

# Custom Front Panel Displays

This document explains how to customize your PowerLogic® meter’s front panel display screens using Designer software. Instructions are also included for customizing the ION7300 series meter’s display screens through the meter front panel.

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## Additional Information

- ◆ Your meter’s *User’s Guide*
- ◆ Online *ION Reference*
- ◆ The *Modbus and ION Technology* technical note

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# Introduction

ION meters ship with preconfigured display screens. Most users find that the data displayed by the front panel LCD (Liquid Crystal Display) suits their needs entirely. However, front panel displays may be customized on most ION meters.

ION meters' display screens can be customized to show virtually any measurement or calculation of which the meter is capable. For example, you could do one or all of the following:

- ◆ change displayed parameters, such as from *Vll* to *Vln* or *Vllab* to *Vlna*
- ◆ aggregate displays from multiple meters, such as using a meter's front panel display to view data collected by one or more TRAN units (see the section titled "Displaying Data from Other Meters" on page 16)
- ◆ adjust character size to be different on each screen
- ◆ change data display settings such as backlight timeout, automatic display scrolling, parameter update rate and display mode\*

\* The display mode setting is not available for ION7300 meters.

In order to customize your front panel display screens, you must make changes to ION modules that belong to the display framework. After briefly summarizing the functions of these ION modules, this document explains how you customize your meter using Designer software.

## ION Modules in the Display Framework

There are three particular ION modules that control the front panel display:

- ◆ the Display module
- ◆ the Display Options module
- ◆ the Scroll module

Refer to the online *ION Reference* for complete details on these modules, including descriptions of their inputs, setup registers, and output registers.

### NOTE

The online *ION Reference* details all of the registers belonging to a particular ION module, but not every register is employed in the various series of meters. Only those registers applicable to the meter's module configuration appear in Designer.

# Display Modules

A Display module controls which values are displayed on a display screen, and how these values are presented. Depending on your meter model, the Display modules vary slightly according to the inputs utilized and the setup register settings. Each Display module corresponds to one meter display screen.

## Display Modules for ION8600, ION7550 / ION7650 Meters

The Display module's *Source* inputs are linked to the numeric parameters you want to display. These parameters are sent to the front panel when the Display module's *Show* input is pulsed.

The Display module's setup registers determine screen type (e.g. numeric, event log, trend bar etc.), softkey name and number (if applicable), and screen title (if applicable) of each display. Many Display modules available in the meter are used in the factory configuration. You can alter some characteristics of the factory-configured displays by modifying the setup register of the Display modules.

The Display module's setup registers determine how the *Source* data is presented on the front panel display. Depending on the display screen type, which is specified by the *Screen Type* setup register, you can use up to twenty *Source* links to a single Display module. This means you can show the values of up to twenty different sources on one front panel display screen. In addition, you can display harmonics, trending, and event logs (see the Screen Types column in the table below). For additional information about screen types, consult the section *Display Screen Types* in your meter's user guide.

Screen Types	Max. # of Source Inputs	Display Description
Two, three, four, eight, ten, and twenty parameter numeric <sup>1,3</sup>	2, 3, 4, 8, 10, and 20	Displays one to twenty values (the fewer the values, the larger the values appear on the display screen)
Two/three parameter numeric display; each parameter has a timestamp (ION8600)	3	Displays three numeric values with their timestamps
4 parameter trend bar graph <sup>2</sup>	12	Displays 4 real time parameters with minimum and maximum values
Harmonics V1-V4 (ION7550 / ION7650 only)	0	Displays phase voltage harmonics histogram
Harmonics I1 – I5 (ION7550 / ION7650 only)	0	Displays phase current harmonics histogram
Vector diagram	0	Data is displayed in phasor format
Event Log (ION7550 / ION7650 only; ION8600 only shows critical)	0	Displays Event Log data
Name plate	0	Displays Nameplate Information
All segments	0	Activates all of the display screen's pixels
Data Log Trend - log source 1 to 4 (ION7550 / ION7650 only)	4	Configures a Display module for Trend Display
Date and/or time, and/or time remaining in the current interval (ION8600)	?	Support for time and date formats in the display modules, enabling displays with nothing but date and/or time and/or time remaining in the current interval

<sup>1</sup> If you alter the *Screen Type* setting to a display type that accommodates more numeric parameters, you may have to create additional *Source* links.

