



# **M-7679 Configuration Record Forms with Integrated Input/Output Map**

**Rev. 02  
M-7679-IB-06**

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## **M-7679 Recloser Control**

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**NOTES:**

This document supplies a set of forms to record and document the settings required for the proper operation of the M-7679. The pdf form may be opened in Adobe Reader or Acrobat. The form may be completed in either program and then saved for reference.

The file is "Read Only" so that the original will not be overwritten. The "Save As" dialog screen will open when saving the document.

Up to 8 Settings Profiles may be configured for the M-7679. Entering a Profile Number in the "Setpoint Profile" text field on the first page of the Setpoints, will automatically add this Profile Number to the top of each Profile Setpoint page in the document.

An integrated Input/Output Map is included at the end of the form. As Functions are Enabled or Disabled, and Inputs and Outputs are selected, the corresponding selections are reflected in the I/O Map. Similarly, when selections are made in the I/O Map, the corresponding selections are reflected on the Setpoints pages. The I/O Map is 8.5 x 14" legal size and will be scaled to fit standard 8.5 x 11" when printed. The I/O Map pages may also be selected separately and printed on legal paper.

Bookmarks have been added to aid document navigation. It is also helpful to ensure that the Forward/Backward buttons are activated in the Adobe Reader or Acrobat toolbar:



Users with dual monitors may find it useful to open a New Window to view the Setpoints pages and the Input/Output Map simultaneously. In Adobe Reader or Acrobat select "Window/New Window" to open another view of the document. This view can be set to the Input/Output Map and placed on the second monitor.

**Voltage Input Configuration (LEA Option H4, L4, X4, H6, L6 or X6):**

(Configuration pages 3 to 11)

The LEA Output Voltage is a calculated value based on the Primary Nominal Voltage ( $V_{nom\_pri}$ ), the PT Ratio (PTR), and the Ratio Correction Factor (RCF).

$$LEA \text{ Output Voltage} = (V_{nom\_pri} / PTR) * RCF$$

After entering the three required equation values, the form will display the calculated LEA Output Voltage in a read-only field. Any *calculated* LEA Output Voltage value that exceeds either the applicable LEA Low Range or LEA High Range will be displayed in RED. An error message will be displayed if any *entered* setting for  $V_{nom\_pri}$ , PTR, or RCF exceeds the allowable setting range.

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## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>SYSTEM TYPE – FACTORY SETTINGS</b>			
Firmware Version	–	–	
Nominal Frequency	50 Hz or 60 Hz	–	
Secondary CT Rating	1 A or 5 A	–	
Extended IO	Enable/Disable	–	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Triple Single	Enable/Disable	–	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Ground CT Rating	1 A/ 5 A/ 200 mA/ 50 mA/ 10 mA	–	
Voltage Input Option	VT/ H4/ L4/ X4/ H6/ L6/ X6	–	
IEC 61850 Option	Enable/Disable	–	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>SYSTEM SETTINGS</b>			
Nominal Voltage	50.00 to 300.00 (V l-g)	120.00	
Nominal Current	1.00 to 200.00 (A)	1.00	
Breaker Operation Type	Three Phase/Triple Single	Three Phase	
VT Configuration	Line-To-Ground Line-To-Line LG-To-LL Phantom A Phantom B Phantom C Phantom AB Phantom BC Phantom CA	Line-To-Ground	
Default Active Profile	1 to 8	1	
Phase Rotation	ABC or ACB	ABC	
Terminal (1 2 3) Phase Assignment:			
Voltage Input Option: <b>VT</b>	ABC/ ACB/ BAC/ BCA/ CAB/ CBA	ABC	
Voltage Input Option: <b>LEA H4, L4, or X4</b> Terminal <b>Vy</b> : (1 2 3)	ABC/ ACB/ BAC/ BCA/ CAB/ CBA	ABC	
Voltage Input Option: <b>LEA H6, L6, or X6</b> Terminal <b>Vz</b> : (1 2 3)	ABC/ ACB/ BAC/ BCA/ CAB/ CBA	ABC	

