ECC HTML CUSTOM PAGES CREATION

Schneider Electric- Square D Company
Power Management Operation

About This Document:

The PowerLogic Ethernet Communication Card (ECC) allows power users to view real time, tabular information from attached devices in the form of HTML pages via a standard Web Browser (such as Internet Explorer and Netscape.) This document teaches you the basics steps needed to develop ECC custom pages.

What You Should Already Know

This document assumes you have the following basic background:

- A general understanding of the POWERLOGIC Power Monitoring and Control System
- A general understanding of the Internet and the World Wide Web (WWW)
- Basic skills with MicroSoft Front Page or Front Page Express
- Additional working knowledge of HyperText Markup Language (HTML) and JavaScripting would be a *help!*

If you do not have these basic background then do not be discouraged. If you have some time and patience. For example, this document will give you enough information to develop basic HTML pages for the ECC. So, lets get started.

What Tools You Need to have:

- Circuit Monitor 4000 Series
- Ethernet Communication Card (ECC) installed and assigned an IP address
- Access to the ECC via a LAN Connection or Cross over Cable
- MS-Front Page Express (It comes free if you have MS-Office),
  OR
- MS-Front Page full version. This full version has a debugging utility that could make your life easier

How are the ECC HTML Pages created?

In general each ECC custom page has two components and each one is developed by different tool:

- Static Components
  This component includes the page layout, static text, color schemes, lines and tables. This part of the custom page is usually created by Front Page and tweaked by HTML codes.
- Dynamic metering information
  This component includes special delimiters that tell the ECC to dynamically get register information from attached devices and display it in a specific field in the HTML page. Specific HTML Tags and JavaScripting is used to develop this part of the custom page.

Static Page tools:

HTML coding can be created using any text editor

Where to Find HTML Information

There are a lot of books in the market written about HTML and the Web. Reading one of these books should give you a basic understanding of HTML commands and rules. Therefore, it is recommended that you purchase an HTML book and use it as a reference guide during your custom web page creation.

Basic HTML Rules

The following is a quick overview of the basic components of HTML coding:

HTML Tags:

HTML tags are commands written between (<) and (>) signs.

For example; to make the text Bold, use the <B> command.

HTML Attributes:

Tags have attributes that offer a variety of options for the HTML tag
For example; <Table Border> defines the formatting desired on the border of the table only. The attribute is entered between the command word and the final greater than sign (>).

HTML Values:

Attributes that can have values in some cases.
For example: to specify the font size value, use <Font size = "3">,

Nesting Tags:

In most cases, you will need to modify the page layout or text with more than one tag.
For example; you may want to color a cell in a table with one color and the text inside that cell with a different color. <TD BGCOLOR="FFFF00"><Front Color="FFFFFF">0</Font></TD>

Starting and Finishing an HTML document:

You always start an HTML page with this tag at the top:
<HTML>
That identifies the type of document it is. Also, you need to end your HTML page with </HTML> (note the slash proceeding HTML)

Next, define the head section by typing
<HEAD>,
That will create the Head section. Then close the page header with </HEAD> command
In between <Head> and </Head>, type <TITLE> and close it with </TITLE>.
In between the title HTML tags, type the actual title.

Now, you are ready to start the body of the HTML Page, so type
<BODY>, create your web page contents and close the body section with </BODY>

To summarize, your HTML page main static components will need to have:

```
<HTML>
<HEAD>
<TITLE> My first ECC page </TITLE>
</HEAD>
<BODY>

Enter body text and formatting commands which define how your ECC page will appear




</BODY>
</HTML>
```