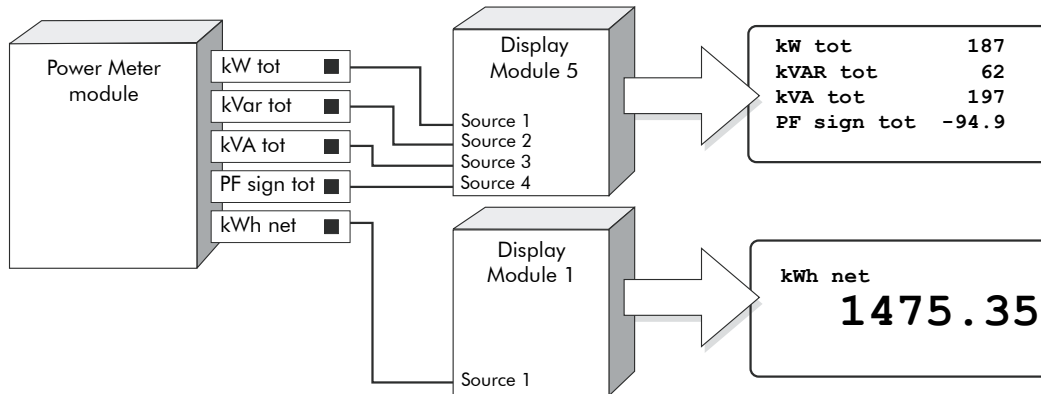
<sup>2</sup> See "Creating Custom Trend Bar Graphs (ION7550 / ION7650 only)" on page 10.

<sup>3</sup> The ION7550 / ION7650 meters displays all of these parameter groupings; the ION8600 displays parameter groupings of two, three, or four.

## Display Modules for ION7300 series Meters

The ION7300 series meters display screens are available in a numeric format only (parameter values are displayed numerically rather than in graphs or trends etc.). Up to four parameters can be linked to a Display module — these parameters appear on the display screen when the module is activated.

Links to a Display module can be made using Designer or the front panel. Each Display module has one setup register, *Screen Type*, which sets the number of parameters that the display screen will show.



### Screen Types

The *Screen Type* setup register has five options: ONE PARAMETER, TWO PARAMETER, THREE PARAMETER, FOUR PARAMETER, AND DISABLED. The number of inputs for the Display module should match the *Screen Type* setup register.

If you select a *Screen Type* with more parameters than are currently linked to the Display module, the display screen will show any unavailable inputs as N/A. If a *Screen Type* is selected which has fewer parameters than are linked to the module, the Display module will only display the *Display Type* number, and will break any links to parameters that it cannot display.

For example, if you have a display screen with four parameters, and you select a *Screen Type* of ONE PARAMETER, the first parameter is displayed and the other three links to the ION Display module are severed.

### Changing ION7300 series Display Module Default Settings

There are eight numeric display screens available for customization. Because all eight front panel screen displays are factory-configured, an existing display must be changed if you want a custom display. Refer to the section “Changing Displayed Parameters in an Existing Screen” on page 9 to learn how to customize a display screen for a ION7300 series meter.

# Display Options Module

The Display Options module is a core module that cannot be deleted, copied, or linked. You configure it by altering the setup registers that hold settings such as display mode, decimal accuracy, parameter labels, update time, date format, and daylight savings time. Other setup registers control screen functions, such as contrast level and backlight timeout. Settings in the Display Options modules are global and affect the entire set of front panel display screens.

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** NOTE**

For the ION7300 series meters, configure the Display Options module *AutoScroll* setup register to specify the time between automatic display scrolling. Refer to “Module Behavior in the ION7300 series Meters” on page 6.

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## Scroll Modules

These modules are designed to control the scrolling rate of the display screens, and the order in which the screens appear. The *Trigger* outputs of a Scroll module pulse in succession. When linked to the *Show* inputs of a number of Display modules, the front panel scrolls through the data linked to the *Source* inputs of the Display modules.

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** NOTE**

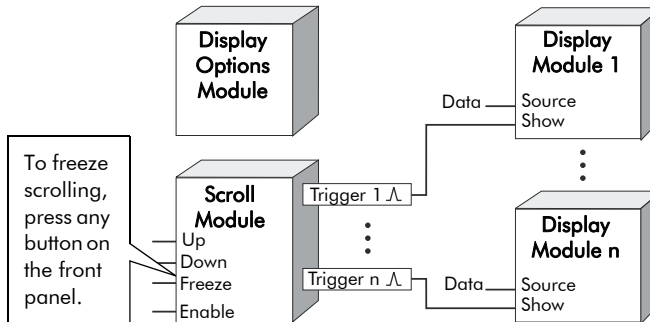
The ION7300 series meters do not utilize the ION Scroll module; instead scrolling is configured in the Display Options module *AutoScroll* setup register. Refer to the preceding section “Display Options Module” on page 5, and the following section “Display Framework Overview” on page 6.