<b>M-7679 Configuration Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>System Settings (Cont.'d)</b>			
Lockout Operation			
Reset Before Close	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
69 Switch Operation (Selectable in Triple Single)	Three Phase/ Triple Single	Three Phase	
HCL Operating Current Ref.	3I <sub>0</sub> or G	G	
Vz1 Usage	27/59 or Sync	27/59	
Power Supply Type	Low Voltage DC High Voltage AC High Voltage DC	Low Voltage DC	
<b>CT and VT Ratios</b>			
CT Phase Ratio	1 to 10000	1	
CT Ground Ratio	1 to 10000	1	
VT Phase Ratio (with Voltage Input: VT)	1 to 10000	1	

<b>M-7679 Configuration Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>Voltage Input Configuration (LEA Option H4, L4, X4, H6, L6 or X6)</b>			
<b>LEA Hardware H4</b>			
Primary Nominal Voltage	2000 to 40000 (V l-g, pri)	7200	
<b>LEA Usage Y Side (High)</b>			
LEA Output Voltage (■NOTE: This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vy1 (A)	*Enter "Primary Nominal Voltage, PTR and RCF"	120.00	
Vy2 (B)	– Ensure that calculated value is within	120.00	
Vy3 (C)	<b>60.0 to 300.0 (V)</b>	120.00	
PTR (PT Ratio)			
Vy1 (A)	1 to 10000	60	
Vy2 (B)	1 to 10000	60	
Vy3 (C)	1 to 10000	60	
RCF (Ratio Correction Coefficient)			
Vy1 (A)	0.100 to 2.000	1.000	
Vy2 (B)	0.100 to 2.000	1.000	
Vy3 (C)	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vy1 (A)	-180.0 to 180.0 (Degree)	0.0	
Vy2 (B)	-180.0 to 180.0 (Degree)	0.0	
Vy3 (C)	-180.0 to 180.0 (Degree)	0.0	
Y Side Calibrated Voltage		–	
<b>LEA Usage Z Side (High)</b>			
LEA Output Voltage (■NOTE: This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vz1	*See Vy1 Above	120.00	
PTR (PT Ratio)			
Vz1	1 to 10000	60	
RCF (Ratio Correction Coefficient)			
Vz1	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vz1	-180.0 to 180.0 (Degree)	0.0	
Z Side Calibrated Voltage		–	

## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>LEA Hardware L4</b>			
Primary Nominal Voltage	2000 to 40000 (V l-g, pri)	7200	
<b>LEA Usage Y Side (Low)</b>			
LEA Output Voltage (■ <b>NOTE:</b> This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vy1 (A)	*Enter "Primary Nominal Voltage, PTR and RCF"	4.00	
Vy2 (B)	– <i>Ensure that calculated value is within</i>	4.00	
Vy3 (C)	<b>0.01 to 12.0 (V)</b>	4.00	
PTR (PT Ratio)			
Vy1 (A)	1 to 10000	1800	
Vy2 (B)	1 to 10000	1800	
Vy3 (C)	1 to 10000	1800	
RCF (Ratio Correction Coefficient)			
Vy1 (A)	0.100 to 2.000	1.000	
Vy2 (B)	0.100 to 2.000	1.000	
Vy3 (C)	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vy1 (A)	-180.0 to 180.0 (Degree)	0.0	
Vy2 (B)	-180.0 to 180.0 (Degree)	0.0	
Vy3 (C)	-180.0 to 180.0 (Degree)	0.0	
Y Side Calibrated Voltage		–	
<b>LEA Usage Z Side (Low)</b>			
LEA Output Voltage (■ <b>NOTE:</b> This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vz1	<b>*See Vy1 Above</b>	4.00	
PTR (PT Ratio)			
Vz1	1 to 10000	1800	
RCF (Ratio Correction Coefficient)			
Vz1	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vz1	-180.0 to 180.0 (Degree)	0.0	
Z Side Calibrated Voltage		–	

