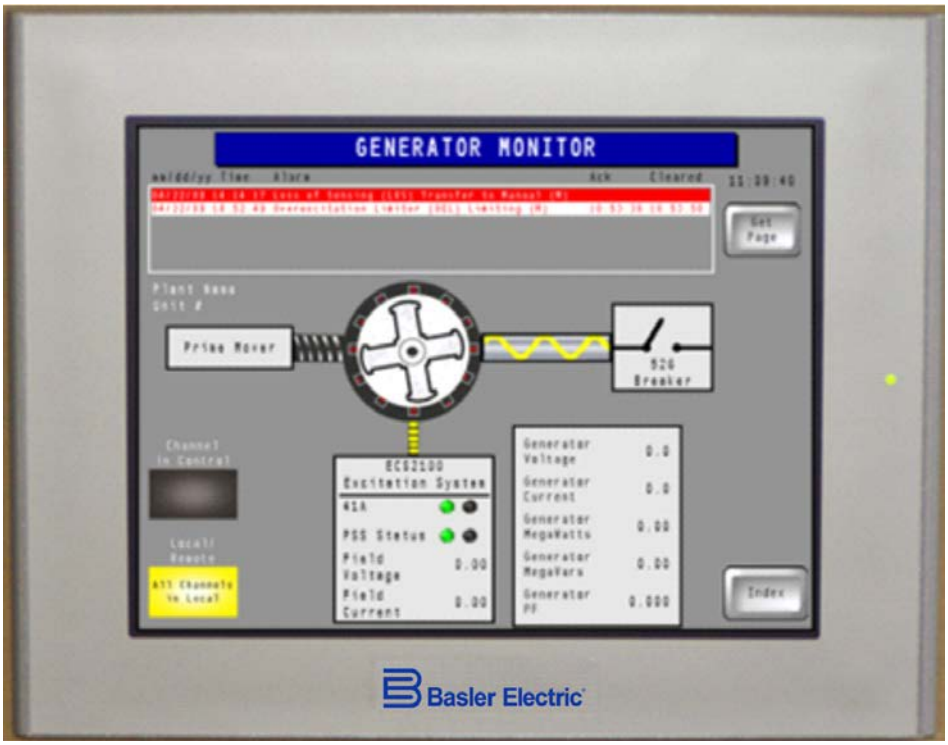
INSTRUCTION MANUAL

FOR

IDP-1200

Interactive Display Panel



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Preface

This instruction manual provides information about the installation and operation of the IDP-1200 Interactive Display Panel. To accomplish this, the following information is provided:

- Mounting and connections
- Communication requirements
- Display operation and screen navigation
- Product specifications

Conventions Used in this Manual

Important safety and procedural information is emphasized and presented in this manual through warning, caution, and note boxes. Each type is illustrated and defined as follows.

Warning!
Warning boxes call attention to conditions or actions that may cause personal injury or death.

Caution
Caution boxes call attention to operating conditions that may lead to equipment or property damage.

Note
Note boxes emphasize important information pertaining to installation or operation.

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Warning!

READ THIS MANUAL. Read this manual before installing, operating, or maintaining the IDP-1200 Note all warnings, cautions, and notes in this manual as well as on the product. Keep this manual with the product for reference. Only qualified personnel should install, operate, or service this system. Failure to follow warning and cautionary labels may result in personal injury or property damage. Exercise caution at all times.

To prevent personal injury or equipment damage, only qualified personnel should install, operate, or service this system.

Basler Electric does not assume any responsibility to compliance or noncompliance with national code, local code, or any other applicable code. This manual serves as reference material that must be well understood prior to installation, operation, or maintenance.

For terms of service relating to this product and software, see the *Commercial Terms of Products and Services* document available at www.basler.com/terms.

This publication contains confidential information of Basler Electric Company, an Illinois corporation. It is loaned for confidential use, subject to return on request, and with the mutual understanding that it will not be used in any manner detrimental to the interests of Basler Electric Company and used strictly for the purpose intended.

It is not the intention of this manual to cover all details and variations in equipment, nor does this manual provide data for every possible contingency regarding installation or operation. The availability and design of all features and options are subject to modification without notice. Over time, improvements and revisions may be made to this publication. Before performing any of the following procedures, contact Basler Electric for the latest revision of this manual.

The English-language version of this manual serves as the only approved manual version.

Contents

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Introduction

The IDP-1200 Interactive Display Panel is a high-resolution, 12.1 inch/31 centimeter (measured diagonally) color touch screen interface that enables a user to monitor and control an ECS2100, ECS/RW, DECS-2100, or DECS/RW excitation system. IDP-1200 monitoring and control features include excitation system status, system control operations, and routine adjustments of the excitation setpoint. An additional IDP-1200 can be mounted remotely, such as, in the control room.

Excitation system and generator system parameters are viewed and controlled through interactive pages displayed by the IDP-1200. Pages are organized by function. Navigation between pages and control of functions is achieved by touching buttons located on the IDP-1200 pages.

Communication between the IDP-1200 and the control system is facilitated through the Ethernet port of the IDP-1200 and the Ethernet port of the excitation control modules.

Hardware

The IDP-1200 is supplied with the following hardware:

- Ethernet switch, 8 ports, Basler P/N 41133
- Instruction manual (Basler publication 9437200990)

Accessories

The following optional accessories are available for use with the IDP-1200:

- Power supply, 24 Vdc, 31 W, Basler P/N 9334503101
- DIN mounting rail for Ethernet switch, Basler P/N 9323900001

Communication

IDP-1200 communication with the control system cannot take place until the Ethernet communication settings are configured for the IDP-1200 and the control system peripheral devices. The following procedures describe how to configure the communication settings for the IDP-1200 and peripheral devices.

Caution
This product contains one or more *nonvolatile memory* devices. Nonvolatile memory is used to store information (such as settings) that needs to be preserved when the product is power-cycled or otherwise restarted. Established nonvolatile memory technologies have a physical limit on the number of times they can be erased and written. During product application, consideration should be given to communications, logic, and other factors that may cause frequent/repeated writes of settings or other information that is retained by the product. Applications that result in such frequent/repeated writes may reduce the useable product life and result in loss of information and/or product inoperability.

IDP-1200 Ethernet Settings

Perform the following steps to configure the local Ethernet settings for the IDP-1200.

1. Press the Index button on any IDP-1200 page to access the General Index page.
2. Press the Setup button on the General Index page to access the System Configuration page.
3. Press the Offline Mode button.
4. Press the Main Unit Settings button located at the top of the page.
5. Press the Ethernet Local Settings button located at the right of page center.
6. Tap on the Local Name box and enter a local name for the main (IDP-1200) unit.
7. Enter the IP Address, Subnet Mask, Port, and Gateway as assigned by the network administrator.
8. Press the Back button located at the bottom of the page.
9. Press the Save button located at the bottom of the page.
10. Press the Yes button when prompted to save the current settings.

Control System Peripheral Settings

Perform the following steps to configure the control system peripherals for communication with the main (IDP-1200) unit.

1. Press the Index button on any IDP-1200 page to access the General Index page.
2. Press the Setup button on the General Index page to access the System Configuration page.
3. Press the Offline Mode button.
4. Press the Peripheral Settings button located at the top of the page
5. Press the Device/PLC Settings button located at the left of page center.
6. Press the Schneider Electric Industries button in the center of the page.
7. Press the Device button located at the top of the page.

8. Enter the IP Address, Port, and Unit ID for each of the following devices as assigned by the network administrator. Your system may not contain all of the devices listed here.
    a. em (ECM Main)
    b. fm (FCIM Main)
    c. er (ECM Redundant)
    d. fr (FCIM Redundant)
    e. es (ECM Supervisory)
    f. fs (FCIM Supervisory)
9. Note that em and fm share the same IP address, er and fr share the same IP address, and es and fs share the same IP address.
10. Press the Back button located at the bottom of the page.
11. Press the Digital Electronics Corporation button in the center of the page.
12. Press the Right Arrow button in the lower, right corner of the page.
13. Set control area address 1 to match the value entered for “em” in step 8
14. Set control area address 2 to match the value entered for “er” in step 8.
15. Press the Back button.
16. Press the Save button located at the bottom of the page.
17. Press the Yes button when prompted to save the current settings.

IDP-1200 Operation with ECS2100 and ECS/RW

Control system and generator system parameters are viewed and controlled through interactive screens displayed by the IDP-1200. Screens are organized by function. Navigation between screens and control of functions are achieved by pressing buttons located on the IDP-1200 screens.

This chapter illustrates and describes IDP-1200 screen navigation and usage. The available IDP-1200 screens and their appearance will vary according to the number of control channels and rectifier bridges utilized in a particular control system.

Initial Screen

The Initial screen (Figure 1) is displayed upon power-up of the IDP-1200. The initial screen lists the number of control system channels and the version of the IDP-1200 firmware.

Figure 1. Initial Screen

Index Button

Most screens have an Index button that, when pressed, accesses the General Index screen. The General Index screen provides quick navigation to any other IDP-1200 screen.

Get Page Button and Screen

Most screens have a Get Page button that accesses the Get Page screen illustrated in Figure 2. This screen lists all screens and provides navigation to each screen. To navigate to a screen, the user scrolls through the screen description list by using the up and down scrolling buttons until the desired screen and screen number are found. The screen number is entered in a numeric keypad accessed by pressing the 86 button. (This button displays the number of the Get Page screen, which is 86.) Entering the screen number followed by the Enter (ENT) button takes the user to the requested screen. A complete list of IDP-1200 screens is provided in Table 1. Typically, your system/IDP-1200 will not have all of the equipment/screens listed here.

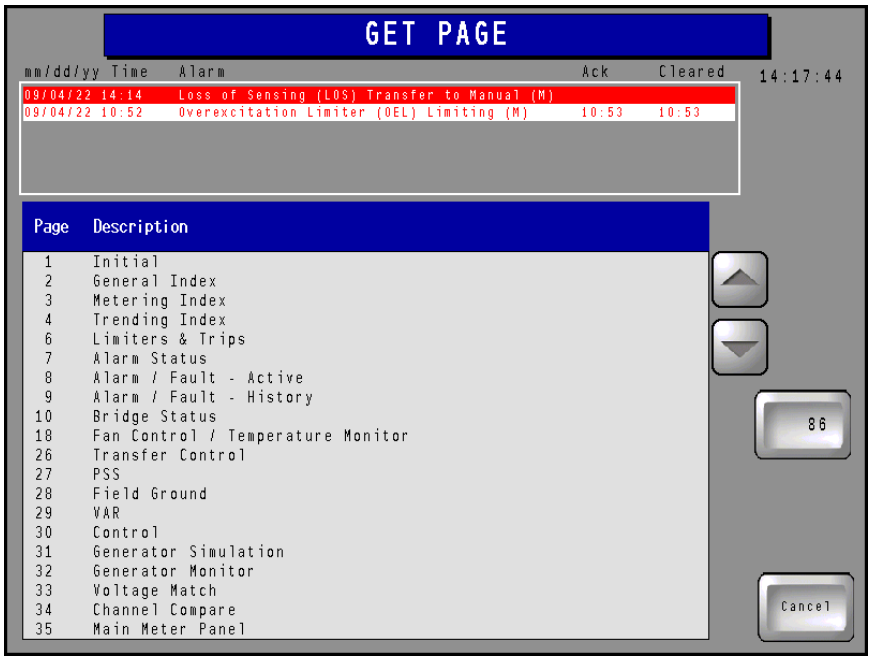


Figure 2. Get Page Screen

Table 1. IDP-1200 Screens

Page	Description
1	Initial
2	General Index
3	Metering Index
4	Trending Index
6	Limiters and Trips
7	Alarm Status
8	Alarm/Fault – Active
9	Alarm/Fault – History
10	Bridge 00, 01 Status
11	Bridge 02, 03 Status
12	Bridge 04, 05 Status
13	Bridge 06, 07 Status
14	Bridge 08, 09 Status
15	Bridge 10, 11 Status
16	Bridge 12, 13 Status
17	Bridge 14, 15 Status
18	Fan Control/Temperature Monitor
26	Transfer Control
27	Power System Stabilizer
28	Field Ground
29	Reactive Power
30	Output Control

Page	Description
71	Bridge 11 Temperature Trending Graph
72	Bridge 11 Temperature Trending Data
73	Bridge 12 Temperature Trending Graph
74	Bridge 12 Temperature Trending Data
75	Bridge 13 Temperature Trending Graph
76	Bridge 13 Temperature Trending Data
77	Bridge 14 Temperature Trending Graph
78	Bridge 14 Temperature Trending Data
79	Bridge 15 Temperature Trending Graph
80	Bridge 15 Temperature Trending Data
81	Horizontal Capability Curve
82	Vertical Capability Curve
83	System Configuration
84	Cleaning Lock
85	Screen Saver
86	Get Page
87	System Configuration 2

Alarms Banner

Most screens display an alarms banner that lists the six most recent system alarms. Each alarm is labeled with a description and the date and time of the alarm. The timestamp for acknowledgement and clearing (if applicable) of alarms is also displayed. Active alarms are displayed as white text on a red background. Acknowledged alarms are displayed as yellow text on a black background. Cleared alarms are displayed as red text on a white background.

System Configuration Screen

This screen (Figure 3) has provisions for adjusting the screen saver time delay, adjusting the display brightness, and selecting the display language.

An indicator turns red to indicate the connection of a USB device to the IDP-1200. A button below the indicator can be pressed to de-energize the IDP-1200 USB port for safe removal of a USB device from the IDP-1200.

If the IDP-1200 panel requires cleaning, the Lock for Cleaning button can be pressed to enable cleaning of the screen without inadvertently pressing buttons.

A Log In button accesses an alphanumeric keypad where the appropriate password can be entered to log in and make IDP-1200 settings changes. The IDP-1200 is delivered with a level 1 password of “1234” and a level 2 password of “4321”. The proper, level 1 password is required to select the IDP-1200 display language. The proper level 2 password is required to configure the IDP-1200 as a local or remote display or to change passwords. Instructions for changing the password are provided in *Password Settings*.

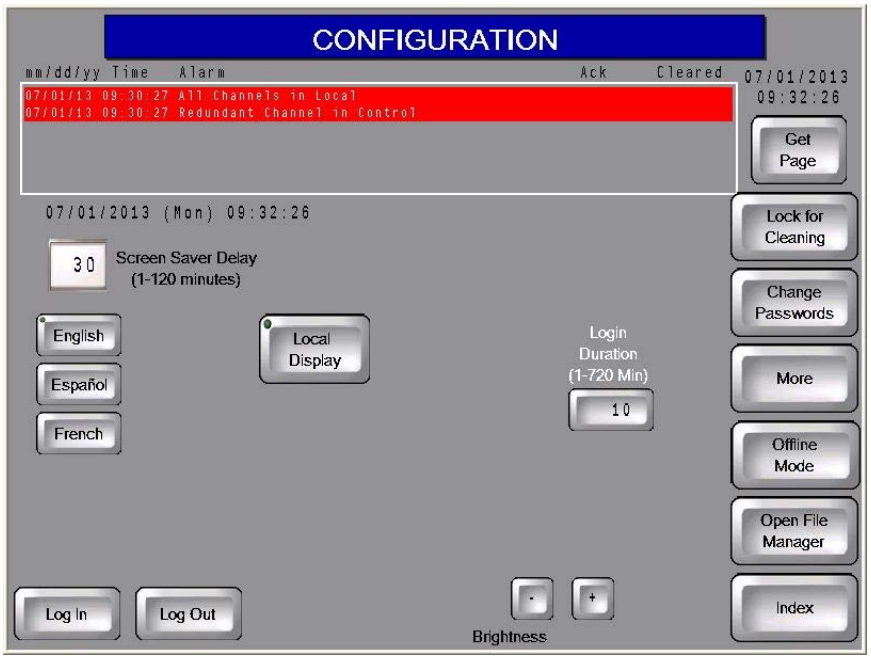


Figure 3. System Configuration Screen

Additional Configuration Screen

Pressing the More button accesses a second Configuration screen, illustrated in Figure 4. This screen enables selection of the firmware version being used by the control system and the Modbus address of the main and redundant channels.

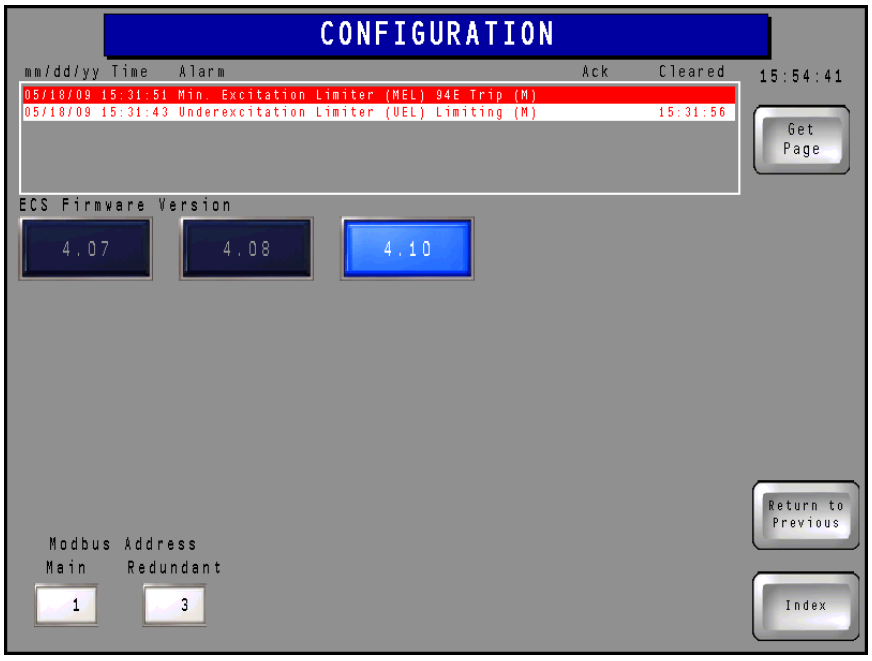


Figure 4. Firmware and Modbus Address Configuration Screen

File Manager

The Open File Manager button accesses the file manager which lists the files present on an inserted compact flash card and connected USB device. Files can be copied or moved from one storage device to the other or deleted.

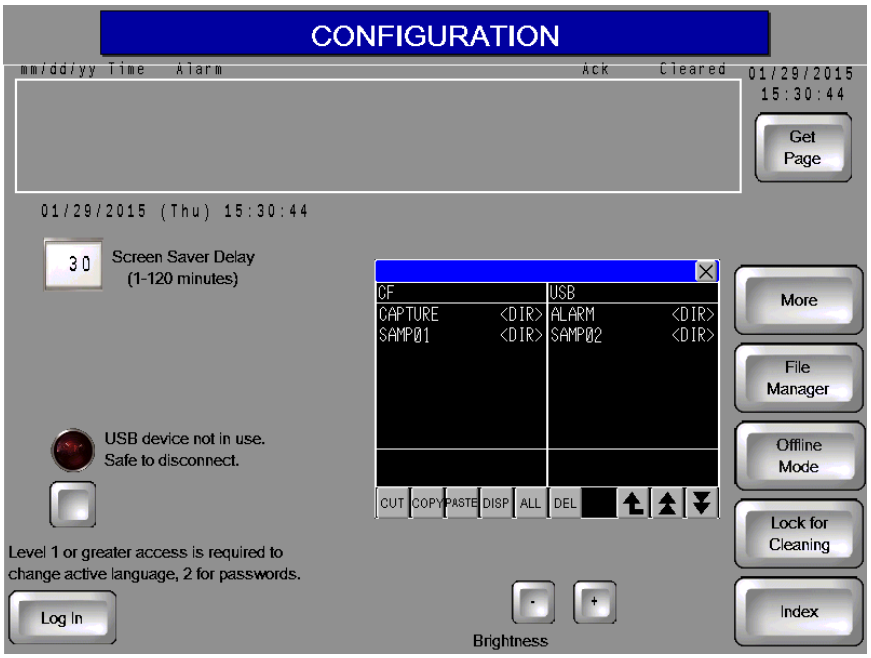


Figure 5. File Manager Screen

General Index

The General Index screen (Figure 6) is accessed by pressing the Index button, located in the lower right corner of any other IDP-1200 screen. The General Index screen provides two methods of access to other screens within the IDP-1200. Buttons on the General Index page provide quick access to 18 frequently used IDP-1200 screens.

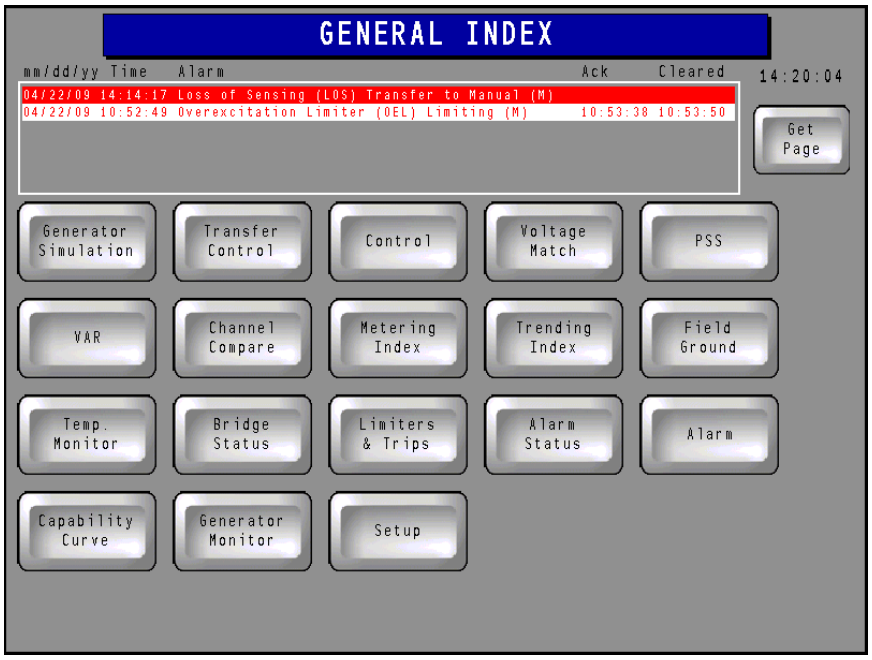


Figure 6. General Index Screen

Metering Index

Buttons on the Metering Index screen (Figure 7) are pressed to access the screens used to scale and display system metering values.

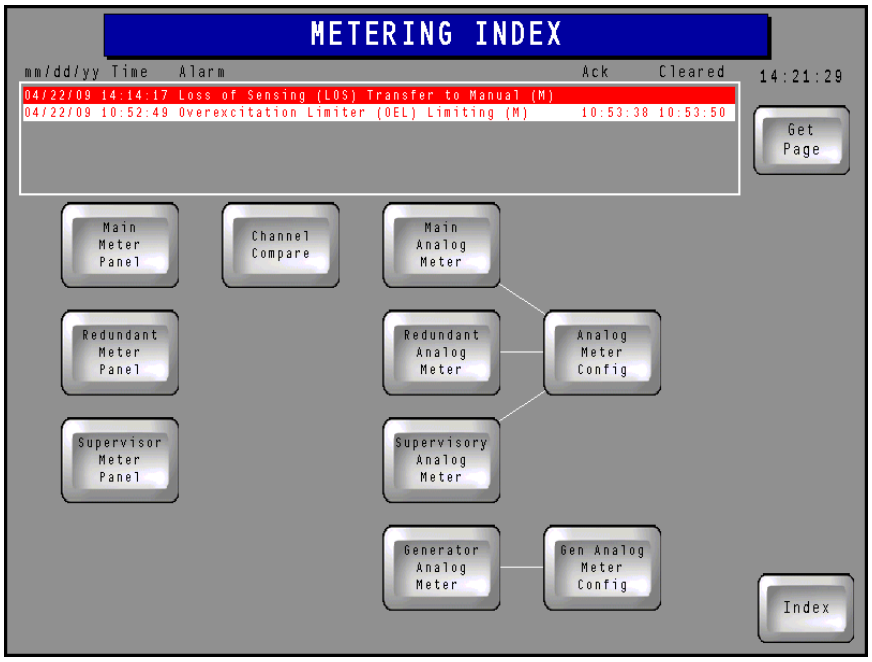


Figure 7. Metering Index Screen

Analog Meter Config Button

Pressing this Metering Index screen button accesses the Analog Meter Configuration screen (Figure 8) which sets the range of the metering values displayed on the Main, Redundant, and Supervisory Metering Panels (if so equipped). The minimum and maximum per-unit values for a metered parameter is changed by pressing the corresponding value. This displays a keypad which is then used to assign the desired metering limit. A per-unit value of –5.00 to 5.00 may be entered. Pressing the Enter (ENT) button saves the value.

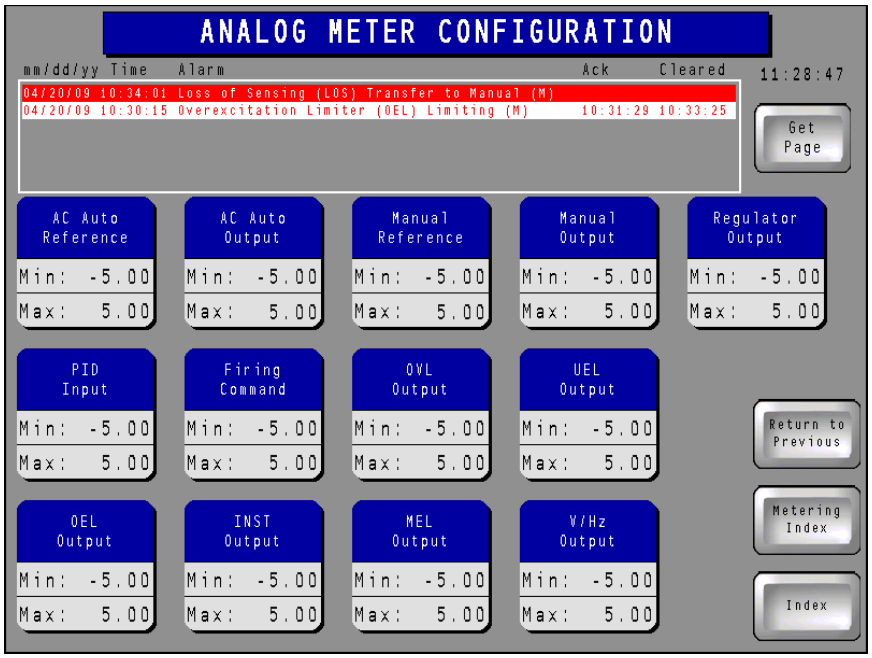


Figure 8. Analog Meter Configuration Screen

Main Analog Meter, Redundant Analog Meter, and Supervisory Analog Meter Buttons

Pressing one of these Metering Index screen buttons (if so equipped) accesses the corresponding metering page which displays the parameters illustrated in Figure 9. (Only the Main Meter Panel is shown here; the Redundant and Supervisory Meter Panels are similar.) The value of each parameter is graphically shown on an analog scale and also displayed in digital format. The minimum and maximum values established on the Analog Meter Configuration screen determine the metering ranges shown on this screen.

