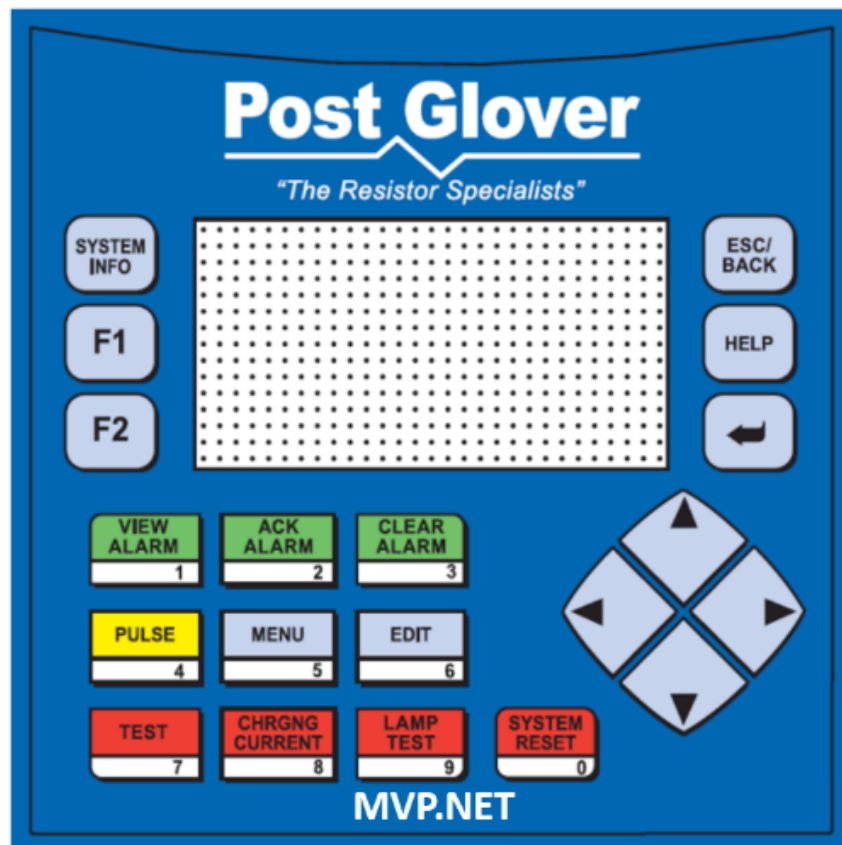


## MVP.Net™ Medium Voltage High Resistance Grounding System

Installation, Operation and  
Maintenance Instructions



**Post Glover**  
"The Resistor Specialists"

1369 Cox Ave. • Erlanger, KY 41018 • USA  
Phone: 800-537-6144 / 859-283-0778 • Fax: 859-283-2978  
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Serving the Electrical Industry Since 1892

**Post Glover High Resistance Grounding Equipment coordinates the use of resistors and control devices, creating a high-resistance ground for a power system. This instruction booklet is intended as a general guidance tool for personnel installing Post Glover High Resistance Grounding Systems. However, each unit is designed for a specific application/installation. The detailed drawings provided with each unit supersede the general information provided in this booklet.**

## Table of Contents

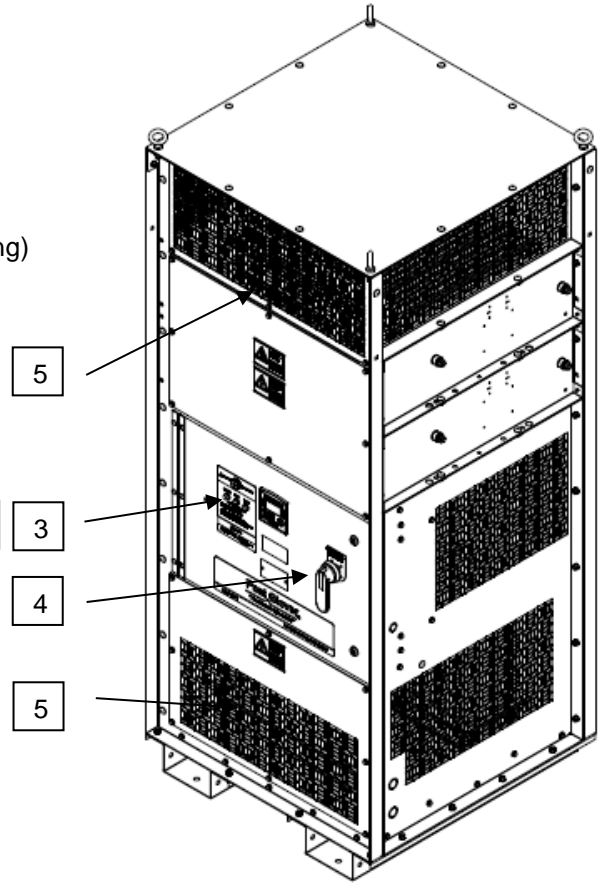
Section 1 – Equipment Overview	.....	4
Section 2 - Installation	.....	6
Section 3 – Start-Up Guide	.....	8
Section 4 – Operational Description	.....	9
Section 5 – Locating a Ground Fault	.....	11
Section 6 – Troubleshooting Guide	.....	12
Section 7 – User Interface	.....	14
Section 8 - Maintenance	.....	42
Appendix A – Basic Schematics	.....	43
Appendix B – Dimension Drawings	.....	44
Appendix C – Control Specifications	.....	46
Appendix D – Customer Connection Details	.....	48
Appendix E – Set-Up Report Form	.....	49

## Section 1 – Equipment Overview

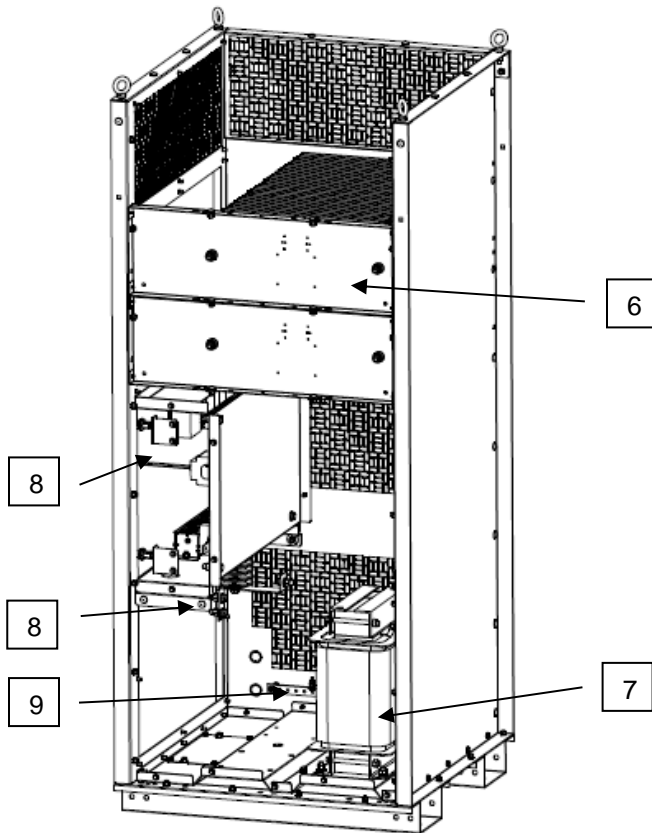
### 1.1 NEMA 1 Enclosure

#### 1.1.1 Front View

1. Indicating lights (System Normal, Ground Fault, Pulsing)
2. Audible alarm
3. Instruction overview and User interface
4. Disconnect switch (disconnects control power)
5. Resistor vents



FRONT ISOMETRIC VIEW



RIGHT SIDE VIEW

#### 1.1.2 Interior View

6. Resistors
7. Transformer
8. Customer connections
9. Customer ground bus

# Post Glover

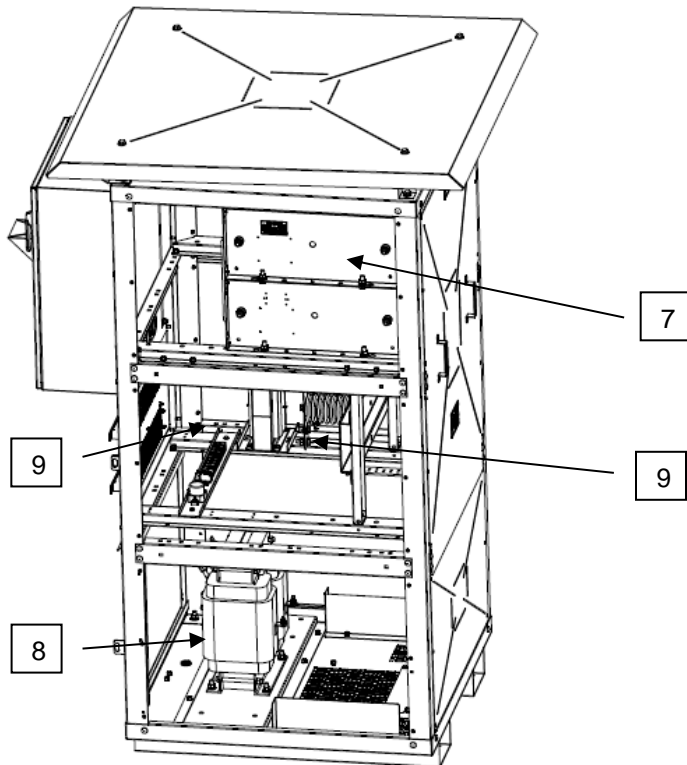
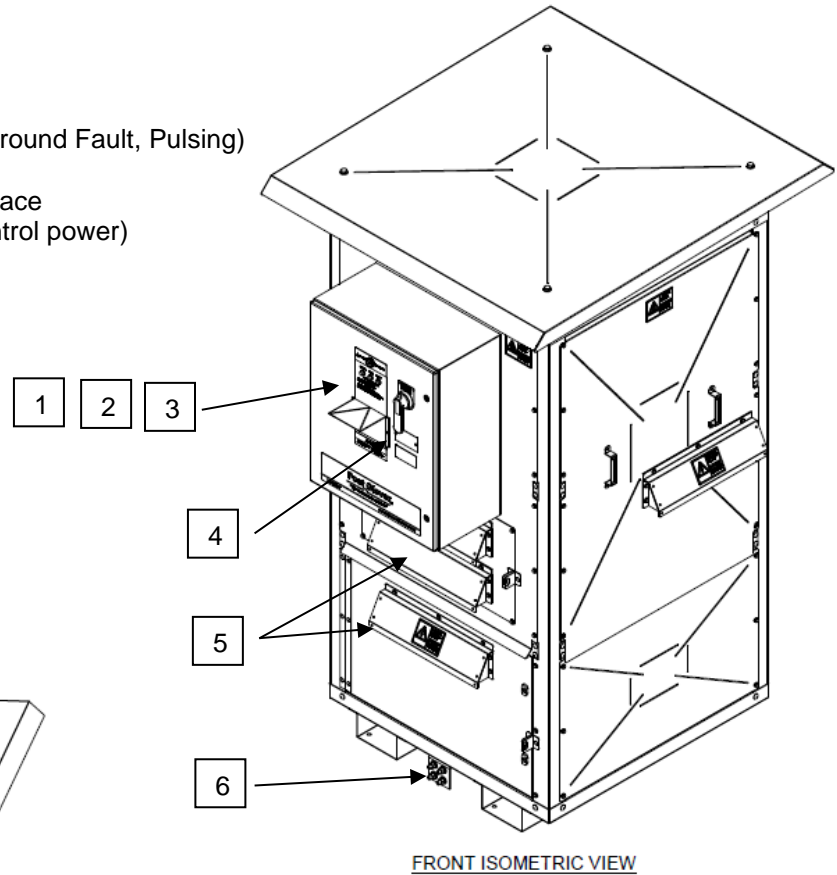
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## 1.2 NEMA 3R Enclosure

### 1.2.1 Front View

1. Indicating lights (System Normal, Ground Fault, Pulsing)
2. Audible alarm
3. Instruction overview and User interface
4. Disconnect switch (disconnects control power)
5. Resistor vents
6. Customer ground pad



### 1.2.2 Interior View

7. Resistors
8. Transformer
9. Customer connections

## Section 2 – Installation

Post Glover High Resistance Grounding Systems are packaged in a variety of different configurations depending on the ratings and site requirements. The typical medium-voltage enclosures are shown in Appendix B. Consult all specific equipment drawings furnished by Post Glover Resistors, Inc., for your particular installation.

Any modification of the unit not performed at the factory shall void the UL Certification.