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# Display Framework Overview

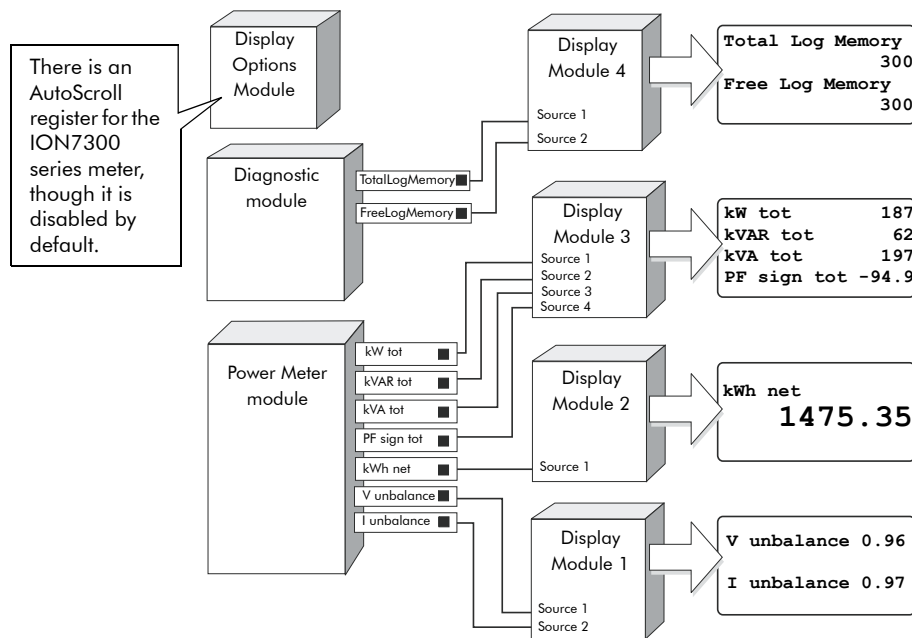
The following diagrams illustrate how the Display Options module, Display module, and Scrolling module (if applicable) work together to provide your meter's front panel with the appropriate display screens.

## Module Behavior in ION8600 and ION7550 / ION7650 Meters



Note that the first Display module's *Show* input is linked to the Scroll module's first *Trigger* output register: this is your first display screen on the meter. Accordingly, the second Display module's *Show* input is linked to the Scroll module's second *Trigger* output in order to setup the second display screen, and so on.

## Module Behavior in the ION7300 series Meters



The order in which data displays depends on the numbering of the Display modules. Therefore, the data linked to Display module 1 is displayed on the first front panel screen and so on. Scrolling between the display screens is done with the up/down arrow buttons on the front of the meter.

**To view all Display, Display Options, and Scroll modules at once:**

Launch Designer and continue with the instructions which follow below your particular meter type.

**For the ION8600 and ION7550 / ION7650 meters:**

1. Double-click on the Advanced Setup folder in the main meter configuration screen. The label above the folder reads "Frameworks."
2. Double-click on the folder labeled "Display Framework."

**For the ION7300 series:**

1. Double-click the Meter Display Setup folder in the main meter configuration screen. The label below the folder reads "Display Modules."

All Display modules and a shortcut to the Display Options module appear.

## Changing Default Display Frameworks

The factory-configured Display framework uses many of the Display modules available in the meter. Only a few of the default screens have room for extra data. To make a significant modification to the existing display framework, you either have to create new display modules and configure them, or change the links and settings of the modules in the existing Display framework (or both).

Four common customizations are discussed in the following sections:

- ◆ removing a display screen
- ◆ adding a new display screen
- ◆ replacing the parameters in an existing display screen
- ◆ creating custom trend bar graphs (ION7550 and ION7650 only)

### Making a Framework Backup

Before you reconfigure or delete a framework, you should make a copy. This ensures that you can restore the framework without having to reinitialize the factory configuration.

**To make a framework copy:**

1. Select the desired framework.
2. Choose **Copy to Framework** from the Edit menu.

Give the framework a unique name. Select a different location in which to save the framework, if you so desire.

3. Click **OK**.

You can find instructions on reinitializing factory configurations in your *User's Guide*.

## Removing a Display Screen

Use caution when deleting modules, as any dependant modules are also affected. Designer informs you of dependant modules if they exist on the same node.

### To remove a data display screen:

1. Launch Designer.
2. Select the Display module responsible for the screen.
3. Press delete. This also deletes all links to that particular Display module.

If the display screen you are deleting is part of the automatic scrolling cycle, you should reconfigure the links from the Scroll module's *Trigger* outputs to the remaining Display modules so that the following considerations hold true:

- ◆ The first Display module in the scrolling cycle is linked to the *Trigger 1* output of the Scroll module.
- ◆ The last Display module in the scrolling cycle (module *n*) is linked to the *Trigger n* output of the Scroll module. For example, if your scrolling cycle consists of 5 screens, then *Trigger 5* should be linked to the fifth module in the cycle.
- ◆ The *Wraparound* setup register of the Scroll module designates the last trigger output (*Trigger n*). Expanding on the previous example, since *Trigger 5* is the last trigger, the Scroll module's *Wraparound* setup register would have a value of 5.