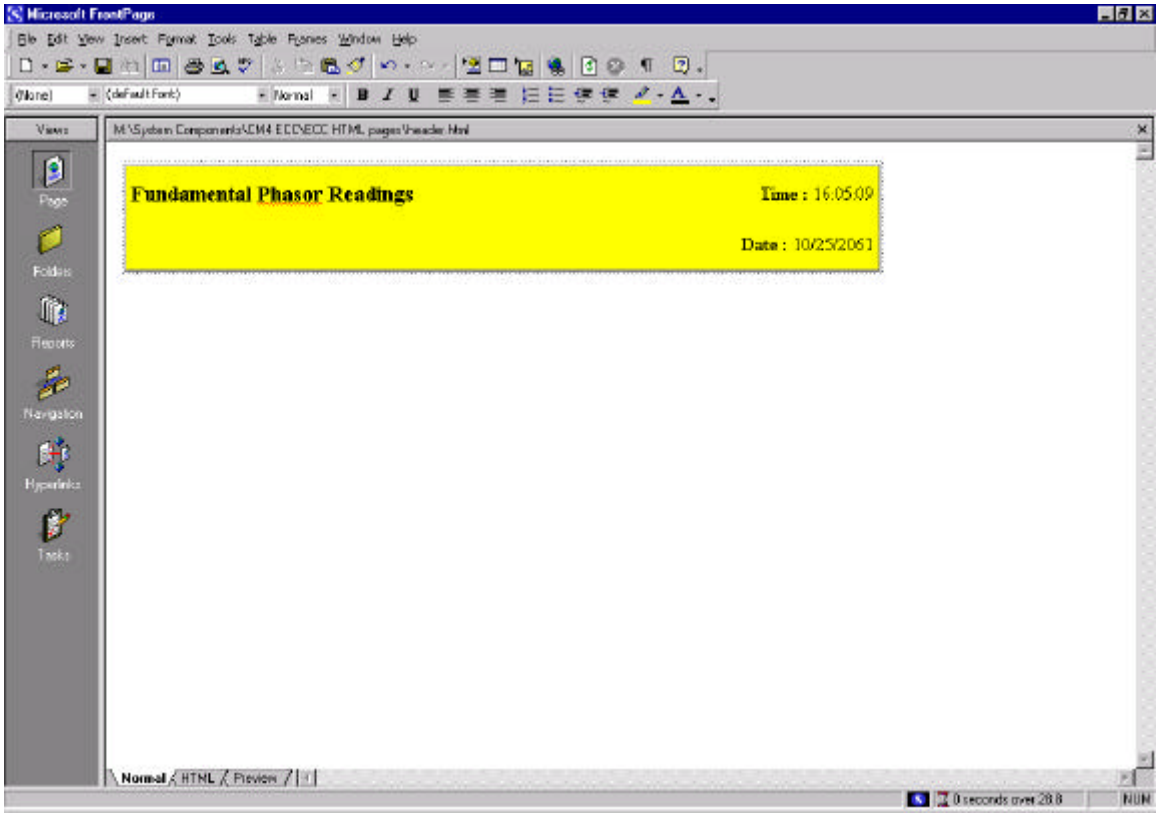
Microsoft FrontPage

Microsoft FrontPage 2000 is a very good tool for creating web pages. It is user-friendly, very flexible, and requires no programming. Just open the editor and start editing your web page as you want it to appear. FrontPage takes care of the HTML coding for you. The program is powerful and it is recommend using it to develop any custom HTML page, especially the table submenu feature.

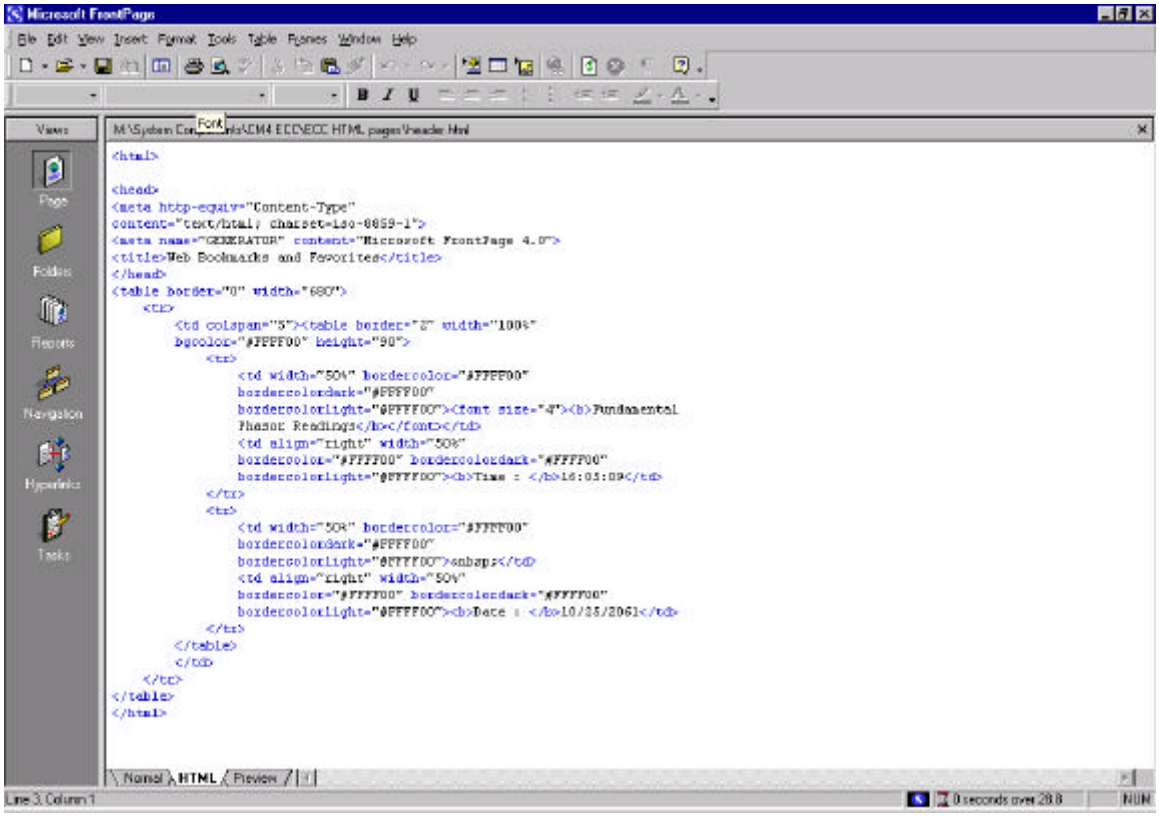
When you open your copy of the software, locate "Getting Started with Microsoft FrontPage 2000", and take the time to read it. It is very helpful.

Example:

The screen capture below shows a header created by using the table command in MS-FrontPage or MS-FrontPage Express.



Below is the HTML code that MS-FrontPage or MS-Front Page express has created for that page by default.



Remember you can use this header as a template for other ECC custom pages headers, then build you page from there.

Dynamic Data

JavaScripting is used for this type of data**.** JavaScript is Netscape's cross-platform language. There are some books available in the market that discuss JavaScript. In addition, the Internet is a good resource for up-to-date information such as http://developer.netscape.com site.

The following is the HTML script for JavaScript functions that you always have to define and include within your JavaScript function:

```
<script language="JavaScript">
function functionname()
{
<!--JavaScript syntax;
Each Javascript statement ends with ;→

}
functionname();
</script>
```

The following is a table of the supported PowerLogic tags. Later, there are two HTML examples of how they could be used.

Function Code	Function Name	PowerLogic Tag
0	SyMax Block Read - Registers	<DeviceID>^<RegisterAddress>[<NumberOfRegisters>] example tag = PL__1^1003[5]__PL example of data returned = 85,86,84,25,56
4	SyMax Scattered Read – Registers	<DeviceID>^<RegisterAddress1>,<RegisterAddress2>,etc example tag = PL__1^1003,1004,1005,1006,1007 example of data returned = 85,86,84,25,56
3	Modbus Block Read – Holding Registers	<DeviceID>^H<RegisterAddress>[<NumberOfRegisters>] example tag = PL__1^H1003[5]__PL example of data returned = 85,86,84,25,56
4	Modbus Block Read – Input Registers	<DeviceID>^I<RegisterAddress>[<NumberOfRegisters>] example tag = PL__1^I1003[5]__PL example of data returned = 85,86,84,25,56
100	Modbus Scattered Read – Holding Registers	<DeviceID>^S<RegisterAddress1>,<RegisterAddress2>,etc example tag = PL__1^S1003,1004,1005,1006,1007__PL example of data returned = 85,86,84,25,56

ECC Templates:

There are five custom pages that are stored in the CM4 where the ECC is inserted into. These custom pages can be as templates to develop other ECC custom pages. However, there are a few limitations that you should keep in mind

- A maximum of 5 custom pages can be stored in the CM4 concurrently.
- Each custom page is limited to 20 kilobytes in size
- The data fields that is defined within the HTML page must be for register-based data
- The ECC has the capability to display real time data from the CM4 and from attached RS-485 devices.