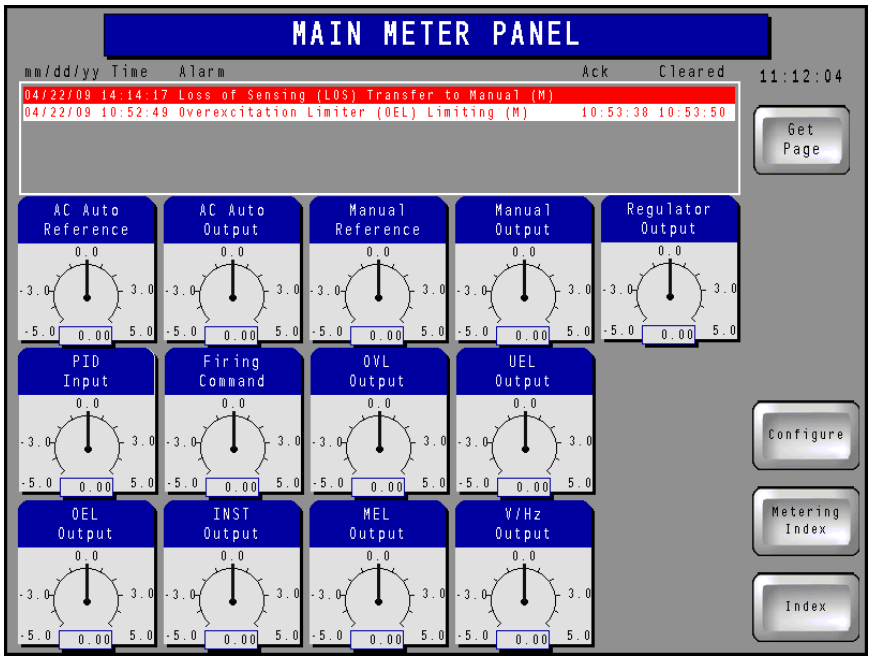


Figure 9. Main Meter Panel

Gen Analog Meter Config Button

Pressing this Metering Index screen button accesses the Generator Metering Configuration screen (Figure 10) which sets the range of the generator metering values displayed on the Generator Metering screen. The generator power factor metering range is fixed so no adjustment is provided. The minimum and maximum value for a metered parameter is changed by pressing the corresponding value. This displays a keypad which is then used to assign the desired metering limit. Pressing the Enter (ENT) button saves the value. Minimum and maximum metering parameter ranges are listed in Table 2.

Table 2. Metering Parameter Ranges

Parameter	Minimum	Maximum
Field Current	0	10000
Field Voltage	–1500	1500
Generator Current	0	30000
Generator Voltage	0	30000
Generator Megavars	–1500	1500
Generator Megawatts	0	1500

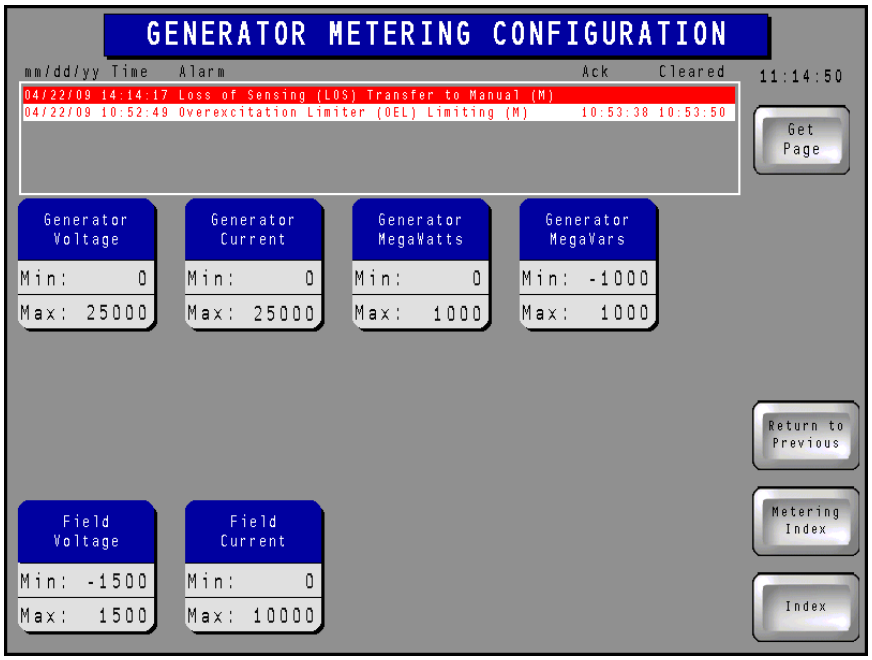


Figure 10. Generator Metering Configuration Screen

Generator Analog Meter Button

Pressing this Metering Index screen button accesses the Generator Metering screen which displays the parameters illustrated in Figure 11. The value of each parameter is graphically shown on an analog scale and also displayed in digital format. The minimum and maximum values established on the Generator Metering Configuration screen determine the metering ranges shown on this screen. The Generator Metering screen also indicates the control system channel that is controlling excitation.

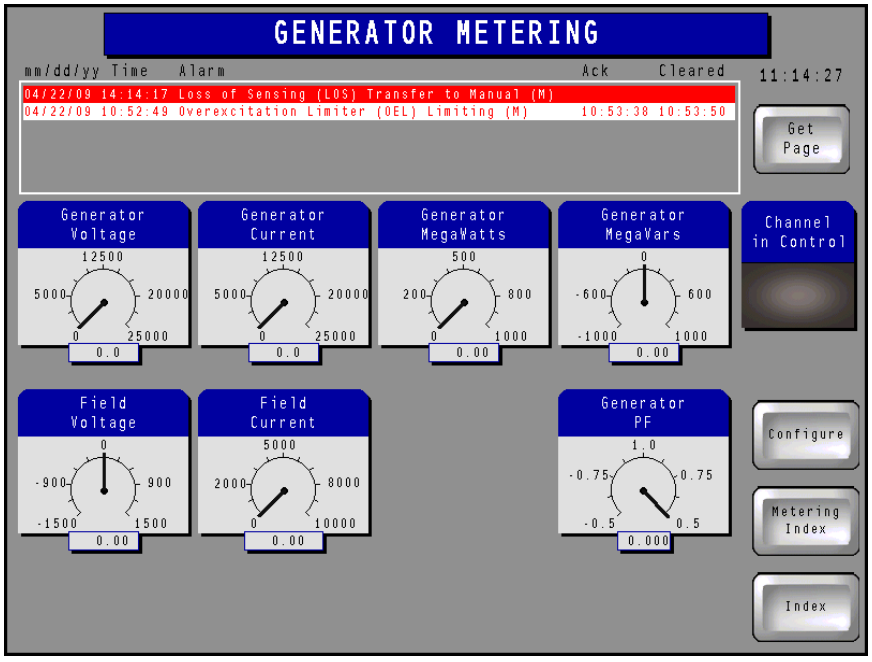


Figure 11. Generator Metering Screen

Channel Compare Button

Pressing this Metering Index screen button accesses the Channel Compare screen (Figure 12) which displays a list of parameters metered by the control system channels. Scroll buttons, located to the right

of the list, can be used to scroll up and down through the list of parameters. (A particular system may not be equipped with all of the channels shown here.) Three columns of indicators, located in the lower portion of the screen, show the status of various operating modes, functions, and devices for the three channels. The Channel in Control indicators turn green when active; all other indicators turn red when active.

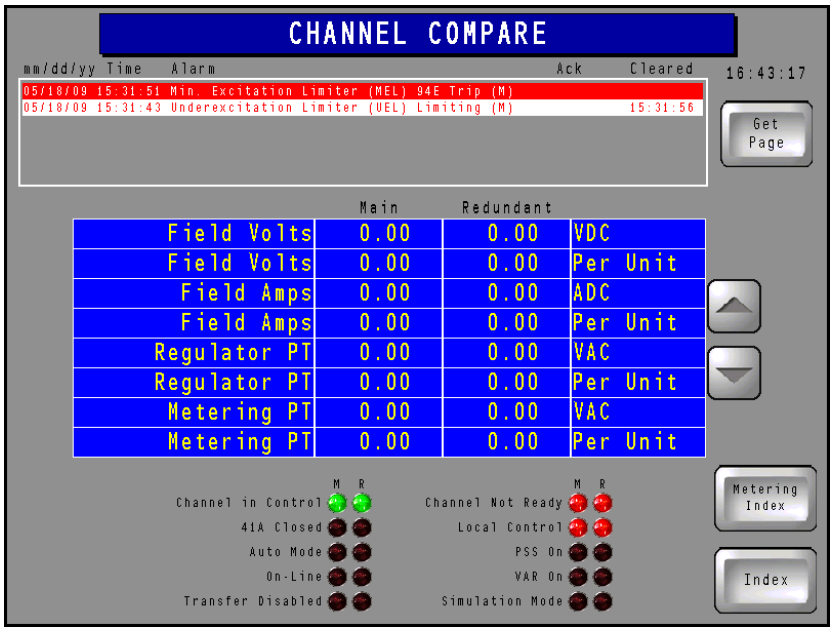


Figure 12. Channel Compare Screen

Main Meter Panel, Redundant Meter Panel, and Supervisory Meter Panel Buttons

Pressing one of these Metering Index screen buttons (if so equipped) accesses the corresponding meter panel screen which displays the digital-only version of the parameters illustrated in Figure 9. (Only the Main Meter Panel (Figure 13) is shown here; the Redundant and Supervisory Meter Panels are similar.) The minimum and maximum values established on the Analog Meter Configuration page determine the metering ranges shown on this screen.

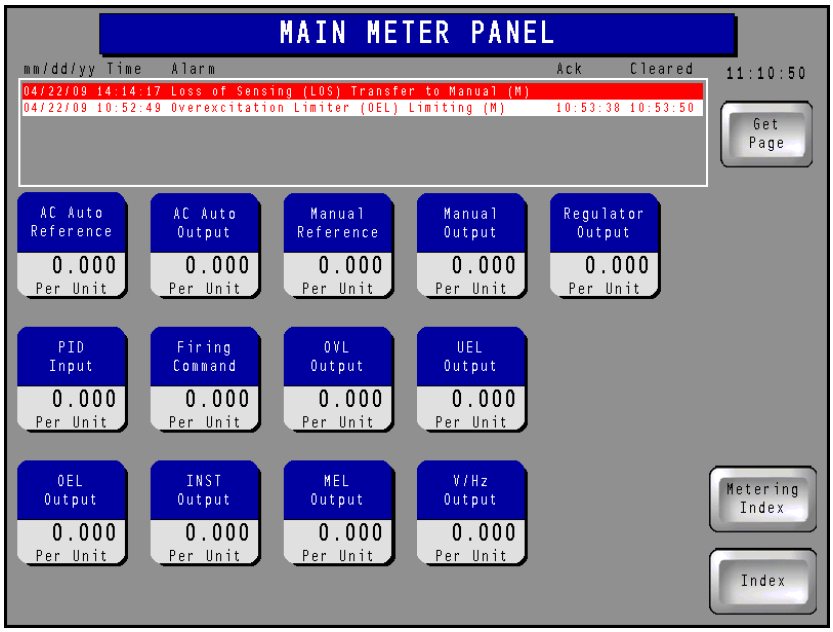


Figure 13. Main Meter Panel Screen

Trending Index

Buttons on the Trending Index screen (Figure 14) provide access to data lists and plots for user-selected control system parameters and temperature data lists and plots for the excitation system rectifier bridges. Appropriate buttons are provided based on the number of bridges included in the system.

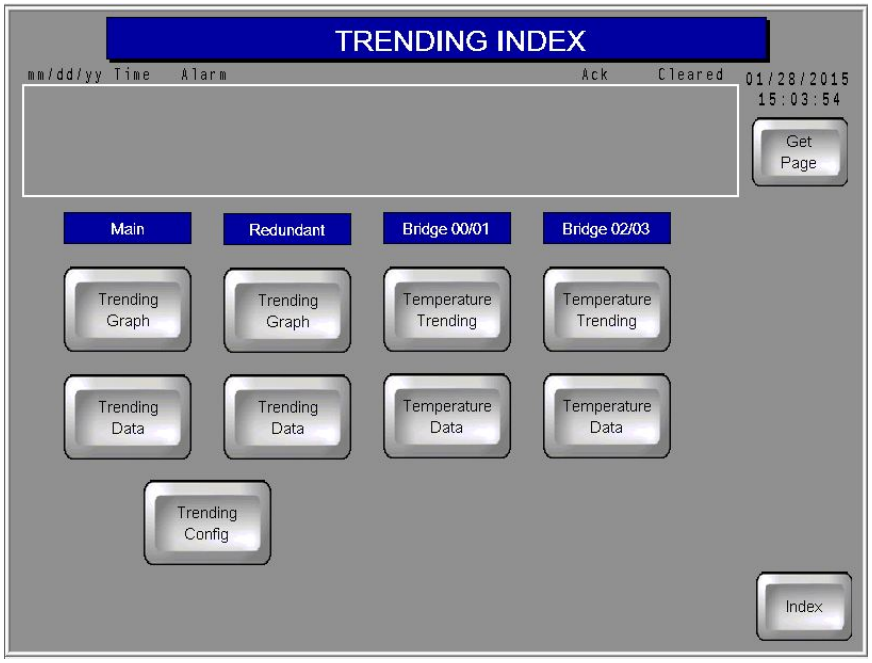


Figure 14. Trending Index Screen

Trending Config Button

Pressing this Trending Index screen button accesses the Meter Trending Configuration screen shown in Figure 15. Up to 12 control system channel parameters may be selected as part of a data list (accessed through the Trending Data buttons) or data graph (accessed through the Trending Graph buttons). A Duration button can be pressed to access a keypad where the trending length can be selected. Up to 2,400 control channel data points and 100 bridge temperature data points are maintained. A legend indicates the line colors and patterns used when parameters are graphed.

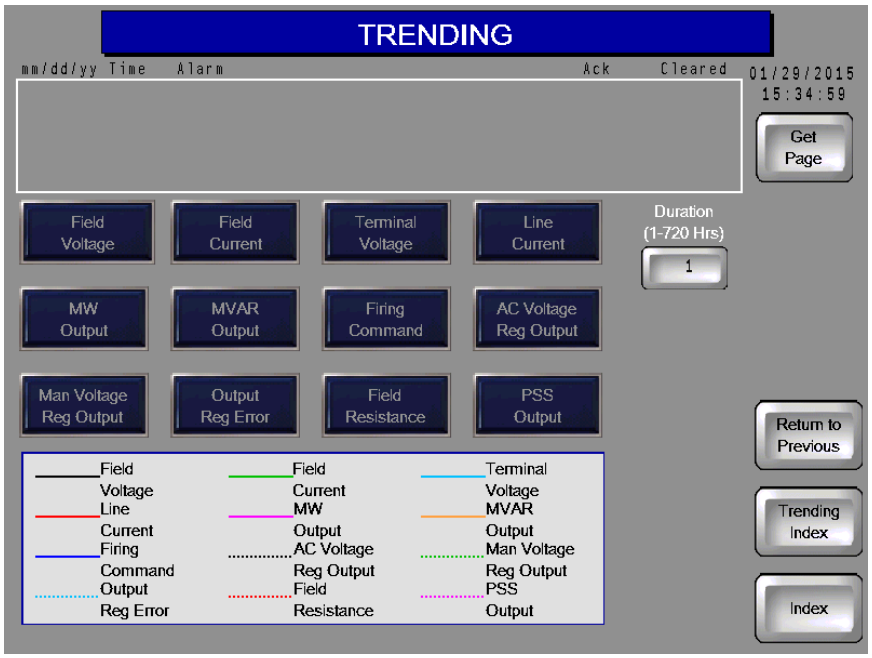
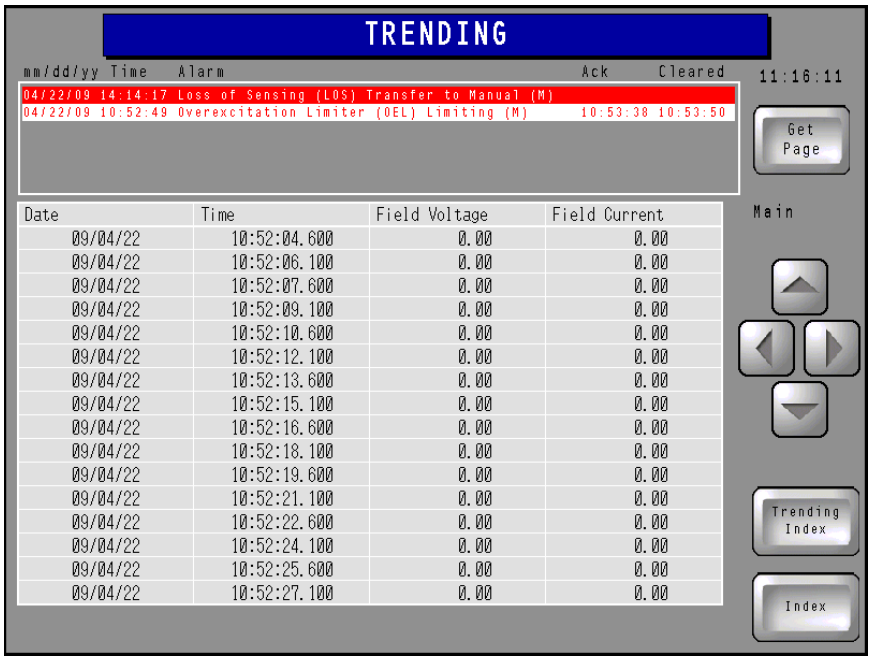


Figure 15. Meter Trending Configuration Screen

Trending Data Buttons

Pressing these Trending Index screen buttons accesses the corresponding trending page (either the Main channel trending list or the Redundant channel trending list). The Main channel trending list screen is shown in Figure 16; the Redundant channel trending list screen is identical in appearance.



Date	Time	Field Voltage	Field Current
09/04/22	10:52:04.600	0.00	0.00
09/04/22	10:52:06.100	0.00	0.00
09/04/22	10:52:07.600	0.00	0.00
09/04/22	10:52:09.100	0.00	0.00
09/04/22	10:52:10.600	0.00	0.00
09/04/22	10:52:12.100	0.00	0.00
09/04/22	10:52:13.600	0.00	0.00
09/04/22	10:52:15.100	0.00	0.00
09/04/22	10:52:16.600	0.00	0.00
09/04/22	10:52:18.100	0.00	0.00
09/04/22	10:52:19.600	0.00	0.00
09/04/22	10:52:21.100	0.00	0.00
09/04/22	10:52:22.600	0.00	0.00
09/04/22	10:52:24.100	0.00	0.00
09/04/22	10:52:25.600	0.00	0.00
09/04/22	10:52:27.100	0.00	0.00

Figure 16. Main Channel Trending Data Screen

Parameter data are listed in columns along with dates and timestamps for each row of data. Note that the date format is yy/mm/dd. The parameters displayed are selected on the Meter Trending Configuration screen. Scrolling buttons enable the user to move through the record and view the desired data points.

Trending Graph Buttons

Pressing these Trending Index screen buttons accesses the corresponding trending graph page (either the Main channel trending graph or the Redundant channel trending graph). The Main channel trending graph screen (Figure 17) is shown here; the Redundant channel trending graph screen is identical in appearance.

Figure 17. Main Channel Trending Graph Screen

Each trending graph screen has a graph window with buttons that are used to move forward and backward through the plot, zoom in and out, and reset the plot. Plotted parameters are selected on the Meter Trending Configuration screen. Pressing the Show Legend button displays a legend indicating the line colors and patterns used in the trending graph. A Copy to USB button provides the ability to export the plot data to the IDP-1200's USB port in a comma-separated-values file format.

Temperature Trending and Temperature Data Buttons

These Trending Index screen buttons are pressed to access a plot or list of temperature data for the rectifier bridges. Display and control layout of these pages are identical to that of the trending data and trending graph screens for the control system channels.

Limiters and Trips

This page (Figure 18) indicates the status of the following limiters and trip actions:

- Overexcitation (OEL)
- Volts per Hertz (HXL)
- Overvoltage (OVL)
- Instantaneous (INST)
- Minimum Excitation (MEL)
- Underexcitation (UEL)
- Loss of Sensing (LOS)
- External Initiated Lockout (86)
- Transformer Overtemperature (OTT)
- Loss of Both Cooling Fans (LBF)

Pressing the Acronym Key button displays a list of acronym definitions for the Limiters & Trips page.

Limiter/trip status is indicated by up to three columns of red (active) or black (inactive) indicators labeled M (main channel), R (redundant channel), and S (supervisory channel). The meaning of a red indicator depends upon the column it is located in. Indication categories (columns) are Timing, Timed Out, Limit, Redundant, Manual, and Trip.

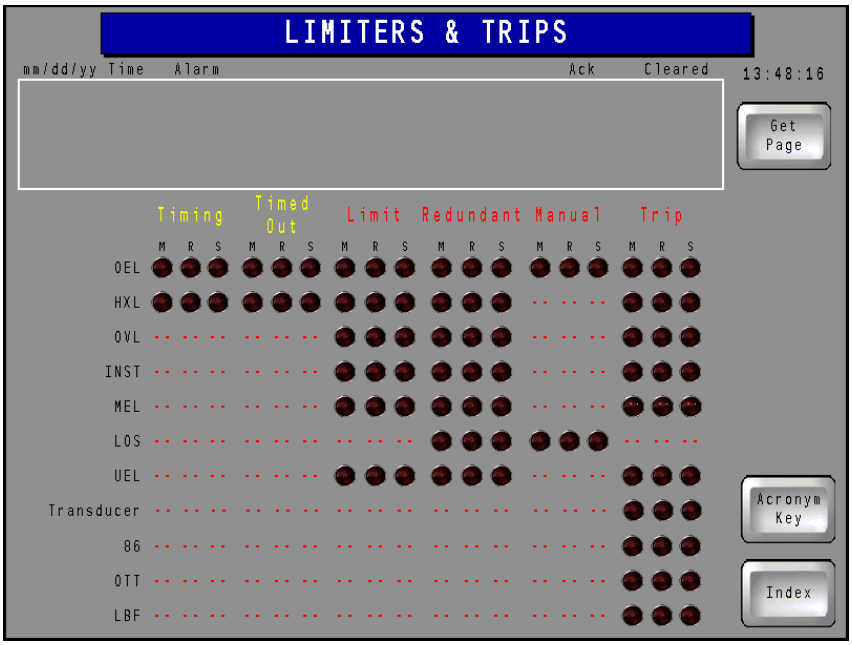


Figure 18. Limiters and Trips Screen

Alarm Status

The Alarm Status screen (Figure 19) lists control system parameters, conditions, and modules along with their alarm status. Alarm status is displayed by three columns of indicators that are either black (no alarm) or red (alarm). Depending upon the features of the control system, each parameter has up to three alarm indicators labeled M (main channel), R (redundant channel), and S (supervisory channel). An active alarm is annunciated by a red indicator and is listed in the alarms banner along the top of the page. More information about how alarms are displayed is provided in the description for the Alarms/Faults screen.

Navigation to the Index, Bridge Status, and Transfer Control screen is available through buttons located in the lower, right portion of the Alarm Status screen.

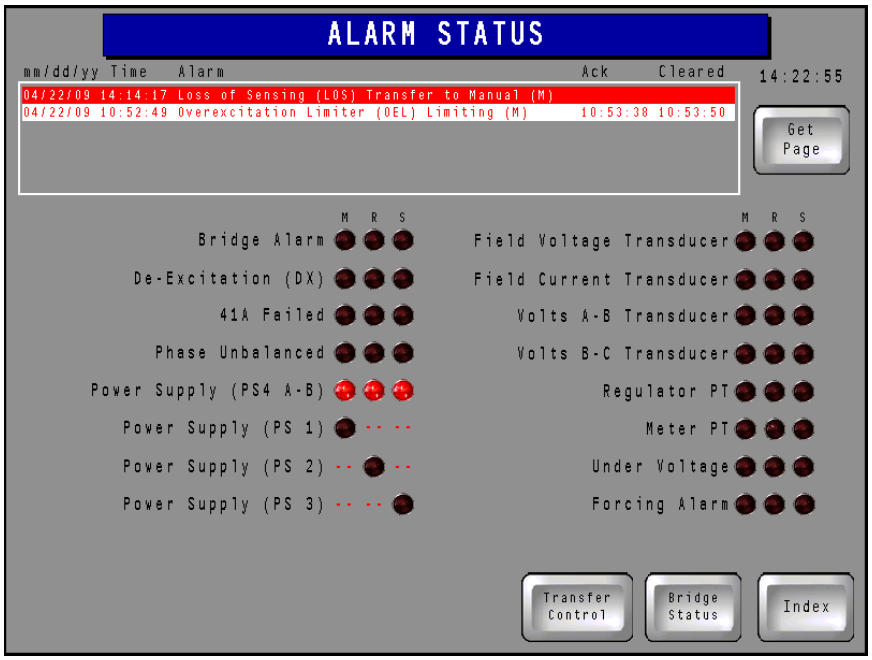


Figure 19. Alarm Status Screen

Active Alarms/Faults

This screen (Figure 20) lists only alarms that are active. Scrolling buttons along the right side of the list enable the user to navigate through the list of alarms. Individual alarms can be acknowledged by selecting the alarm and then pressing the Acknowledge Selected button. All alarms in the list can be acknowledged simultaneously by pressing the Acknowledge All button. The History button provides access to the Alarms/Faults History screen.

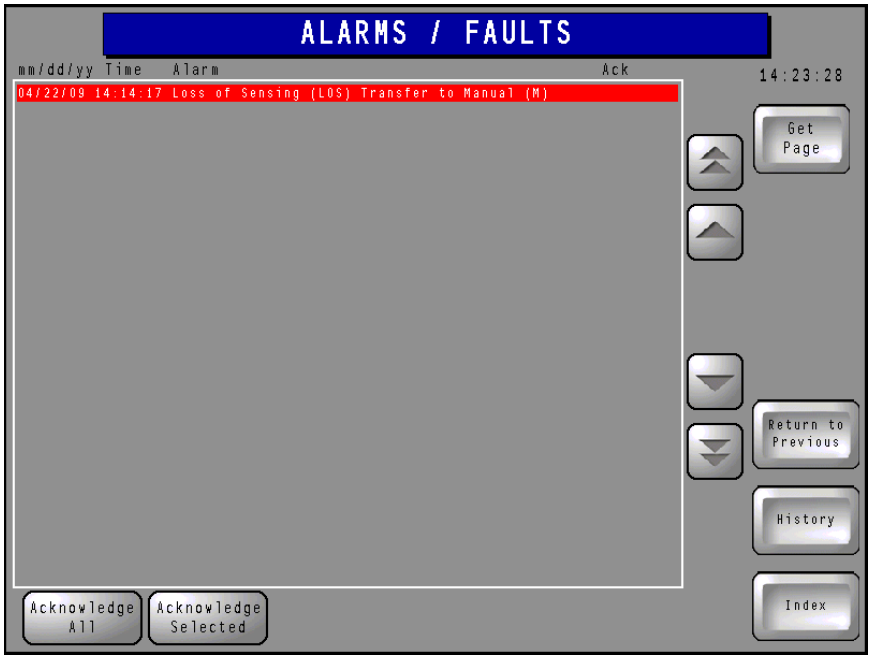


Figure 20. Active Alarms/Faults Screen

Alarms/Faults History

This screen (Figure 21) lists all active, acknowledged, and cleared alarms. Active alarms are displayed as white text on a red background. Alarms that have been acknowledged (but not cleared) are displayed as yellow text on a black background. Cleared alarms are displayed as red text on a white background. Scrolling buttons along the right side of the list enable the user to navigate through the list of alarms. Individual alarms can be acknowledged or cleared by selecting the alarm and then pressing the Acknowledge Selected or Clear Selected button. All alarms in the list can be simultaneously acknowledged or cleared by pressing the Acknowledge All or Clear All button. A Copy to USB button provides the ability to export the plot data to the IDP-1200's USB port in a comma-separated-values file format. The History button provides access to the Active Alarms/Faults screen.