## Adding a New Display Screen

For the ION8600, ION7550, and ION7650 meters, you can create a new front panel display without dismantling any of the existing displays.

### NOTE

You cannot add a new display screen for the ION7300 series meters; there are no available Display modules that you can create. Instead, you must re-configure one of the existing factory-configured display screens. See the following section "Changing Displayed Parameters in an Existing Screen" on page 9.

### To add a new display screen in Designer:

1. Create a Display module.
2. Define the modules characteristics (display format) by adjusting its setup registers.
3. Link any required data to the *Source* inputs of the Display module.

If you want your new screen to appear in the automatic scrolling cycle, then you must link the *Show* input of the Display module to a *Trigger* output of a Scroll module. See "Removing a Display Screen" on page 8 for considerations on re-linking Scroll module *Trigger* outputs.



# Changing Displayed Parameters in an Existing Screen

For the ION7550, ION7650, ION8600, and ION7300 series meters, you can change displayed parameters in existing screens using Designer software.

## NOTE

For the ION7300 series meter, you must set the Display Options module's *Display Mode* setup register to PROGRAMMABLE before changing displayed parameters in an existing screen.

To change parameters shown in a display screen, link the output register containing the numeric data you want to display to the *Source* inputs of the Display module. If there is not a free *Source* input, you will have to first delete (i.e., “unlink”) an existing link to a *Source* input.

## Changing Displayed Parameters using the Meter's Front Panel (ION7300 series)

With the ION7300 series meters, you can change the displayed parameters in an existing screen using the meter's front panel.

### Before changing displayed parameters in an existing screen:

For customized screens to display on the front panel, you must set the Display Options module's *Display Mode* setup register to PROGRAMMABLE before changing displayed parameters in an existing screen.

On the meter's front panel, go to DISPLAY SETUP > DISPLAY MODE and select PROGRAMMABLE.

### Changing displayed parameters in an existing screen:

The SCREEN SETUP menu screen allows you to change the data displayed on the eight display screens.

1. From the SELECT SETUP menu, select SCREEN SETUP. The list of display titles appears that correspond to each of the eight display screens. The screen number with an asterisk (\*) beside it indicates the active display (the screen displayed before you entered SELECT SETUP).
2. Select the screen you want to change, and press the round button. Two settings appear, VALUES and STYLE, that allow you to specify which measurements to display.
3. Select STYLE if you need to change the number of displayed parameters in the selected screen.

This setting has five options for each display screen: ONE PARAMETER, TWO PARAMETER, THREE PARAMETER, FOUR PARAMETER, and DISABLED. Select the number of values you want to display (the fewer the values you select for display, the larger the measurement will appear on the display screen).

If you select a large style (for example, one value) for a display screen that is set to display more than one value, the front panel will warn you with a message, and will display only the first value — the links to the undisplayable values are severed and will have to be reprogrammed.

4. Select VALUES to change the displayed parameter in the selected screen.

When you change the value displayed on a screen, you are presented with a complete list of the meter's measurements. Using the lists of modules provided, select the values you want to have displayed on that display screen.

The number of VALUES you can select is a function of the STYLE setting. You cannot select more values than the STYLE is set to display.

## Creating Custom Trend Bar Graphs (ION7550 / ION7650 only)

Bar Graph displays are configured differently than other numeric parameter displays. Each bar in the display is associated with three specific *Source* inputs as follows:

Bar Graph	Input	Function	Attributes
First (top)	Source 1	Real-Time value for Bar Graph #1	Bar graph #1 will not appear if you do not link this input
	Source 2	Minimum value for Bar Graph #1	Link to the output of a Minimum module
	Source 3	Maximum for Bar Graph #1	Link to the output of a Maximum module
Second	Source 4	Real-Time value for Bar Graph #2	Bar graph #2 will not appear if this input is not linked
	Source 5	Minimum for Bar Graph #2	Link to the output of a Minimum module
	Source 6	Maximum for Bar Graph #2	Link to the output of a Maximum module
Third	Source 7	Real-Time value for Bar Graph #3	Bar graph #3 will not appear if this input is not linked
	Source 8	Minimum for Bar Graph #3	Link to the output of a Minimum module
	Source 9	Maximum for Bar Graph #3	Link to the output of a Maximum module
Fourth (bottom)	Source 10	Real-Time value for Bar Graph #4	Bar graph #4 will not appear if this input is not linked
	Source 11	Minimum for Bar Graph #4	Link to the output of a Minimum module
	Source 12	Maximum for Bar Graph #4	Link to the output of a Maximum module

Typically, the minimum and maximum values for each bar graph come from links to the outputs of Minimum and Maximum ION modules that are themselves linked to the real-time parameter shown in the bar graph.