A Complete Custom Page Example:

Lets assume that we need to create the following HTML page and download it into the ECC for monitoring purposes:

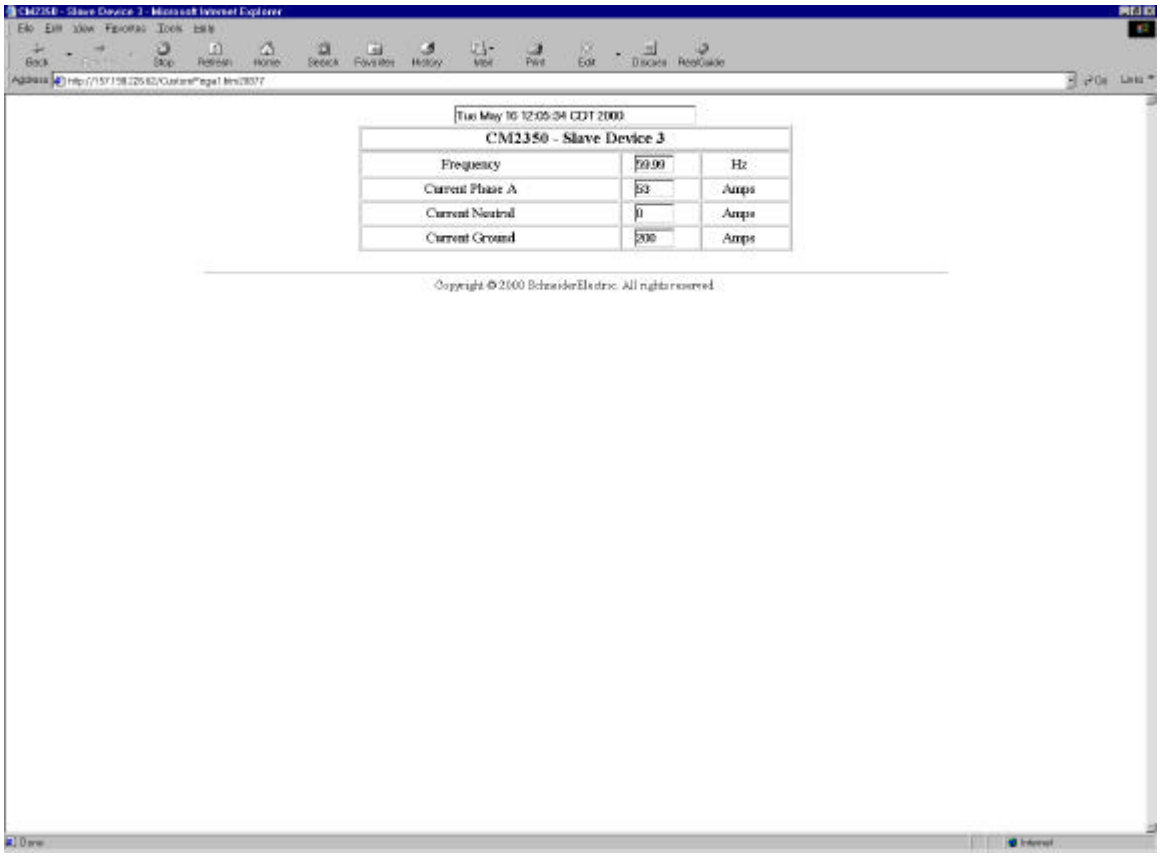


Figure 1 – Custom Device Example View

Analysis:
As you can see the page consist of a table with the following components:

- Static Section
  1. PC time - This field will be coded using HTML.
  2. A table title "CM2350 -Slave Device 3" - This field can be created via HTML or MS-FrontPage (FrontPage Express is ok too)
  3. A table of Four rows and Three columns. This table has static text in the first and third column for the power parameters and its units. This text could be created either by HTML Coding, or MS-FrontPage or FrontPage Express.
- Dynamic metering information:

The scripting of the pole data from the device is created using JavaScripting.

1. The Second column contains the dynamic data that is continuously updated based on the device register value. JavaScripting is used for this function

HTML Code

The following is the HTML source code for the above page, then later every source line code is explained: (Notice: Bolded lines are for HTML or JavaScripting codes that is related to dynamic metering infromation or needed to be modified to incorporate requested changes)