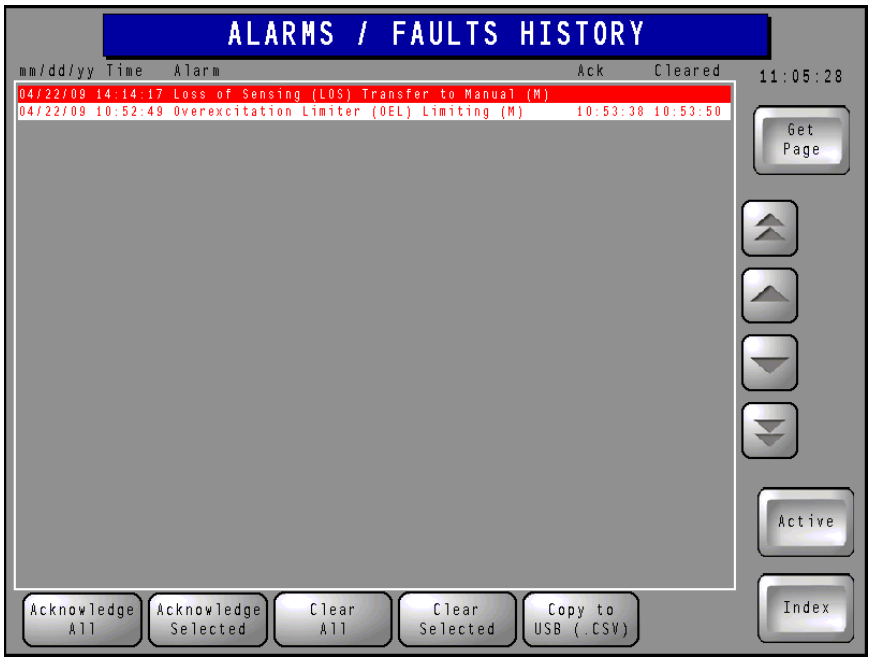


Figure 21. Alarms/Faults History Screen

Bridge Status

The Bridge Status screen (Figure 22) displays alarm conditions associated with the excitation system power converters. This screen indicates the status of up to two power converters; a system with more than two power converters will have more than one Bridge Status screen.

Alarm indications are provided for open input fuses, open or non-conducting SCRs, open or shorted RTDs, and cooling failures.

A Reset FCIM Alarms button can be used to reset any alarms associated with the Field Control Interface Module.

The Return Bridge From Maint button must be pressed when an out-of-service power converter is ready to be returned to service.

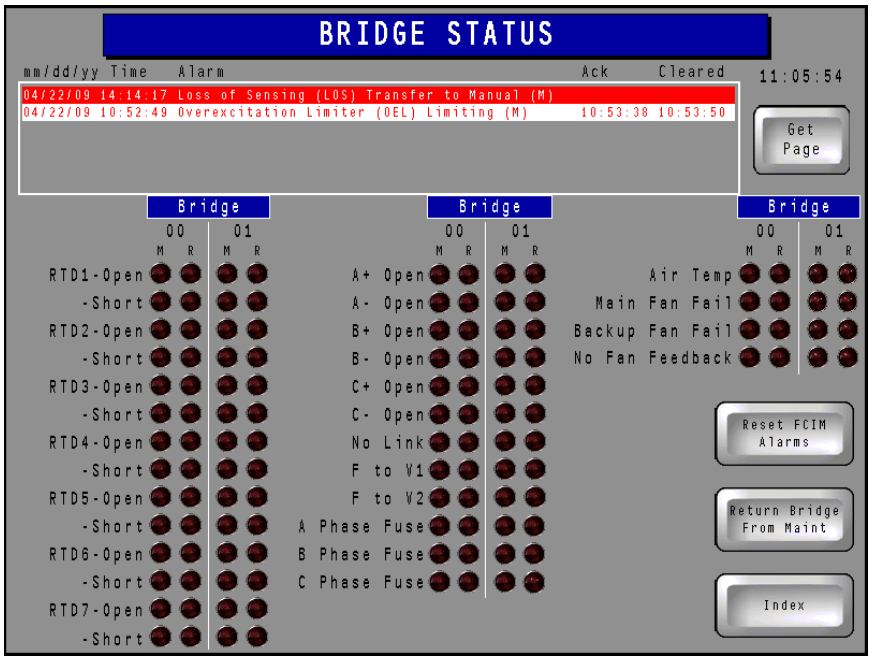


Figure 22. Bridge Status Screen

Fan Control and Temperature Monitor

This screen (Figure 23) displays a table of temperature data for the excitation system rectifier bridges. Heat sink temperature data is listed for each SCR. The ambient air temperature surrounding the bridge is also listed.

Buttons at the right side of the page enable the user to override the cooling fan logic and manually select which fans operate.

Indicators display the operating status of the rectifier bridge cooling fans.

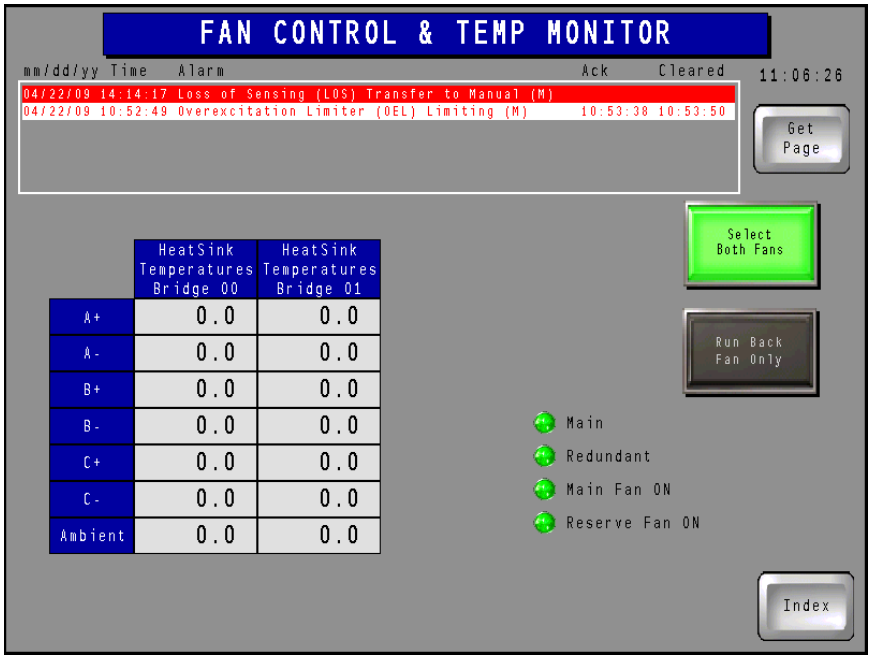


Figure 23. Fan Control and Temperature Monitor Screen

Transfer Control

This screen (Figure 24) is used to transfer control from one control system channel to another.

When transferring control system channel control, observe the following:

- The IDP-1200 being used must be in control.
- You must know whether the IDP-1200 being used is Local or Remote (as displayed on the Local/Remote indicator). Note that the IDP-1200 located on the control system equipment enclosure is considered as the Local IDP-1200. An IDP-1200 at any other location is considered to be a Remote IDP-1200.
- Level 1 password access is required (through use of the Log In button).
- The redundant channel tracks the output of the main channel and displays the percent difference (error) between the outputs of the redundant and main channels.

To transfer control system channel control:

1. Ensure that the Enable Transfer indicator shows “Panel Transfer Enabled”. This is achieved by pressing the Enable Transfer button.
2. Press the Transfer indicator button and select the desired channel.

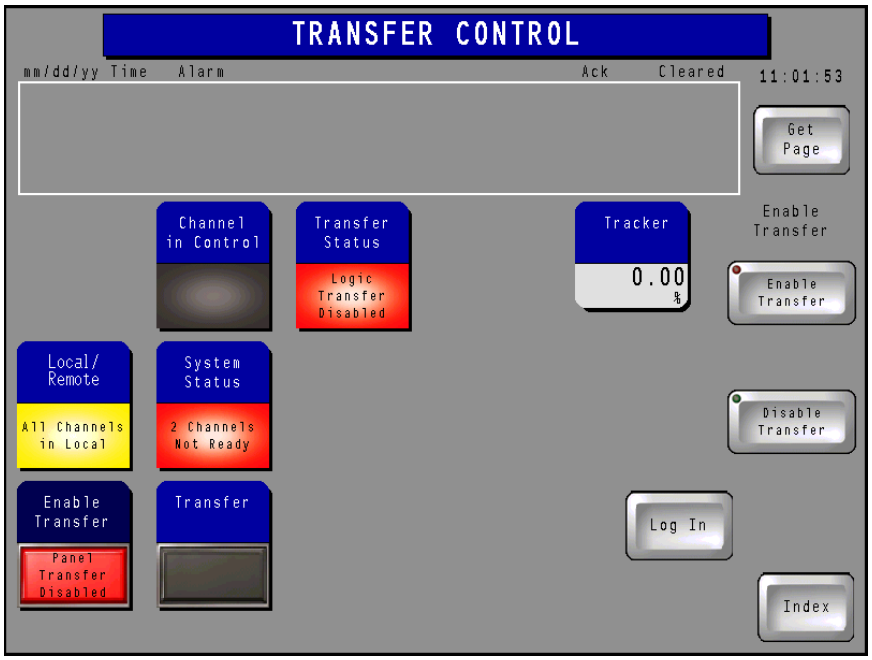


Figure 24. Transfer Control Screen

Power System Stabilizer

This page (Figure 25) displays power system stabilizer operating status and enables/disables PSS operation. PSS metering indications for each control system channel are displayed. The PSS output for the active channel is displayed adjacent to the Channel in Control indicator.

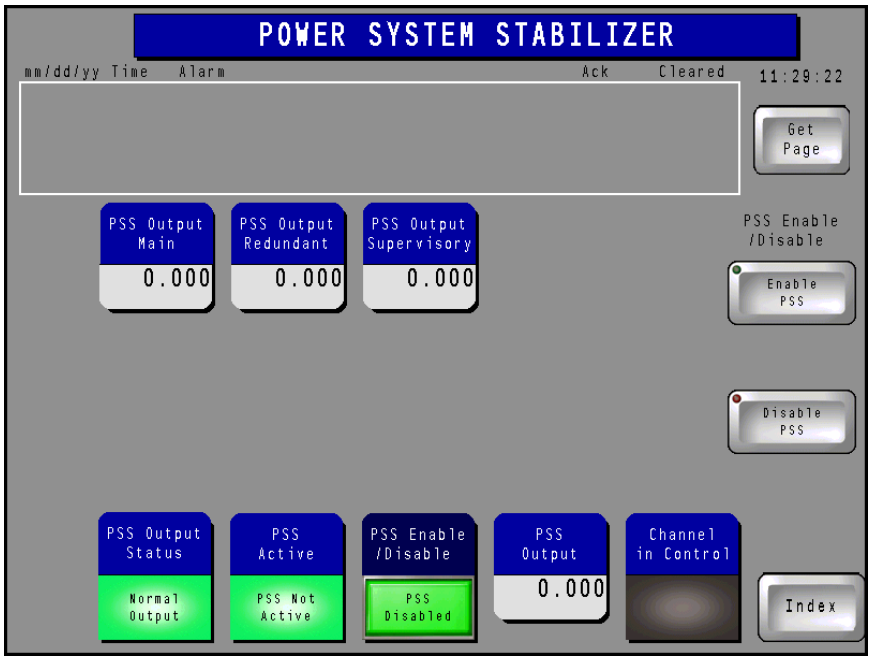


Figure 25. Power System Stabilizer Screen

Field Ground

This is an indications-only screen (Figure 26) that displays the field-to-ground resistance and calculated field temperature as measured/calculated by each channel. If the level of the field-to-ground resistance is detected as less than system variable FLDGND_RMIN, an alarm condition exists and is displayed in the Field Ground indicator(s).

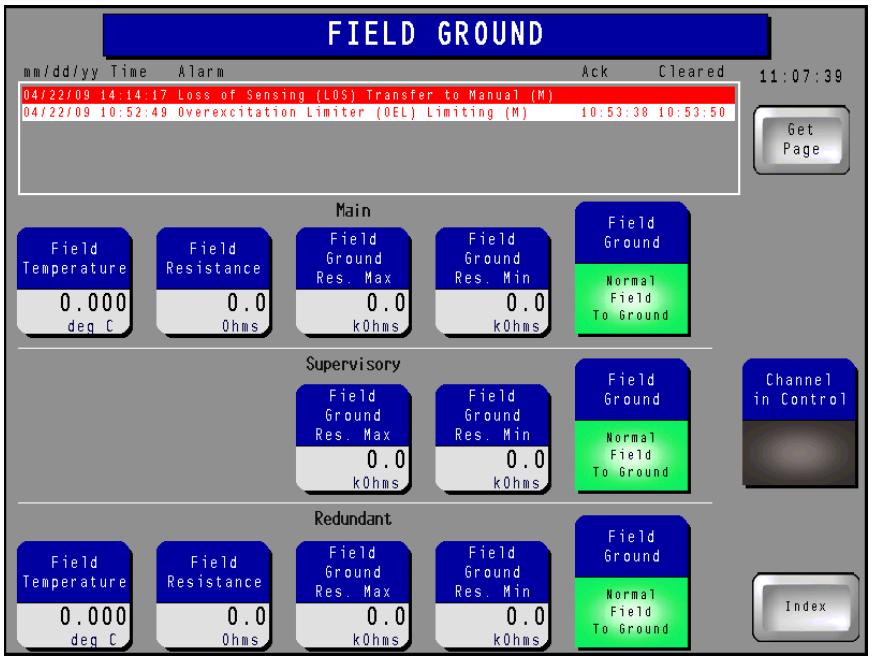


Figure 26. Field Ground Screen

Var

This screen (Figure 27) is available only on systems equipped with var control.

Control of reactive power is enabled and disabled by the VAR Control button. When this button is pressed, Enable and Disable buttons will appear and enable the user to turn control of vars on and off.

Var balance is adjusted by pressing the VAR Adjuster button. When the button is pressed, Raise and Lower buttons will appear and enable the user to raise and lower the level of reactive power.

The 70BC-CS Manual button can be used to raise or lower the balance or manual reference. When the button is pressed, Raise and Lower buttons will appear and enable the user to raise and lower the voltage while operating in Manual mode.

Similarly, the 90DV-CS Auto button can be used to raise or lower the voltage while operating in Auto mode.

Generator and excitation system values are displayed and controls are provided for control of the ac (41A) breaker.

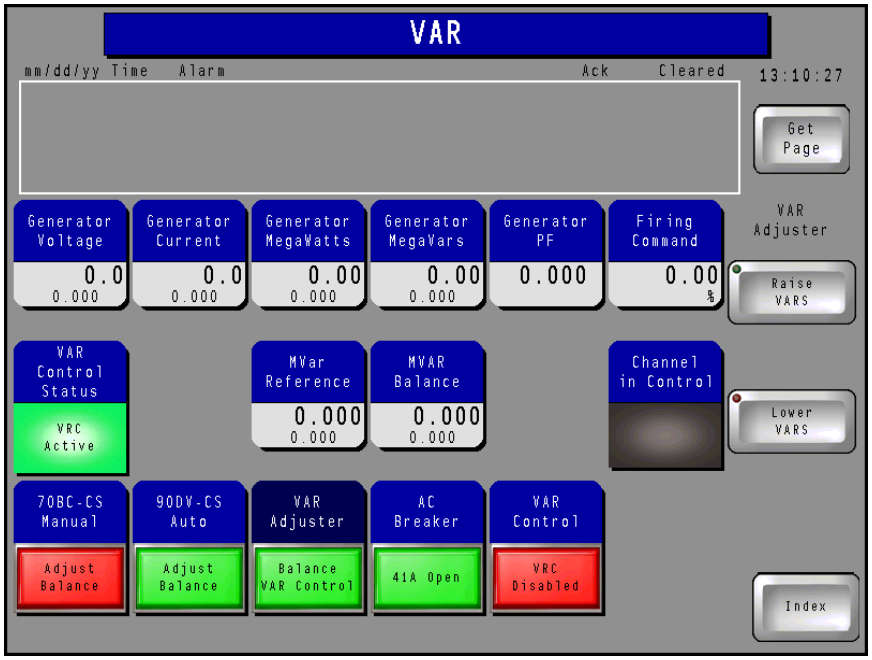


Figure 27. Var Screen

Output Control

This screen (Figure 28) provides system control, status indication, and metering of generator and excitation system parameters.

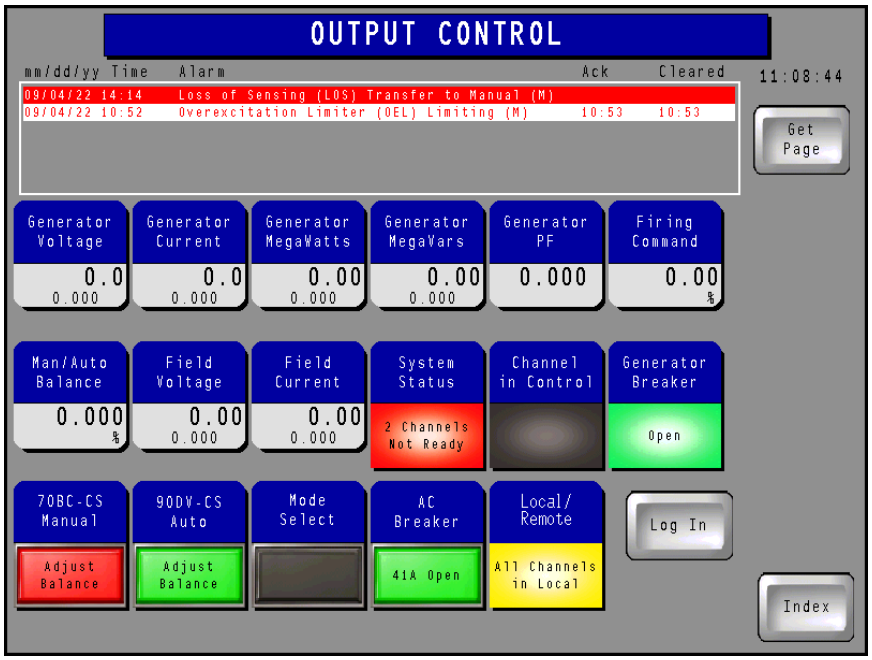


Figure 28. Output Control Screen

Controls

Controls include opening and closing of the ac (41A) breaker, selection of auto- or manual-mode regulation, and adjustment of the generator voltage in Manual or Auto mode.

Control of the 41A breaker is provided through the AC Breaker button. When this button is pressed, Trip and Close buttons will appear and enable the user to open and close the ac breaker.

Selection of auto- or manual-mode regulation is provided through the Mode Select button. When this button is pressed, Put Reg in Auto and Put Reg in Manual buttons will appear and enable the user to select either auto or manual regulation.

The 70BC-CS Manual button can be used to raise or lower the balance or manual reference. When the button is pressed, Raise and Lower buttons will appear and enable the user to raise and lower the voltage while operating in Manual mode.

Similarly, the 90DV-CS Auto button can be used to raise or lower the voltage while operating in Auto mode.

Status Indicators

The System Status indicator displays the readiness of the control system channels.

The Channel in Control indicator displays which of the control system channels is actively controlling the excitation level.

The Generator Breaker indicator displays whether the generator breaker is open or closed.

The Local/Remote indicator displays the local/remote control status of all control system channels. When logged in with the Log In button and the proper password, this indicator is converted to a control button that can be used to select either local or remote control. When pressed, Local Control and Remote Control buttons appear and enable the user to select the operating mode. During proper operation, the control mode of all channels should match. That is, all channels should be under local control or all channels should be under remote control.

Metering

Metering indications are provided for generator voltage, current, watts, vars, and power factor. Metering indications are also provided for field voltage and current, the SCR firing command percentage, and

manual/auto setpoint balance. Metering indications with two values display the actual reading in the upper row of numbers and the per-unit (PU) value in the lower row of numbers.

Generator Simulation

This screen (Figure 29) gives the user the ability to test a group of settings offline. Controls are provided for enabling and disabling generator simulation (Simulation Enable), raising and lowering the Auto setpoint (Raise/Lower Volts), raising and lowering the output power (Turbine Control), toggling between Auto and Manual modes (Mode Select), and tripping and closing the 41A breaker (AC Breaker). Metering indicators are provided for common generator and excitation system parameters.

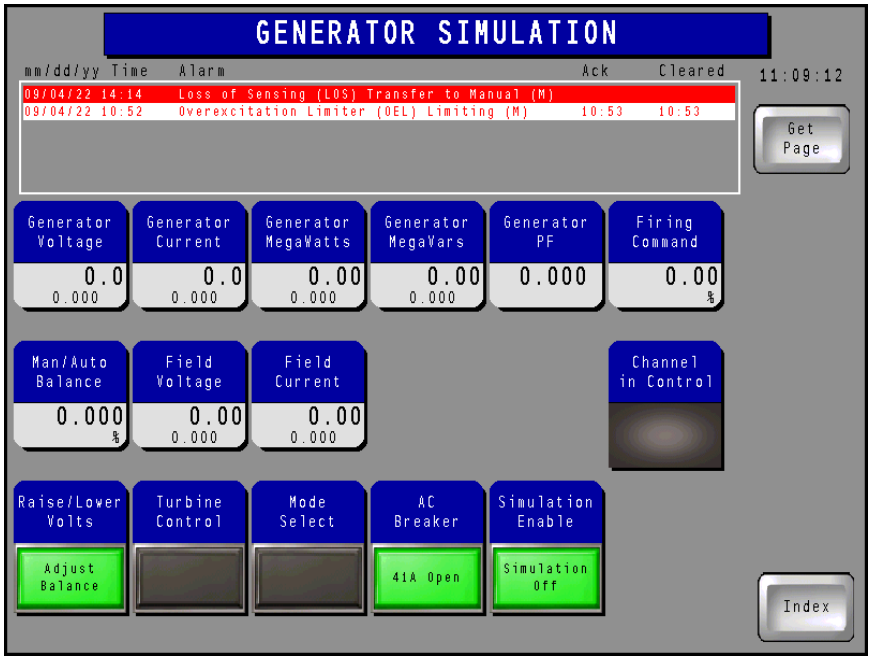


Figure 29. Generator Simulation Screen

Generator Monitor

The Generator Monitor screen (Figure 30) graphically illustrates excitation system and generator status. Excitation system indicators are provided for ac breaker and PSS status and field voltage and current levels. Generator voltage, current, watts, vars, and power factor are also displayed.

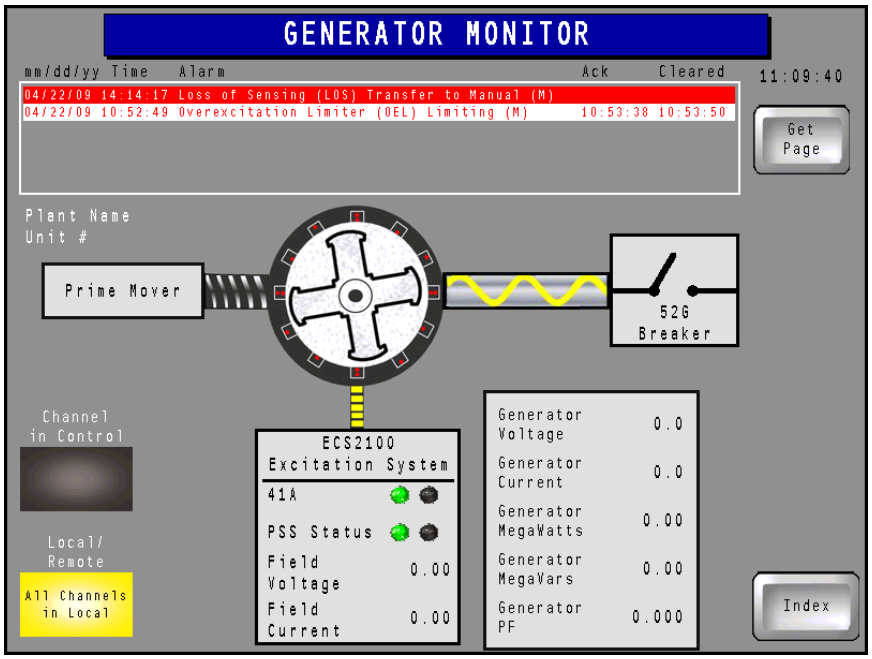


Figure 30. Generator Monitor Screen

Voltage Match

The Voltage Match screen (Figure 31) toggles voltage matching on and off (Voltage Match Enable control) and monitors voltage matching progress through generator and line voltage metering values. A Voltage Match indicator annunciates when the generator voltage level matches the level of line voltage.

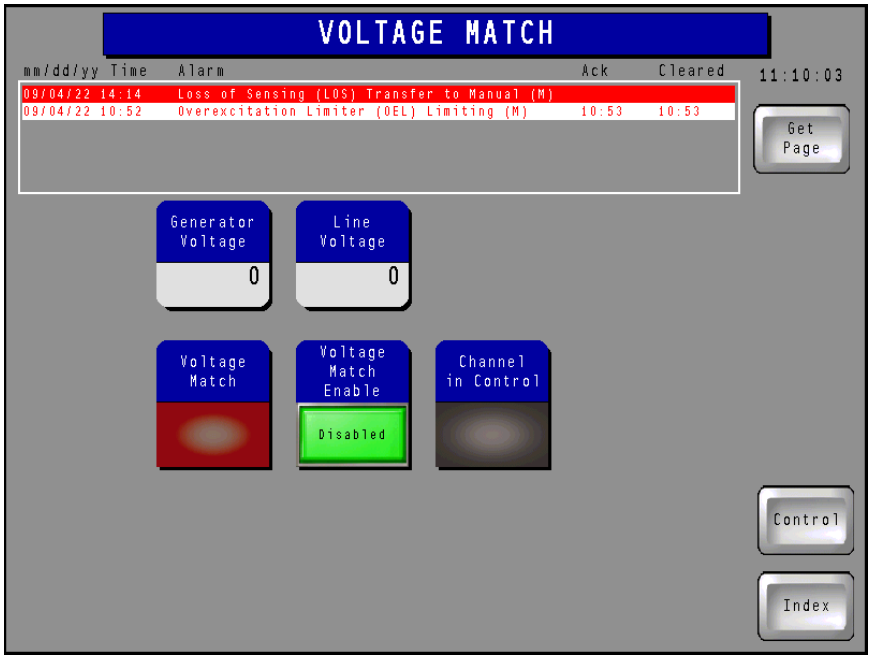


Figure 31. Voltage Match Screen

Capability Curves

This screen displays the generator minimum excitation limit (MEL) capability curve in per- unit values and is superimposed on the actual excitation values. The horizontal capability curve screen is shown in Figure 32. A vertical curve is also available. For proper display of plotted values, the version of control system firmware, resident in the Excitation Control Module (ECM) must be selected on the Capability Curve Configuration screen. This screen is accessed by pressing the Configure button.