### 2.1 Receiving

Once received, the high-resistance grounding unit should be unloaded and carefully moved by forklift (NEMA 1 indoor units have top-mounted lifting eyes). A preliminary inspection of the crate (or enclosure) should be made at this point to ensure that the unit was handled properly during shipment. If damage is detected, contact the carrier immediately to file a claim.

### 2.2 Handling

Free-standing units have base channels for a forklift to use when moving the unit (NEMA 1 indoor units have top-mounted lifting eyes). Do not attempt to move or lift the unit at points other than the base channels. Always store the unit upright to avoid damaging the enclosure and/or controls. Do not stack the units.

NEMA 3R units have an additional top pan that is shipped loose and must be installed on-site.

### 2.3 Storage

If the unit will be stored for some length of time, take the following precautions:

1. Remove the packaging and thoroughly inspect the unit.
2. Store the unit in an area that is clean and dry and has moderate temperatures. Cover it with a heavy-duty plastic cover or cloth.
3. If the unit must be stored in a damp area, it should be completely covered and heat provided to prevent condensation of moisture in the unit. To prevent condensation, each unit should be equipped with 150-200 watts of heat for the duration of the storage period.

### 2.4 Inspection

Inspect the enclosure for any signs of shipping damage such as dents, scratches or chips. Inspect the inside of the enclosure for any loose wiring or bolts. Check the resistor for any signs of broken insulators or elements. Check continuity of all fuses.

### 2.5 Floor Preparation

The equipment foundation must be designed with suitable strength and levelness. The purchaser is responsible for anchoring the unit to the floor with anchors of suitable strength.

### 2.6 Clearance Distance

Follow all applicable local and national safety codes for proper electrical clearances. Clearances required for air exchange/ventilation are listed on the specific project drawings supplied by Post Glover.

## 2.6 Grounding... CAUTION!

To reduce the possibility of electric shock, the unit must be properly grounded before making any system power connections. Connect the system ground to the ground bus. The ground bus is located in the lower portion of the free-standing units. Make sure that all ground conductors are sized per national, state, regional and local codes.



Ground Bus in a free-standing NEMA 1 enclosure



Ground Bus in a free-standing NEMA 3R enclosure

## 2.7 Line and Control Connections

Refer to application specific drawings that accompany the Post Glover system. The auxiliary device connections are made to terminal blocks rated 20 amperes, 600 volts. Refer to the specific diagrams furnished with the equipment for location detail.

Connect the neutral to the main bus bar for a wye-connected unit and connect the three phases to the three individual bus bars for a delta-connected unit. Connect the ground bus to the system ground. For control power connections, refer to the drawings specific to the unit being installed. See Appendix D for recommended wire sizes.

As a final check, inspect all wiring to verify that connections are made properly and that they are clean and tight. Make sure there is adequate clearance between the external connections and all devices.

## 2.8 Setting Resistor Tap Connection

The resistor taps may need to be adjusted at installation so that ground current with a ground fault is greater than or equal to the system capacitive-charging current. Refer to order/application specific drawings for location of the terminal strip for resistor taps. Move the ground wire on the Resistor Terminal Block (TBN) to the appropriate "N" terminal such that the resistor current is greater than the system capacitive charging current. Adjust the Pulsing Tap as required in accordance with the change in the ground tap.

**NOTE:** Do not connect the neutral connection (N) directly to ground. This results in a solidly grounded system and disables any benefits and protections of the HRG system.

## 2.9 General

When the installation is complete and all incoming wiring has been terminated, clean the inside of the unit with a soft cloth or vacuum cleaner. Do not use compressed air to blow out any dirt. Make sure any dirt or debris, such as packing material, is removed so it does not interfere with the operation of the unit. Before connecting power to the control panel, check all components to make sure all shipping devices, such as blocking or tying of relays, have been removed.



## Section 3 – Start-Up Guide

**NOTE:** Opening the control cabinet disconnect switch removes the grounding resistor from the circuit. The system is ungrounded while the disconnect switch is open.

### 3.1 Pre-energization checks

Perform the following checks before energizing the HRG unit:

- Inspect the enclosure interior for connections that may have come loose in shipping.
- Check continuity of all fuses.
- For units connected to power transformers with wye secondaries, ensure that the power transformer neutral is only connected to the HRG unit.
- Check the resistance from terminal 6 of the control cabinet disconnect switch to ground. This should match the drawing value for the default resistor tap.

**NOTE:** Any work performed on this unit must be done by qualified persons and must be done in compliance with national, regional, local and site-specific safety procedures. It is the responsibility of the owner to comply with all applicable electrical codes.

### 3.2 Energize Circuit

Close control power disconnect switch SW1. Close any external switches and/or energize the transformer. This will connect the equipment to the power system. For the first few seconds after closing SW1, the alarm horn will sound until the controller has completed its start-up procedure. Upon completion of the controller start-up procedure, the system NORMAL green lamp will be illuminated and the horn will silence.

### 3.3 Post-energization setup

Perform the following after energizing the HRG unit:

- Set the unit time and date (See section 7.9).
- Disable password protection (See section 7.1.1).
- Perform a LAMP test (See section 7.2.2.9).

### 3.4 Default settings

The HRG unit ships from the factory configured for use at the system voltage with the fault and pulsing current taps set per the drawings specific to the unit. The default settings for alarm and system values are in the table. The alarm and system values should be set to desired values by the end user. Password protection must be disabled to make any changes to the settings. See section 9.1.1 for instructions on how to disable the password protection.

Default Alarm Settings	
Overvoltage level (Vmax)	1000 V
Undervoltage level (Vmin)	0 V
Overcurrent level (Imax)	4A
Undercurrent level (Imin)	0 A
Default System Values	
Pulse Rate	5 seconds
Ground Fault Time Delay	10 seconds
Alarm Resend Time Delay	20 minutes



## Section 4 – Operational Description

### 4.1 Normal Operation

Please refer to the drawings supplied with your unit for ratings and other information. Appendices A and B contain schematics and dimension drawings with information for standard systems. Figures A.1 and A.2 show wye-connected and delta-connected schematics respectively.

During normal operation, only a small leakage current flows through the grounding transformer/resistor (HRG). The display will show this current and/or voltage. The green NORMAL indicating lamp on the operator's panel will be illuminated.

The MVP.Net™ detects Fundamental Current and/or Voltage for both over- and under-conditions. The under-conditions can be disabled by entering a 0 value. A common time delay setting is used for all alarming.

### 4.2 Ground Fault

When a ground fault occurs, the HRG acts to limit the ground current to a pre-determined low value. Fault current magnitude can be set by adjusting the taps provided on the resistor terminal block. Fault current shall be set so that the fault current is greater than or equal to the system's capacitive-charging current.

The fundamental voltage appearing across the resistor and fundamental current through the resistor are sensed by the MVP.Net™ controller. To prevent nuisance indications, a variable time delay is entered via the operator's panel. When the time delay expires, the red GROUND FAULT indicator lamp will start to blink, the NORMAL indicator lamp will turn off, and an alarm horn will sound. Upon detection, SYSTEM FAULT and GROUND FAULT auxiliary form-B contacts change state. An alarm state change table is provided on the wiring schematic.

The alarm horn can be silenced by pressing the VIEW ALARM button while searching for the cause of the ground fault. The red GROUND FAULT indicator lamp will be maintained until the ground fault is removed and the system is manually reset by pressing the SYSTEM RESET button.

## 4.3 Summary of States

### 4.3.1 Overvoltage

- Fundamental time delay begins and expires.
- Normal light turns off.
- Ground Fault light blinks and horn sounds.
- Ground Fault Alarm relay changes state.

### 4.3.2 Undervoltage

- A setting of 0 disables this function.
- Fundamental timer begins and expires.
- Normal light turns off.
- System Normal relay changes state.

### 4.3.3 Overcurrent

- Fundamental time delay begins and expires.
- Normal light turns off.
- Ground Fault light blinks and horn sounds.
- Ground Fault Alarm relay changes state.

### 4.3.4 Undercurrent

- A setting of 0 disables this function.
- Fundamental timer begins and expires.
- Normal light turns off.
- System Normal relay changes state.

### 4.3.5 Pressing VIEW ALARM button:

- Turns off horn and Ground Fault light stops blinking and remains on.
- Opens "View Alarms Events" screen.

### 4.3.6 Pressing PULSE button:

- Opens "Pulse Running" screen.
- Amber light blinks.
- Pulsing relay begins.
- Only does above if currently in faulted state.
- Pressing ESC/BACK button ends pulsing.

### 4.3.7 Pressing SYSTEM RESET button:

- Resets output relays and lamps to normal mode.
- Only occurs if no faults currently on system.

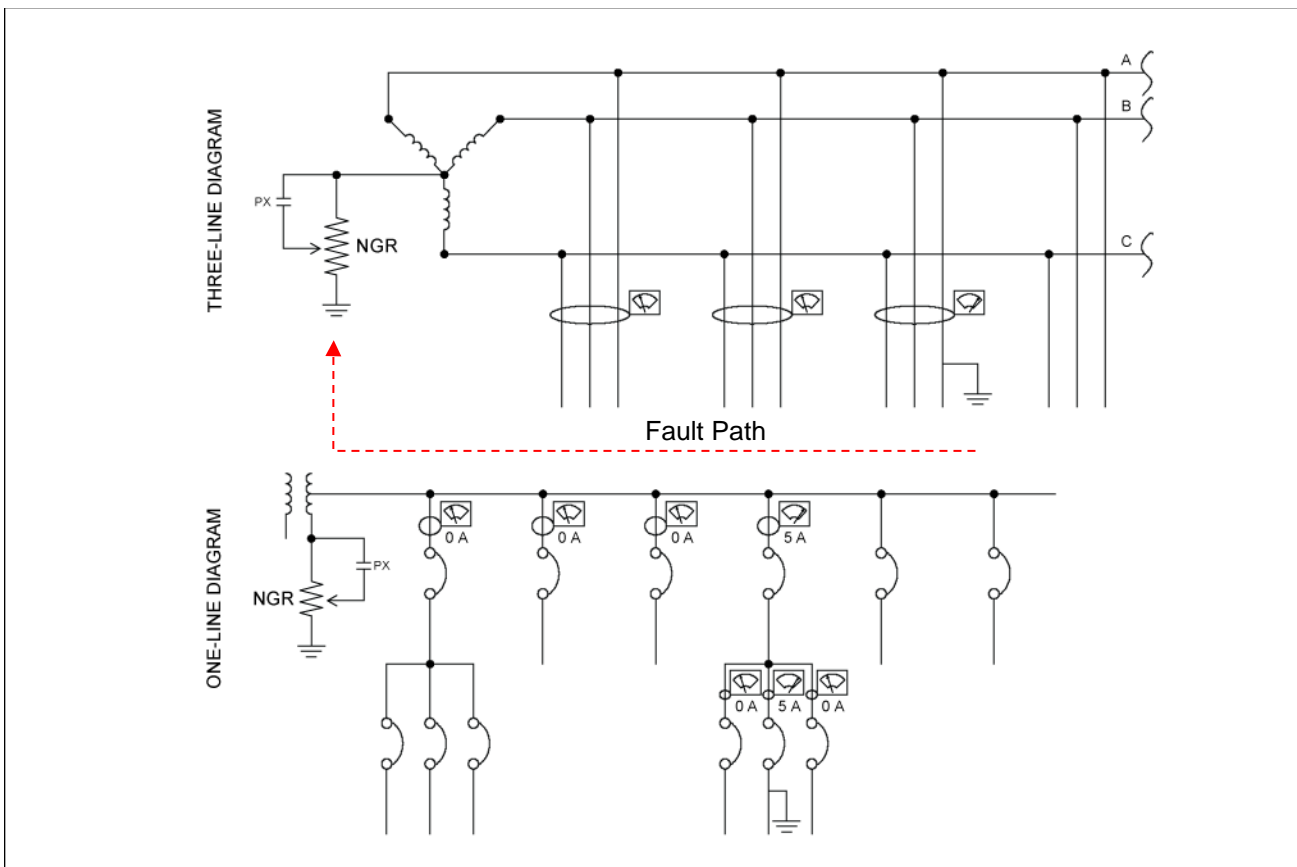
## Section 5 – Locating a Ground Fault

To locate a ground fault, activate the pulsing circuit by pressing the PULSE button on the operator's panel. The pulsing circuit cannot be enabled unless there is a ground fault detected by the MVP.Net™. After pressing the button, the controller will display the "Pulser Running" screen. This screen shows the pulse rate in seconds and the neutral voltage and current. This activates a control circuit which causes a cyclic switching sequence. The switching sequence consists of the cycle timing of an integral pulsing relay (PX). The pulsing relay (PX) shorts out a portion of the grounding resistor (NGR) each time the relay is energized, producing a tracer signal.