Line #	HTML Syntax
1.	`<html>`
2.	`<head>`
3.	`<META HTTP-EQUIV="refresh" CONTENT="5">`
4.	***`<title>CM2350 - Slave Device 3</title>`***

```
5.     </head>

6.     <body>
7.     <form name="view_form">
8.     <p align="center">
9.     <input type = "text" name = "time_spot" size = "40">
10.    <table border="1" width="600">
11.    <tr>
12.    <td width="600"><p align="center"><font size="4"><b>
13.    CM2350 - Slave Device 3</b></font></p>
14.    </td>
15.    </tr>
16.    </table>
17.    <table border="1" width="600">
18.    <tr>
19.    <td width="300">
20.    <p align="center">Frequency</p>
21.    </td>
22.    <td align="center" width="90"><p align="center">
23.    <input type="text" size="5" name="frequency"></p>
24.    <td width="100">
25.    <p align="center">Hz</p>
26.    </td>
27.    </tr>
28.    <tr>
29.    <td width="300">
30.    <p align="center">Current Phase A</p>
31.    </td>
32.    <td align="center" width="90"><p align="center">
33.    <input type="text" size="5" name="currentphasea"></p>
34.    <td width="100">
35.    <p align="center">Amps</p>
36.    </td>
37.    </tr>
38.    <tr>
39.    <td width="300">
40.    <p align="center">Current Neutral</p>
41.    </td>
42.    <td align="center" width="90"><p align="center">
43.    <input type="text" size="5" name="currentneutral"></p>
44.    <td width="100">
45.    <p align="center">Amps</p>
46.    </td>
47.    </tr>
48.    <tr>
49.    <td width="300">
50.    <p align="center">Current Ground</p>
51.    </td>
52.    <td align="center" width="90"><p align="center">
53.    <input type="text" size="5" name="currentground"></p>
54.    <td width="100">
55.    <p align="center">Amps</p>
56.    </td>
57.    </tr>
58.    </table>
59.    <br><HR SIZE="1" width="66%"><CENTER><font face="Times Roman"
       size="2">Copyright © 2000 SchneiderElectric. All rights
       reserved.</font></CENTER>
60.    </form>

61.    <script language="JavaScript">
62.    function ShowFreq()
63.    {
```

```
64.    Registers = [PL__3^2020,2021,2022,2025,1001,1003,1006,1007__PL];
65.    ScaleFactorA = Registers[0];
66.    ScaleFactorB = Registers[1];
67.    ScaleFactorC = Registers[2];
68.    ScaleFactorF = Registers[3];
69.    Frequency = Registers[4];
70.    CurrentPhaseA = Registers[5];
71.    CurrentNeutral = Registers[6];
72.    CurrentGround = Registers[7];
73.    ScaleFactorAMultiplier = 0;
74.    ScaleFactorBMultiplier = 0;
75.    ScaleFactorCMultiplier = 0;
76.    ScaleFactorFMultiplier = 0;
77.    TheTime = new Date();

78.    switch (ScaleFactorA)
79.    {
80.    case -2:
81.    ScaleFactorAMultiplier = 0.01;
82.    break;
83.    case -1:
84.    ScaleFactorAMultiplier = 0.1;
85.    break;
86.    case 1:
87.    ScaleFactorAMultiplier = 10;
88.    break;
89.    default:
90.    ScaleFactorAMultiplier = 1;
91.    break;
92.    }
93.    switch (ScaleFactorB)
94.    {
95.    case -2:
96.    ScaleFactorBMultiplier = 0.01;
97.    break;
98.    case -1:
99.    ScaleFactorBMultiplier = 0.1;
100.   break;
101.   case 1:
102.   ScaleFactorBMultiplier = 10;
103.   break;
104.   default:
105.   ScaleFactorBMultiplier = 1;
106.   break;
107.   }
108.   switch (ScaleFactorC)
109.   {
110.   case -2:
111.   ScaleFactorCMultiplier = 0.01;
112.   break;
113.   case -1:
114.   ScaleFactorCMultiplier = 0.1;
115.   break;
116.   case 1:
117.   ScaleFactorCMultiplier = 10;
118.   break;
119.   default:
120.   ScaleFactorCMultiplier = 1;
121.   break;
122.   }
123.   switch (ScaleFactorF)
124.   {
125.   case -1:
```

```
126.   ScaleFactorFMultiplier = 0.1;
127.   break;
128.   default:
129.   ScaleFactorFMultiplier = 0.01;
130.   break;
131.   }
132.   Frequency *= ScaleFactorFMultiplier;
133.   CurrentPhaseA *= ScaleFactorAMultiplier;
134.   if (CurrentNeutral == -32768)
135.   CurrentNeutral = "N/A";
136.   else
137.   CurrentNeutral *= ScaleFactorBMultiplier;
138.   if (CurrentGround == -32768)
139.   CurrentGround = "N/A";
140.   else
141.   CurrentGround *= ScaleFactorCMultiplier;
142.   document.view_form.frequency.value = Frequency;
143.   document.view_form.currentphasea.value = CurrentPhaseA;
144.   document.view_form.currentneutral.value = CurrentNeutral;
145.   document.view_form.currentground.value = CurrentGround;
146.   document.view_form.time_spot.value = TheTime;
147.   }
148.   ShowFreq();
149.   </script>

150.   </body>

151.   </html>
```

Note: All hightighted text are variable and custom page dependent.

Details:

HTML CODE LINE #	***DETAILS***
HTML Code for the Static elements	
1	HTML tag to define an HTML Page
2 & 5	HTML tag to begin and end an HTML Header
3	HTML tag to set up page refresh cycle in seconds
4	HTML tag to define page title. Notice "CM2350 - Slave Device 3" is user configurable. This title appears on the Browser title bar
6	HTML tag to start the HTML Page body
7	HTML syntax to specify the print form function inside JavaScript
8	HTML formatting tag to align the time and date in the center of the raw
9	HTML syntax to fetch the real time PC time and date
10-16	HTML syntax to create a one row table and insert "CM2350 - Slave Device 3" text in the center of the row. Also, the width and font size are defined here too.
13	HTML syntax to write the title of the table "CM2350 - Slave Device 3".