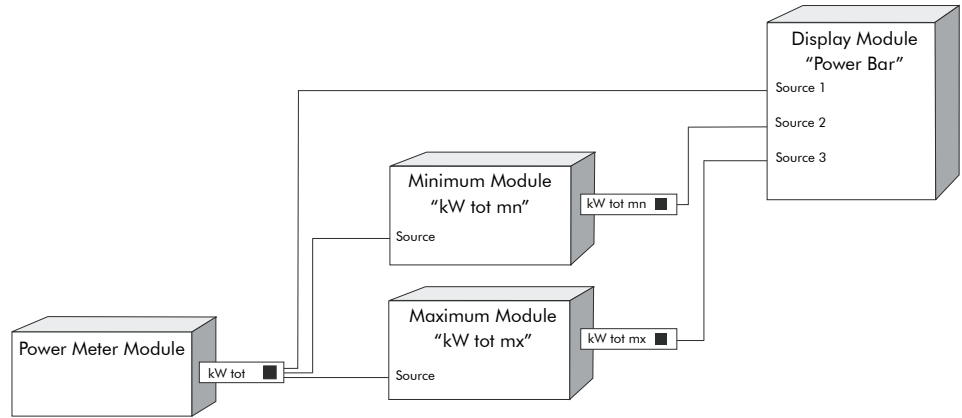
### NOTE

This feature works only if the meter's Volts Mode is NOT set to Demo. When the meter is in Demo mode, a default trending log showing VII ab, Ia, PF and KW will be displayed rather than the actual log that has been linked to the Display module.

The diagram below shows an example of the links necessary for one bar graph (in the top position).

A bar graph reports a "Mn/Mx Display Error" in the following cases:

- ◆ Minimum input not linked
- ◆ Maximum input not linked
- ◆ Max input < Min input
- ◆ Min input > Max input



# Trend Display (ION7550 preconfigured / ION7650 unconfigured)

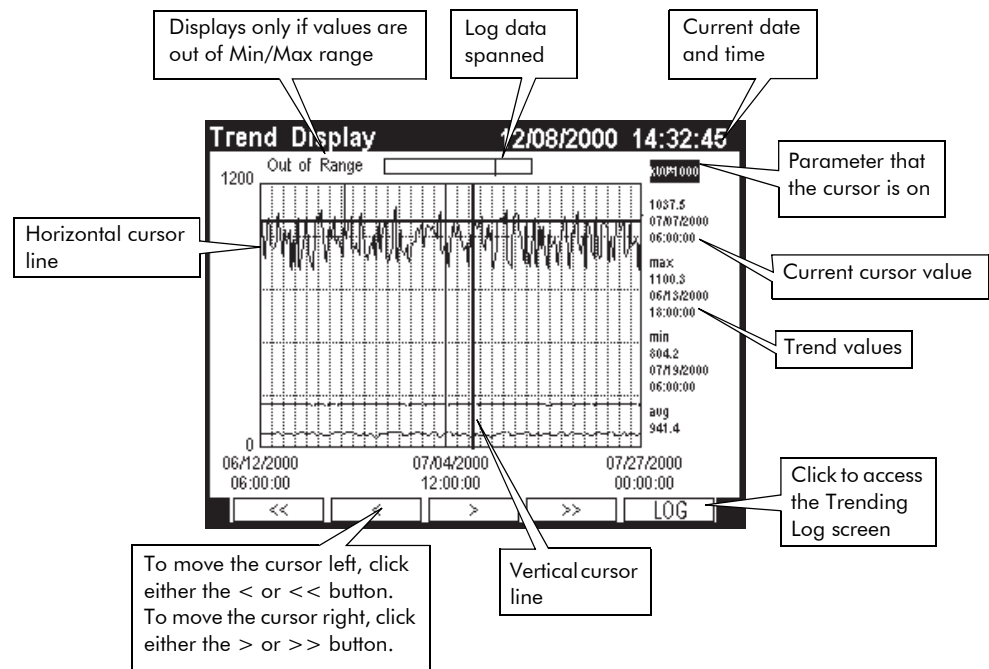
ION7550 / ION7650 meters have an additional Trend Display customization option available to them. The meter's Trend Display screen simultaneously graphs the historical data of up to four different parameters. Furthermore, a Trend Display log screen displays the data logs for any graphed parameter.

The ION7550 front panel displays three preconfigured trending screens: V-Trend (voltage), I-Trend (current), and P-Trend (power). The ION7650 must be configured using Designer in order to provide Trend Display. Contact Technical Support if you require your ION7650 to be configured for Trend Display.

## NOTE

It is possible to change the Trending parameters with Designer software. Contact Technical Services for information.