The optional portable hook-on detector is then used to follow the tracer signal through the system to the point of the fault. The detector is clamped around all three phases of each individual feeder (see the schematic below). The feeder with the fault will show rhythmic fluctuations on the detector's readout. The fault can be traced to the sub-feeder and eventually to the faulted device. Once this location is determined, the pulsing contactor should be turned off by pressing the PULSE on the operator's panel. This will return the user to the "System Status" screen.

After clearing the fault, place the system in its normal operation mode by pressing the SYSTEM RESET button.

**NOTE:** A portable ammeter can be included as an option with the MVP.Net™.



**How to Locate a Ground Fault**

## Section 6 – Troubleshooting Guide

### 6.1 No information on Display:

1. Is 24VDC power available? Check the voltage at the power supply output terminals with the disconnect switch in the ON position. If there is no reading, check the fuses and the power supply.
2. Is the controller power cable secure? Verify that the connection between the controller and base panel is firmly connected.
3. If both of the above check out OK, consider replacing the controller.

### 6.2 Normal light will not illuminate:

1. Is the Red Ground Fault light blinking? If so, locate and clear the fault and press the SYSTEM RESET button. See section 7 for details.
2. Is the pulsing light illuminated? If so, press the “PULSE” button to exit out of pulse mode.
3. Is there an undervoltage or undercurrent condition? Check the Fundamental voltage and current low limit settings. Also, check the continuity of the HRG circuit from Xo to Ground.
4. Check the K2 relay. If the light is not lit, check for loose wires from controller output terminal 4.
5. If K2 is lit, check for loose wires at PL1 (green light). If none are found, consider replacing the lamp.

### 6.3 TEST button does not seem to function properly (no alarm):

**NOTE:** This feature is only available with the optional Test Resistor package.

1. Are you pressing the TEST button longer than the alarm time delay setting? If not, press the button long enough to exceed the time delay.
2. Do the voltage and current readings on the display increase? If so, the High limits may need to be lowered for the fault to register.
3. Is there heat coming from the test resistor while the button is held? Check by feeling for warm air from the exhaust vent of the resistor enclosure. If not, the neutral conductor may not be properly connected to the transformer or generator.
4. There is no voltage and current reading, but the test resistor heats up. This condition is indicative of a solidly-grounded neutral. Check the transformer Xo bushing and the switchgear to make sure that all connections between neutral and ground are removed.

### 6.4 Controller in fault condition (alarm horn steady):

1. Press and hold the “System Info” front panel button until the “Enter Password” screen appears. Input “1111” as the password and press the “Enter” key.
2. On the “Info Main Menu” screen, press the “2” key for the “System” menu.
3. On the “System” screen, press the “1” key for the “Mode” menu.
4. On the “Mode” screen, press the “4” key to initialize and reset the controller.
5. An “Init Confirmation” information box will display. Press enter to restart the controller.
6. A Post Glover logo screen will display and within 5 seconds will be replaced by the “System Status” screen. The controller is now reset and operating in normal condition. The alarm horn will silence.
7. If this does not work, check the K1 and K2 relays and the normal relay output at controller terminal 4 and the fault relay output at controller terminal 5. There could be a loose wire or failed relay.

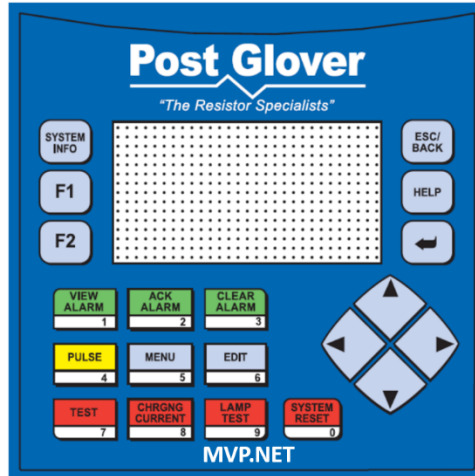
## 6.5 Red light is blinking, but there is no neutral voltage or current indicating a fault:

1. Press the view alarms button and press F1 to review alarms.
2. Scroll through the alarms using the up and down arrow keys. Note the time and date of each alarm.
3. Determine if an intermittent fault has occurred by checking the time and date stamps versus the times and dates of equipment turning on and off in the facility.

## Section 7 – User Interface

### 7.1 Front Panel Layout

This section provides an overview of the front panel layout of the MVP.Net™ controller. The function of each key will be described.



**MVP.Net™ Controller Faceplate Layout**

<u>Key</u>	<u>Function</u>
<b>SYSTEM INFO</b>	This is the system information button. When held for 4 seconds and a password is input, the system information screens are accessed.
<b>F1</b>	This key is used for accessing a new screen from the user's current screen.
<b>F2</b>	This key is used for accessing a new screen from the user's current screen.
<b>ESC/BACK</b>	Back function: when the user is viewing a screen, the user is taken back to the previous screen. Esc function: when the user is editing data, data entry is aborted and the original value is redisplayed
<b>HELP</b>	Pressing this key displays the screen containing Post Glover Resistors' websites and phone numbers.
<b>Enter</b>	This key is used for accessing a data point for editing and for saving the data point after editing.
<b>Arrows</b>	The four arrow keys are used for two purposes: <ol style="list-style-type: none"> <li>1. When in View Alarms or View Events, scroll through alarm or event screens.</li> <li>2. When in data entry mode, move among user-editable data items.</li> </ol>

The following table describes the color coded buttons, their associated numeric values and a description of the operation performed when pressed. The numeric value is used when data points are being edited.

# MVP.NET™ INSTRUCTION MANUAL

BUTTON LABEL	DIGIT	PASSWORD	OPERATION
VIEW ALARM	1	Not required	When pressed, this button opens the screen controlling access to the alarms and events screens. This button is also used to silence the alarm horn.
ACK ALARM	2	Not Required	This button is used to acknowledge the currently displayed alarm or event.
CLEAR ALARM	3	Required	This button is used to clear the currently displayed alarm or event. When pressed, this record is permanently removed from either the alarm or event data tables.
PULSE	4	Not Required	Upon pressing this button, the closing and opening of the pulse contactor is initiated. Press the "PULSE" key again to stop pulsing. This button is only active in a fault condition.
MENU	5	Not required	This button is used to access the password control screens and the communication port configuration screens.
EDIT	6	Not Required	When pressed, the user is taken to the password entry screen. Upon successful entry of the password, the user is returned to the previously displayed screen. Screens where this function is accessible will be identified later.
TEST*	7	Required	When pressed and held, the test resistor contact is closed. Upon release, the test resistor contact opens. This feature is disabled in the event of a ground fault.
CHRGING CURRENT*	8	Required	When pressed, the test resistor contact is closed and the system charging current is calculated. Upon completion, the test resistor contact opens. This feature is disabled in the event of a ground fault.
LAMP TEST	9	Required	When pressed, all front panel lamps turn on and the alarm horn sounds. When pressed a second time, all front panel lamps return to their previous state and the alarm horn is silenced.
SYSTEM RESET	0	Required	When pressed, all alarm states are reset and the green "NORMAL" lamp turns on.

\* These functions are optional and require the addition of a test resistor.



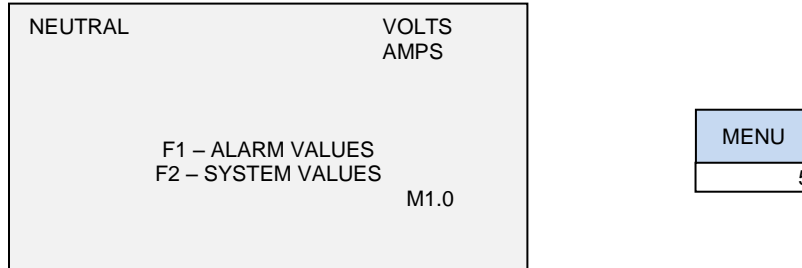
# MVP.NET™ INSTRUCTION MANUAL

## 7.1.1 Disabling/Re-enabling Password Protection

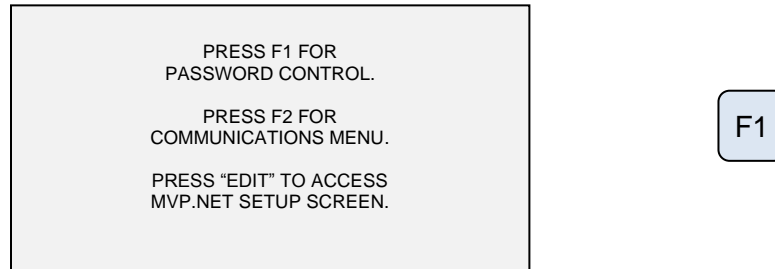
Many of the functions of the MVP.Net™ are “locked-out” by password protection to prevent tampering. The table in section 9.1 above shows which functions are password protected.

To disable the password protection, perform the following steps:

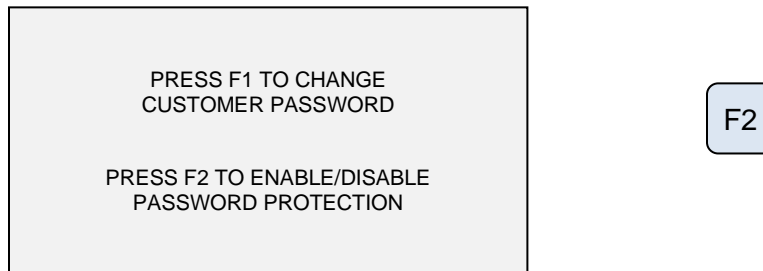
1. From the main screen, press the MENU key.



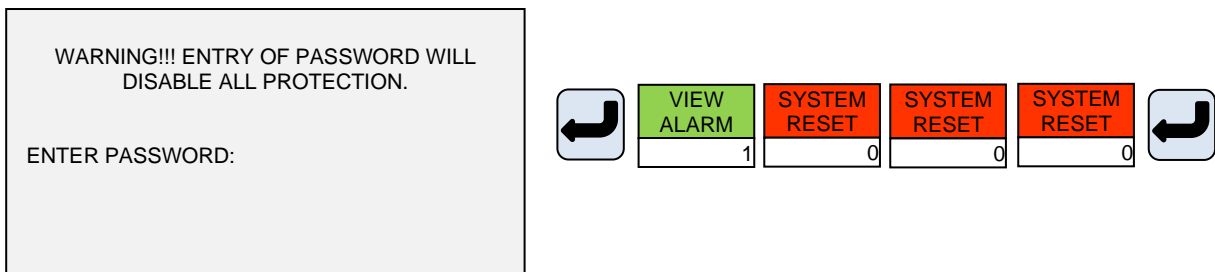
2. Press F1 for password control



3. Press F2 for enable/disable password protection.



4. In the password entry screen, press the Enter key, type in the password (default is 1000) and press the enter key again.



# MVP.NET™ INSTRUCTION MANUAL

The same steps above can be performed to re-enable the password.

ENTER PASSWORD:

ENTER PASSWORD TO ENABLE ALL  
PROTECTION.