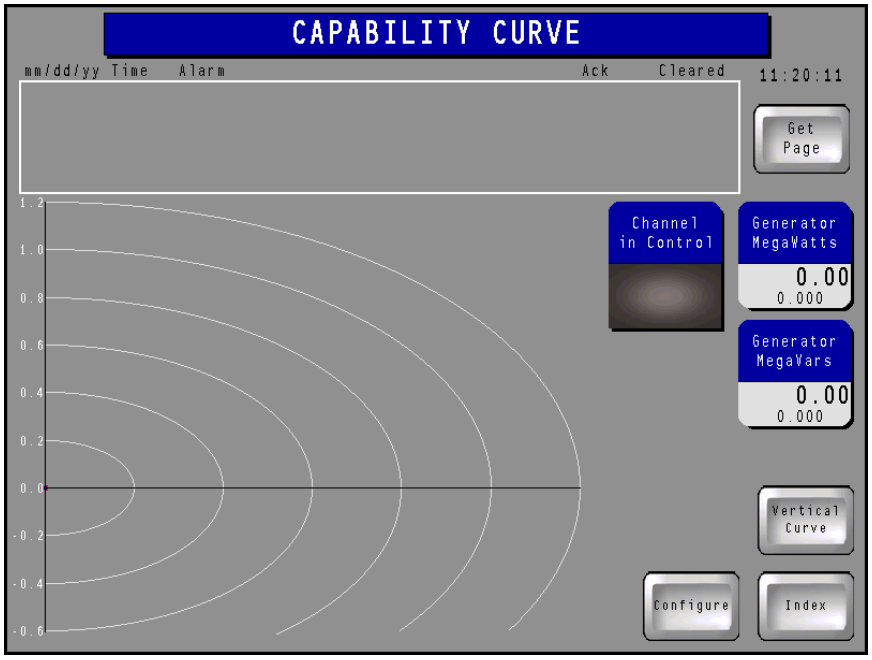


Figure 32. Capability Curve Screen

Task Guide

Table 3 lists common tasks along with the IDP-1200 pages that provide the controls for performing the tasks.

Table 3. Tasks and Screens Cross-Reference

Task	Screen
Close ac breaker	Control
Flash the field	N/A, field is flashed automatically when ac field breaker is closed.
Place regulator in Auto or Manual mode	Control
Raise or lower voltage	Control Var
Change the controlling channel	Transfer Control
Change Local/Remote control	Control
View alarms	Any page
Acknowledge alarms	Alarm/Fault – Active Alarm/Fault – History

Password Settings

The default, level 2 password is “4321”. Use the following procedure to change the security password. A USB flash drive is required to change the password.

1. Create a CSV (comma-separated values) file named “Security.csv” that has its content structured as shown in Table 4. Place the new password where “New” is shown in the table. Passwords are case sensitive and have a maximum length of eight alphanumeric characters. It is not necessary to enter a password for levels 3 through 14. The default level 15 password is “12345” and should not be changed.
2. Insert the USB flash drive into any available USB port on your PC.
3. Use normal Windows® techniques to create a root directory on the flash drive named “Security”.
4. Copy the CSV file created in Step 1 inside the “Security” directory on the flash drive.
5. Insert the USB flash drive into one of the USB ports on the side of the IDP-1200.
6. Press the **Index** button on any IDP-1200 page.
7. Press the **Setup** button on the *General Index* page.
8. Press the **Login** button at the bottom of the page.
9. Enter the default security password (4321).
10. Press the **Change Passwords** button located on the right side of the page.
11. If successful, the unit will display “Password change successful” to the left of the *Change Passwords* button.
12. If the unit displays “Password file not found”, verify that the CSV file is valid, named correctly, and located in the proper directory on the flash drive.

Table 4. Security.csv File Structure

Mode	PS
Level	Password
1	New
2	New
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	12345

Updating IDP-1200 Configuration Files from Basler Electric

Use the following procedure to upload an IDP-1200 settings/software file provided by Basler Electric.

1. Copy the configuration file (*.cml) onto a USB flash drive in the root directory.
2. Open the *IDP Loader* folder and copy the /prj001 folder and boot.cfg file onto the USB flash drive in the root directory.

3. Insert the drive into one of the USB ports on the side of the IDP-1200
4. Press the Index button on any IDP-1200 page to access the General Index page.
5. Tap in the upper, left corner of the page and, within one second, tap in the lower right corner of the page. If done correctly, a menu should appear at the bottom of the page.
6. Press the CF/USB button at the bottom of the page.
7. Press the USB_Starting button at the bottom of the page.
8. Tap on the language box in the center of the page and select the desired language.
9. Press the Download (USB=>Display) button located to the right of the page center.
10. Select the configuration file (*.cml) file from the file list.
11. Tap on the password box in the center of the page and enter the appropriate password. (The default password is “5678”. On the popup control, use the Down arrow to toggle between letters and numbers.)
12. Press the Start button located in the center of the page.
13. Press the Yes button when asked to download the data. Downloading settings from a USB flash drive to the IDP-1200 takes approximately three minutes.
14. After completion of the download, press the Back button located at the bottom of the page.
15. Press the Back button again.
16. Press the Exit button at the bottom of the page.
17. Press the Yes button when prompted to restart the system.

Updating IDP-1200 Configuration Files from Documentation CD

Configuration files are included on the documentation CD that accompanies the manual for this excitation system. If replacement of a display panel becomes necessary, the provided files enable you to program the new IDP-1200 to ensure proper functionality with your system or application.

Use the following procedure to upload an IDP-1200 configuration file provided by Basler Electric.

1. Open the *Configuration Files* folder on the documentation CD and copy the configuration file (*.cml) onto a USB flash drive in the root directory.
2. Open the *IDP Loader* folder and copy the /prj001 folder and boot.cfg file onto the USB flash drive in the root directory.
3. Insert the drive into one of the USB ports on the side of the IDP-1200.
4. Press the Index button on any IDP-1200 page to access the General Index page.
5. Tap in the upper, left corner of the page and, within one second, tap in the lower right corner of the page. If done correctly, a menu should appear at the bottom of the page.
6. Press the CF/USB button at the bottom of the page.
7. Press the USB_Starting button at the bottom of the page.
8. Tap on the language box in the center of the page and select the desired language.
9. Press the Download (USB=>Display) button located to the right of the page center.
10. Select the configuration file (*.cml) file from the file list.
11. Tap on the password box in the center of the page and enter the appropriate password. (The default password is “5678”. On the popup control, use the Down arrow to toggle between letters and numbers.)
12. Press the Start button located in the center of the page.

13. Press the Yes button when asked to download the data. Downloading settings from a USB flash drive to the IDP-1200 takes approximately three minutes.
14. After completion of the download, press the Back button located at the bottom of the page.
15. Press the Back button again.
16. Press the Exit button at the bottom of the page.
17. Press the Yes button when prompted to restart the system.

IDP-1200 Operation with DECS-2100 and DECS/RW

Control system and generator system parameters are viewed and controlled through interactive screens displayed by the IDP-1200. Screens are organized by function. Navigation between screens and control of functions are achieved by pressing buttons located on the IDP-1200 screens.

This chapter illustrates and describes IDP-1200 screen navigation and usage. The available IDP-1200 screens and their appearance will vary according to the number of control channels and rectifier bridges utilized in a particular control system.

Initial Screen

The Initial screen (Figure 33) is displayed upon power-up of the IDP-1200. The initial screen lists the version of the IDP-1200 firmware.

Figure 33. Initial Screen

Index Button

Most screens have an Index button that, when pressed, accesses the General Index screen. The General Index screen provides quick navigation to any other IDP-1200 screen.

Get Page Button and Screen

Most screens have a Get Page button that accesses the Get Page screen illustrated in Figure 34. This screen lists all screens and provides navigation to each screen. To navigate to a screen, the user scrolls through the screen description list by using the up and down scrolling buttons until the desired screen and screen number are found. The screen number is entered in a numeric keypad accessed by pressing the 86 button. (This button displays the number of the Get Page screen, which is 86.) Entering the screen number followed by the Enter (ENT) button takes the user to the requested screen. A complete list of IDP-1200 screens is provided in Table 5. Typically, your system/IDP-1200 will not have all of the equipment/screens listed here.

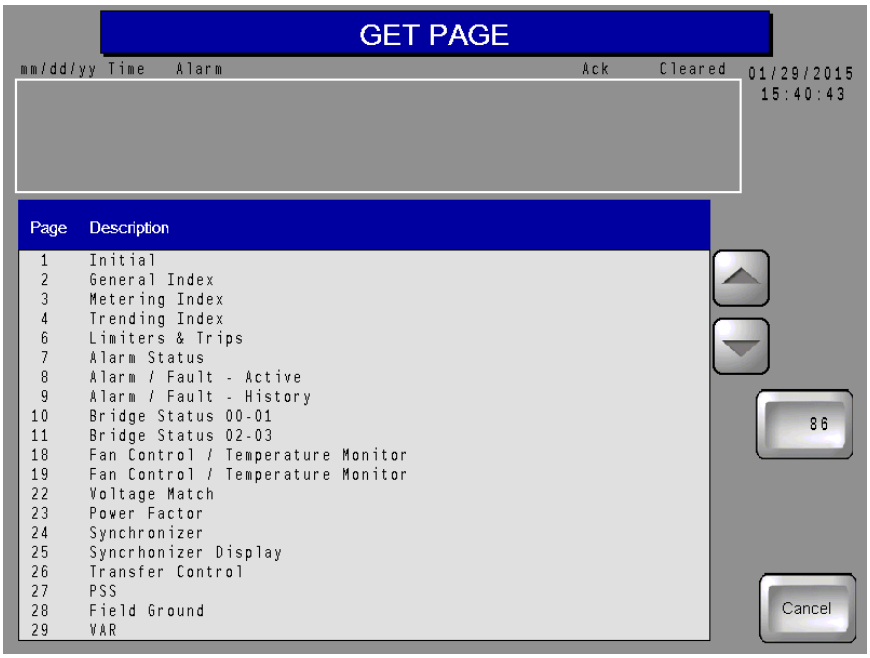


Figure 34. Get Page Screen

Table 5. IDP-1200 Screens

Page	Description
1	Initial
2	General Index
3	Metering Index
4	Trending Index
6	Limiters and Trips
7	Alarm Status
8	Alarm/Fault – Active
9	Alarm/Fault – History
10	Bridge 00, 01 Status
11	Bridge 02, 03 Status
12	Bridge 04, 05 Status
13	Bridge 06, 07 Status
14	Bridge 08, 09 Status
15	Bridge 10, 11 Status
16	Bridge 12, 13 Status
17	Bridge 14, 15 Status
18	Fan Control/Temperature Monitor
19	Fan Control/Temperature Monitor
22	Voltage Match
23	Power Factor
24	Synchronizer
25	Synchronizer Display

Page	Description
26	Transfer Control
27	Power System Stabilizer
28	Field Ground
29	Reactive Power
30	Output Control
31	Generator Simulation
32	Generator Monitor
34	Channel Comparison
35	Main Meter Panel
36	Redundant Meter Panel
38	Main Meter Panel – Analog
39	Redundant Meter Panel – Analog
41	Meter Panel – Analog Configuration
42	Generator Meter Panel – Analog
43	Generator Meter Panel – Analog Configuration
44	Meter Trending Graph – Main
45	Meter Trending Data – Main
46	Meter Trending Graph – Redundant
47	Meter Trending Data – Redundant
48	Meter Trending Configuration
49	Bridge 00 Temperature Trending Graph
50	Bridge 00 Temperature Trending Data
51	Bridge 01 Temperature Trending Graph
52	Bridge 01 Temperature Trending Data
53	Bridge 02 Temperature Trending Graph
54	Bridge 02 Temperature Trending Data
55	Bridge 03 Temperature Trending Graph
56	Bridge 03 Temperature Trending Data
57	Bridge 04 Temperature Trending Graph
58	Bridge 04 Temperature Trending Data
59	Bridge 05 Temperature Trending Graph
60	Bridge 05 Temperature Trending Data
61	Bridge 06 Temperature Trending Graph
62	Bridge 06 Temperature Trending Data
63	Bridge 07 Temperature Trending Graph
64	Bridge 07 Temperature Trending Data
65	Bridge 08 Temperature Trending Graph
66	Bridge 08 Temperature Trending Data
67	Bridge 09 Temperature Trending Graph
68	Bridge 09 Temperature Trending Data

Page	Description
69	Bridge 10 Temperature Trending Graph
70	Bridge 10 Temperature Trending Data
71	Bridge 11 Temperature Trending Graph
72	Bridge 11 Temperature Trending Data
73	Bridge 12 Temperature Trending Graph
74	Bridge 12 Temperature Trending Data
75	Bridge 13 Temperature Trending Graph
76	Bridge 13 Temperature Trending Data
77	Bridge 14 Temperature Trending Graph
78	Bridge 14 Temperature Trending Data
79	Bridge 15 Temperature Trending Graph
80	Bridge 15 Temperature Trending Data
81	Horizontal Capability Curve
82	Vertical Capability Curve
83	System Configuration
84	Cleaning Lock
85	Screen Saver
86	Get Page
88	File Manager

Alarms Banner

Most screens display an alarms banner that lists the six most recent system alarms. Each alarm is labeled with a description and the date and time of the alarm. The timestamp for acknowledgement and clearing (if applicable) of alarms is also displayed. Active alarms are displayed as white text on a red background. Acknowledged alarms are displayed as yellow text on a black background. Cleared alarms are displayed as red text on a white background.

System Configuration Screen

This screen (Figure 35) has provisions for adjusting the screen saver time delay, adjusting the display brightness, and selecting the display language.

If the IDP-1200 panel requires cleaning, the Lock for Cleaning button can be pressed to enable cleaning of the screen without inadvertently pressing buttons.

A Log In button accesses an alphanumeric keypad where the appropriate password can be entered to log in and make IDP-1200 settings changes. The IDP-1200 is delivered with a level 1 password of “1234” and a level 2 password of “4321”. The proper, level 1 password is required to select the IDP-1200 display language. The proper level 2 password is required to configure the IDP-1200 as a local or remote display or to change passwords. Instructions for changing the password are provided in *Password Settings*.

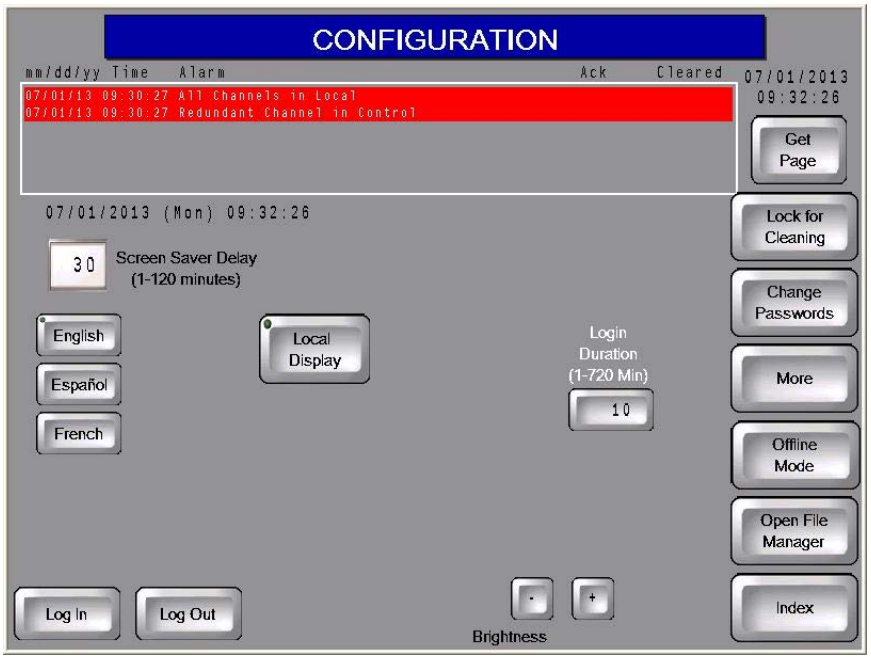


Figure 35. System Configuration Screen

File Manager

The Open File Manager button accesses the file manager which lists the files present on an inserted compact flash card and connected USB device. Files can be copied or moved from one storage device to the other or deleted. This button also accesses the file manager where you can download event records. See Figure 36.

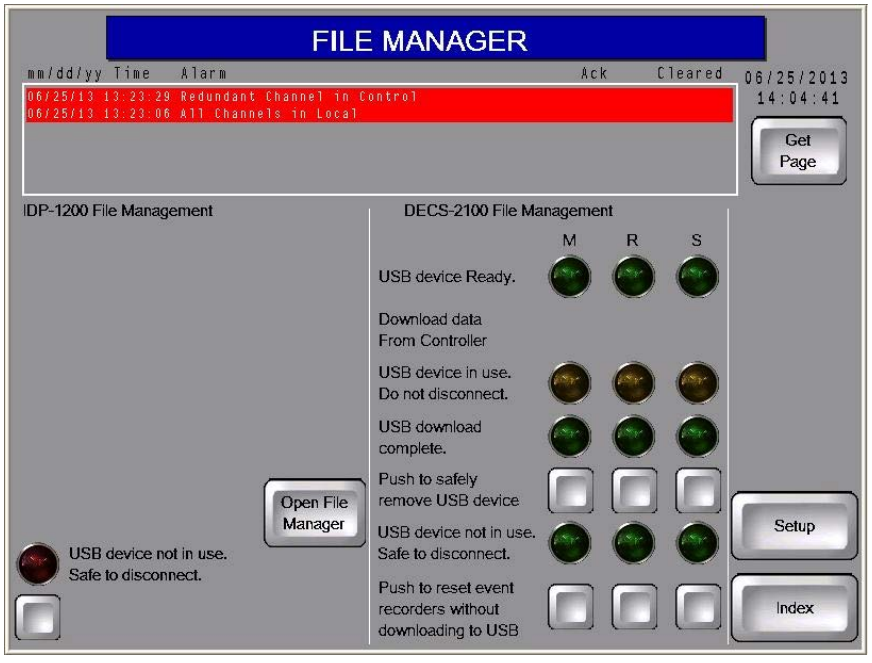


Figure 36. File Manager Screen

An indicator turns red to indicate the connection of a USB device to the IDP-1200. A button below the indicator can be pressed to de-energize the IDP-1200 USB port for safe removal of a USB device from the IDP-1200.

Downloading Event Records

The following procedure is used to download event records.

Step 1. Insert a USB drive into the USB 2 port on the front of the ECM-2 (Main).

Step 2. Using the IDP-1200, navigate to the General Index screen.

Step 3. Press Setup to enter the Configuration screen.

Step 4. On the Configuration screen, select Open File Manager.

Step 5. Verify that the M (Main) indicator next to “USB Device Ready” is illuminated.

Step 6. Press the “Download Data From Controller” button under M (Main).

Step 7. Wait until the M (Main) indicator next to “USB Download Complete” illuminates.

Step 8. Press the “Push to Safely Remove USB Device” button under M (Main).

Step 9. Wait until the M (Main) indicator next to “USB Device Not In Use.” illuminates.

Step 10. Remove the USB drive.

General Index

The General Index screen (Figure 37) is accessed by pressing the Index button, located in the lower right corner of any other IDP-1200 screen. The General Index screen provides two methods of access to other screens within the IDP-1200. Buttons on the General Index page provide quick access to 20 frequently used IDP-1200 screens.

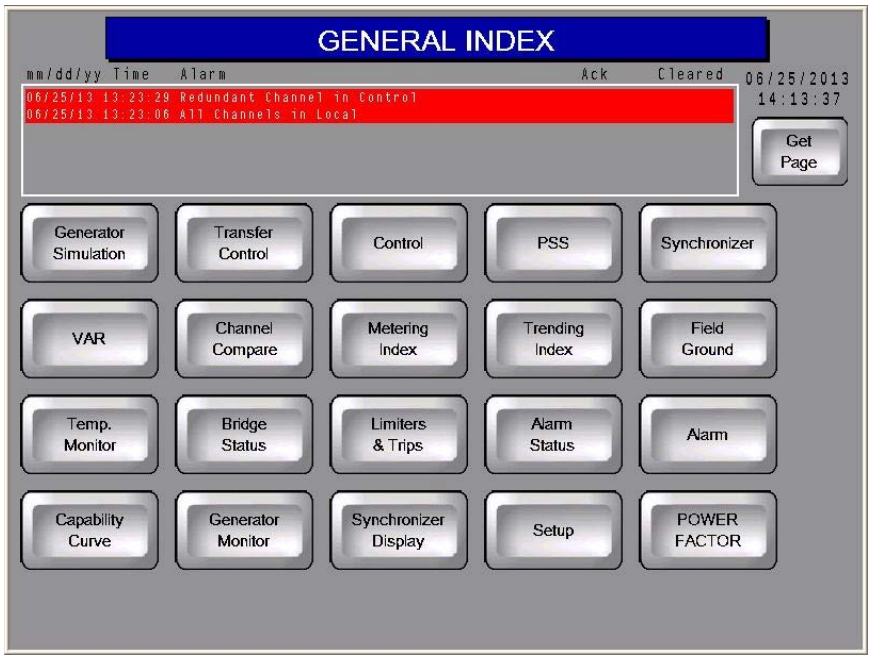


Figure 37. General Index Screen

Metering Index

Buttons on the Metering Index screen (Figure 38) are pressed to access the screens used to scale and display system metering values.

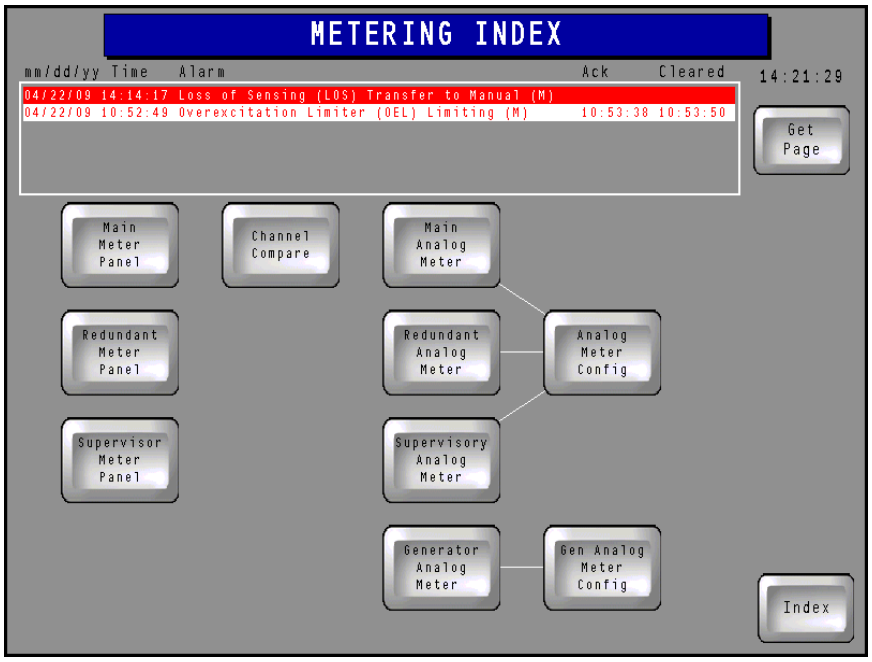


Figure 38. Metering Index Screen

Analog Meter Config Button

Pressing this Metering Index screen button accesses the Analog Meter Configuration screen (Figure 39) which sets the range of the metering values displayed on the Main, Redundant, and Supervisory Metering Panels (if so equipped). The minimum and maximum per-unit values for a metered parameter is changed by pressing the corresponding value. This displays a keypad which is then used to assign the desired metering limit. A per-unit value of –5.00 to 5.00 may be entered. Pressing the Enter (ENT) button saves the value.

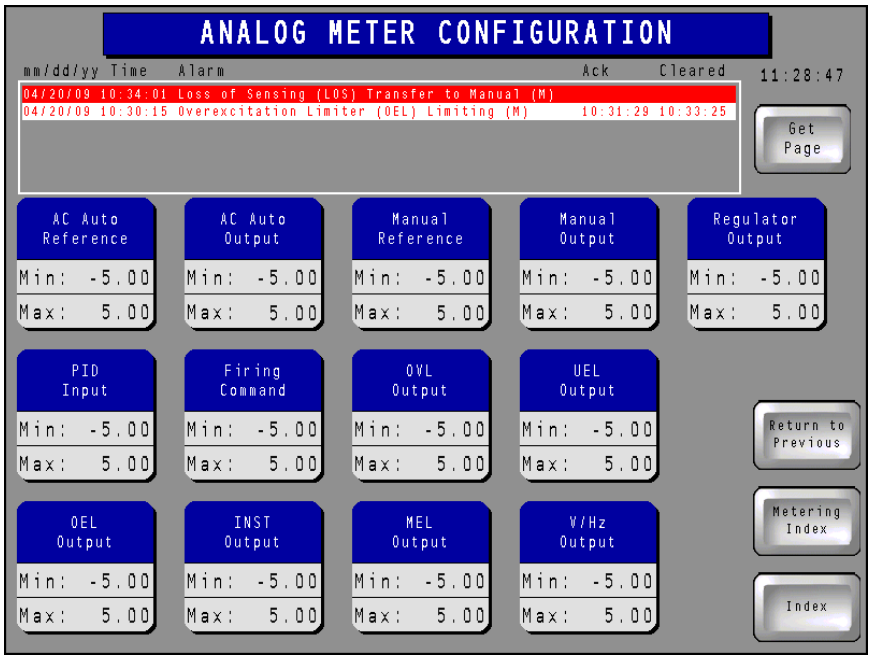


Figure 39. Analog Meter Configuration Screen

Main Analog Meter, Redundant Analog Meter, and Supervisory Analog Meter Buttons

Pressing one of these Metering Index screen buttons (if so equipped) accesses the corresponding metering page which displays the parameters illustrated in Figure 40. (Only the Main Meter Panel is shown here; the Redundant and Supervisory Meter Panels are similar.) The value of each parameter is graphically shown on an analog scale and also displayed in digital format. The minimum and maximum values established on the Analog Meter Configuration screen determine the metering ranges shown on this screen.