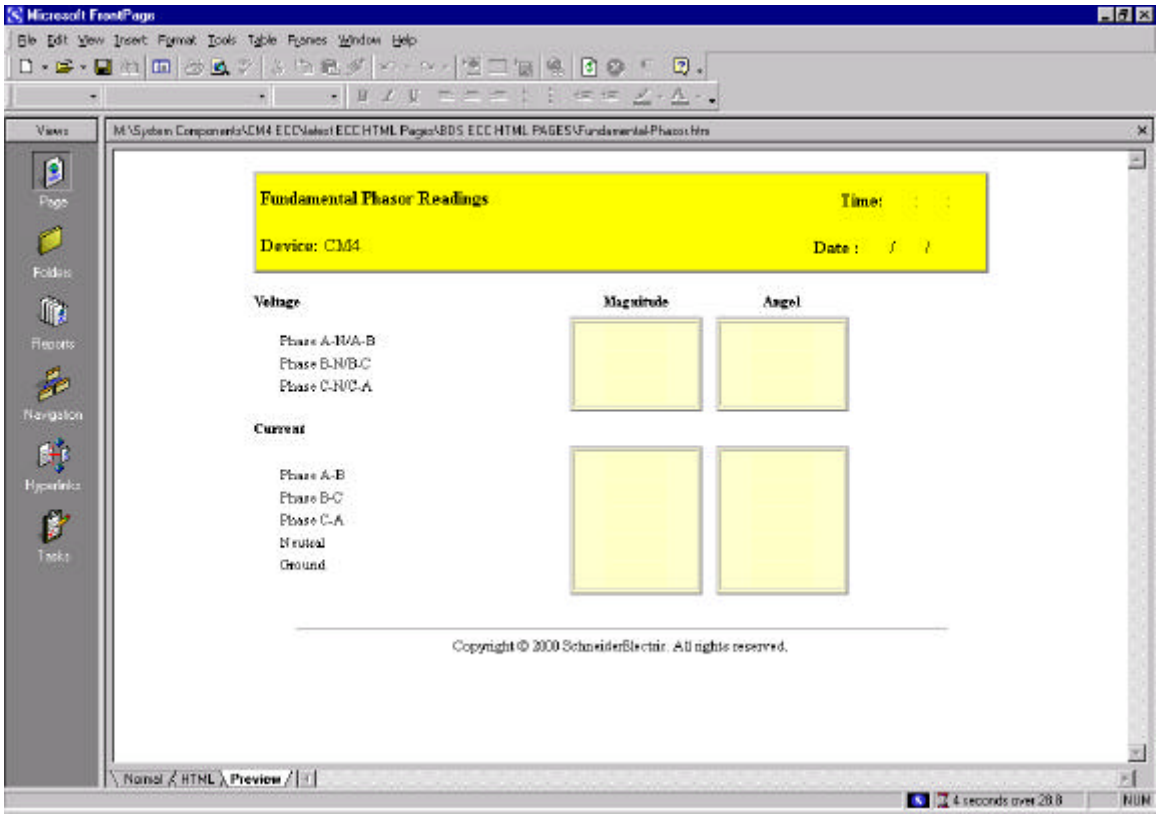
	This text is configurable by the user.
17-58 17,58 (18-27) 18, 27 19,21 20 22 23 24, 26 25	HTML syntax to define a table with 600 pixels width with four rows. ❑ <tr> is used to start each row. Each row consist of three fields. ❑ <td> is used to indicate a new field. ❑ The first field in each row contains the variables names such as Frequency, Current Phase A, Current Neutral, and Current Ground. ❑ The second field consist of the dynamic real time readings for each variable. ❑ The third field consist of the variable units such as Hz and Amps. ❑ HTML syntax to start and finish the table Example: HTML Tag to start and finish row #1of the table HTML Tag to start and finish a field of 300 pixels in width HTML syntax to write "Frequency" in the center of the the previous filed. HTML Tag to start and finish a field of 90 pixels in width HTML syntax to fill this filed with real time frequency readings. HTML Tag to start and finish a field of 100 pixels in width HTML syntax to write "Hz" in the center of this field The same is done for Current phase A, Current Neutral, and Current Ground
59	HTML syntax to write the Schneider Electric copyright statement
60	Close the view_form
JavaScripting Code for the Dynamic elements	
61	HTML syntax to start JavaScript coding
62	HTML syntax to for the JavaScript function name
63	Always start the JavaScript function with this delimiter
64	This line code contains the following ❑ PL__ delimiters at the beginning and end to signify to the ECC to parse this string and dynamically fill it with register data. ❑ 3^ to signify the device address on the daisy chain ❑ 2020,2021, …,1007 a list of register numbers in the CM2350 that we need data from
65	Register #2020 of the CM2350 has the Scale Factor A value
	Register #2021 of the CM2350 has the Scale Factor B value
	Register #2022 of the CM2350 has the Scale Factor C value
	Register #2025 of the CM2350 has the Scale Factor F value
	Register #1001 of the CM2350 has the Frequency value
	Register #1003 of the CM2350 has the Current Phase Avalue
	Register #1006 of the CM2350 has the CurrentNeutral value
	Register #1007 of the CM2350 has the Current Ground value
73-76	Initilizing Scale Factors
77	JavaScript Syntax to get the PC time
78-92	JavaScript Switch statement to determine Scale Factor A value. Switch statement is used to specify a valuchoose an option
93-107	JavaScript Switch statement to determine Scale Factor B value. Switch statement is used to specify a valuchoose an option
108-122	JavaScript Switch statement to determine Scale Factor C value. Switch statement is used to specify a valuchoose an option
123-131	JavaScript Switch statement to determine Scale Factor F value. Switch statement is used to specify a valuchoose an option
132	JavaScript multiplication statement (Frequency=Frequency * ScaleFactorFmultiplier)

133	JavaScript multiplication statement to determine the value of CurrentPhaseA
134-137	JavaScript IF statement to determine the value of CurrentNeutral
138-141	JavaScript IF statement to determine the value of CurrentGround
142-146	JavaScript statements to print variables values into their field
148	JavaScript function end statement
149	HTML tag to end JavaScripting
150	HTML tag to end the page body
151	HTML tag to end the HTML page/

Shortcuts:

By default all custom pages are coded for the CM4 into which the ECC is inserted to. However, if you want to modify the HTML page to read other devices on the daisy chain, you must modify the JavaScript Register code to reflect the right device address and correct register number. An example of how to modify the JavaScript and HTML source code follows:

EXAMPLE:
MODIFYING ECC HTML CUSTOM PAGE TO READ INFORMATION FROM OTHER DEVICES ON THE ECC DAISY CHAIN:
Modify the following CM4 HTML custom page with device address 1 to poll information from a Circuit Monitor 2000 with device address 3 on the daisy chain of the ECC. This page is embedded in the CM4 and could be displayed via a browser or your could download it from the PowerLogic Web site.



- Solution:

  In the Browser, display the source code. For example in Internet Explorer, go to view then source. Save the HTML source file to your disk, or just download it from the PowerLogic Internet Site. Open the HTML source file using MS-Front Office or MS-Front Office Express.