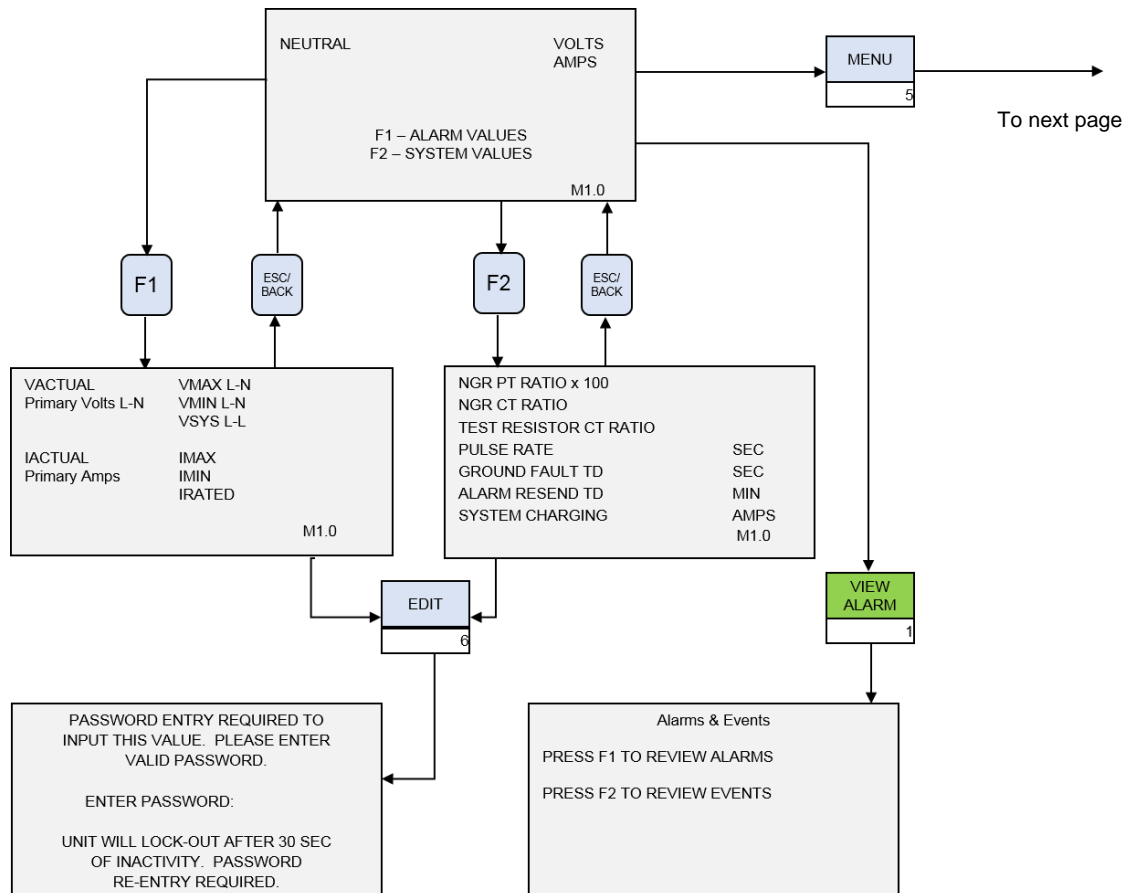
Note: To prevent tampering by unauthorized personnel, it is recommended that the password be re-enabled after any necessary work is complete.

# MVP.NET™ INSTRUCTION MANUAL

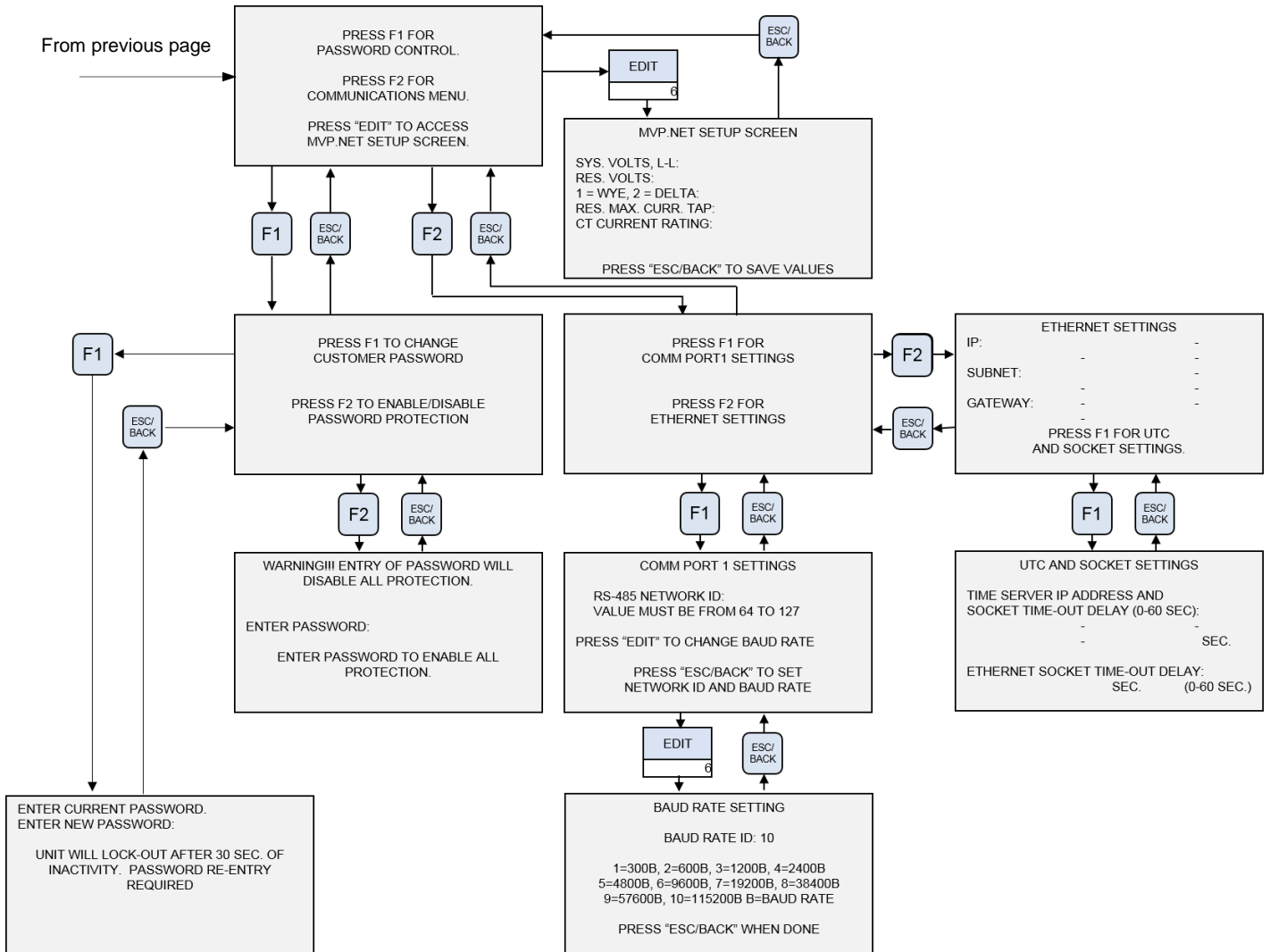
## 7.2 Controller Screen Information

This section provides an overview of the status, information and operation screens.

### 7.2.1 Control Screen Navigation Flowchart



# MVP.NET™ INSTRUCTION MANUAL



## 7.2.2 Control and Data Entry Screen Descriptions

### 7.2.2.1 Controller Screen: “System Status”

NEUTRAL	VOLTS AMPS
F1 – ALARM VALUES F2 – SYSTEM VALUES	M1.0

This is the default controller screen. This screen provides display of the real-time values for the voltage across and current through the NGR. It also provides access to the “Volts Amps” screen via the “F1” key and the “Parameters” screen via the “F2” key. The “View Alarms Events” screen is accessed via the “VIEW ALARM” key. The “Password Entry” screen is accessed via the “EDIT” key. The warning tag is displayed when the password feature has been disabled. This screen also displays the software revision number.

### 7.2.2.2 Controller Screen: “Volts Amps”

VACTUAL Primary Volts L-N	VMAX L-N VMIN L-N VSYL L-L
IACTUAL Primary Amps	IMAX IMIN IRATED
	M1.0

This screen is displayed when the “F1” key is pressed on the “System Status” screen. To edit “Vmax L-N”, “Vmin L-N”, “Vsys L-L”, “Imax”, “Imin” and “Irated”, the user must press the “EDIT” key to access the “Password Entry” screen. Upon successful entry of the password, the user will be returned to this screen. “Vactual” and “Iactual” are not editable. The warning tag at the bottom of the screen is displayed only when the user has disabled the password on the “Disable Password” screen. The software version is also displayed on this screen. Pressing “ESC/BACK” will return the user to the “System Status” screen.

## 7.2.2.3 Controller Screen: “Parameters”

NGR PT RATIO x 100	
NGR CT RATIO	
TEST RESISTOR CT RATIO	
PULSE RATE	SEC
GROUND FAULT TD	SEC
ALARM RESEND TD	MIN
SYSTEM CHARGING	AMPS
	M1.0

This screen is displayed when the “F2” key is pressed on the “System Status” screen. This screen displays the NGR PT ratio multiplied by 100, NGR CT ratio, test resistor CT ratio, Pulse Rate, Ground Fault Time Delay (TD), Alarm Resend Time Delay, and System Charging Current. To edit the “Test Resistor CT Ratio”, “Pulse Rate”, the “Ground Fault TD”, and the “Alarm Resend TD”, the user must press the “EDIT” key to access the password entry screen. Upon successful entry of the password, the user will be returned to this screen. The NGR PT Ratio x 100, NGR CT Ratio and System Charging Current are not editable. The warning tag at the bottom of the screen is displayed only when the user has disabled the password on the “Disable Password” screen. The software version is also displayed on this screen. Pressing “ESC/BACK” will return the user to the “System Status” screen.

## 7.2.2.4 Controller Screen: “MVP.NET Setup Screen”

MVP.NET SETUP SCREEN	
SYS. VOLTS, L-L:	
RES. VOLTS:	
1 = WYE, 2 = DELTA:	
RES. MAX. CURR. TAP:	
CT CURRENT RATING:	
PRESS “ESC/BACK” TO SAVE VALUES	

This screen is displayed when the “Menu/5” key is pressed on the “System Status” screen and then “Edit/6” is pressed on the “Menu Control” screen. This screen displays the line-to-line system voltage, resistor voltage, whether the system is wye or delta, the resistor maximum current tap and the CT current rating. To edit any of these values, the user must press the “EDIT” key to access the password entry screen. Upon successful entry of the password, the user will be returned to this screen. Pressing “ESC/BACK” will return the user to the “Menu Control” screen.

## 7.2.2.5 Controller Screen: “Password Extras”

PRESS F1 TO CHANGE CUSTOMER PASSWORD.
PRESS F2 TO ENABLE/DISABLE PASSWORD PROTECTION

This screen is displayed when the “F1” key is pressed on the “Menu Control” screen. The user is directed to press “F1” to change the customer password and “F2” to enable or disable password protection. Pressing “ESC/BACK” will return the user to the “Menu Control” screen.

## 7.2.2.6 Controller Screen: “Change Password”

ENTER CURRENT PASSWORD

ENTER NEW PASSWORD

UNIT WILL LOCK-OUT AFTER 30 SEC  
OF INACTIVITY. PASSWORD RE-ENTRY  
REQUIRED.

This screen is used to change the customer password. The user enters the existing password and the new password. If the existing password is correct, the new password will be stored in the “Customer Password” data table. This screen is accessed by pressing “F1” on the “Password Extras” screen. Pressing “ESC/BACK” will return the user to the “Password Extras” screen.

## 7.2.2.7 Controller Screen: “Password Entry”

PASSWORD ENTRY REQUIRED TO  
INPUT THIS VALUE. PLEASE ENTER  
VALID PASSWORD.

ENTER PASSWORD:

UNIT WILL LOCK-OUT AFTER 30 SEC  
OF INACTIVITY. PASSWORD  
RE-ENTRY REQUIRED.

This screen is used for entry of the customer password. It is accessed by pressing the “EDIT” key on the front panel. Once the password has been successfully entered, the user will be returned to the previous screen. The default password is 1000.

## 7.2.2.8 Controller Screen: “Disable Password”

WARNING!!! ENTRY OF PASSWORD  
WILL DISABLE ALL PROTECTION.

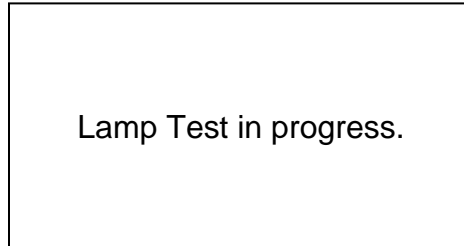
ENTER PASSWORD

ENTER PASSWORD TO ENABLE ALL  
PROTECTION.

This screen is accessed by pressing the “F2” key on the “Password Extras” screen. On this screen, entry of the customer password will disable the password function. When the password is active, the text above the entry box displays. When the password is disabled, the text below the entry box displays. To enable the password, the user enters the customer password. Pressing “ESC/BACK” will return the user to the “Password Extras” screen.

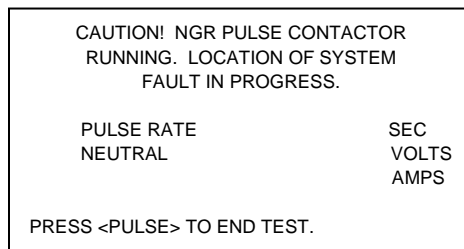


## 7.2.2.9 Controller Screen: “Lamp Test”



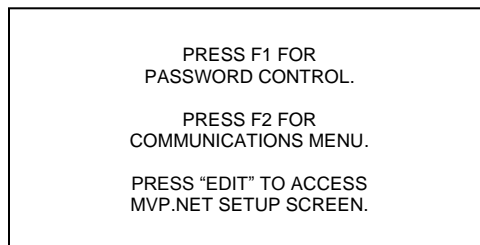
This screen is displayed while the “Lamp Test” is in progress. Upon pressing the “LAMP TEST” button, the “System Status” screen will re-appear.