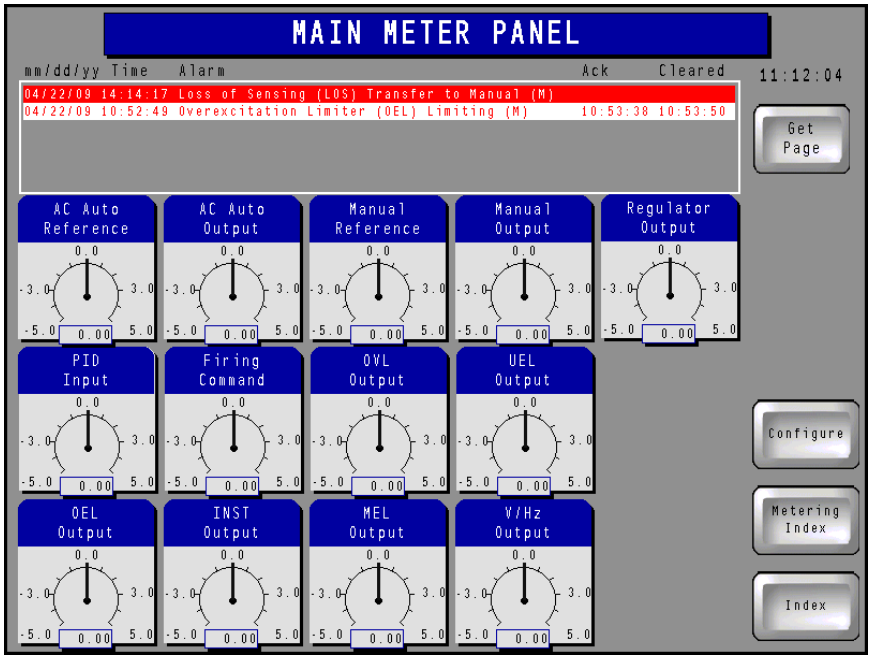


Figure 40. Main Meter Panel

Gen Analog Meter Config Button

Pressing this Metering Index screen button accesses the Generator Metering Configuration screen (Figure 41) which sets the range of the generator metering values displayed on the Generator Metering screen. The generator power factor metering range is fixed so no adjustment is provided. The minimum and maximum value for a metered parameter is changed by pressing the corresponding value. This displays a keypad which is then used to assign the desired metering limit. Pressing the Enter (ENT) button saves the value. Minimum and maximum metering parameter ranges are listed in Table 6.

Table 6. Metering Parameter Ranges

Parameter	Minimum	Maximum
Field Current	0	10000
Field Voltage	–1500	1500
Generator Current	0	30000
Generator Voltage	0	30000
Generator Megavars	–1500	1500
Generator Megawatts	0	1500

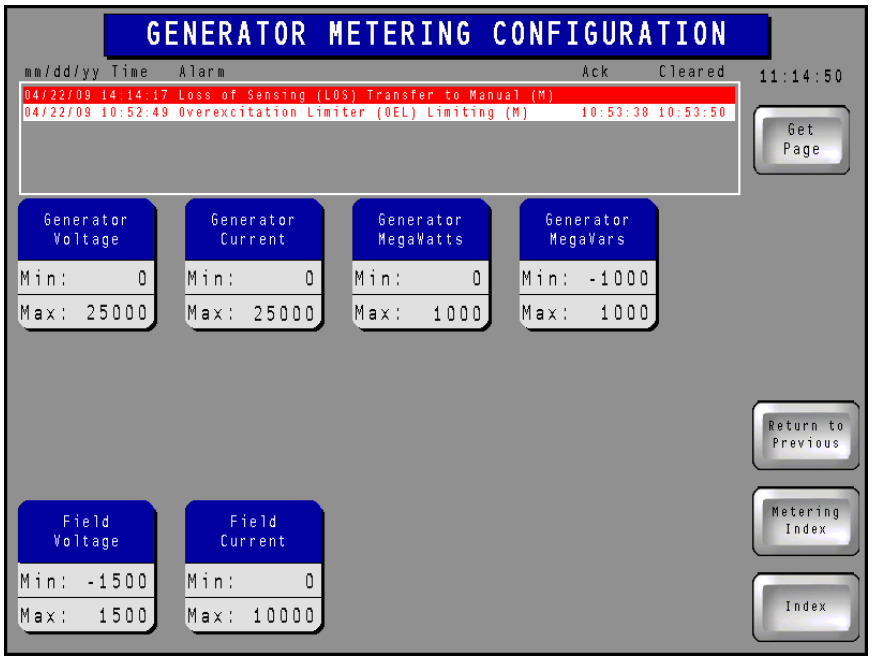


Figure 41. Generator Metering Configuration Screen

Generator Analog Meter Button

Pressing this Metering Index screen button accesses the Generator Metering screen which displays the parameters illustrated in Figure 42. The value of each parameter is graphically shown on an analog scale and also displayed in digital format. The minimum and maximum values established on the Generator Metering Configuration screen determine the metering ranges shown on this screen. The Generator Metering screen also indicates the control system channel that is controlling excitation.

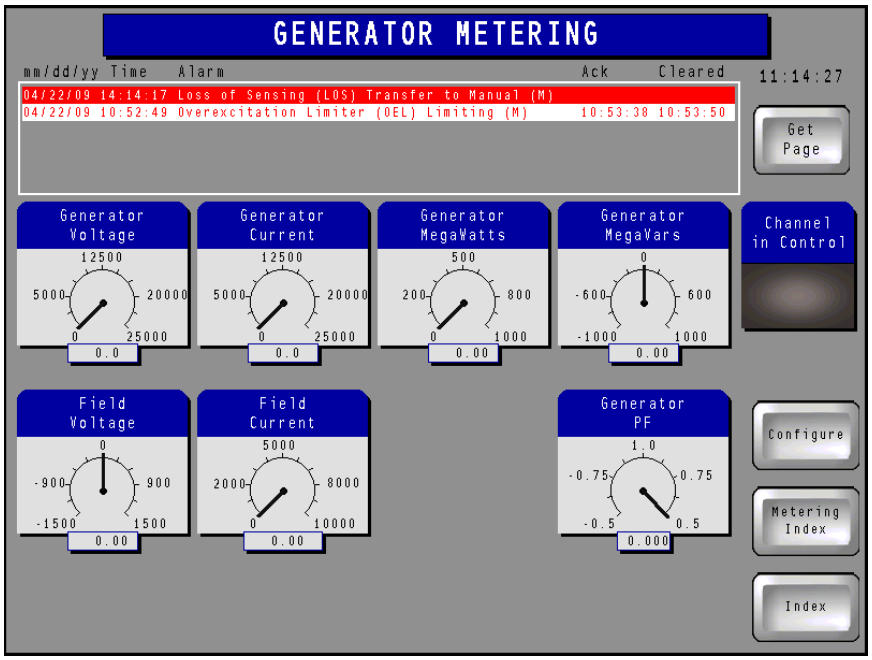


Figure 42. Generator Metering Screen

Channel Compare Button

Pressing this Metering Index screen button accesses the Channel Compare screen (Figure 43) which displays a list of parameters metered by the control system channels. Scroll buttons, located to the right

of the list, can be used to scroll up and down through the list of parameters. (A particular system may not be equipped with all of the channels shown here.) Three columns of indicators, located in the lower portion of the screen, show the status of various operating modes, functions, and devices for the three channels. The Channel in Control indicators turn green when active; all other indicators turn red when active.

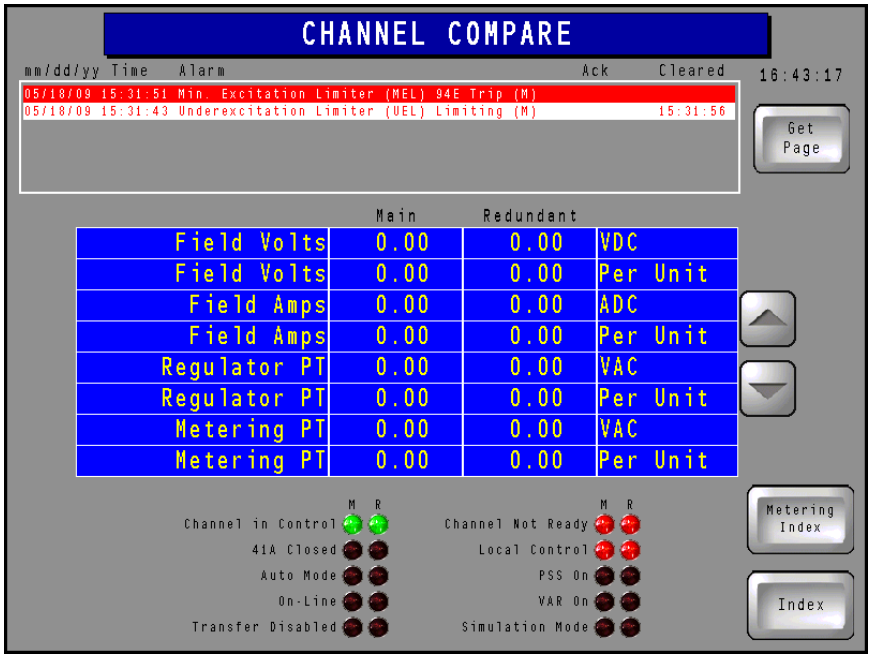


Figure 43. Channel Compare Screen

Main Meter Panel, Redundant Meter Panel, and Supervisory Meter Panel Buttons

Pressing one of these Metering Index screen buttons (if so equipped) accesses the corresponding meter panel screen which displays the digital-only version of the parameters illustrated in Figure 40. (Only the Main Meter Panel (Figure 44) is shown here; the Redundant and Supervisory Meter Panels are similar.) The minimum and maximum values established on the Analog Meter Configuration page determine the metering ranges shown on this screen.

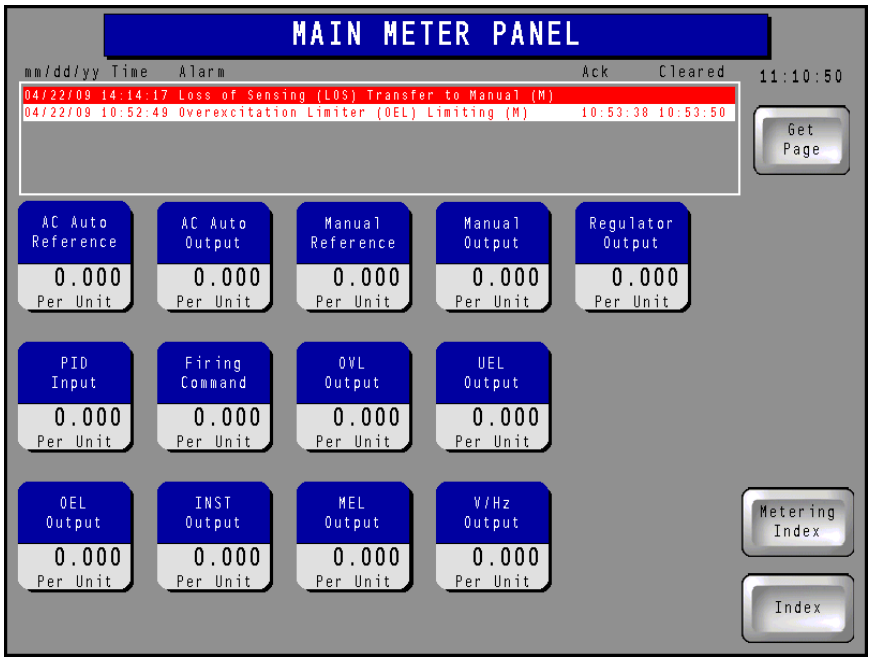


Figure 44. Main Meter Panel Screen

Trending Index

Buttons on the Trending Index screen (Figure 45) provide access to data lists and plots for user-selected control system parameters and temperature data lists and plots for the excitation system rectifier bridges. Appropriate buttons are provided based on the number of bridges included in the system.

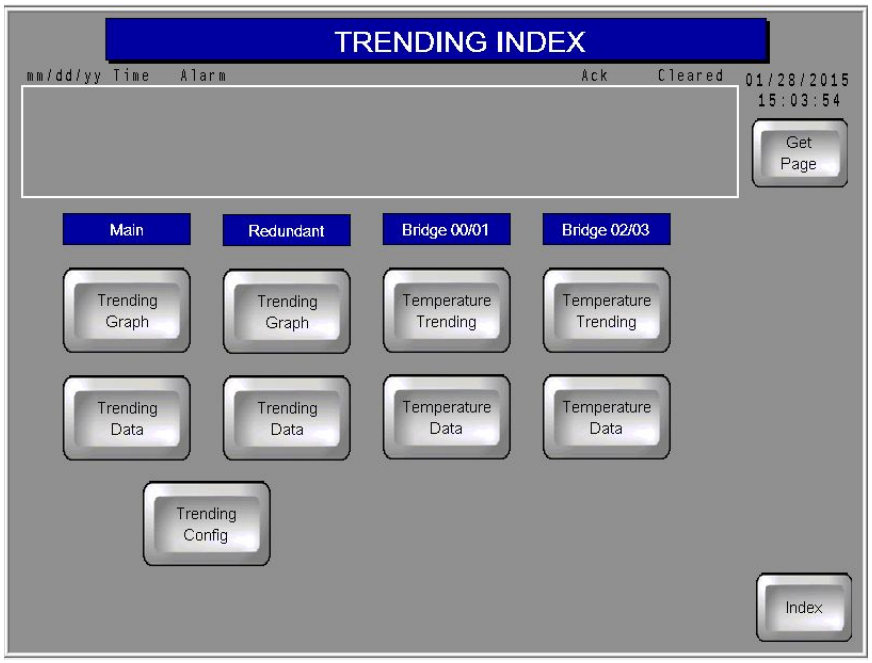


Figure 45. Trending Index Screen

Trending Config Button

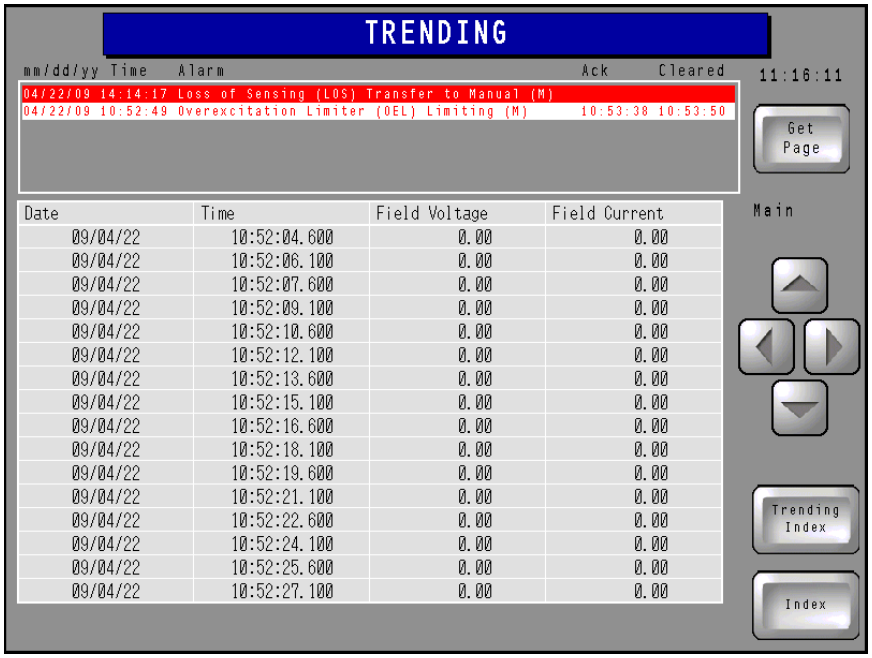
Pressing this Trending Index screen button accesses the Meter Trending Configuration screen shown in Figure 46. Up to 12 control system channel parameters may be selected as part of a data list (accessed through the Trending Data buttons) or data graph (accessed through the Trending Graph buttons). A

Duration button can be pressed to access a keypad where the trending length can be selected. Up to 2,400 control channel data points and 100 bridge temperature data points are maintained. A legend indicates the line colors and patterns used when parameters are graphed.

Figure 46. Meter Trending Configuration Screen

Trending Data Buttons

Pressing these Trending Index screen buttons accesses the corresponding trending page (either the Main channel trending list or the Redundant channel trending list). The Main channel trending list screen is shown in Figure 47; the Redundant channel trending list screen is identical in appearance.



Date	Time	Field Voltage	Field Current
09/04/22	10:52:04.600	0.00	0.00
09/04/22	10:52:06.100	0.00	0.00
09/04/22	10:52:07.600	0.00	0.00
09/04/22	10:52:09.100	0.00	0.00
09/04/22	10:52:10.600	0.00	0.00
09/04/22	10:52:12.100	0.00	0.00
09/04/22	10:52:13.600	0.00	0.00
09/04/22	10:52:15.100	0.00	0.00
09/04/22	10:52:16.600	0.00	0.00
09/04/22	10:52:18.100	0.00	0.00
09/04/22	10:52:19.600	0.00	0.00
09/04/22	10:52:21.100	0.00	0.00
09/04/22	10:52:22.600	0.00	0.00
09/04/22	10:52:24.100	0.00	0.00
09/04/22	10:52:25.600	0.00	0.00
09/04/22	10:52:27.100	0.00	0.00

Figure 47. Main Channel Trending Data Screen

Parameter data are listed in columns along with dates and timestamps for each row of data. Note that the date format is yy/mm/dd. The parameters displayed are selected on the Meter Trending Configuration screen. Scrolling buttons enable the user to move through the record and view the desired data points.

Trending Graph Buttons

Pressing these Trending Index screen buttons accesses the corresponding trending graph page (either the Main channel trending graph or the Redundant channel trending graph). The Main channel trending graph screen (Figure 48) is shown here; the Redundant channel trending graph screen is identical in appearance.

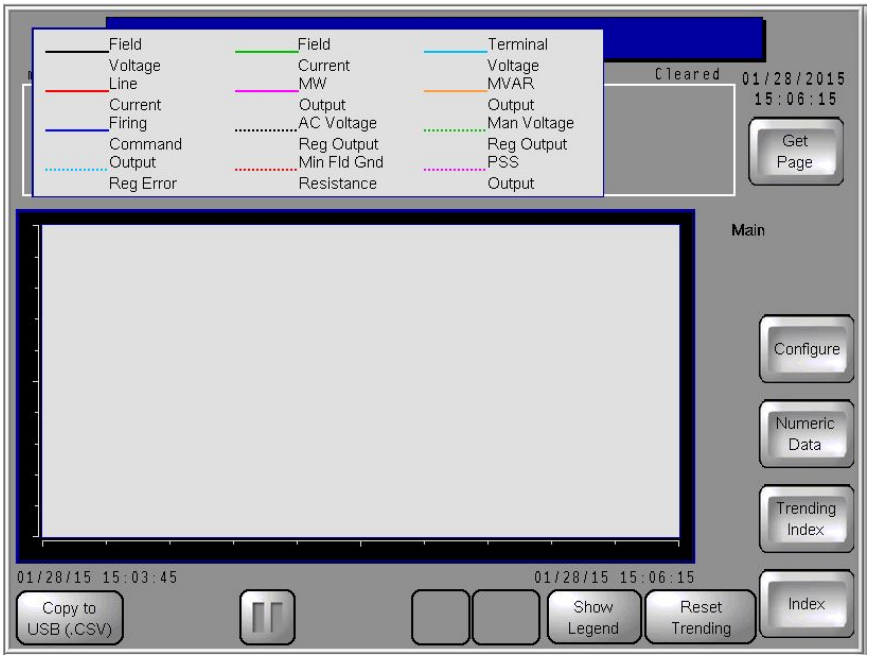


Figure 48. Main Channel Trending Graph Screen

Each trending graph screen has a graph window with buttons that are used to move forward and backward through the plot, zoom in and out, and reset the plot. Plotted parameters are selected on the Meter Trending Configuration screen. Pressing the Show Legend button displays a legend indicating the line colors and patterns used in the trending graph. A Copy to USB button provides the ability to export the plot data to the IDP-1200's USB port in a comma-separated-values file format.

Temperature Trending and Temperature Data Buttons

These Trending Index screen buttons are pressed to access a plot or list of temperature data for the rectifier bridges. Display and control layout of these pages are identical to that of the trending data and trending graph screens for the control system channels.

Limiters and Trips

This page (Figure 49) indicates the status of the following limiters and trip actions:

- Overexcitation (OEL)
- Volts per Hertz (HXL)
- Overvoltage (OVL)
- Instantaneous (INST)
- Minimum Excitation (MEL)
- Underexcitation (UEL)
- Loss of Sensing (LOS)
- External Initiated Lockout (86)
- Transformer Overtemperature (OTT)
- Loss of Both Cooling Fans (LBF)

Pressing the Acronym Key button displays a list of acronym definitions for the Limiters & Trips page.

Limiter/trip status is indicated by up to three columns of red (active) or black (inactive) indicators labeled M (main channel), R (redundant channel), and S (supervisory channel). The meaning of a red indicator depends upon the column it is located in. Indication categories (columns) are Timing, Timed Out, Limit, Redundant, Manual, and Trip.

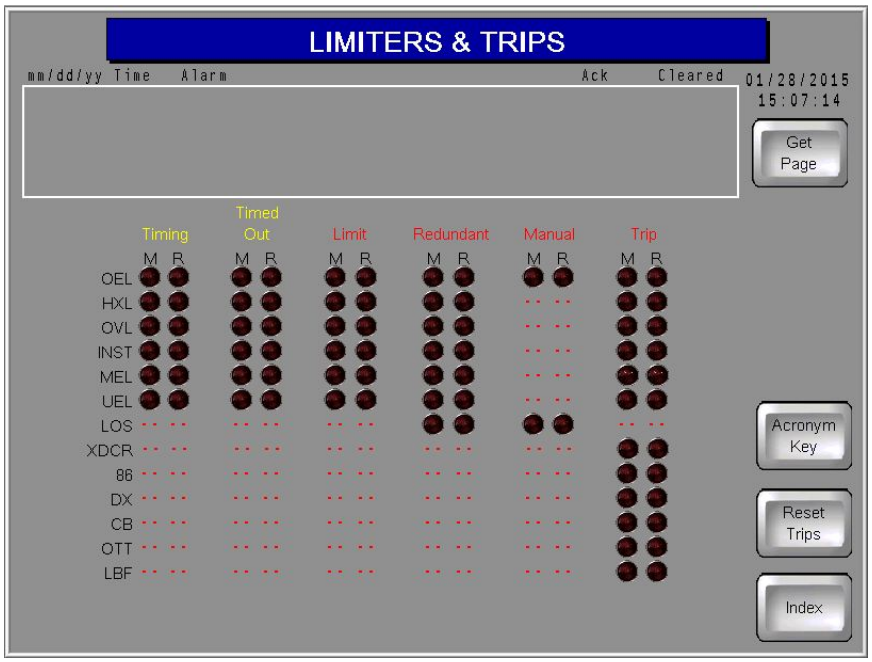


Figure 49. Limiters and Trips Screen

Alarm Status

The Alarm Status screen (Figure 50) lists control system parameters, conditions, and modules along with their alarm status. Alarm status is displayed by three columns of indicators that are either black (no alarm) or red (alarm). Depending upon the features of the control system, each parameter has up to three alarm indicators labeled M (main channel), R (redundant channel), and S (supervisory channel). An active alarm is annunciated by a red indicator and is listed in the alarms banner along the top of the page. More information about how alarms are displayed is provided in the description for the Alarms/Faults screen.

Navigation to the Index, Bridge Status, and Transfer Control screen is available through buttons located in the lower, right portion of the Alarm Status screen.

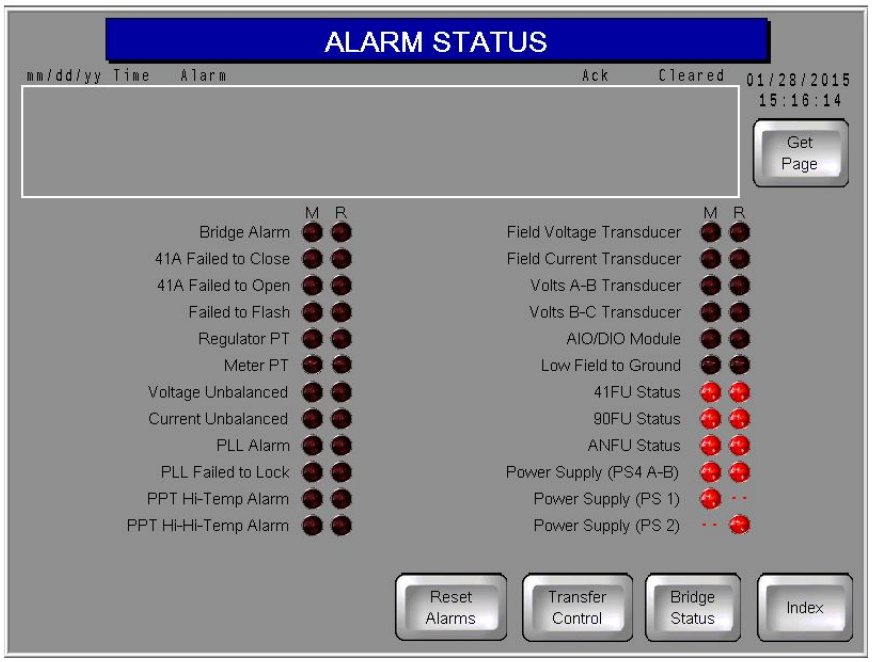


Figure 50. Alarm Status Screen

Active Alarms/Faults

This screen (Figure 51) lists only alarms that are active. Scrolling buttons along the right side of the list enable the user to navigate through the list of alarms. Individual alarms can be acknowledged by selecting the alarm and then pressing the Acknowledge Selected button. All alarms in the list can be acknowledged simultaneously by pressing the Acknowledge All button. The History button provides access to the Alarms/Faults History screen.

