dialog box appears; showing the progress of downloads from the instrument.

Instrument name	Description	Status of download	Time Added
Model 8336 170374LLH 2325	All 7 recorded data	1% Estimated 6 min 11 s to complete.	1/10/2018 6:52:11 AM

Clear/End download   Clear/End all downloads   Open   Pause/Resume   Help

When downloads are complete, the instrument name appears under My Campaigns in the navigation frame, with all its downloaded recording sessions displayed in the data frame. Clicking the plus symbol next to the name displays folders containing recordings and searches. These include recordings, photographs, alarms, transients, and inrush searches. Use the buttons at the top of the screen to view this data in a variety of ways.

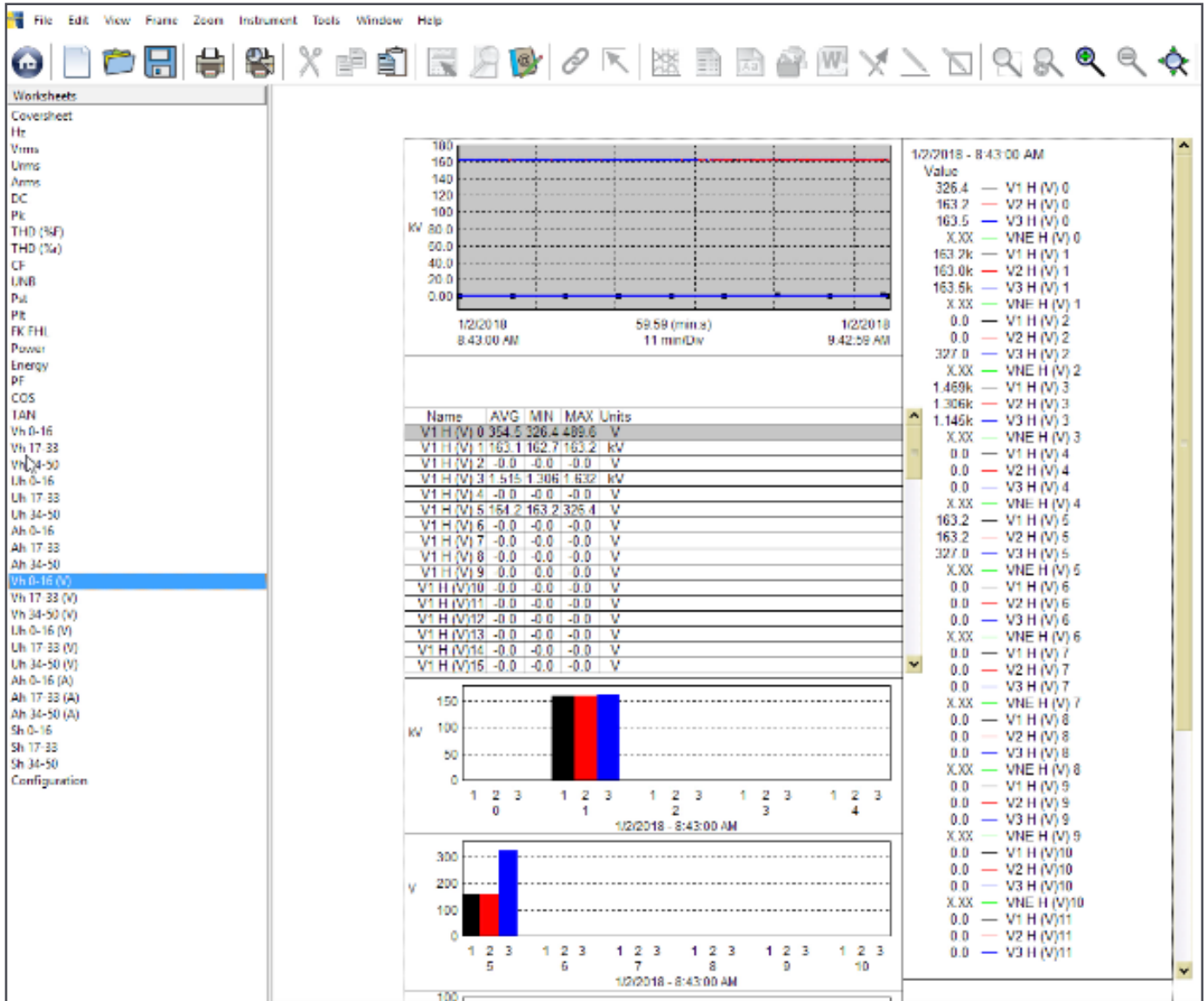


Note that you can also download data from the instrument by removing its SD card and inserting it into the computer. You can then download the recordings into the PowerPad® III Control Panel directly from the card. This can save time when downloading a large amount of data. This procedure is the subject of a video on the AEMC® YouTube channel.

## Creating a report

Another important feature of DataView is its ability to generate reports from recorded data. To do this, start by selecting a recording in the navigation frame.

Click File in the Control Panel menu bar and choose Create DataView report. DataView generates a report from the selected test data, using the default report template.



To save the report to the computer, click File when viewing the report, and then click Save and specify a location for the saved report file.

Note that DataView includes a number of features that enable you to customize your reports, displaying your test results for a wide range of users and purposes. These report generation features are described in detail in the DataView Help.

For more information about the PowerPad® III Model 8336, please visit the AEMC® web site.



## New Product:

# Environmental Data Loggers

The AEMC® Environmental series of Data Loggers record a variety of environmental quantities. For instance, the Model 1110 light meter measures light with spectral error compensation on LED or fluorescent sources, and the Model 1227 Logger Thermo-Anemometer measure air speed and flow rate. Both feature map mode; Min, Max, Average, and Hold functions; and spot or continuous recording up to 1 million points.



The Model 1246 Thermo-Hygrometer logger measures humidity and temperature. In addition, the Models 1821, 1822, and 1823 contact thermometer loggers offer versatility and high performance for temperature measurements.

All Environmental Data Loggers are supported by DataView® with the Data Logger Control Panel. You can install this software on a computer to configure the instrument, view measurements in real time, download data from the instrument, and create reports.

For more information about the AEMC Environmental Data Logger instruments, please visit our web site.



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