## 7.2.2.10 Controller Screen: “Pulse Running”



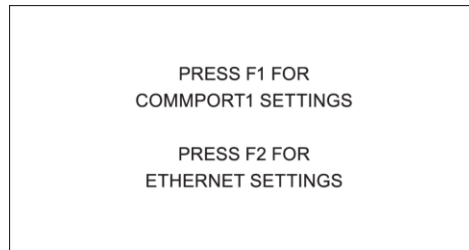
This screen is displayed when the NGR pulse test is running. It displays the pulse rate in seconds and the real-time values for the voltage across and the current through the NGR. Pressing “PULSE” will return the user to the “System Status” screen.

## 7.2.2.11 Controller Screen: “Menu Control”



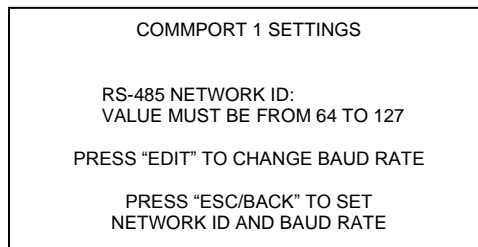
This screen is accessed by pressing the “Menu” key on the front panel. By pressing F1, the user has access to the password control subsystem. By pressing F2, the user has access to the communications settings menu. Pressing “ESC/BACK” will return the user to the “System Status” screen.

## 7.2.2.12 Controller Screen: “Comm Menu”



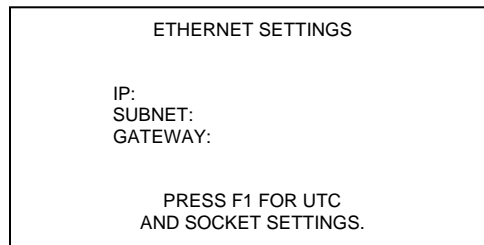
This screen is displayed when the “F2” key is pressed on the “Menu Control” screen. The user is directed to press “F1” to change the settings for Communications Port 1 and “F2” to change the settings for the Ethernet port. To edit any values in the “CommPort1” and “Ethernet Port” screens, the password must either be entered or disabled before entering this screen. Pressing “ESC/BACK” will return the user to the “Menu Control” screen.

## 7.2.2.13 Controller Screen: “CommPort1”



This screen is displayed when the “F1” key is pressed on the “Comm Menu” screen. This screen displays the RS-485 Network ID. The “RS-485 Network ID” value is user-settable. The RS-485 network ID has a range of 64 to 127. When changing the “RS-485 Network ID”, pressing “Enter” will store the new value. Pressing “ESC/BACK” will return the user to the “Comm Menu” screen.

## 7.2.2.14 Controller Screen: “Ethernet Port”



This screen is displayed when the “F2” key is pressed on the “Comm Menu” screen. This screen displays the IP Address, Subnet Mask and Gateway Mask for the controller’s Ethernet Port. All values are user-settable with the range of 0 to 255. Each octet must be entered individually. When changing an octet, pressing “Enter” will store the new value. Press the “F1” key to view UTC and Socket Settings. Pressing “ESC/BACK” will return the user to the “Comm Menu” screen.

## 7.2.2.15 Controller Screen: “BaudRateID”

```
BAUD RATE SETTING
BAUD RATE ID: 10

1=300B, 2=600B, 3=1200B, 4=2400B,
5=4800B, 6=9600B, 7=19200B, 8=38400B,
9=57600B, 10=115200B B=BAUD RATE

PRESS "ESC/BACK" WHEN DONE
```

This screen is displayed when the “EDIT” key is pressed on the “CommPort1” screen. Press Enter to set the baud rate and type in the desired number from the list. Press enter again to save the setting Pressing “ESC/BACK” will return the user to the “CommPort1” screen.

## 7.2.2.16 Controller Screen: “UTC and Socket Settings”

```
UTC AND SOCKET SETTINGS

TIME SERVER IP ADDRESS AND
SOCKET TIME-OUT DELAY (0-60 SEC):      SEC.

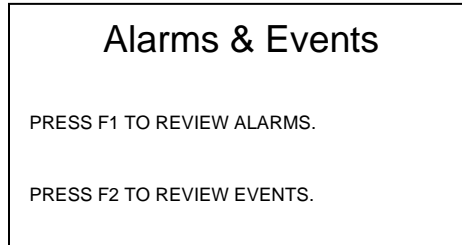
ETHERNET SOCKET TIME-OUT DELAY:
SEC.      (0-60 SEC.)
```

This screen is displayed when the “F1” key is pressed on the “Ethernet Port” screen. This screen displays the Universal Time Clock IP Address and socket time out delay and the Ethernet Socket time-out delay. All IP values are user-settable with the range of 0 to 255. Each octet must be entered individually. When changing an octet, pressing “Enter” will store the new value. All time delay values are settable within the range of 0-60 seconds. Pressing “ESC/BACK” will return the user to the “Ethernet Port” screen.

## 7.3 Alarms and Events

This section provides an overview of each screen and its information and function.

### 7.3.1 Controller Screen: “View Alarms Events”

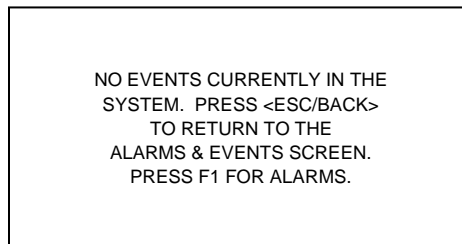


This screen is accessed by pressing the “View Alarms” key on the front panel. By pressing F1, the user has access to viewing system alarms. By pressing F2, the user has access to viewing system events. Pressing the “EDIT” key directs the user to the “Password Entry” screen. Pressing “ESC/BACK” will return the user to the “System Status” screen.

### 7.3.2 Event Screens

The following screens are events and can be seen in the event viewer if they have occurred. The events can be scrolled through by using the up and down arrow keys.

#### 7.3.2.1 Event Screen: “No Events”



This screen is displayed when the user presses “F2” from the “View Alarms Events”, “No Alarms” or any alarm screen and no events records exist in the “Events” data table. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen and pressing “F1” will transfer the user to the alarms screens.

## 7.3.2.2 Event Screen: “Password Changed”

PASSWORD HAS BEEN CHANGED.	
DATE	
TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is for the changing of the customer password. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.2.3 Event Screen: “Password Disabled”

PASSWORD DISABLED. PROTECTION REMOVED FROM SYSTEM.	
DATE	
TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is for the disabling of the password function. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.2.4 Event Screen: “Password Enabled”

PASSWORD ENABLED. PROTECTION RESTORED TO SYSTEM.	
DATE	
TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is for the re-activation of the password function. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.2.5 Event Screen: “Current Within Limits”

CURRENT THRU THE NGR HAS RETURNED TO NORMAL.	
DATE TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is an NGR return-to-normal condition. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.2.6 Event Screen: “Voltage Within Limits”

VOLTAGE ACROSS THE NGR HAS RETURNED TO NORMAL.	
DATE TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is an NGR return-to-normal condition. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.2.7 Event Screen: “Pulse Start”

PULSING OF FAULTED SYSTEM THROUGH NGR HAS STARTED.	
DATE TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is for the initiation of the NGR pulse. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.2.8 Event Screen: “Pulse Stop”

PULSING OF FAULTED SYSTEM THROUGH NGR HAS STOPPED.	
DATE	
TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is for the termination of the NGR pulse. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.2.9 Event Screen: “System Charging Current” (Optional)

SYSTEM CHARGING CURRENT HAS BEEN CALCULATED. VIEW PARAMETERS SCREEN FOR VALUE.	
DATE	
TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is for the calculation of the system charging current. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.2.10 Event Screen: “Test Resistor Connected” (Optional)

TEST RESISTOR HAS BEEN CONNECTED.	
DATE	
TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is for the connection of the test resistor. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.



## 7.3.2.11 Event Screen: “Test Resistor Disconnected” (Optional)

TEST RESISTOR HAS BEEN DISCONNECTED.	
DATE	
TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is for the disconnection of the test resistor. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.2.12 Event Screen: “Lamp Event”

FRONT PANEL LAMPS AND HORN TESTED.	
DATE	
TIME	
EVENT	EVENT ACK.

This screen is displayed when the viewed event record in the “Events” data table is for the testing of the front panel lamps and alarm horn. The “Event Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.3 Alarm Screens

The following screens are events and can be seen in the event viewer if they have occurred. The alarms can be scrolled through by using the up and down arrows.

### 7.3.3.1 Alarm Screen: “No Alarms”

NO ALARMS CURRENTLY IN THE SYSTEM. PRESS <ESC/BACK> TO RETURN TO THE ALARMS & EVENTS SCREEN. PRESS F2 FOR EVENTS.
---

This screen is displayed when the user presses “F1” from the “View Alarms Events”, “No Events” or any event screen and no alarms records exist in the “Alarms” data table. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen and pressing “F2” will transfer the user to the events screens.

This screen is displayed when the user “F1” from the “View Alarms Events” screen and no alarms records exist in the “Alarms” data table. Pressing “ESC/BACK” twice will return the user to the “View Alarms Events” screen.

## 7.3.3.2 Alarm Screen: “Current Above Limit”

WARNING!! CURRENT THRU NGR HAS EXCEEDED MAXIMUM ALARM VALUE.	
CURRENT THRU NGR	A
DATE	
TIME	
ALARM	ALARM ACK.

This screen is displayed when the viewed alarm record (code 21) in the “Alarms” data table is an NGR overcurrent condition. The current through the NGR in amps and the date and time of the alarm are displayed. The “Alarm Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.3.3 Alarm Screen: “Voltage Above Limit”

WARNING!! VOLTAGE ACROSS NGR HAS EXCEEDED MAXIMUM ALARM VALUE.	
VOLTAGE ACROSS NGR	V
DATE	
TIME	
ALARM	ALARM ACK.

This screen is displayed when the viewed alarm record (code 11) in the “Alarms” data table is an NGR overvoltage condition. The “Alarm Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.3.4 Alarm Screen: “Current Below Limit”

WARNING!! CURRENT THRU NGR IS BELOW THE MINIMUM ALARM VALUE.	
CURRENT THRU NGR	A
DATE	
TIME	
ALARM	ALARM ACK.

This screen is displayed when the viewed alarm record (code 22) in the “Alarms” data table is an NGR undercurrent condition. The current through the NGR in amps and the date and time of the alarm are displayed. The “Alarm Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

## 7.3.3.5 Alarm Screen: “Voltage Below Limit”

WARNING!! VOLTAGE ACROSS NGR IS BELOW THE MINIMUM ALARM VALUE.	
VOLTAGE ACROSS NGR	V
DATE	
TIME	
ALARM	ALARM ACK.

This screen is displayed when the viewed alarm record (code 12) in the “Alarms” data table is an NGR undervoltage condition. The “Alarm Ack.” tag is only displayed when the user has previously pressed the “ACK ALARM” key. Pressing “ESC/BACK” will return the user to the “View Alarms Events” screen.

# MVP.NET™ INSTRUCTION MANUAL

## 7.4 Data Entry

This section guides the user through data entry using the front panel and display of the controller. A typical screen is shown and the method for data entry is described.

NGR PT RATIO x 100	
NGR CT RATIO	
TEST RESISTOR CT RATIO	
PULSE RATE	SEC
GROUND FAULT TD	SEC
ALARM RESEND TD	MIN
SYSTEM CHARGING	AMPS
	M1.0

This is the “Parameters” screen, accessible by pressing F2 at the “System Status” screen. The “Test Resistor CT Ratio”, “Pulse Rate”, the “Ground Fault TD”, and the “Alarm Resend TD” parameters are user-editable. To change any user-editable value on the screen, use the following procedure:

1. If the password is not already disabled or entered, press the “EDIT” key and follow the password entry instructions. The default user password is “1000”.
2. Using the arrow keys, select any highlighted value. Press the “ENTER” button to access the value.
3. Using the numbered keypad, enter the desired value. For integer values, a single entry is needed. For float values, the numerals before and after the decimal point are separately entered.
4. Press the “ENTER” button to save the value. Use the arrow keys to go to the next value.
5. Upon leaving the screen, all values are saved to the appropriate data table.

User-editable values are identified per screen in Section 7.2. Maximum, Minimum and Default values for all settings are given in the table below. The data tables storing these values are described in HR212-15, “Communication Manual with Modbus Memory Map”.