The following is the complete HTML source Code:
(The text that need to be modified to incorporate the changes is intentionally bolded)

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<!-- saved from url=(0053)http://157.198.226.228/InstantaneousReadings.htm23937
-->
<HTML><HEAD><TITLE>Fundamental Phasor Readings</TITLE>
<META content="text/html; charset=windows-1252" http-equiv=Content-Type>
<META content=5 http-equiv=Refresh>
<META content="Microsoft FrontPage 4.0" name=GENERATOR></HEAD>
<BODY bgColor=#ffffff>

<form name="view_form">

<TABLE align=center border=0 cellPadding=2 width=75%>
  <TBODY>
  <TR>
    <TD colSpan=5>
      <TABLE align=center bgColor=#ffff00 border=2 height=90 width="100%">
        <TBODY>
        <TR>
          <TD align=left borderColor=#ffff00 borderColorDark=#ffff00
          borderColorLight=#ffff00 width="50%"><b><font size="3">Fundamental
            Phasor Readings</font></b></TD>
          <TD align="right" borderColor=#ffff00 borderColorDark=#ffff00
```

```
          borderColorLight=#ffff00 width="50%"><B><FONT size=3>
Time:</font></B><Front size=3><input type="text" align="center" size="2"
style="background-color: #ffff00; border-style: solid; border-color: #ffff00"
name="HOUR">:<input type="text" align="center" size="2" style="background-
color: #ffff00; border-style: solid; border-color: #ffff00" name="MIN">:<input
type="text" align="center" size="2" style="background-color: #ffff00; border-
style: solid; border-color: #ffff00" name="SECOND">
          </TD></TR>
        <TR>
          <TD align=left borderColor=#ffff00 borderColorDark=#ffff00
          borderColorLight=#ffff00 width="50%"><FONT size=3><b>Device:</b> CM4
 </FONT></TD>
          <TD align=right borderColor=#ffff00 borderColorDark=#ffff00
          borderColorLight=#ffff00 width="50%"><B><FONT size=3>Date
:</FONT></B><FONT size=3><input type="text" align="center" font size="2"
style="background-color: #ffff00; border-style: solid; border-color: #ffff00"
name="MONTH">/<input type="text" align="center" size="2" style="background-
color: #ffff00; border-style: solid; border-color: #ffff00" name="DAY">/<input
type="text" align="center" size="4" style="background-color: #ffff00; border-
style: solid; border-color: #ffff00" name="YEAR"></FONT><B><FONT
size=4> </FONT>
            </B></TD></TR></TBODY></TABLE></TD></TR>
  <TR>
    <TD colSpan=5 height=10 width=700></TD></TR>
  <TR>
    <TD colSpan=2 width=201><b><font size="2">Voltage</font></b></TD>
    <TD align=middle width=133><font size="2"><b>Magnitude</b></font></TD>
    <TD align=middle width=133><b><font size="2">Angel</font></b></TD>
    <TD align=middle width=133></TD></TR>
  <TR>
    <TD width=21></TD>
      <TD width=280 style="margin-top: 5; margin-bottom: 5">
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
A-N/A-B</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
B-N/B-C</font></p>
       <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
C-N/C-A</font></p>
    </TD>
    <TD width=133>
      <TABLE align=center bgColor=#ffffcc border=2 height="100%" width="95%">
        <TBODY>
        <TR>
          <TD align=middle width="100%"><FONT size=3>
          <input type="text" size="6" name="va" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
          <input type="text" size="6" name="vb" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
          <input type="text" size="6" name="vc" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br></FONT></TD></TR></TBODY></TABLE></TD>
    <TD width=133>
      <TABLE align=center bgColor=#ffffcc border=2 height="100%" width="95%">
        <TBODY>
        <TR>
          <TD align=middle width="100%"><FONT size=3>
          <input type="text" size="6" name="vaangle" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
```

```
          <input type="text" size="6" name="vbangle" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
          <input type="text" size="6" name="vcangle" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
</FONT></TD></TR></TBODY></TABLE></TD>

  <TR>
    <TD colSpan=2 width=201><b><font size="2">Current</font></b></TD>
    <TD width=133> </TD>
    <TD width=133> </TD>
    <TD width=133></TD></TR>
  <TR>
    <TD width=21></TD>
<TD width=280 style="margin-top: 5; margin-bottom: 5">
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
A-B</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
B-C</font></p>
       <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
C-A</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font
size="2">Neutral</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font
size="2">Ground</font></p>
    </TD>
    <TD width=133>
      <TABLE align=center bgColor=#ffffcc border=2 height="100%" width="95%">
        <TBODY>
        <TR>
          <TD align=middle width="100%"><FONT
            size=3><input type="text" size="6" name="ia" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
                    <input type="text" size="6" name="ib" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
                    <input type="text" size="6" name="ic" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
                    <input type="text" size="6" name="ineutral" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
                    <input type="text" size="6" name="iground" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
 </FONT></TD></TR></TBODY></TABLE></TD>


    <TD width=133>
      <TABLE align=center bgColor=#ffffcc border=2 height="100%" width="95%">
        <TBODY>
        <TR>
          <TD align=middle width="100%"><FONT size=3>
                      <input type="text" size="6" name="iaangle"
align="center" style="background-color: #FFFFC6; border-style: solid; border-
color: #FFFFC6"><br>
                    <input type="text" size="6" name="ibangle" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
```

```
                    <input type="text" size="6" name="icangle" align="center"
style="background-color: #FFFFC6; border-style: solid; border-color:
#FFFFC6"><br>
                    <input type="text" size="6" name="ineutralangle"
align="center" style="background-color: #FFFFC6; border-style: solid; border-
color: #FFFFC6"><br>
                    <input type="text" size="6" name="igroundangle"
align="center" style="background-color: #FFFFC6; border-style: solid; border-
color: #FFFFC6"><br></FONT></TD></TR></TBODY></TABLE></TD>

    <TD width=133>
    </TD></TR>
  </TBODY></TABLE><BR>
<HR SIZE=1 width="66%">

<CENTER><FONT face="Times Roman" size=2>Copyright © 2000 SchneiderElectric. All
rights reserved.</FONT></CENTER>