### Trend Display Screen



### Selecting and navigating the Trend Display screen:

- ◆ Use the appropriate softkey to view the Trend Display screen from the front panel.
- ◆ Once the trend is selected, the softkeys and Up/Down keys only navigate within the Trend Display graph and log screens.

A moveable cursor, composed from the intersection of a vertical line and a horizontal line, displays the value and timestamp of any plotted data within a parameter. The cursor only displays the values of one parameter at one time. You move the cursor from one parameter to another with the Up and Down navigation keys.

- ◆ Use the ESC key to exit the Trend Display.

**NOTE**

On the ION7550 the default Trending parameters displayed are kW sd d-r, VII, and Iavg. The minimum and maximum values of the graph automatically scale based on the Ct primary and Pt primary values.

Statistical values such as Minimum, Maximum, and Average also display for the data at the cursor location. The Minimum and Maximum values display with timestamps. Statistical values are calculated for all the historical data available in the associate data log, including the data that does not fit into the current screen view.

It is possible to display up to 3360 logs for each parameter: that is 35 days worth of 15 minute data. The graph is updated when a new set of values is recorded. The highest supported update speed is once per second.

By default, the data is logged for Trend Display every 15 minutes. This logging interval can be changed by configuring the Periodic Timer module’s setup register with the help of Designer software.

**To change the logging interval for Trend Display data:**

1. Launch Designer, and open the meter.
2. Double-click the grouping folder in the Display Setup area. The shortcut to the periodic timer module is labeled "Dsp Trnd Log Trg."
3. Right-click the Dsp Trnd Log Trg module setup register.
4. Double-click on the PT7 Period, and change the value.
5. Send & Save. The Trend Display screen now logs and plots data at the interval you specified.

**NOTE**

Currently, the Trending Display screen only accepts synchronous data triggered by a periodic timer. If a setpoint module asynchronously triggers a data recorder which is set for the trending purposes, then it is possible that the records drawn in the screen will be unevenly distributed over time.

**Trending Data Log Screen**

The screenshot shows a 'Trend Display' window titled '12/08/2000 14:32:45'. It contains a table with the following data:

Timestamp	kWh	PF	Ia	VII ab
07/06/2000 00:00:00	974.1	67.2	10.33	206.0
07/06/2000 06:00:00	901.3	68.2	10.11	205.9
07/06/2000 12:00:00	933.5	66.3	10.26	205.9
07/06/2000 18:00:00	833.6	61.2	10.02	206.5
07/07/2000 00:00:00	929.2	69.5	10.30	206.5
07/07/2000 06:00:00	1037.5	77.0	10.65	206.5
07/07/2000 12:00:00	1024.1	75.6	10.56	207.9
07/07/2000 18:00:00	998.4	70.9	10.44	204.5
07/08/2000 00:00:00	1017.4	76.1	10.47	206.5
07/08/2000 06:00:00	1053.3	79.0	10.78	206.7
07/08/2000 12:00:00	917.2	68.6	10.20	206.6
07/08/2000 18:00:00	905.2	63.2	10.17	206.6

At the bottom of the screen are navigation buttons: '<<', '<', '>', '>>', and 'GRAPH'. A 'Vertical cursor' points to the 6:00:00 row of the 07/07/2000 entry. A callout box labeled 'Click to access the Trending Graph' points to the 'GRAPH' button.

For any value on the graph, you can access a data log screen. Simply press the softkey corresponding to the Log button to view the graphed value in a data log format. The log screen also lists the twelve parameter values that surround the current cursor position, each with a corresponding timestamp.

## Screen Messages

Messages that may appear on the Trending Display screen are explained below.

Screen Message	Description
Start of Logged Data	This message displays when you have navigated to the extreme left of the Trending Display Graph where the plotted data starts.
End of Logged Data	When you have navigated to the extreme right of the Trending Display Graph where the plotted data ends, this message appears.
Out of Range	This displays when a logged data value is not within the minimum or maximum range. You can view the "out of range" values on the Data Log screen.
Setup Error	This never displays if you use the default Trending Display screens. This message will display if the default Trending Display framework has been modified so that a minimum value is larger than a maximum value. It also displays when a Display module configured for Trending has not been linked to a Data Recorder module, so there are no values to plot.
Invalid Log	This message displays whenever an invalid log value is recorded. In addition, trend graphs cannot be viewed.