Parameter	Units	Minimum Value	Maximum Value	Default Value
V <sub>MAX</sub> (Ground fault alarm setting)	Volts	0	9999.9	1000
V <sub>MIN</sub>	Volts	0	999.9	0.0
I <sub>MAX</sub> (Ground fault alarm setting)	Amps	0	50.9	4
I <sub>MIN</sub>	Amps	0	50.9	0.0
TEST RESISTOR CT RATIO		1	100	1
PULSE RATE	Seconds	2	60	5
GROUND FAULT TD	Seconds	1	30	10
ALARM RESEND TD	Minutes	0	60	20
SYS. VOLTS, L-L	Volts	1000	32767	4160
RES. VOLTS	Volts	0	600	240
1 = WYE, 2 = DELTA		1	2	1
RES. MAX. CURR. TAP	Amps	1	99	10
CT CURRENT RATING	Amps	1	999	150
RS-485 NETWORK ID		64	127	64
ETHERNET SETTINGS		0	255	-

# MVP.NET™ INSTRUCTION MANUAL

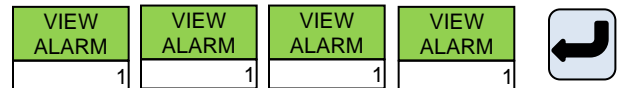
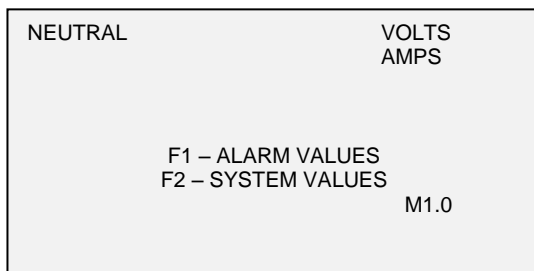
## 7.5 Data Tables

Data tables are utilized to store editable system data and alarms and events records. These values are maintained even when system power cycles. By using these tables, information does not have to be re-entered by the customer when system power cycles. Refer to the MVP.Net™ Communications Manual for the details of each data table and the values that are stored in them.

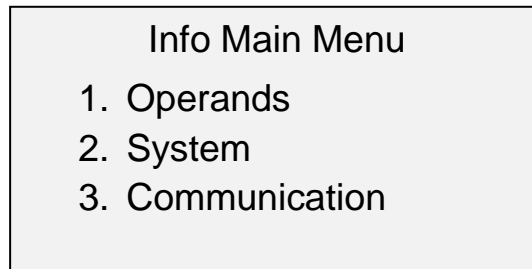
## 7.6 Porting Data Tables

The MVP.Net™ controller is equipped with a micro-SD card reader. The reader is designed to accommodate up to 32GB micro-SD cards. The controller is delivered with a micro-SD card in the reader. The data tables are pre-loaded into the MVP.Net™ controller with typical default system values. It is highly recommended that the customer replace these values with actual system-specific values. Once these values are input, the customer should back these up onto the provided micro-SD card. To save the data tables, follow the steps below:

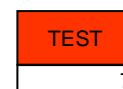
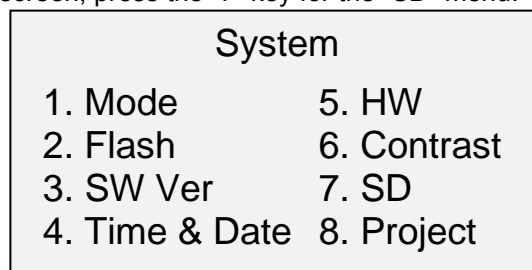
1. Press and hold the “System Info” front panel button until the “Enter Password” screen appears. Input “1111” as the password and press the “Enter” key.



2. On the “Info Main Menu” screen, press the “2” key for the “System” menu.



3. On the “System” screen, press the “7” key for the “SD” menu.

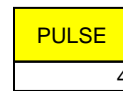
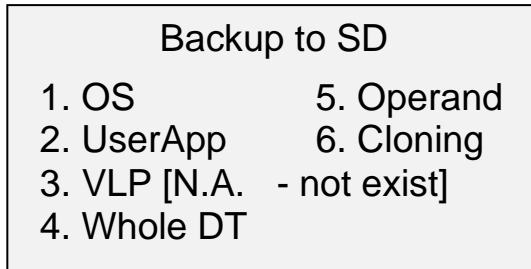


# MVP.NET™ INSTRUCTION MANUAL

- On the “SD” screen, press the “2” key for the “Backup to SD” menu.



- On the “Backup to SD” menu, press the “4” for backing up the “Whole DT” function. This will save all data tables onto the micro-SD card.

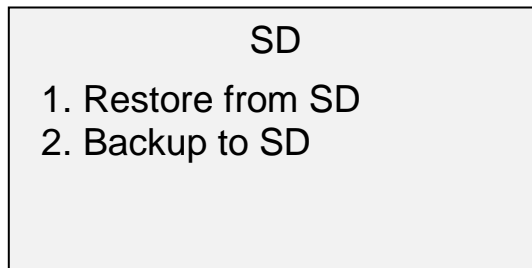


- To enter the required password, press the “Enter” key and then input “1111” and press “Enter” again. After each “1” is input, wait until an “x” is shown before entering the next “1”.
- The “Post Glover” logo will appear on the screen with a box showing the save progress. Upon completion of the save, the “Backup to SD” menu will reappear. Press “ESC/BACK” until the “System Status” screen appears.

Now that the data tables are saved, these values can be ported to other MVP.Net™ controllers. To do this, the controllers’ versions must be compatible. In the lower right hand corner of the “System Status” screen is the version number, format “Vx.y”. If the “x” value for the second controller is the same as the first controller, the data tables can be ported. If the “x” values do not match, contact Post Glover.

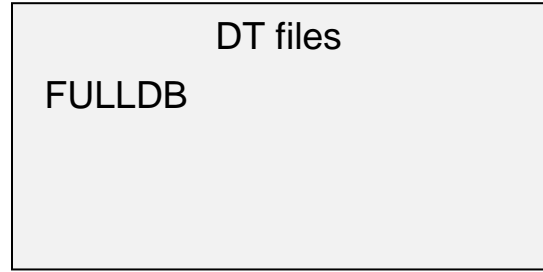
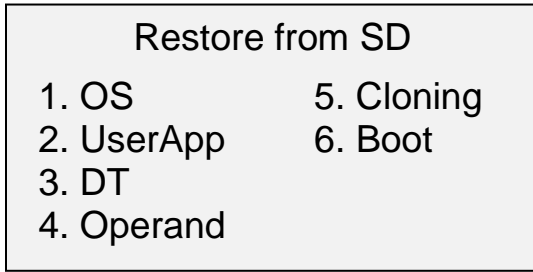
To download the data tables to a new MVP.Net™ controller, follow the steps below:

- Follow steps 1 and 2 above.
- On the “SD” screen, press the “1” key for the “Restore from SD” menu.



# MVP.NET™ INSTRUCTION MANUAL

3. On the “Restore from SD” menu, press the “3” key for the “DT” (data tables) option. This will list the available data table files on the “DT Files” menu. The name listed should be “FULLDB”.



4. Press the “Enter” key twice and the data tables will be downloaded. The “Post Glover” logo will appear on the screen with a box showing the save progress. Upon completion of the download, the “DT Files” screen will reappear. Press “ESC/BACK” until the “System Status” screen appears.

## 7.7 Communications

The controller is provided with two communication ports, (1) RS-232/RS-485 and (1) Ethernet. See the MVP.Net™ Communications Manual for details of how to set up and use these ports.

## 7.8 Software Back-up

The software in the MVP.Net™ controller is pre-loaded at the factory and is ready to run upon installation. In the unlikely event that the software becomes corrupted and the controller operates erratically, the software can be reloaded in the field. The NGR is still connected and protecting the power system.

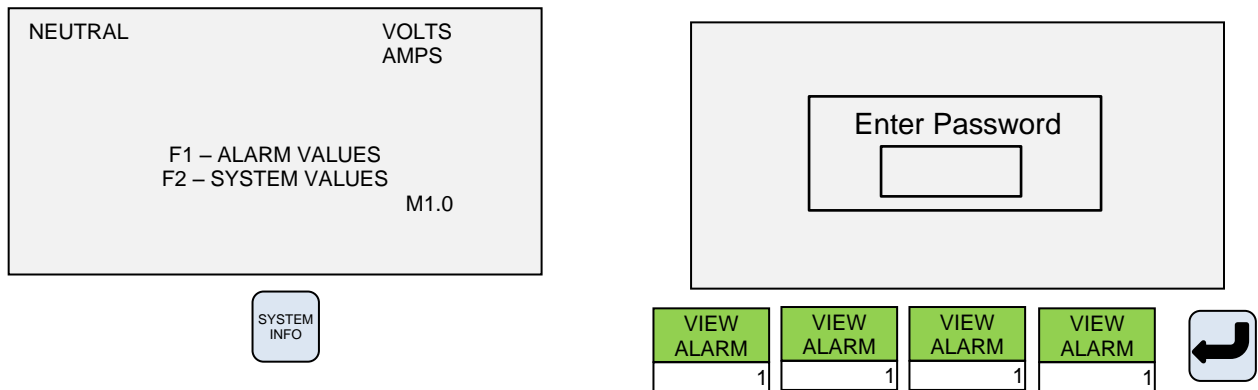
Software updates may also be issued by Post Glover to provide feature enhancements. The procedure below can also be used for those upgrades.

The controller is equipped with a micro-SD card reader. The reader is designed to accommodate up to 32GB micro-SD cards. The controller is delivered with a micro-SD card in the reader. This micro-SD card contains an image of the controller software package. New versions of the software can be copied from the user's PC to the SYSTEM directory of the card. This image cannot be opened and viewed on the customer PC.

**NOTE:** Do not change the file names or the program will not load properly.

To re-load or upgrade the software image, follow the steps below:

1. Press and hold the “System Info” front panel button until the “Enter Password” screen appears. Input “1111” as the password and press the “Enter” key.



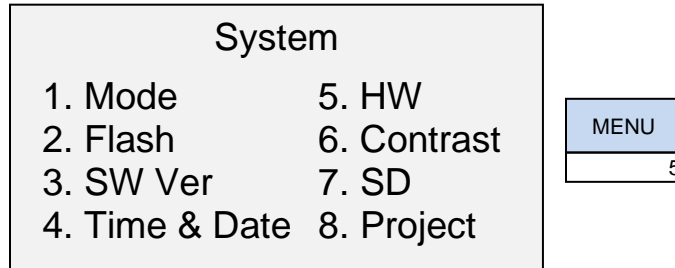
2. On the “Info Main Menu” screen, press the “2” key for the “System” menu.





# MVP.NET™ INSTRUCTION MANUAL

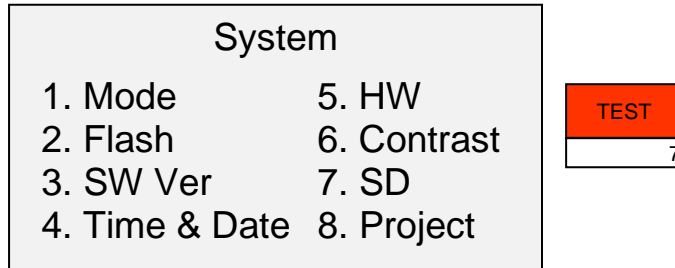
3. On the “System” screen, press the “5” key for the “HW” menu.



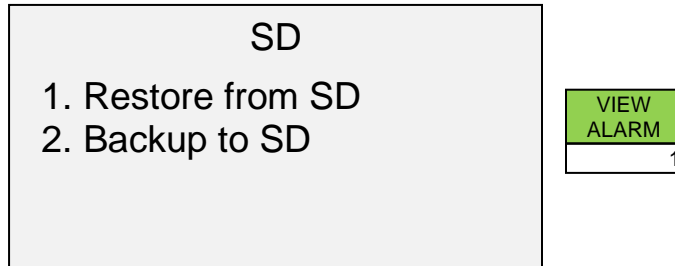
4. Note the controller version in parenthesis and press the “ESC/BACK” key.



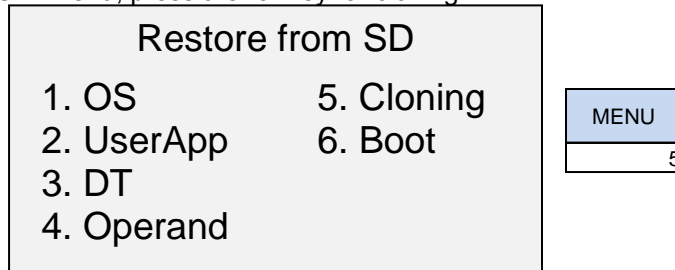
5. On the “System” screen, press the “7” key for the “SD” menu.