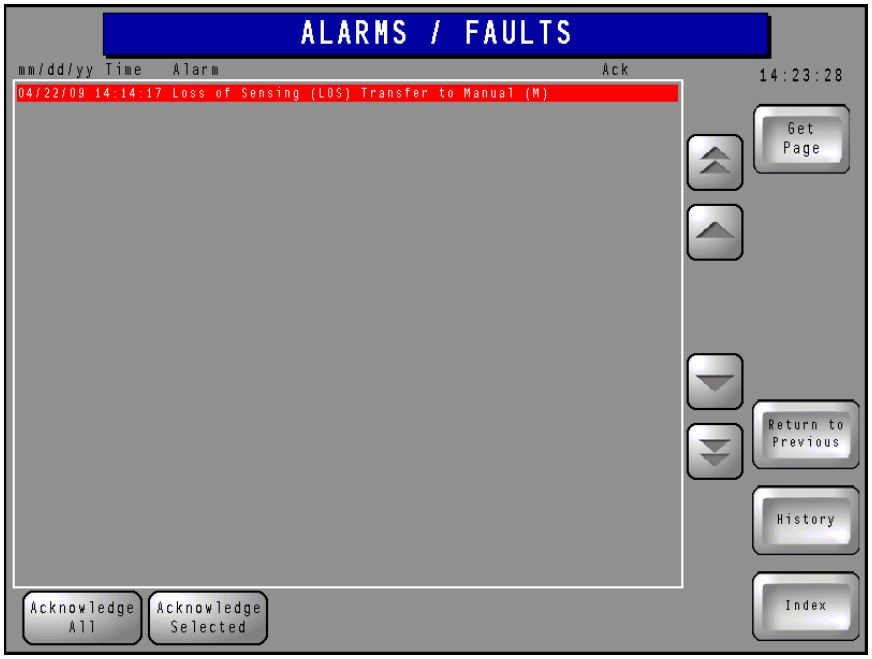


Figure 51. Active Alarms/Faults Screen

Alarms/Faults History

This screen (Figure 52) lists all active, acknowledged, and cleared alarms. Active alarms are displayed as white text on a red background. Alarms that have been acknowledged (but not cleared) are displayed as yellow text on a black background. Cleared alarms are displayed as red text on a white background. Scrolling buttons along the right side of the list enable the user to navigate through the list of alarms. Individual alarms can be acknowledged or cleared by selecting the alarm and then pressing the Acknowledge Selected or Clear Selected button. All alarms in the list can be simultaneously acknowledged or cleared by pressing the Acknowledge All or Clear All button. A Copy to USB button provides the ability to export the plot data to the IDP-1200's USB port in a comma-separated-values file format. The History button provides access to the Active Alarms/Faults screen.

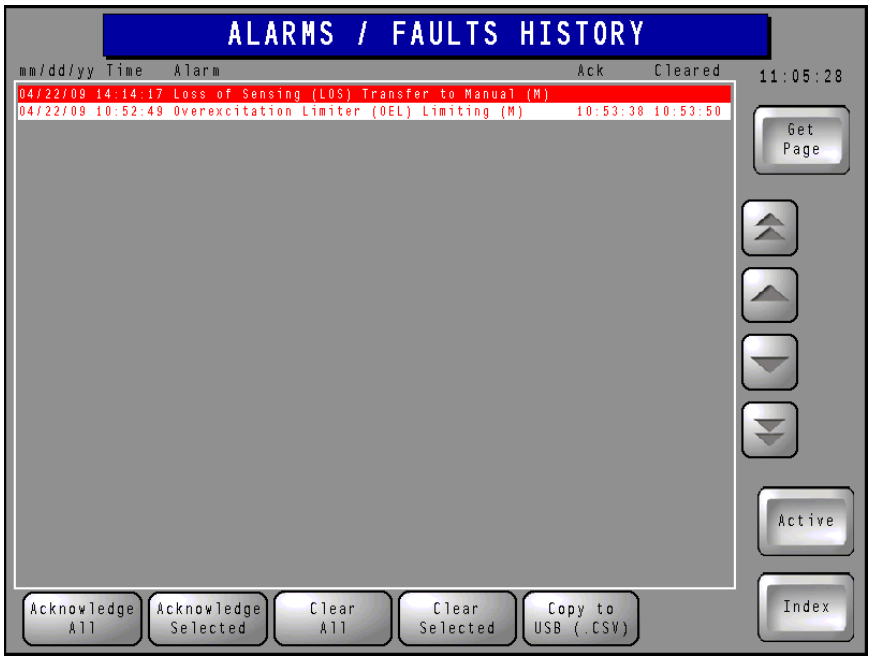


Figure 52. Alarms/Faults History Screen

Bridge Status

The Bridge Status screen (Figure 53) displays alarm conditions associated with the excitation system power converters. This screen indicates the status of up to two power converters; a system with more than two power converters will have more than one Bridge Status screen.

Alarm indications are provided for open input fuses, open or non-conducting SCRs, open or shorted RTDs, and cooling failures.

A Reset Alarms button can be used to reset any alarms associated with the Bridge Control Module.

The Return Bridge From Maint button must be pressed when an out-of-service power converter is ready to be returned to service.

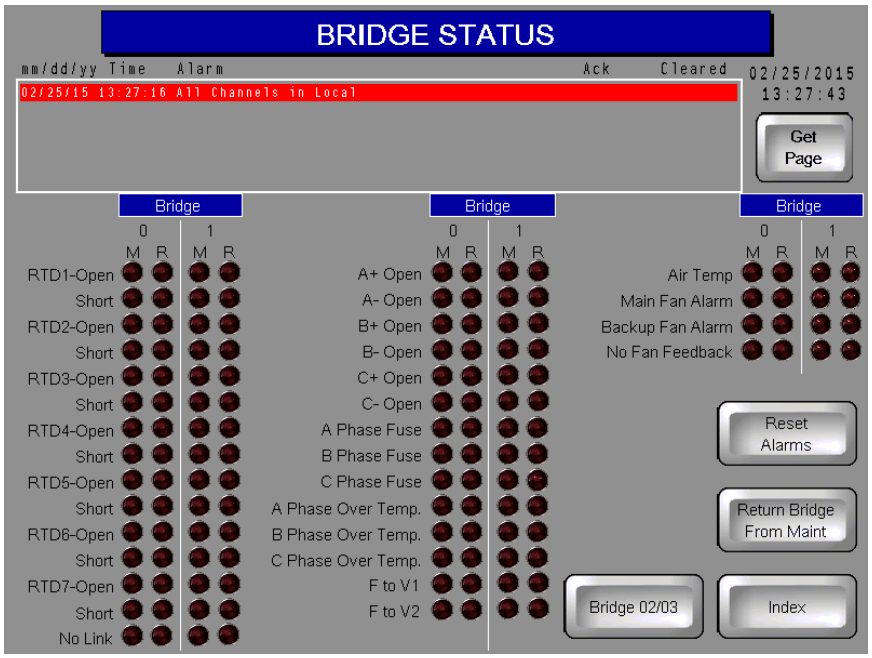


Figure 53. Bridge Status Screen

Fan Control and Temperature Monitor

This screen (Figure 54) displays a table of temperature data for the excitation system rectifier bridges. Heat sink temperature data is listed for each SCR. The ambient air temperature surrounding the bridge is also listed.

Buttons at the right side of the page enable the user to override the cooling fan logic and manually select which fans operate.

Indicators display the operating status of the rectifier bridge cooling fans.

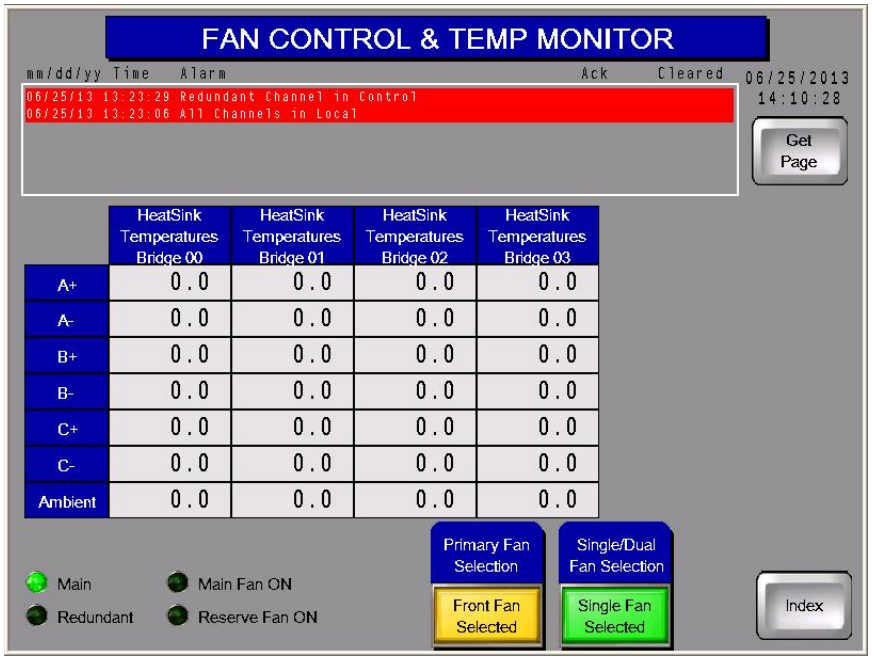


Figure 54. Fan Control and Temperature Monitor Screen

Transfer Control

This screen (Figure 55) is used to transfer control from one control system channel to another.

When transferring control system channel control, observe the following:

- The IDP-1200 being used must be in control.
- You must know whether the IDP-1200 being used is Local or Remote (as displayed on the Local/Remote indicator). Note that the IDP-1200 located on the control system equipment enclosure is considered as the Local IDP-1200. An IDP-1200 at any other location is considered to be a Remote IDP-1200.
- Level 1 password access is required (through use of the Log In button).
- The redundant channel tracks the output of the main channel and displays the percent difference (error) between the outputs of the redundant and main channels.

To transfer control system channel control:

1. Ensure that the Enable Transfer indicator shows “Panel Transfer Enabled”. This is achieved by pressing the Enable Transfer button.
2. Press the Transfer indicator button and select the desired channel.

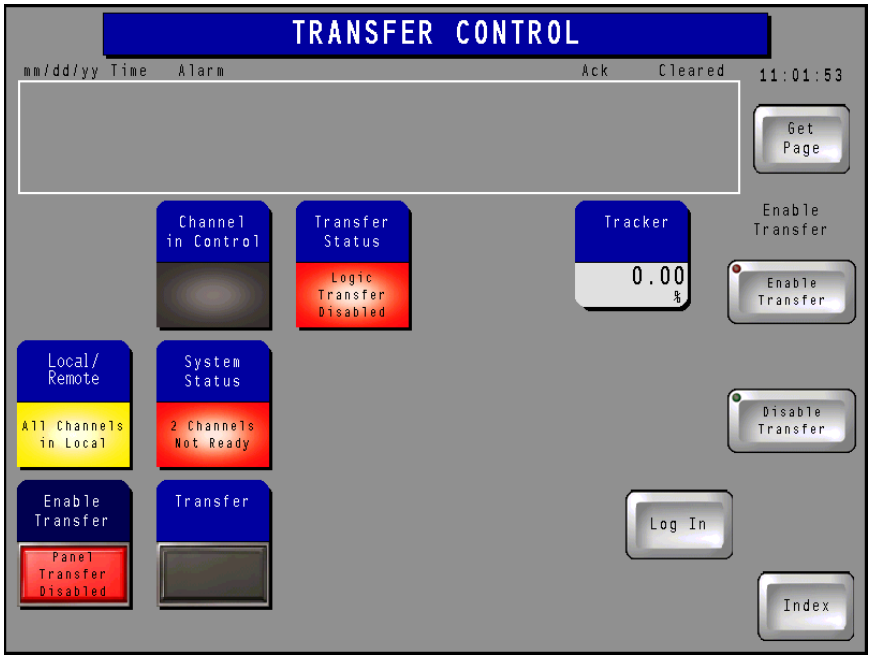


Figure 55. Transfer Control Screen

Power System Stabilizer

This page (Figure 56) displays power system stabilizer operating status and enables/disables PSS operation. PSS metering indications for each control system channel are displayed. The PSS output for the active channel is displayed adjacent to the Channel in Control indicator.

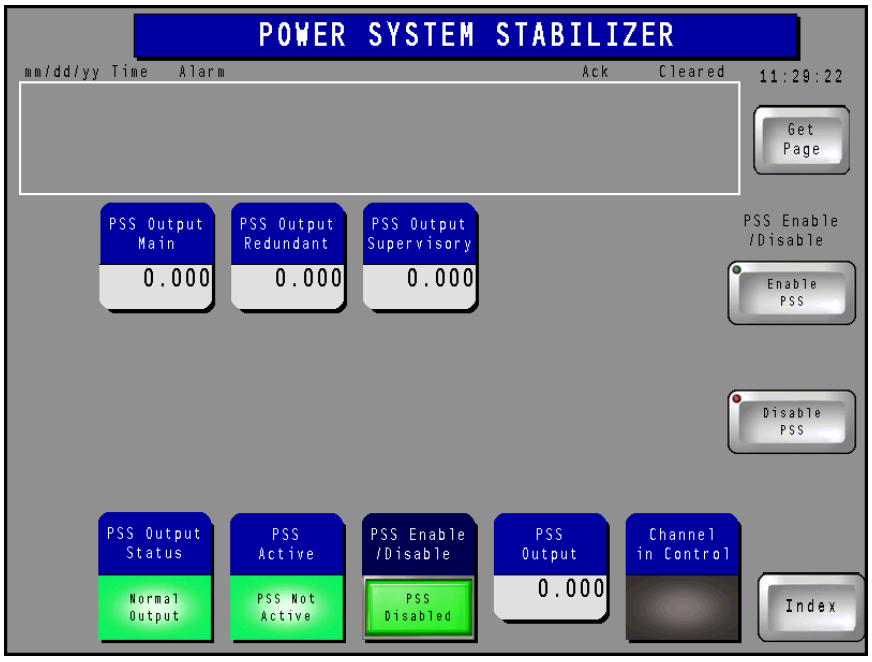


Figure 56. Power System Stabilizer Screen

Field Ground

This is an indications-only screen (Figure 57) that displays the field-to-ground resistance and calculated field temperature as measured/calculated by each channel. If the level of the field-to-ground resistance is detected as less than system variable FLDGND_RMIN, an alarm condition exists and is displayed in the Field Ground indicator(s).

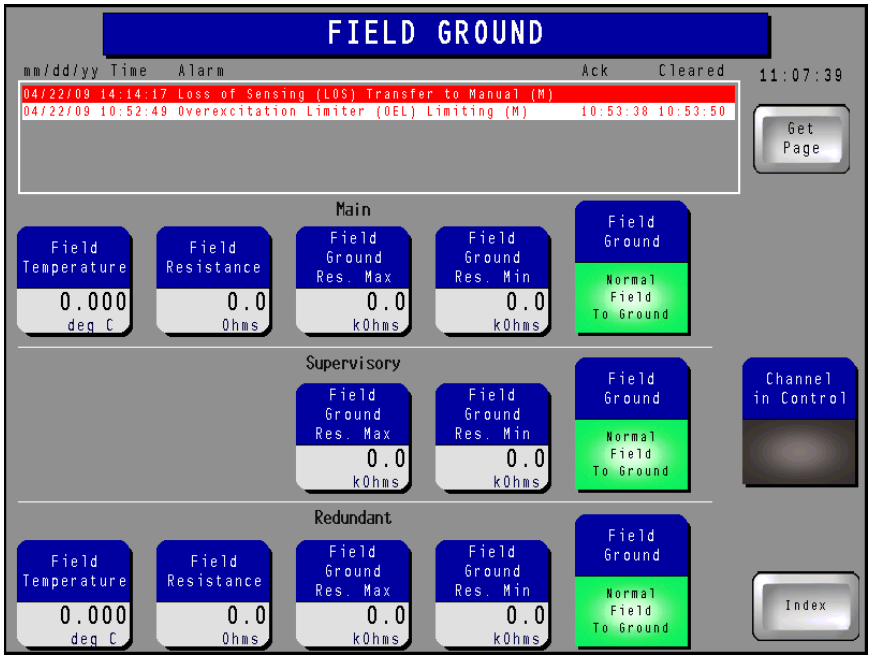


Figure 57. Field Ground Screen

Var

This screen (Figure 58) is available only on systems equipped with var control.

Control of reactive power is enabled and disabled by the VAR Control button. When this button is pressed, Enable and Disable buttons will appear and enable the user to turn control of vars on and off.

Var balance is adjusted by pressing the VAR Adjuster button. When the button is pressed, Raise and Lower buttons will appear and enable the user to raise and lower the level of reactive power.

The 70BC-CS Manual button can be used to raise or lower the balance or manual reference. When the button is pressed, Raise and Lower buttons will appear and enable the user to raise and lower the voltage while operating in Manual mode.

Similarly, the 90DV-CS Auto button can be used to raise or lower the voltage while operating in Auto mode.

Generator and excitation system values are displayed and controls are provided for control of the ac (41A) breaker.

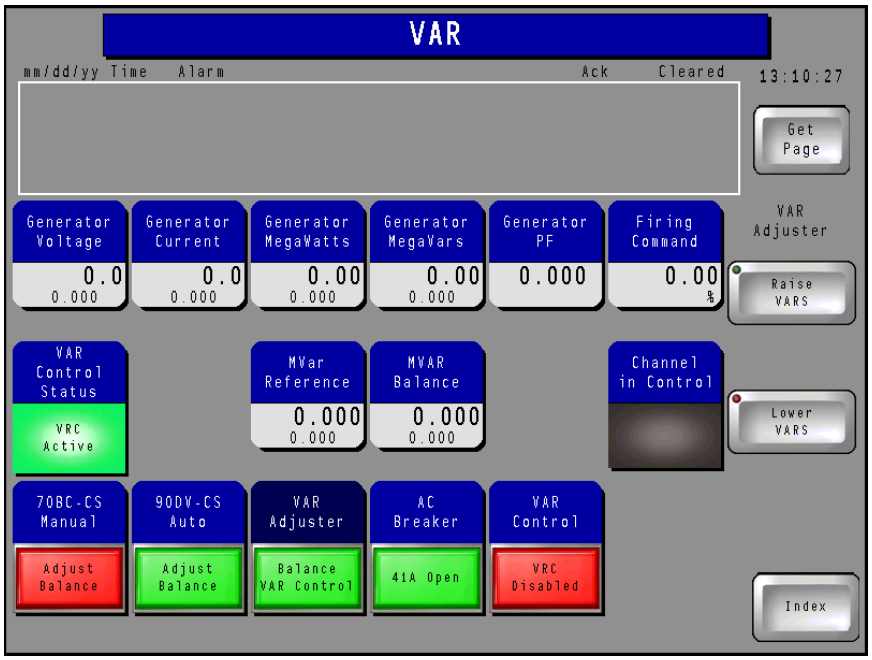


Figure 58. Var Screen

Power Factor

This Power Factor screen is shown in Figure 59. This screen is only available on systems with PF control.

Control of power factor is enabled and disabled by the PF Control button. When this button is pressed, Enable and Disable buttons will appear and enable the user to turn control of power factor on and off.

Power factor balance is adjusted by pressing the PF Adjuster button. When the button is pressed, Raise and Lower buttons will appear and enable the user to raise and lower the power factor.

The 70BC-CS Manual button can be used to raise or lower the balance or manual reference. When the button is pressed, Raise and Lower buttons will appear and enable the user to raise and lower the voltage while operating in Manual mode.

Similarly, the 90DV-CS Auto button can be used to raise or lower the voltage while operating in Auto mode.

Generator and excitation system values are displayed and controls are provided for control of the ac (41A) breaker.

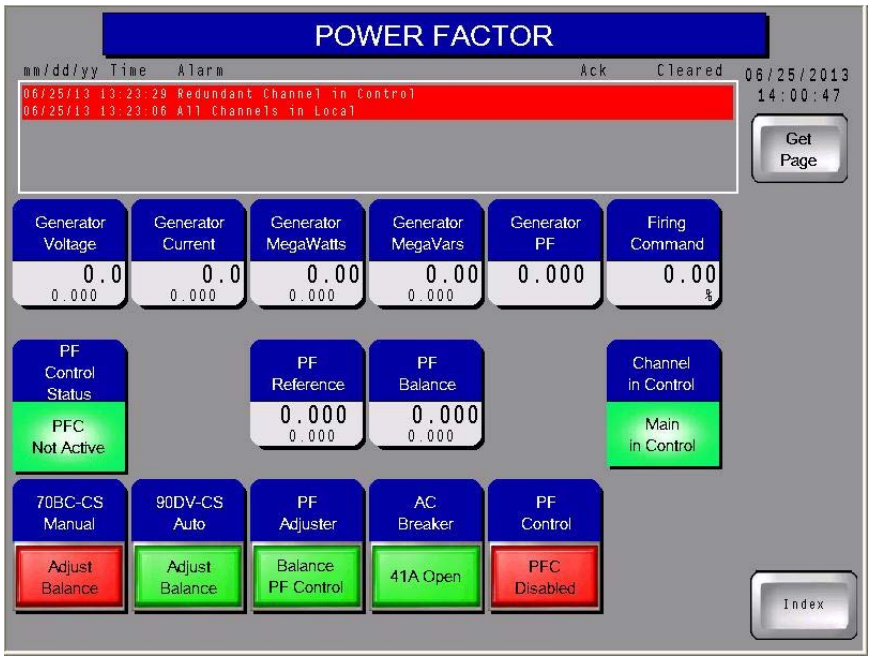


Figure 59. Power Factor Screen

Output Control

This screen (Figure 60) provides system control, status indication, and metering of generator and excitation system parameters.

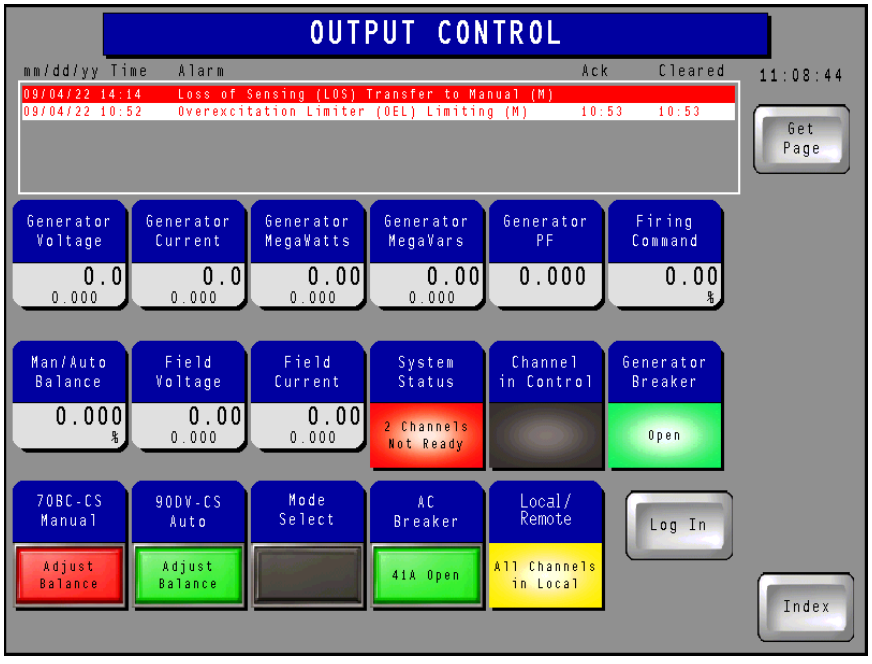


Figure 60. Output Control Screen

Controls

Controls include opening and closing of the ac (41A) breaker, selection of auto- or manual-mode regulation, and adjustment of the generator voltage in Manual or Auto mode.

Control of the 41A breaker is provided through the AC Breaker button. When this button is pressed, Trip and Close buttons will appear and enable the user to open and close the ac breaker.

Selection of auto- or manual-mode regulation is provided through the Mode Select button. When this button is pressed, Put Reg in Auto and Put Reg in Manual buttons will appear and enable the user to select either auto or manual regulation.

The 70BC-CS Manual button can be used to raise or lower the balance or manual reference. When the button is pressed, Raise and Lower buttons will appear and enable the user to raise and lower the voltage while operating in Manual mode.

Similarly, the 90DV-CS Auto button can be used to raise or lower the voltage while operating in Auto mode.

Status Indicators

The System Status indicator displays the readiness of the control system channels.

The Channel in Control indicator displays which of the control system channels is actively controlling the excitation level.

The Generator Breaker indicator displays whether the generator breaker is open or closed.

The Local/Remote indicator displays the local/remote control status of all control system channels. When logged in with the Log In button and the proper password, this indicator is converted to a control button that can be used to select either local or remote control. When pressed, Local Control and Remote Control buttons appear and enable the user to select the operating mode. During proper operation, the control mode of all channels should match. That is, all channels should be under local control or all channels should be under remote control.

Metering

Metering indications are provided for generator voltage, current, watts, vars, and power factor. Metering indications are also provided for field voltage and current, the SCR firing command percentage, and manual/auto setpoint balance. Metering indications with two values display the actual reading in the upper row of numbers and the per-unit (PU) value in the lower row of numbers.

Generator Simulation

The Generator Simulation screen (Figure 61) gives the user the ability to test a group of settings offline. Controls are provided for enabling and disabling generator simulation (Simulation Enable), raising and lowering the Auto setpoint (Raise/Lower Volts), raising and lowering the output power (Turbine Control), toggling between Auto and Manual modes (Mode Select), and tripping and closing the 41A breaker (AC Breaker). Metering indicators are provided for common generator and excitation system parameters.

Provisions for tripping and closing the generator breaker are provided.

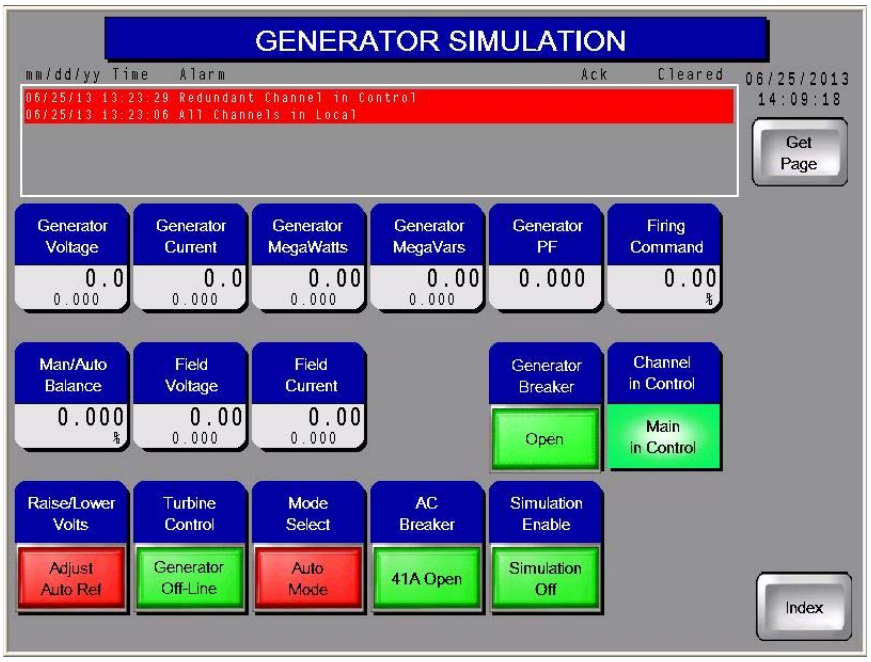


Figure 61. Generator Simulation Screen

Generator Monitor

The Generator Monitor screen (Figure 62) graphically illustrates excitation system and generator status. Excitation system indicators are provided for ac breaker and PSS status and field voltage and current levels. Generator voltage, current, watts, vars, and power factor are also displayed.