## Adding New Trend Display Modules

Users who are familiar with the ION Architecture, Designer software, and Vista software can link additional Display modules for trending. Here are some guidelines:

- ◆ You can configure any Display module as Trend Display by setting the *Screen Type* setup register to *Data Log Trend - Log Source 1 to 4*.
- ◆ The maximum number of Trend Display modules permitted is 10.
- ◆ Any Data Recorder module output log can be connected to a Trend Display module.
  - ◆ The Data Recorder module output log must be connected to the first input of the associated Trend Display module.
  - ◆ Even though a Data Recorder module has up to sixteen Source inputs, only the first four Source inputs can be viewed in Trend Display.
- ◆ With External Numeric modules, min/max can be set in Vista.
  - ◆ The External Numeric module that sets up the minimum value for the displayed data must be connected to the second input of the associated Trend Display module.
  - ◆ The External Numeric module that sets up the maximum value for the displayed data must be connected to the third input of the associated Trend Display module.

# Disk Simulator (ION8600)

This ION8600 meter Disk Simulator display simulates the behavior of a mechanical watt-hour meter indicating power received or delivered by the direction of the pulse.

Beginning with the ION8600' v221 firmware, the meter's Calibration Pulser modules support the Disk Simulator feature. The Calibration Pulser module has a new output register, labeled *Disk Position*. When pulsed, *Disk Position* outputs the accumulated quantity (kWh, kVAh, etc.) associated with its parent module. The *Disk Position* outputs accumulated quantities only if the Calibration Pulser module *Port* setup register specifies a physical hardware port that is connected to the meter. If the port is not specified, then the *Disk Position* output is zero even if there is a non-zero accumulated quantity.

If the input accumulates positively (i.e. delivered power or energy), and the Calibration module *Int Mode* register is set to FORWARD, TOTAL or NET, then the Disk Simulator revolves from left to right. If the input accumulates negatively (i.e. received power or energy) and the *Int Mode* register is set to REVERSE, then the Disk Simulator revolves from right to left.

The Calibration module *Disk Position* output is always a positive numeric value regardless of the module's *Int Mode* setting (FORWARD, REVERSE, etc.). Refer to the online *ION Reference* for ION module details.

## To create a Disk Simulator screen:

1. Create a new Display module, and choose the type as *Disk Simulator*.
2. Connect the new Display module's first input to the Calibration Pulser module's *Disk Position* output that you want to monitor for its pulsing interval.
3. To include the newly added screen to the ALT screen list, connect the Display module's *Show1* and *Show2* inputs to the Scroll module's last available *Trigger* outputs in ALT SCROLL UP and ALT SCROLL DOWN (respectively).

You can determine the last available *Trigger* by right-clicking on the output to discover the *Triggers'* owners.

4. Increase the Scroll module's *Wraparound* setup register by 1 to include the new screen.
5. Configure the remaining display settings according to your needs.

Although the Disk Simulator display is intended to show the disk behavior of mechanical watt-hour meters, this feature can be used to monitor any accumulated meter quantity over the time. To do this, connect the Display module's first input to the meter quantity, and connect the second input to the maximum value that you expect the displayed quantity to be bounded by (this could be any ION output register or an *External Numeric* module register). In this case, (i.e. the Display module is *not* connected to a Calibration Pulser module) the Disk Simulator revolves from left to right.

## NOTE

The inputs to the Disk Simulator display are always positive. If the value exceeds the maximum scale value assigned in the second input, then nothing is displayed except labels and the disk rectangle.

# Displaying Data from Other Meters

Data can be read at a workstation using ION Enterprise software, but there may be situations which require the data to be read at the source. With just one Power PC meter, such as an ION8600 or ION7550, you can view the data collected by numerous TRANs and other devices over a serial network. This is done using the Modicon Modbus protocol. The ION meter with the front panel display acts as the Modbus Master, and the other meters are the Modbus Slaves. Thus, the display meter has its protocol set to MODBUS MASTER, and each TRAN meter is configured to use the MODBUS protocol.

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 **NOTE**

TRAN is short for “transducer.” A TRAN meter is a basic meter model without a front panel display; a TRAN can be used with a remote display.

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Refer to the *Modbus and ION Technology* technical note for more information on how to configure the Modbus Master.

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 **NOTE**

An ION7550 / ION7650 meter must be configured with the v2.2 or later firmware, and an ION8600 meter must have v218 or later. These particular firmware versions provide the ION meter with Modbus Master functionality.

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## Customized Display Framework

The ION7550 with front panel display is the Modbus Master that is showing data from the other meters (the Modbus Slaves) on the serial connection.