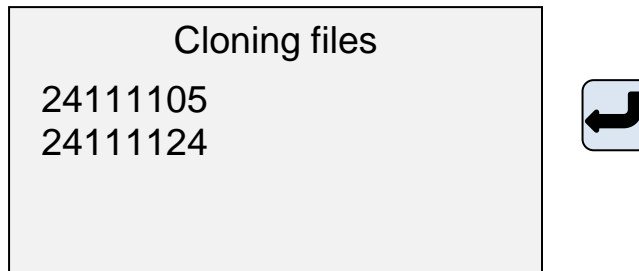
6. On the “SD” screen, press the “1” key for the “Restore from SD” menu. The other menu selection is password protected and is not accessible to the customer.



7. On the “Restore from SD” menu, press the “5” key for cloning.



8. Select the appropriate file using the arrow keys and press enter. Press enter again at the confirmation. This loads the software image stored on the SD card.



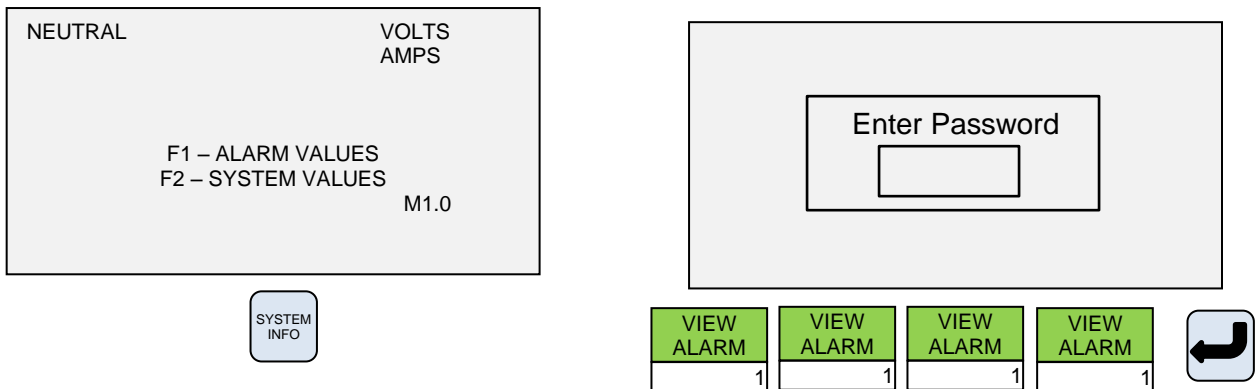
9. Upon completion of the reloading process, the controller will reboot and be ready for operation. System data previously entered by the customer will need to be re-entered.

# MVP.NET™ INSTRUCTION MANUAL

## 7.9 Setting the Time and Date

The MVP.Net™ has a real-time clock with a battery back-up. It is important to set the time and date so the unit correctly timestamps the Events and Alarms in the alarm log. The procedure to set the time and date is as follows:

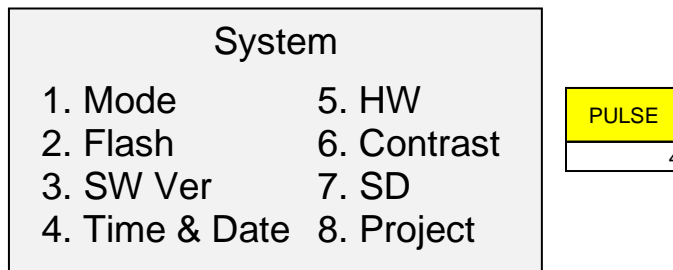
1. Press and hold the “System Info” front panel button until the “Enter Password” screen appears. Input “1111” as the password and press the “Enter” key.



2. On the “Info Main Menu” screen, press the “2” key for the “System” menu.



3. On the “System” screen, press the “4” key for the time and date.



# MVP.NET™ INSTRUCTION MANUAL

4. Use the arrow keys to select the portions of the time and date that need to be changed.
5. Press Enter to edit the selected item.
6. Use the numbered keypad to enter the correct values. Press enter to save the new setting.

Time and Date	
Time:	12:46:00
Date:	12/03/15
Day:	Thursday



7. Press ESC/Back until the unit returns to the main screen.

Note: The date format is DD/MM/YY and the time format is 24-hour. The day of the week will automatically change when setting the date.

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## Post Glover

*"The Resistor Specialists"*

1369 Cox Ave. • Erlanger, KY 41018 • USA  
Phone: 800-537-6144 / 859-283-0778 • Fax: 859-283-2978  
[www.postglover.com](http://www.postglover.com)

## Section 8 – Maintenance

Normally, no maintenance is necessary for the MVP.Net™ high resistance grounding system. However, periodic inspections are needed to ensure that the controller is functioning correctly and the resistor is still capable of protecting the system. Post Glover Resistors recommends that the periodic inspections coincide with your normal system Preventative Maintenance schedule.

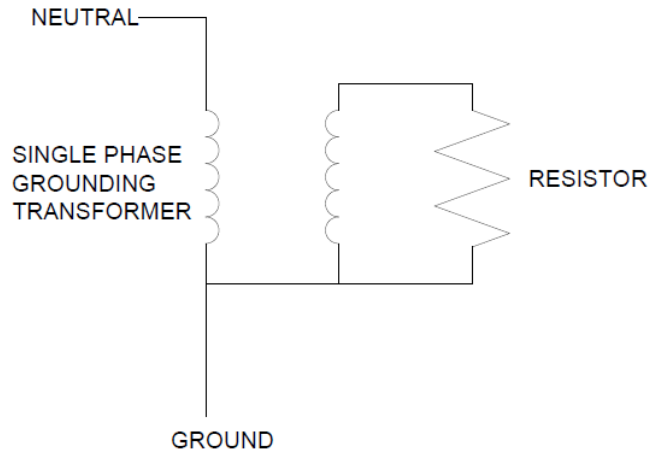
The following procedure is recommended for periodic field inspections:

1. De-energize the system being grounded. Open the control power switch on the MVP.Net™, which will de-energize the control circuits and open-circuit the resistor bank. Always use proper lock-out/tag-out procedures when working on electrical equipment.
2. Open the front door of the control enclosure. For systems with a separately mounted resistor, remove the front and rear covers of the resistor enclosure. This will allow for a visual inspection of all internal components.
3. Check the enclosure for signs of damage from weather or rodents. Remove any dirt or debris from the inside of the enclosure using a vacuum cleaner or compressed air.
4. Carefully check for cracked insulators and resistor cores. A MEGGER or Hi-Pot test is the most reliable method of ensuring that the insulation is still providing the necessary electrical isolation. Remove any connections from the resistor elements to ground and the controller before performing one of these tests.
5. Check the resistive element for continuity. Ohmmeter readings made between each neutral tap and the ground side of the resistor should be within 10% of the values on the resistor drawing. If the resistances of the elements are more than 15% different from the drawing values, the resistors should be replaced. Any open resistors should be replaced.
6. Check all internal connections for tightness. Check wiring for signs of damage from heat or overloads.
7. Replace all side covers removed during inspection and check the mounting bolts for tightness. Close the front door of the control enclosure.
8. FOR REPLACEMENT PARTS OR ASSISTANCE, CALL 1-800-537-6144 (or from outside the USA, +1-859-283-0778). Please have the resistor nameplate information readily available when you call.

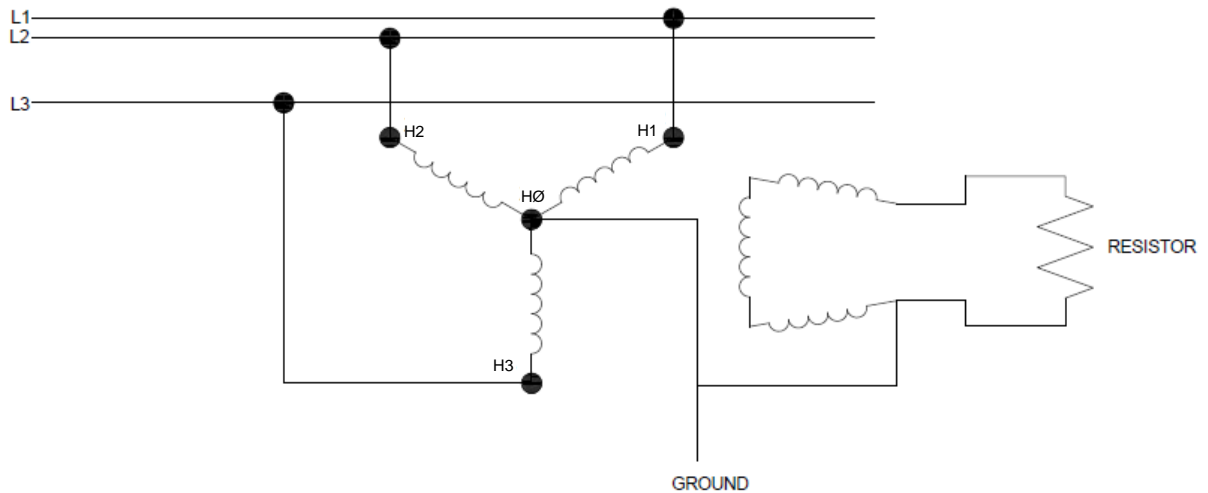
## Appendix A – Schematics

The schematics in this section are general schematics. Refer to the wiring diagrams for the resistor for detailed connections.