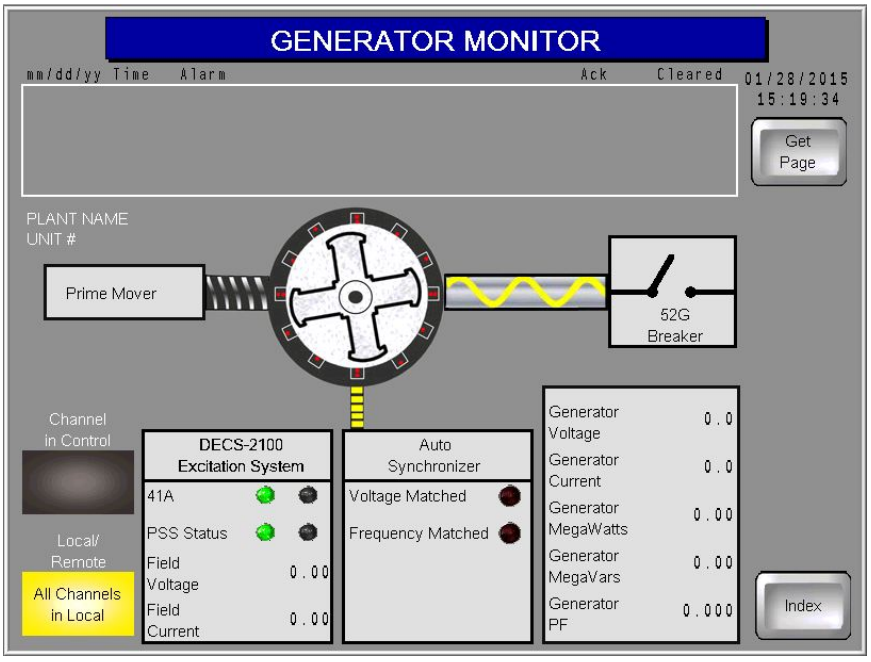


Figure 62. Generator Monitor Screen

Synchronizer

This screen (Figure 63) is used to enable/disable the synchronizer. The buttons labeled Regulator PT Primary, Regulator PT Secondary, Voltage Match PT Primary, and Voltage Match PT Secondary can be

used to enter the primary and secondary voltage magnitudes so that the synchronizing voltages can be displayed in actual voltage magnitudes in addition to per-unit values.

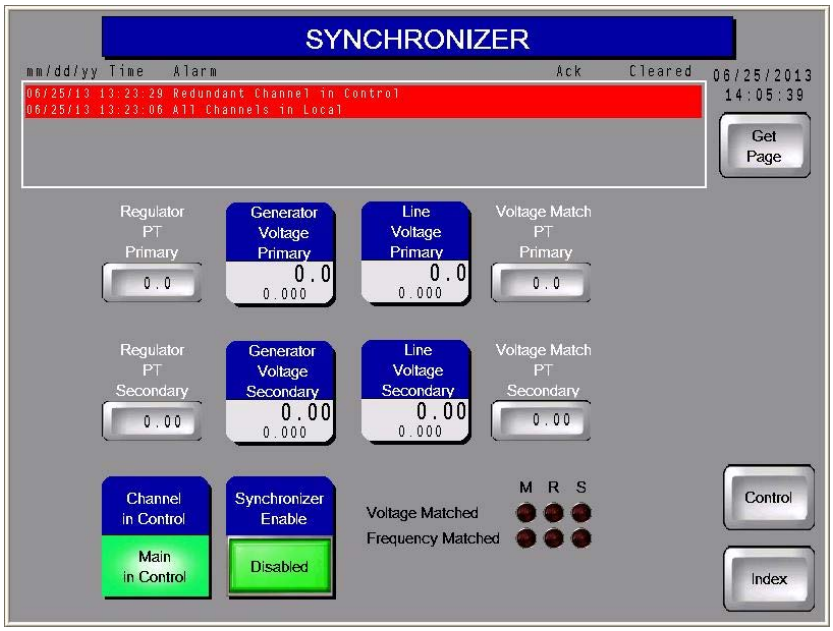


Figure 63. Synchronizer Screen

Synchronizer Display

This screen (Figure 64) displays the synchronization status.

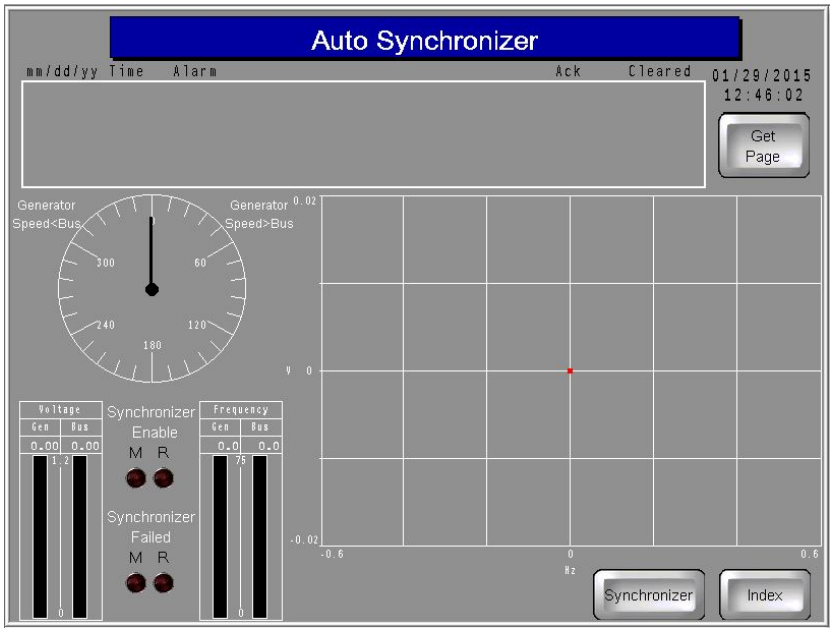


Figure 64. Auto Synchronizer Screen

Capability Curves

This screen displays the generator minimum excitation limit (MEL) capability curve in per- unit values and is superimposed on the actual excitation values. Click on the Curve Selection button to display either the MEL or the UEL curve. The horizontal capability curve screen is shown in Figure 65. A vertical curve is also available.

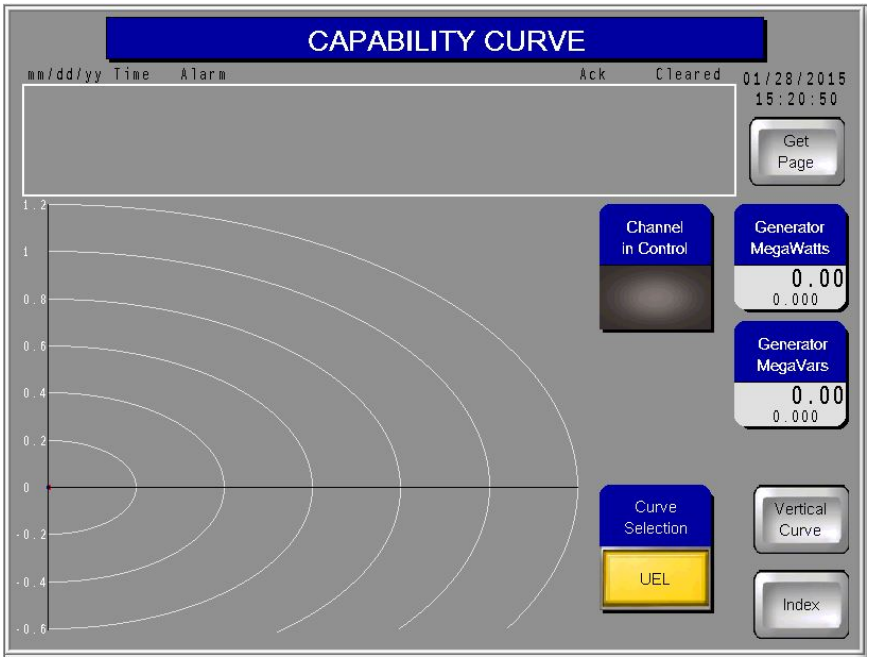


Figure 65. Capability Curve Screen

Task Guide

Table 7 lists common tasks along with the IDP-1200 pages that provide the controls for performing the tasks.

Table 7. Tasks and Screens Cross-Reference

Task	Screen
Close ac breaker	Control
Flash the field	N/A, field is flashed automatically when ac field breaker is closed.
Place regulator in Auto or Manual mode	Control
Raise or lower voltage	Control Var
Change the controlling channel	Transfer Control
Change Local/Remote control	Control
View alarms	Any page
Acknowledge alarms	Alarm/Fault – Active Alarm/Fault – History

Password Settings

The default, level 2 password is “4321”. Use the following procedure to change the security password. A USB flash drive is required to change the password.

1. Create a CSV (comma-separated values) file named “Security.csv” that has its content structured as shown in Table 8. Place the new password where “New” is shown in the table. Passwords are case sensitive and have a maximum length of eight alphanumeric characters. It is not necessary to enter a password for levels 3 through 14. The default level 15 password is “12345” and should not be changed.

2. Insert the USB flash drive into any available USB port on your PC.
3. Use normal Windows® techniques to create a root directory on the flash drive named “Security”.
4. Copy the CSV file created in Step 1 inside the “Security” directory on the flash drive.
5. Insert the USB flash drive into one of the USB ports on the side of the IDP-1200.
6. Press the **Index** button on any IDP-1200 page.
7. Press the **Setup** button on the *General Index* page.
8. Press the **Login** button at the bottom of the page.
9. Enter the default security password (4321).
10. Press the **Change Passwords** button located on the right side of the page.
11. If successful, the unit will display “Password change successful” to the left of the *Change Passwords* button.
12. If the unit displays “Password file not found”, verify that the CSV file is valid, named correctly, and located in the proper directory on the flash drive.

Table 8. Security.csv File Structure

Mode	PS
Level	Password
1	New
2	New
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	12345

Updating IDP-1200 Configuration Files from Basler Electric

Use the following procedure to upload an IDP-1200 settings/software file provided by Basler Electric.

1. Copy the configuration file (*.cml) onto a USB flash drive in the root directory.
2. Open the *IDP Loader* folder and copy the /prj001 folder and boot.cfg file onto the USB flash drive in the root directory.
3. Insert the drive into one of the USB ports on the side of the IDP-1200
4. Press the Index button on any IDP-1200 page to access the General Index page.
5. Tap in the upper, left corner of the page and, within one second, tap in the lower right corner of the page. If done correctly, a menu should appear at the bottom of the page.
6. Press the CF/USB button at the bottom of the page.
7. Press the USB_Starting button at the bottom of the page.
8. Tap on the language box in the center of the page and select the desired language.

9. Press the Download (USB=>Display) button located to the right of the page center.
10. Select the configuration file (*.cml) file from the file list.
11. Tap on the password box in the center of the page and enter the appropriate password. (The default password is “5678”. On the popup control, use the Down arrow to toggle between letters and numbers.)
12. Press the Start button located in the center of the page.
13. Press the Yes button when asked to download the data. Downloading settings from a USB flash drive to the IDP-1200 takes approximately three minutes.
14. After completion of the download, press the Back button located at the bottom of the page.
15. Press the Back button again.
16. Press the Exit button at the bottom of the page.
17. Press the Yes button when prompted to restart the system.

Updating IDP-1200 Configuration Files from Documentation CD

Configuration files are included on the documentation CD that accompanies the manual for this excitation system. If replacement of a display panel becomes necessary, the provided files enable you to program the new IDP-1200 to ensure proper functionality with your system or application.

Use the following procedure to upload an IDP-1200 configuration file provided by Basler Electric.

1. Open the *Configuration Files* folder on the documentation CD and copy the configuration file (*.cml) onto a USB flash drive in the root directory.
2. Open the *IDP Loader* folder and copy the /prj001 folder and boot.cfg file onto the USB flash drive in the root directory.
3. Insert the drive into one of the USB ports on the side of the IDP-1200.
4. Press the Index button on any IDP-1200 page to access the General Index page.
5. Tap in the upper, left corner of the page and, within one second, tap in the lower right corner of the page. If done correctly, a menu should appear at the bottom of the page.
6. Press the CF/USB button at the bottom of the page.
7. Press the USB_Starting button at the bottom of the page.
8. Tap on the language box in the center of the page and select the desired language.
9. Press the Download (USB=>Display) button located to the right of the page center.
10. Select the configuration file (*.cml) file from the file list.
11. Tap on the password box in the center of the page and enter the appropriate password. (The default password is “5678”. On the popup control, use the Down arrow to toggle between letters and numbers.)
12. Press the Start button located in the center of the page.
13. Press the Yes button when asked to download the data. Downloading settings from a USB flash drive to the IDP-1200 takes approximately three minutes.
14. After completion of the download, press the Back button located at the bottom of the page.
15. Press the Back button again.
16. Press the Exit button at the bottom of the page.
17. Press the Yes button when prompted to restart the system.

Mounting

This chapter provides the information needed for mounting the IDP-1200 and the Ethernet switch.

Mounting the IDP-1200

Information is provided for two types of IDP-1200 installations:

- Retrofit installation in an ECS2100 enclosure that currently houses a PanelMate display
- New installation in a panel separate from the control system enclosure

Mounting Considerations

The IDP-1200 is intended for mounting in a cutout on a vertical panel in an environment where the ambient temperature falls between 0 and 50°C (32 and 122°F). Observe the following considerations and guidelines when preparing to mount the IDP-1200.

Location and Environmental Considerations

The IDP-1200 is intended for mounting in a vertical panel. If mounting the IDP-1200 in a slanted panel, the panel should not deviate more than 30° from vertical. If the panel slants more than 30°, you must ensure that the ambient temperature surrounding the IDP-1200 does not exceed 40° (104°F). This may require the use of external cooling equipment (a fan or air conditioner). To enhance ventilation and maintenance, the IDP-1200 should be installed at least 4 inches (102 millimeters) away from adjacent equipment. Heat created by nearby equipment must not cause the ambient temperature surrounding the IDP-1200 to exceed its maximum operating temperature.

Mounting Panel Thickness

The IDP-1200 can be mounted on a panel whose thickness is no less than 0.06 inches (1.6 millimeters) and no more than 0.39 inches (10.0 millimeters).

Retrofit Installations

Two types of IDP-1200 installation kits are available for retrofit installation. Kit part number 9437200102 is designed for replacement of a PanelMate display mounted in an ECS2100 system enclosure door hinged on the left-hand side. Kit part number 9437200104 is designed for replacement of a PanelMate display mounted in an ECS2100 system enclosure door hinged on the right-hand side. Each kit consists of the following:

- IDP-1200 display panel
- Mounting bracket
- Mounting bracket hinge assembly
- Ethernet switch
- Rubber grommet (kit P/N 9437200102 only)

Warning!
The excitation cubicle housing the display panel must be removed from service and all related operating/control power voltage de-energized before proceeding with the following procedures.

Preparation for Mounting—Doors Hinged on the Left Side

The following procedure applies only to cubicle doors hinged on the left-hand side. To replace the display panel on a door hinged on the right-hand side, see *Preparation for Mounting—Doors Hinged on the Right Side.*

1. Remove the excitation control system from service and de-energize all operating/control power voltage.
2. Open the cubicle door and loosen the thumbscrew holding the hinged display panel mounting bracket against the door.
3. Remove the nuts and screws securing the display panel to the mounting bracket and remove the display panel.
4. Separate the display mounting bracket from the hinge assembly by removing the three screws shown in Figure 66 (locator A). Retain these screws for use later.

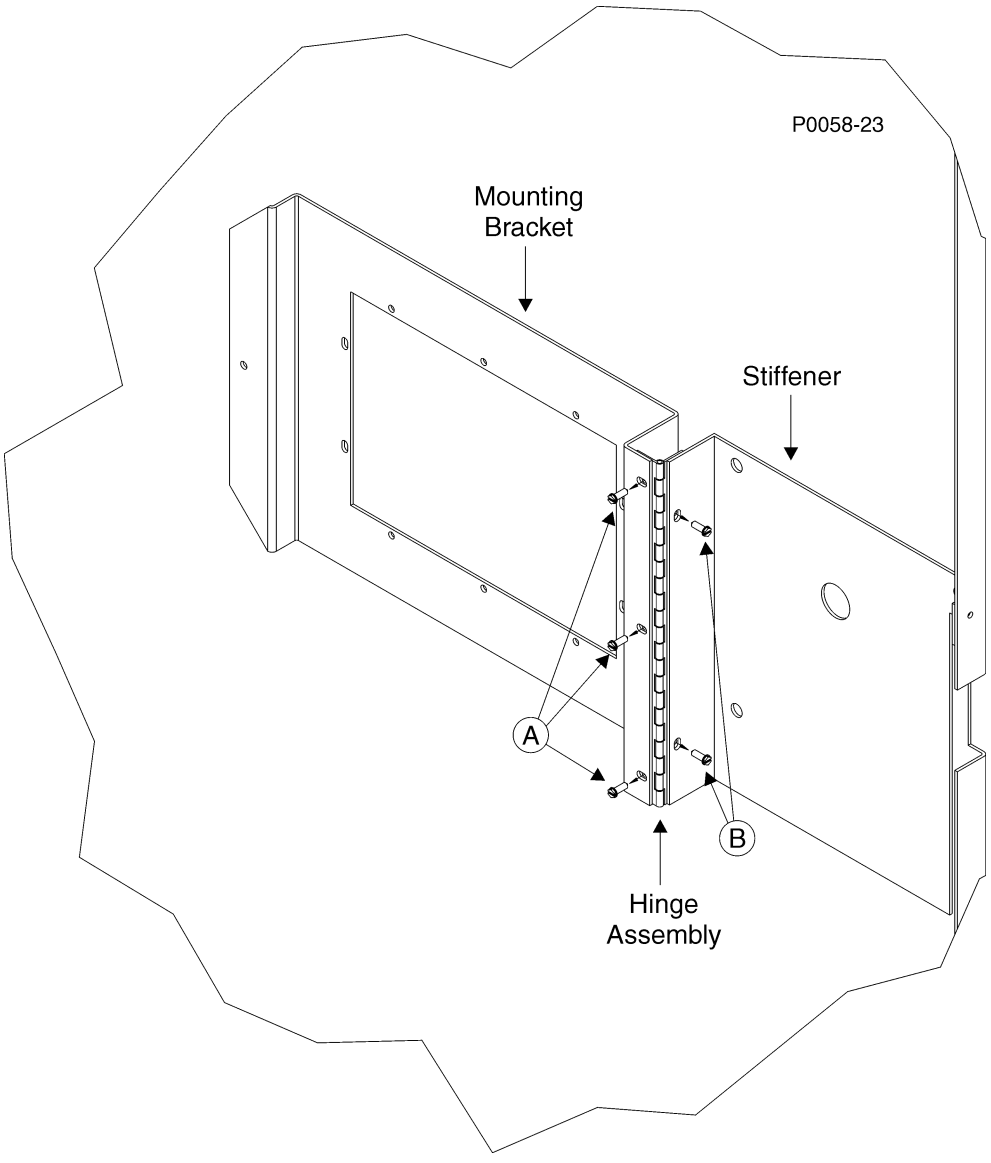


Figure 66. Removal of Display Panel Mounting Bracket and Hinge Assembly

5. Separate the hinge assembly from the stiffener by removing the two screws shown in Figure 66 (locator B). Retain these screws for use later.
6. Cut the stiffener to match the illustration of Figure 67.

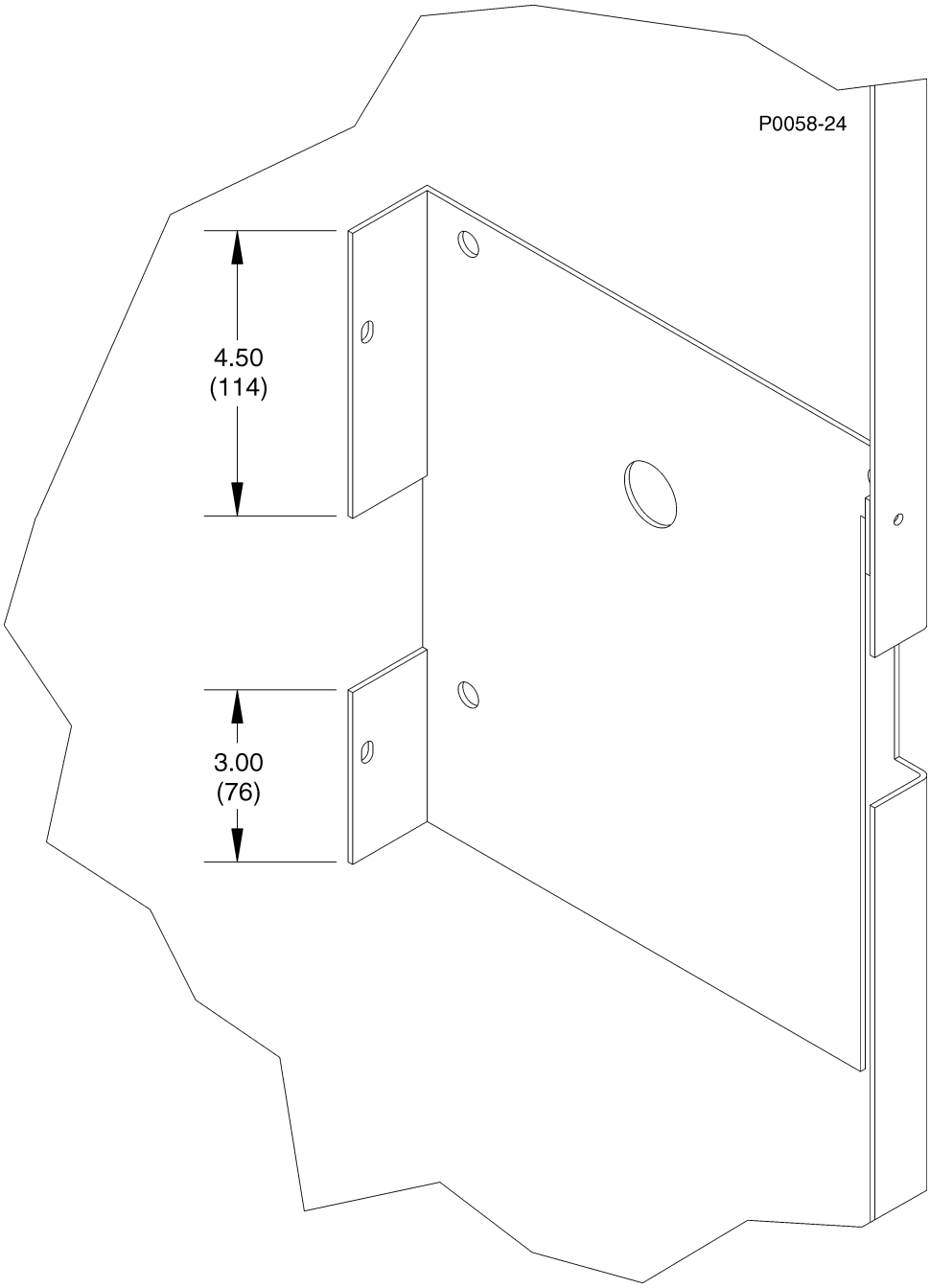
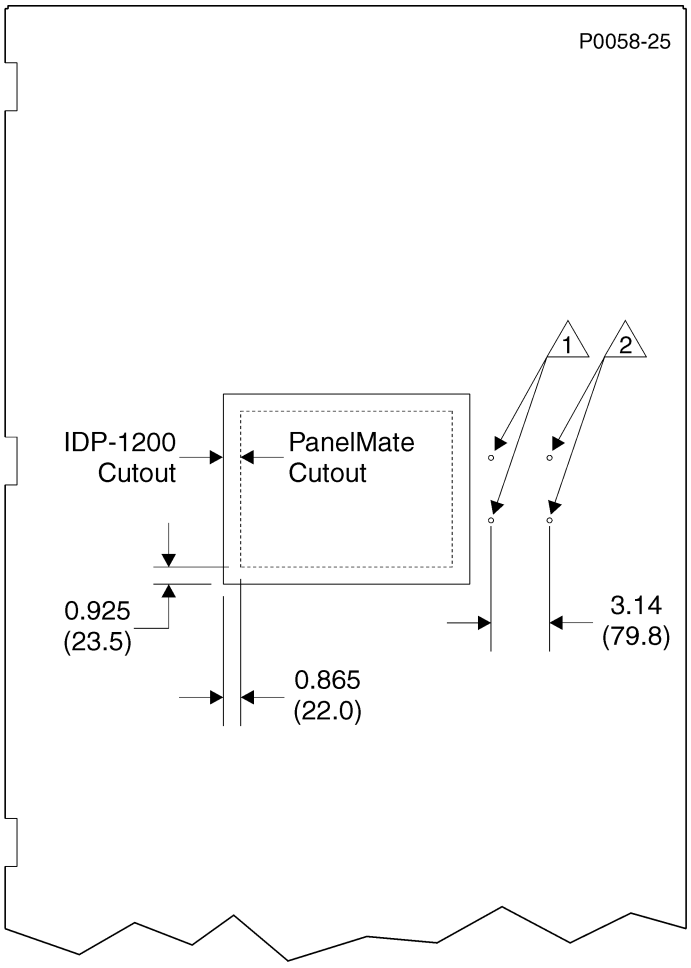


Figure 67. Stiffener Cutting Dimensions

7. Using the cutting dimensions illustrated in Figure 68, enlarge the door cutout to accommodate the larger IDP-1200 display panel. Using the drilling dimensions shown in Figure 68, drill new holes for relocation of the doorstop assembly (shown in Figure 70).
8. Attach the hinge and mounting bracket, supplied with the IDP-1200, to the stiffener. (Use the screws removed during steps 4 and 5.) Install the rubber grommet on the mounting bracket. Figure 69 shows the assembly detail.



1 Existing door stop mounting holes used with PanelMate display panel.

2 Two, 0.26 (6.60) diameter holes to be drilled for mounting doorstop in new location for use with IDP-1200.

Figure 68. Door Cutting and Drilling Dimensions

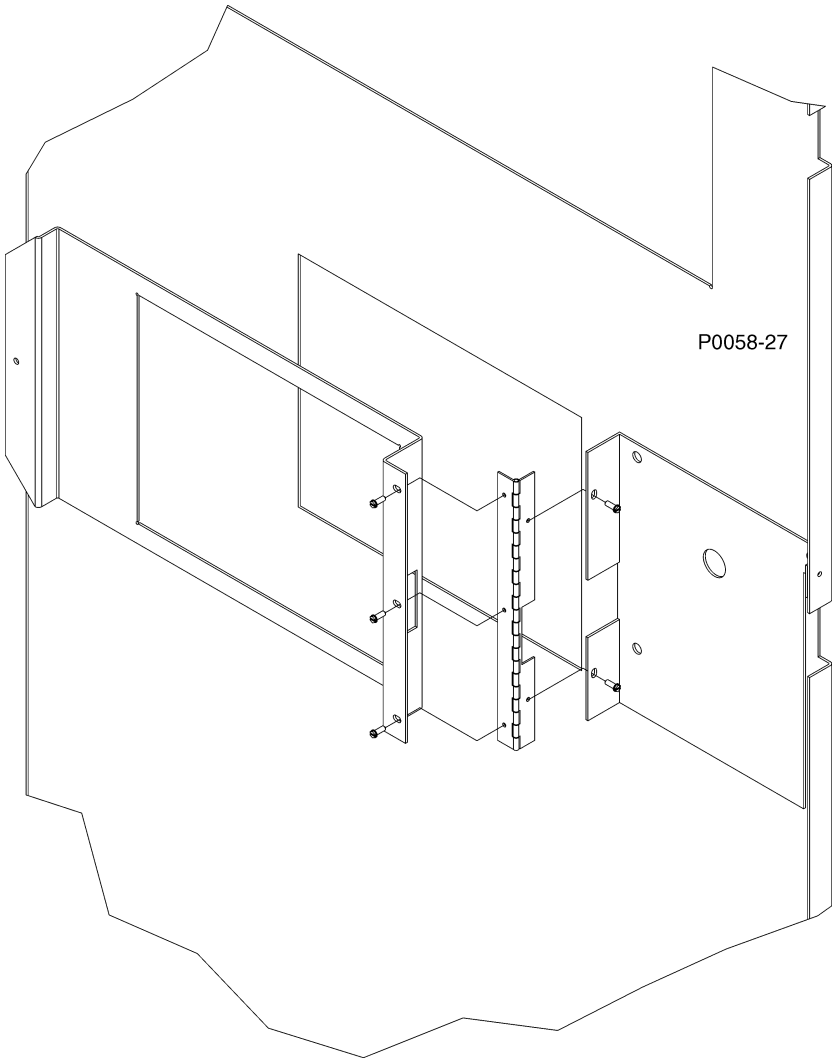


Figure 69. Mounting Bracket and Hinge Assembly Detail

9. Remove the doorstop assembly and reattach it to the door using the mounting holes drilled in step 7. Figure 70 illustrates the new mounting location for the doorstop.