<script language="JavaScript">
function phasor()
{
   Registers=[PL__1^1244,1246,1248,1245,1247,1249,1230,1232,1234,1236,1
238,1231,1233,1235,1237,1239,3209,3210,3211,3212,3034,3035,3036__PL];
<!--Registers = [10,20,30,40,50,60,70,80,90,100,110,120,13,14,15,16,0,1,-1,2];-
->

    va = Registers[0];
    vb = Registers[1];
    vc = Registers[2];
    vaangle = Registers[3];
    vbangle = Registers[4];
    vcangle = Registers[5];
    ia = Registers[6];
    ib = Registers[7];
    ic = Registers[8];
    ineutral = Registers[9];
    iground = Registers[10];
    iaangle = Registers[11];
    ibangle = Registers[12];
    icangle = Registers[13];
    ineutralangle = Registers[14];
    igroundangle = Registers[15];
    ScaleFactorA = Registers [16];
    ScaleFactorB = Registers [17];
    ScaleFactorC = Registers [18];
    ScaleFactorD = Registers [19];

     DAY = Registers[20] & 0xFF;
    Registers[20] = Registers[20] >>8;
    MONTH = Registers[20] & 0XFF;

     HOUR = Registers[21] & 0xFF;
    Registers[21] = Registers[21] >>8;
    YEAR = Registers[21] & 0XFF;
    YEAR = YEAR + 1900;

    SECOND = Registers[22] & 0xFF;
   Registers [22] = Registers [22] >> 8;
   MIN = Registers[22] & 0XFFFF;



    ScaleFactorAMultiplier = 0;
```

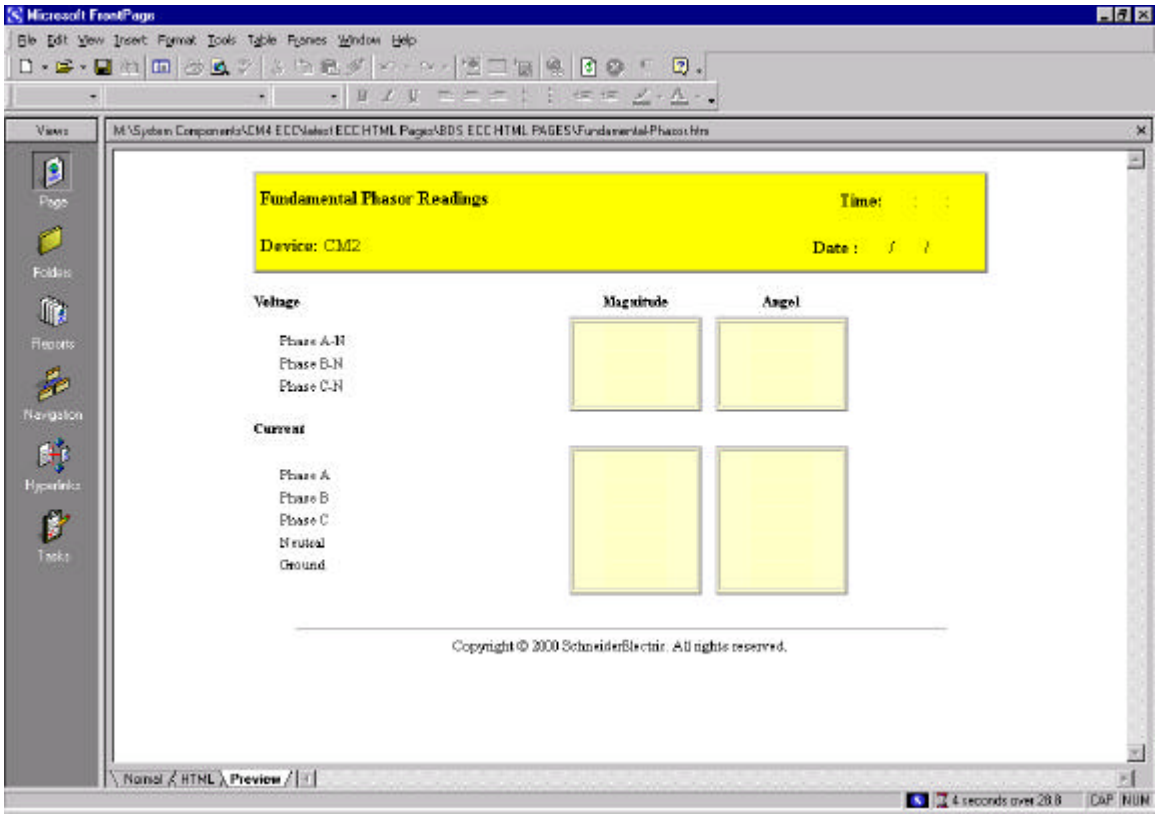
```
ScaleFactorBMultiplier = 0;
ScaleFactorCMultiplier = 0;
ScaleFactorDMultiplier = 0;

switch (ScaleFactorA)
{
    case -2:
        ScaleFactorAMultiplier = 0.01;
        break;
    case -1:
        ScaleFactorAMultiplier = 0.1;
        break;
    case 1:
        ScaleFactorAMultiplier = 10;
        break;
    default:
        ScaleFactorAMultiplier = 1;
        break;
}
switch (ScaleFactorB)
{
    case -2:
        ScaleFactorBMultiplier = 0.01;
        break;
    case -1:
        ScaleFactorBMultiplier = 0.1;
        break;
    case 1:
        ScaleFactorBMultiplier = 10;
        break;
    default:
        ScaleFactorBMultiplier = 1;
        break;
}
switch (ScaleFactorC)
{
    case -2:
        ScaleFactorCMultiplier = 0.01;
        break;
    case -1:
        ScaleFactorCMultiplier = 0.1;
        break;
    case 1:
        ScaleFactorCMultiplier = 10;
        break;
    default:
        ScaleFactorCMultiplier = 1;
        break;
}
switch (ScaleFactorD)
{
    case -1:
        ScaleFactorDMultiplier = 0.1;
        break;
    case 1:
        ScaleFactorDMultiplier = 10;
        break;
   case 2:
        ScaleFactorDMultiplier = 100;
        break;
    default:
        ScaleFactorDMultiplier = 1;
        break;
```