### A.1 Medium Voltage Wye-Connected



### A.2 Medium Voltage Delta-Connected

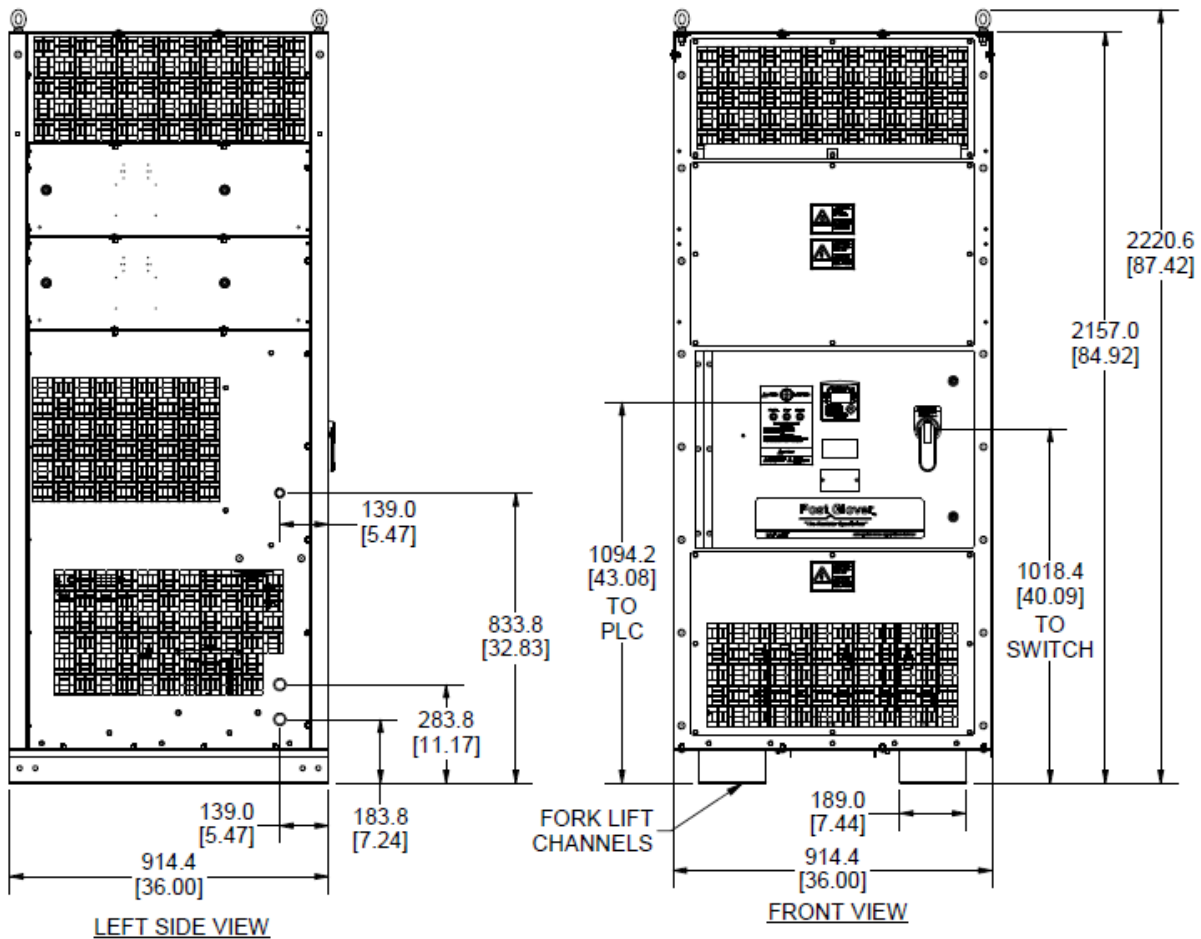


# MVP.NET™ INSTRUCTION MANUAL

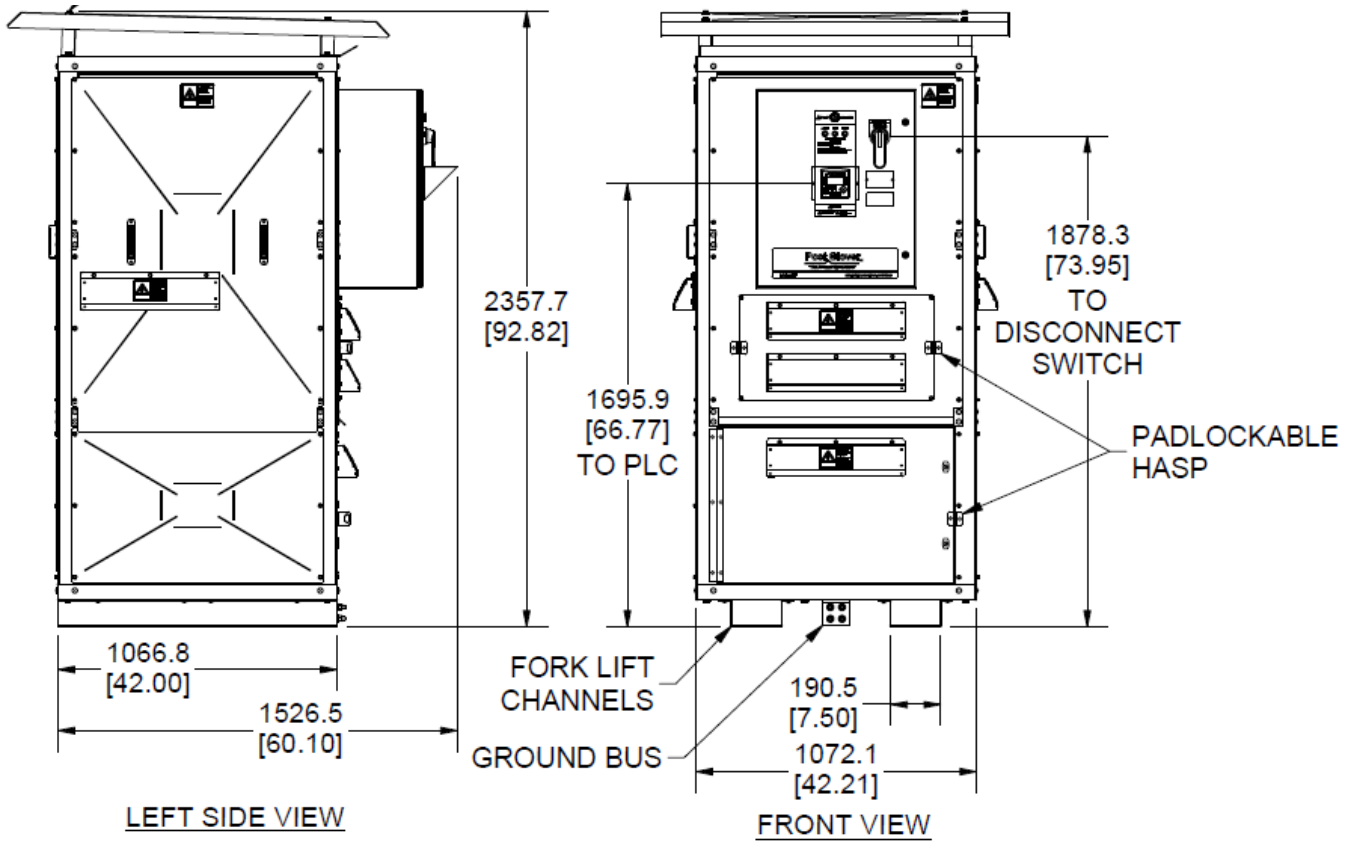
## Appendix B – Dimension Drawings

**NOTE:** These drawings and views provide general dimensions and information. Refer to Project/Sales Order specific drawings for exact dimensions including cable entry/exit points.

### B.1 Medium Voltage Indoor Enclosure



## B.2 Medium Voltage Outdoor Enclosure





## Appendix C – Control Specifications

### C.1 Supply:

1. Controller: 24VDC, 165mA; 20.4VDC to 28.8VDC with less than 10% ripple
2. Pulser Electronics Module: 24VDC.

### C.2 Ground Circuits:

1. Pulser Electronics Module (PEM)
  - a) Voltage Limit: 400V
  - b) Current Limit: 25A

### C.3 Controller Output Relays:

1. System Normal: 5A @ 250VAC, 30VDC
2. Ground Fault: 5A @ 250VAC, 30VDC
3. Pulser: 5A @ 250VAC, 30VDC
4. Test: 5A @ 250VAC, 30VDC
5. Values may change based upon options included.

### C.4 Digital Inputs:

1. Nominal input voltage: 24VDC
2. Source type: 0-5VDC for Logic '0', 17-28.8VDC for Logic '1'
3. Input current: 8mA @ 24VDC

### C.5 Analog Inputs:

1. 4-20mA, 243 ohm input impedance
2. Resolution: 204 to 1023 (820 units)
3. One configured input updated per scan. All analog inputs updated in 4 scans. Scan time approximately 4 to 5 ms

### C.6 Communication Ports:

1. Port 1: 1 channel, RS-485
  - a. Type RJ-11 jack
  - b. Baud Rate: 300 to 115200 bps
  - c. RS-485
    - i. Input voltage: -7 to +12VDC differential maximum
    - ii. Cable type: Shielded twisted pair
    - iii. Cable length: 1200m/4000ft maximum
    - iv. Nodes: Up to 32
2. Port 2: Ethernet
  - a. Type RJ-45 jack

### C.7 SD Card

1. Type of Port: Micro SD
2. Maximum Card size: 32GB

## C.8 Miscellaneous

1. Real-time clock (date and time)
2. Battery back-up: 7 years typical at 25 deg. C
3. Battery: Coin-type 3V, lithium battery, CR2450
4. Maximum torque on connection screws, main disconnect switch: 22 in-lb.

# MVP.NET™ INSTRUCTION MANUAL

## Appendix D – Customer Connection Details

The table below indicates the wiring requirements to connect the MVP.Net™ to the customer switchgear. For each wire, the ending termination locations at the MVP.Net™ are given along with the wire type, size, color and termination requirements.

MVP.Net Freestanding Wye-Connected with CPT		
Terminal	Hardware Size	Cable Voltage and Current Ratings
Bus MVB1-1, NEMA 2-hole	1/2"	5 kV, rated per NFPA 70, Section 250
Control Power Transformer CPT-H1	#10	5 kV, rated per NFPA 70
Control Power Transformer CPT-H2	#10	5 kV, rated per NFPA 70
External Ground Bus	5/8"	5 kV, rated per NFPA 70, Section 250

MVP.Net Freestanding Wye-Connected, no CPT		
Terminal	Hardware Size	Cable Voltage and Current Ratings
Bus MVB1-1, NEMA 2-hole	1/2"	5 kV, rated per NFPA 70, Section 250
Low Voltage Switch, SW1-1	N/A	600V, minimum #10AWG
Low Voltage Switch, SW1-3	N/A	600V, minimum #10AWG
External Ground Bus	5/8"	5 kV, rated per NFPA 70, Section 250

MVP.Net Freestanding Delta-Connected with CPT		
Terminal	Hardware Size	Cable Voltage and Current Ratings
Bus MVB1-1, NEMA 2-hole	1/2"	5 kV, rated per NFPA 70, Section 250
Bus MVB1-3, NEMA 2-hole	1/2"	5 kV, rated per NFPA 70, Section 250
Bus MVB1-5, NEMA 2-hole	1/2"	5 kV, rated per NFPA 70, Section 250
Control Power Transformer CPT-H1	#10	5 kV, rated per NFPA 70
Control Power Transformer CPT-H2	#10	5 kV, rated per NFPA 70
External Ground Bus	5/8"	5 kV, rated per NFPA 70, Section 250

MVP.Net Freestanding Delta-Connected, no CPT		
Terminal	Hardware Size	Cable Voltage and Current Ratings
Bus MVB1-1, NEMA 2-hole	1/2"	5 kV, rated per NFPA 70, Section 250
Bus MVB1-3, NEMA 2-hole	1/2"	5 kV, rated per NFPA 70, Section 250
Bus MVB1-5, NEMA 2-hole	1/2"	5 kV, rated per NFPA 70, Section 250
Low Voltage Switch, SW1-1	N/A	600V, minimum #10AWG
Low Voltage Switch, SW1-3	N/A	600V, minimum #10AWG
External Ground Bus	5/8"	5 kV, rated per NFPA 70, Section 250

# MVP.NET™ INSTRUCTION MANUAL

## Appendix E - Setup Report Form

Use these to record the parameters and settings used when commissioning the Post Glover PulserPlus.Net. This is not a "how-to" guide, nor is it intended as a substitute for reading the manual.

INSTALLATION INFORMATION			
Unit Identification:	_____	Date:	_____
Customer:	_____	Serial Number.:	_____
System Voltage:	_____	Part Number.:	_____
Rated Amperes:	_____	PLC Serial Number:	_____
NGR / Pulsing Tap	_____ A / _____ A	Temp. Rise.:	_____

ROUTINE INSPECTION	
ENCLOSURE FINISH FREE OF SCRATCHES, DENTS, CHIPS, DEBRIS?	Y / N
PHYSICAL INSTALLATION CORRECT?	Y / N
NEUTRAL AND GROUND TERMINATIONS PROPERLY CONNECTED?	Y / N
INTERNAL INSPECTION COMPLETED?	Y / N
CONTROL POWER CORRECTLY CONNECTED (CUSTOMER SOURCE OR CPT)?	Y / N
FIRMWARE VERSION INSTALLED:	V
FIRMWARE REFERESHED OR UPDATED?	Y / N
TIME AND DATE SET?	Y / N
PARAMETERS SET AND EXPLAINED TO CUSTOMER?	Y / N
GROUND FAULT AND PULSING TAP SET TO CUSTOMER SPEC?	Y / N

NOTES

# MVP.NET™ INSTRUCTION MANUAL

PARAMETER SETTINGS					
Setup Menu	Parameter	Default	Range	Setting	Section
<b>MVP.NET Setup Screen</b>	System Volts, L-L	4160 V	0-9999		
	Resistor Volts	240 V	0-600		
	1=Wye, 2=Delta	1			
	Resistor Max Current Tap	10 A	0-99		
	CT Current Rating	150	0-999		
	Test Resistor, 0=No/1=Yes	1			
<b>Alarm Values</b>	VMAX	0 V	0-9999		
	VMIN	0 V	0-9999		
	VSYS, L-L	Copied from Set-Up			
	IMAX	0 A	0-999		
	IMIN	0 A	0-999		
	IRATED	Copied from Set-Up			
<b>System Values</b>	NGR PT Ratio x100	Calculated by FW			
	NGR CT Ratio	Copied from Set-Up			
	Test Resistor CT Ratio	If Applicable			
	Pulse Rate	1 sec	1-10		
	Ground Fault Time Delay	10 sec	1-30 sec		
	Alarm Resend Timer	20 min	0-60 min		
	System Charging Current	If Applicable			
<b>Alarm Reset Mode</b>	ALARM AUTO/MANUAL RESET	MANUAL	AU / MN		
<b>Password Management</b>	Enable/Disable PSW	ENABLED	EN / DIS		
	CHANGE PASSWORD	1000	0 - 9999		
<b>Test Functions</b>	Lamp Test	Functions correctly			
	Ground Fault Test	If Applicable			
	Charging Current Test	If Applicable			
<b>Communications (if applicable)</b>	RS-485 SETTINGS		ID 1-255		COMS. MANUAL
			BR 1-10		
	ETHERNET SETTINGS		0-255		COMS. MANUAL
			SK TO 0-60		
	UTC SETTINGS		0-255		COMS. MANUAL
		SK TO 0-60			

Customer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Technician Signature: \_\_\_\_\_ Date: \_\_\_\_\_



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