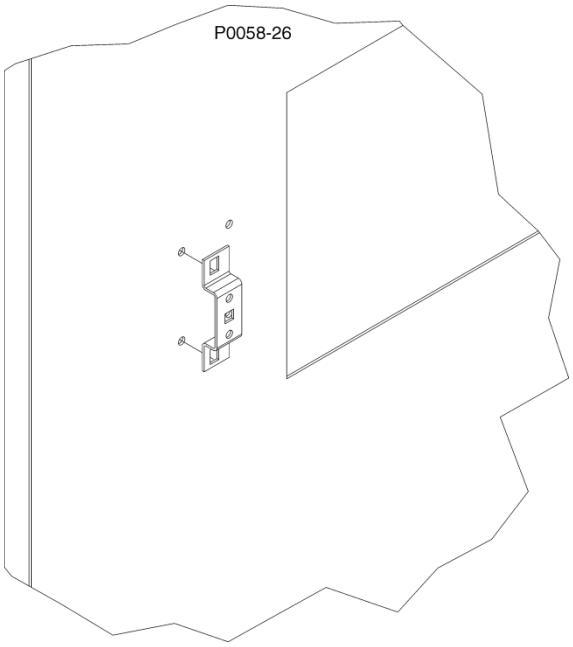


Figure 70. New Doorstop Mounting Location

10. Secure the IDP-1200 to the mounting bracket by performing the procedure of *Securing the IDP-1200*.

Preparation for Mounting—Doors Hinged on the Right Side

The following procedure applies only to cubicle doors hinged on the right-hand side. To replace the display panel on a door hinged on the right-hand side, see *Preparation for Mounting—Doors Hinged on the Left Side.*

1. Remove the excitation control system from service and de-energize all operating/control power voltage.
2. Open the cubicle door and loosen the thumbscrew holding the hinged display panel mounting bracket against the door.
3. Remove the nuts and screws securing the display panel to the mounting bracket and remove the display panel.
4. Separate the display mounting bracket from the hinge assembly by removing the three screws shown in Figure 71 (locator A). Retain these screws for use later.

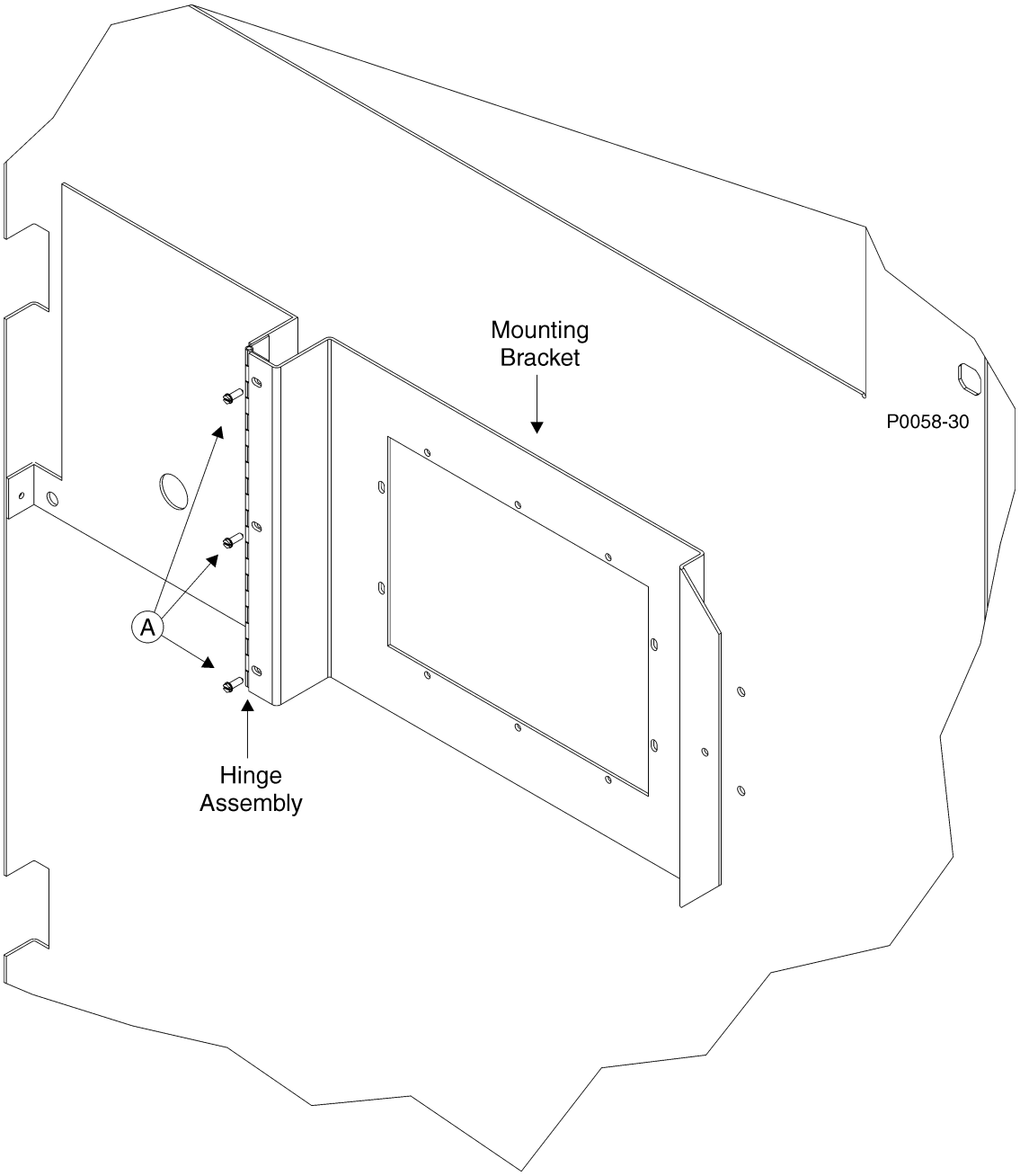
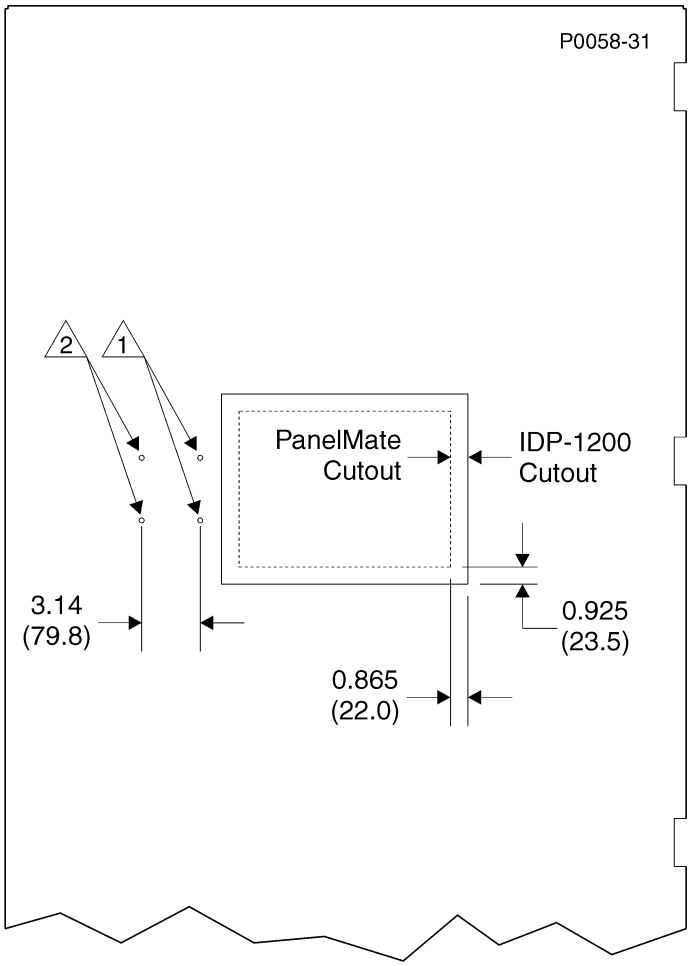


Figure 71. Removal of Display Panel Mounting Bracket and Hinge Assembly

5. Using the cutting dimensions illustrated in Figure 72, enlarge the door cutout to accommodate the larger IDP-1200 display panel. Using the drilling dimensions shown in Figure 72, drill new holes for relocation of the doorstop assembly (shown in Figure 74).



1 Existing door stop mounting holes used with PanelMate display panel.

2 Two, 0.26 (6.60) diameter holes to be drilled for mounting doorstop in new location for use with IDP-1200.

Figure 72. Door Cutting and Drilling Dimensions

6. Attach the mounting bracket, supplied with the IDP-1200, to the hinge assembly. (Use the screws removed in step 4.) Figure 73 shows the assembly detail.

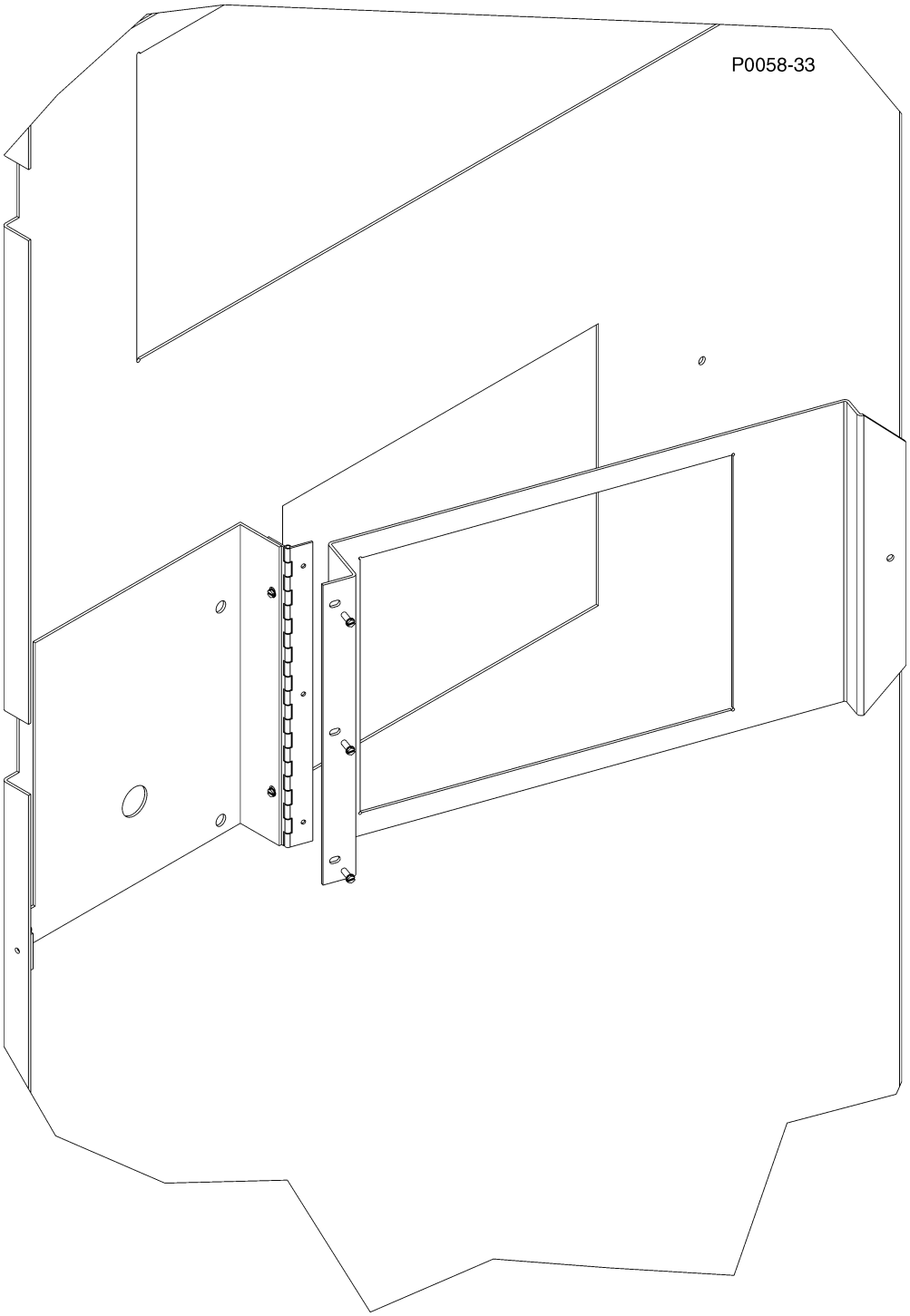


Figure 73. Mounting Bracket and Hinge Assembly Detail

7. Remove the doorstop assembly and reattach it to the door using the mounting holes drilled in step 5. Figure 74 shows the doorstop mounting detail.

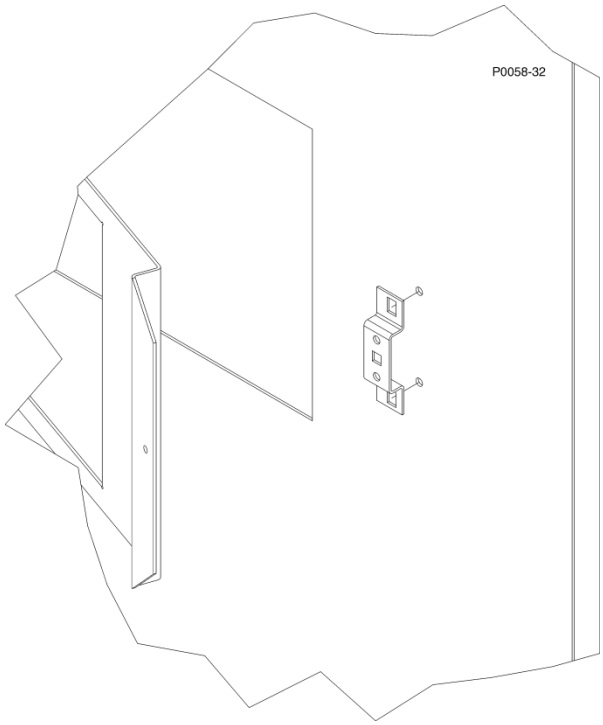


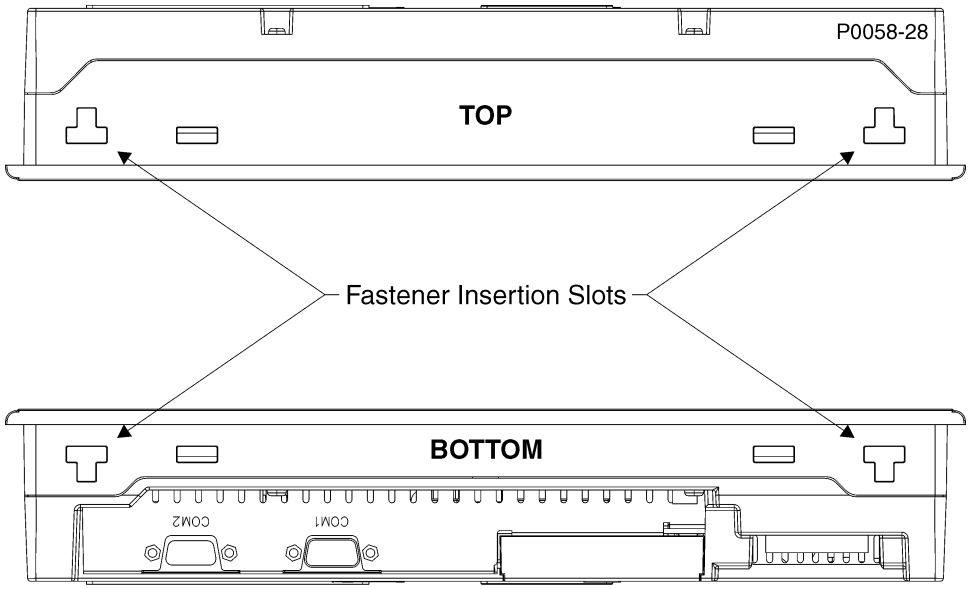
Figure 74. Relocation of Doorstop

8. Secure the IDP-1200 to the mounting bracket by performing the procedure of *Securing the IDP-1200*.

Securing the IDP-1200

The IDP-1200 is secured to the mounting bracket with four hook-and-screw fasteners. The hook of each fastener is inserted in one of four display panel insertion slots (Figure 75) and the fastener screw is tightened against the mounting bracket (Figure 76).

Caution
Over-tightening the fastener screws will damage the display panel housing. Maximum screw torque is 4.43 in-lb (0.5 N•m).



NOTE
The hook of each fastener must be inserted securely into the slot's recess (narrow portion of slot).

Figure 75. Fastener Insertion Slots

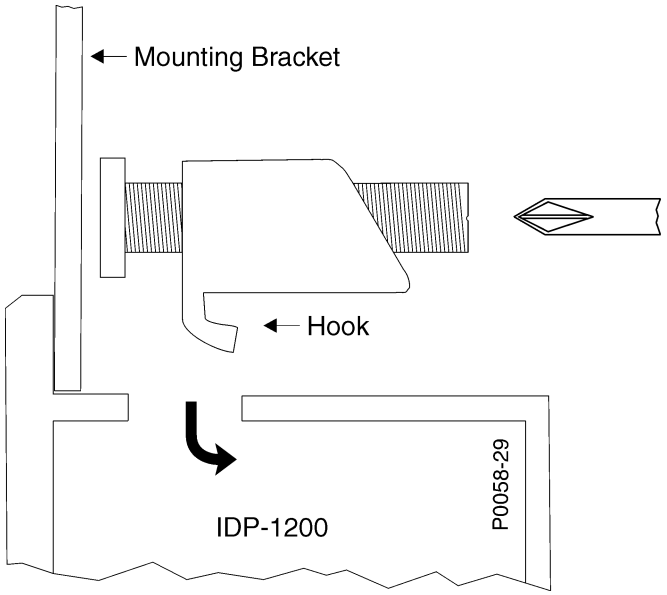


Figure 76. Fastener Attachment Detail

1. Insert the IDP-1200 into the mounting bracket opening and hold the display panel against the mounting bracket.
2. Insert the hook of a hook-and-screw fastener in one of the four display panel insertion slots and rotate the screw clockwise to tighten the screw against the mounting bracket.
3. Repeat step 2 for the three remaining fasteners and insertion slots.
4. As necessary, adjust the display panel's position in the mounting bracket opening so that, when the display is secured against the door, the display panel is centered in the door opening.

New Installations

Cut an opening in the mounting panel that is 11.9 inches (302 millimeters) wide and 9 inches (228 millimeters) high. Figure 77 illustrates the panel cutting dimensions. Secure the IDP-1200 to the mounting panel according to the instructions provided in *Securing the IDP-1200.*

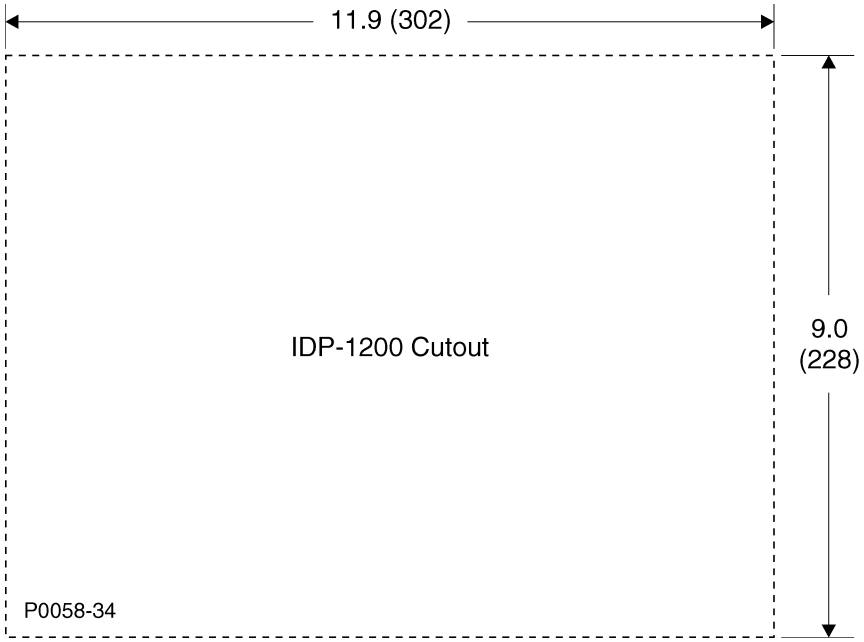


Figure 77. IDP-1200 Panel Cutting Dimensions for New Installations

Mounting the Ethernet Switch

When installing the IDP-1200, the Multi Drop Adapter (MDA) used with the PanelMate display must be replaced with the supplied Ethernet switch. The Ethernet switch should be mounted within the control system enclosure. Mount the Ethernet switch according to the instructions provided in the Ethernet switch user manual.

Connections

IDP-1200 and Ethernet switch connections consist of control power wiring and communication connections.

IDP-1200 Control Power

1. If replacing a PanelMate display, cut the existing 24 Vdc control power and ground wires at the power connector that was used with the PanelMate display.
2. Strip the insulation from each wire so that 0.25 inches (7 millimeters) of conductor is exposed at the end of each wire.
3. Insert the end of each conductor into the appropriate insertion hole of the supplied power connector and tighten each terminal screw with a small flat-blade screwdriver. Each insertion hole of the connector is labeled with its polarity/function. The connector terminal screws have a maximum torque rating of 5.3 in-lb (N•m).
4. Attach the power connector to the display panel and secure it to the IDP-1200 with the connector's two screws.

Ethernet Switch Control Power

Connect the supplied Ethernet switch power cable wires to 24 Vdc control power. Plug the power cable connector into the Ethernet switch.

Communication Connections

Use cables terminated with RJ-45 connectors to connect theIDP-1200 and excitation control modules (ECMs) to the Ethernet switch. The cables must be 8-conductor, with 4 twisted pairs. The connections made at the Ethernet switch replace the connections previously made at the Multi Drop Adapter (MDA). If the existing cables to the MDA are used, they must be reconnected and plugged into the J16 jack of the ECM.

Maintenance and Troubleshooting

Maintenance

The IDP-1200 requires no maintenance other than periodic cleaning of the touch screen. A Cleaning Lock page prevents any system control buttons from being pressed inadvertently during cleaning. When cleaning the touch screen, use nothing more than a soft cloth, water, and mild detergent. Soak the cloth in the solution and wring the cloth tightly before wiping the screen.

Troubleshooting

Status LED

A three-color, status LED, located on the right side of the IDP-1200 frame, indicates display panel operating status. Table 9 lists various status LED states and the conditions that they represent.

Table 9. Status LED Indications

LED State	Indication
Green	Normal operation
Red	Operation error
Red (flashing)	Hardware error
Orange	Backlight failure

Blank Indication Fields

Blank indication fields indicate a communication failure. Possible causes of a communication failure include:

- Incorrect IP address. Verify the IDP-1200 address settings by referring to the *Communication* chapter.
- Faulty/incorrect communication connections. Verify all communication connections. Confirm that the Ethernet switch is functioning properly.

Capability Curve Fails to Display MEL Curve

A failure of the Capability Curves pages to display the generator minimum excitation limit curve can indicate an incorrect Modbus address or control system firmware version selection. Verify these selections on the second System Configuration screen.

Storage

This device contains long-life aluminum electrolytic capacitors. For devices that are not in service (spares in storage), the life of these capacitors can be maximized by energizing the device for 30 minutes once per year.

Specifications

IDP-1200 specifications are listed in the following paragraphs.

Control Power

Nominal Voltage ..... 24 Vdc
Voltage Range ..... 19.2 to 28.8 Vdc
Typical Current Draw ..... 1.30 Adc at 24 Vdc

Display

Type ..... TFT color LCD
Size ..... 12.1 in (307.3 mm), measured diagonally
Resolution ..... 800 (wide) by 600 (high) pixels
Color ..... 65 k

Communication Interfaces

Ethernet

Type ..... Ethernet, IEEE 802.3u, 10Base-T/100Base-TX
Connection ..... RJ-45 jack

USB

Type ..... Conforms to USB1.1 (TYPE-A) x 2
Power Supply Voltage ..... DC 5 V ±5 %
Output Current ..... 500 mA or less
Communication Distance ..... 5 m or less

Environment

Operating Temperature ..... 0 to 50°C (32 to 122°F)
Storage Temperature ..... –20 to 60°C (–4 to 140°F)
Humidity ..... 10 to 90%, non-condensing

Vibration and Shock Resistance

Vibration

Complies with IEC 61131-2
Withstands ..... 5 to 9 Hz single-amplitude, 3.5 mm
9 to 150 Hz constant-accelerated velocity, 9.8 m/s^2
X, Y, and Z directions for 10 cycles (100 minutes)

Shock

Complies with IEC 61131-2
Withstands ..... 147 m/s^2 in X, Y, and Z directions, 3 times

ESD Immunity

Withstands.....6 kV (complies with EN 61000-4-2 Level 3)

EAC Mark (Eurasian Conformity)

- TP TC 004/2011
- TP TC 020/2011

Weight

Maximum.....3.0 kg (6.6 lb)

Revision History

The following information provides a historical summary of the changes made to the IDP-1200 instruction manual (9437200990 Rev D). Revisions are listed in chronological order.

Manual Revision and Date	Change
—, May-09	• Initial release
A, Jun-09	• Added channel compare and meter panel page descriptions in Section 2 • Improved several page descriptions in Section 2 • Added troubleshooting in Section 3 • Minor text edits throughout manual
B, Jul-13	• Converted manual to new style • Added coverage of DECS-2100, DECS/RW, and ECS/RW • Added Storage statement
C, Mar-15	• Moved Revision History to last chapter • Added new chapter for DECS-2100 and DECS/RW • Added USB Interface specifications
D, Dec-16	• Added EAC certification • Added caution statement about nonvolatile memory

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