```
    }

if (va >= -32768)
   va == "N/A";
else
   va *= ScaleFactorDMultiplier;
   va = Math.round(va*100)/100;

   vb *= ScaleFactorDMultiplier;
   vb = Math.round(vb*100)/100;

if (vc == -32768)
   vc =="N/A";
else
   vc *= ScaleFactorDMultiplier;
   vc = Math.round(vc*100)/100;


if (ia == -32768)
   ia == "NA";
else
   ia *= ScaleFactorAMultiplier;
      ia = Math.round(ia*100)/100;

if (ib == -32768)
   ib == "N/A";
else
   ib *= ScaleFactorAMultiplier;
   ib = Math.round(ib*100)/100;

if (ic == -32768)
   ic == "N/A";
else
   ic *= ScaleFactorAMultiplier;
   ic = Math.round(ic*100)/100;

if (ineutral == -32768)
   ineutral == "N/A";
else
   ineutral *= ScaleFactorBMultiplier;
   ineutral = Math.round(ineutral*100)/100;

if (iground == -32768)
   iground == "N/A";
else
   iground *= ScaleFactorCMultiplier;
   iground = Math.round(iground*100)/100;

if (vaangle == -32768)
   vaangle == "N/A";
else
   vaangle /= 10;
   vaangle = Math.round(vaangle*100)/100;

if (vbangle == -32768)
   vbangle == "N/A";
else
   vbangle /= 10;
   vbangle = Math.round(vbangle*100)/100;

if (vcangle == -32768)
   vcangle == "N/A";
else
```

```
    vcangle /= 10;
    vcangle = Math.round(vcangle*100)/100;

if (iaangle == -32768)
    iaangle == "N/A";
else
    iaangle /= 10;
    iaangle = Math.round(iaangle*100)/100;

if (ibangle == -32768)
    ibangle == "N/A";
else
    ibangle /= 10;
    ibangle = Math.round(ibangle*100)/100;

if (icangle == -32768)
    icangle == "NA";
else
    icangle /= 10;
    icangle = Math.round(icangle*100)/100;

if (ineutralangle == -32768)
    ineutralangle == "NA";
else
    ineutralangle /= 10;
    ineutralangle = Math.round(ineutralangle*100)/100;

if (igroundangle == -32768)
    igroundangle == "NA";
else
    igroundangle /= 10;
    igroundangle = Math.round(igroundangle*100)/100;



document.view_form.va.value = va;
document.view_form.vb.value = vb;
document.view_form.vc.value = vc;
document.view_form.vaangle.value = vaangle;
document.view_form.vbangle.value = vbangle;
document.view_form.vcangle.value = vcangle;
document.view_form.ia.value = ia;
document.view_form.ib.value = ib;
document.view_form.ic.value = ic;
document.view_form.ineutral.value = ineutral;
document.view_form.iground.value = iground;
document.view_form.iaangle.value = iaangle;
document.view_form.ibangle.value = ibangle;
document.view_form.icangle.value = icangle;
document.view_form.ineutralangle.value = ineutralangle;
document.view_form.igroundangle.value = igroundangle;
document.view_form.MIN.value = MIN;
document.view_form.SECOND.value = SECOND;
document.view_form.HOUR.value = HOUR;
document.view_form.YEAR.value = YEAR;
document.view_form.DAY.value = DAY;
document.view_form.MONTH.value = MONTH;

}

phasor();
</script>
```

```
</form>

</BODY></HTML>
```

Now to proceed with the modification to make the previous page as follows :



do the following:

- HTML Coding Modification

  1. CM4 Title Source Code: Modify the title page to read Device: CM2 by changing the following source code to read CM2 instead of CM4

```
<TD align=left borderColor=#ffff00 borderColorDark=#ffff00
borderColorLight=#ffff00 width="50%"><FONT size=3><b>Device:</b> CM4
 </FONT></TD>
```

  CM2 Source Code:

```
<TD align=left borderColor=#ffff00 borderColorDark=#ffff00
borderColorLight=#ffff00 width="50%"><FONT size=3><b>Device:</b> CM2
 </FONT></TD>
```

  2. change CM4 Voltage terminology source code:

```
<TD width=280 style="margin-top: 5; margin-bottom: 5">
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
A-N/A-B</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
B-N/B-C</font></p>
```

```
       <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
C-N/C-A</font></p>
    </TD>
```

Into:

```
<TD width=280 style="margin-top: 5; margin-bottom: 5">
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
A-N</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
B-N</font></p>
       <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
C-N</font></p>
    </TD>
```

3. The same thing with the CM4 Current terminology source code:

```
<TD width=280 style="margin-top: 5; margin-bottom: 5">
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
A-B</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
B-C</font></p>
       <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
C-A</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font
size="2">Neutral</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font
size="2">Ground</font></p>
    </TD>
```

Into CM2 source code terminology:

```
<TD width=280 style="margin-top: 5; margin-bottom: 5">
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
A</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font size="2">Phase
B</font></p>
          <p style="margin-top: 5; margin-bottom: 5"><font
size="2">Phase C</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font
size="2">Neutral</font></p>
      <p style="margin-top: 5; margin-bottom: 5"><font
size="2">Ground</font></p>
    </TD>
```

- JavaScripting Source Code Modification:

To pull the dynamic data from the CM2000 rather than a CM4, then

- Change the device address and CM4 register numbers in the following source code to the corresponding CM2 device address and the CM2 register.

CM4 Source Code:

Registers=[PL__1^1244,1246,1248,1245,1247,1249,1230,1232,1234,1236,1238,1231,1233,1235,1237,1239,3209,3210,3211,3212,3034,3035,3036__PL];

CM2 (Device address =3) Source Code :

Registers=[PL__3^1088,1090,1092,1089,1091,1093,1078,1080,1082,1084,1086,1079,1081,1083,1085__PL];

After you finish, use FTP to upload this new page into your CM4. For more details on how to use FTP, refer to the ECC Instruction Bulletin.