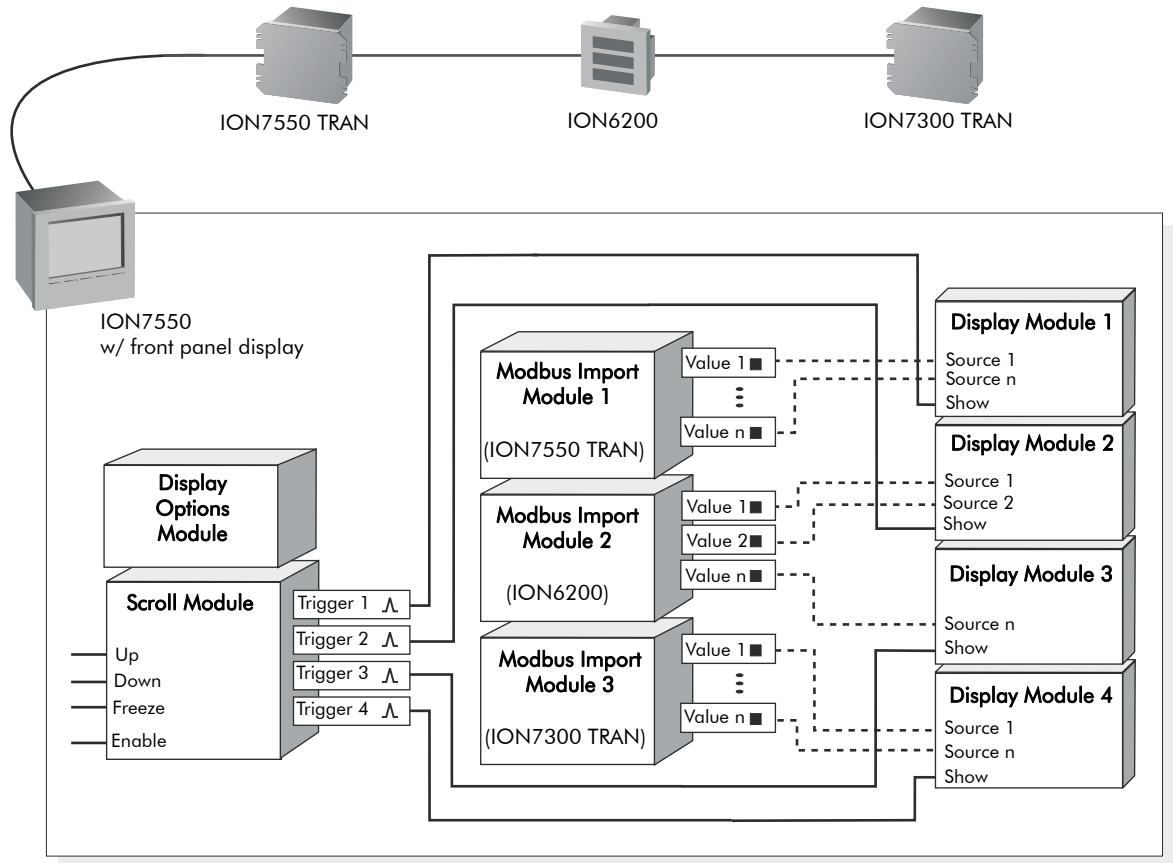
If this were the complete display framework, then there would be a total of four screens showing data on the ION7550 with front panel display: one screen from each TRAN (the ION7550 and the ION7300) and two screens from the ION6200. Notice how the ION6200 has had its data displayed on different screens.

### To configure your custom display framework:

To aggregate data from multiple devices on a network and display it on an ION8600 meter or ION7550 / ION7650 meter, follow the steps below. The framework changes are made to the meter displaying the data.

1. Launch Designer, ensuring that Options > Show Toolbox is checked.  
If you want a blank work space, where you can keep your master configuration, simply drag out a new grouping object from the toolbox, name it appropriately and double-click on your new grouping object.
2. Drag out a Modbus Import module and right-click on the Modbus Import module to access the setup registers.
3. Use the *ReadNow* input of the Modbus Import module if you want to setup a trigger source that activates a read (i.e. a pulse). If you do not link *ReadNow* the module polls Modbus devices continuously.
4. Right-click the Modbus Import module to configure register settings.





Configure the following setup registers as needed: *Slave Address*, *Register Address*, *Number of Registers read by the module*, *Format* and *scaling requirements*. The supported *Slave Address* range (Unit ID on ION meters) for a Modbus device is from 1 to 247.

- Repeat steps 2 - 4 for every meter or TRAN in the serial network whose data you wish to display on the meter with the front panel.

The meter with the front panel requires a separate Modbus Import module for each meter whose data it displays, because all meters in the network have unique Unit IDs. This is how the Modbus Master distinguishes which meter (*Slave Address*) is providing what data (*Register Address*).

- Link each Modbus Import module's output registers to the appropriate Display module's *Source* inputs.
- Define each Display module's characteristics (display format) by adjusting its setup registers. Do the same to the Display Options module if so desired.
- See "Removing a Display Screen" on page 8 for considerations on re-linking Scroll module *Trigger* outputs.

This step is important if you want to have your new screens appear in an automatic scrolling cycle, or if your custom framework has fewer display screens than the factory configuration, and you need to adjust the Scroll module's settings.

- Send & Save changes.