<b>M-7679 Configuration Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>LEA Hardware X4</b>			
Primary Nominal Voltage	2000 to 40000 (V l-g, pri)	7200	
<b>LEA Usage Y Side (Low)</b>			
LEA Output Voltage (■ <b>NOTE:</b> This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vy1 (A)	*Enter "Primary Nominal Voltage, PTR and RCF"	4.00	
Vy2 (B)	– <i>Ensure that calculated value is within</i>	4.00	
Vy3 (C)	<b>0.01 to 12.0 (V)</b>	4.00	
PTR (PT Ratio)			
Vy1 (A)	1 to 10000	1800	
Vy2 (B)	1 to 10000	1800	
Vy3 (C)	1 to 10000	1800	
RCF (Ratio Correction Coefficient)			
Vy1 (A)	0.100 to 2.000	1.000	
Vy2 (B)	0.100 to 2.000	1.000	
Vy3 (C)	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vy1 (A)	-180.0 to 180.0 (Degree)	0.0	
Vy2 (B)	-180.0 to 180.0 (Degree)	0.0	
Vy3 (C)	-180.0 to 180.0 (Degree)	0.0	
Y Side Calibrated Voltage		–	
<b>LEA Usage Z Side (High)</b>			
LEA Output Voltage (■ <b>NOTE:</b> This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vz1	* <b>See Vy1 Above</b> <i>Calculated value must be within 60.0 to 300.0 (V)</i>	120.00	
PTR (PT Ratio)			
Vz1	1 to 10000	60	
RCF (Ratio Correction Coefficient)			
Vz1	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vz1	-180.0 to 180.0 (Degree)	0.0	
Z Side Calibrated Voltage		–	

## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>LEA Hardware H6</b> (Continued on Next Page)			
Primary Nominal Voltage	2000 to 40000 (V l-g, pri)	7200	
Source Orientation	Vy or Vz	Vy	
<b>LEA Usage Y Side (High)</b>			
LEA Output Voltage (■ <b>NOTE:</b> This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vy1 (A)	*Enter "Primary Nominal Voltage, PTR and RCF"	120.00	
Vy2 (B)	– <i>Ensure that calculated value is within</i>	120.00	
Vy3 (C)	<b>60.0 to 300.0 (V)</b>	120.00	
PTR (PT Ratio)			
Vy1 (A)	1 to 10000	60	
Vy2 (B)	1 to 10000	60	
Vy3 (C)	1 to 10000	60	
RCF (Ratio Correction Coefficient)			
Vy1 (A)	0.100 to 2.000	1.000	
Vy2 (B)	0.100 to 2.000	1.000	
Vy3 (C)	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vy1 (A)	-180.0 to 180.0 (Degree)	0.0	
Vy2 (B)	-180.0 to 180.0 (Degree)	0.0	
Vy3 (C)	-180.0 to 180.0 (Degree)	0.0	
Y Side Calibrated Voltage		–	

**Z Side (High) continues on next page.**

## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>LEA Hardware H6</b> (Continued from Previous Page)			
<b>LEA Usage Z Side (High)</b>			
LEA Output Voltage (■ <b>NOTE:</b> This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vz1 (A)	*Enter "Primary Nominal Voltage, PTR and RCF"	120.00	
Vz2 (B)	– <i>Ensure that calculated value is within</i>	120.00	
Vz3 (C)	<b>60.0 to 300.0 (V)</b>	120.00	
PTR (PT Ratio)			
Vz1 (A)	1 to 10000	60	
Vz2 (B)	1 to 10000	60	
Vz3 (C)	1 to 10000	60	
RCF (Ratio Correction Coefficient)			
Vz1 (A)	0.100 to 2.000	1.000	
Vz2 (B)	0.100 to 2.000	1.000	
Vz3 (C)	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vz1 (A)	-180.0 to 180.0 (Degree)	0.0	
Vz2 (B)	-180.0 to 180.0 (Degree)	0.0	
Vz3 (C)	-180.0 to 180.0 (Degree)	0.0	
Z Side Calibrated Voltage		–	

## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>LEA Hardware L6 (Continued on Next Page)</b>			
Primary Nominal Voltage	2000 to 40000 (V l-g, pri)	7200	
Source Orientation	Vy or Vz	Vy	
<b>LEA Usage Y Side (Low)</b>			
LEA Output Voltage (■ <b>NOTE:</b> This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vy1 (A)	*Enter "Primary Nominal Voltage, PTR and RCF"	4.00	
Vy2 (B)	– <i>Ensure that calculated value is within</i>	4.00	
Vy3 (C)	<b>0.01 to 12.0 (V)</b>	4.00	
PTR (PT Ratio)			
Vy1 (A)	1 to 10000	1800	
Vy2 (B)	1 to 10000	1800	
Vy3 (C)	1 to 10000	1800	
RCF (Ratio Correction Coefficient)			
Vy1 (A)	0.100 to 2.000	1.000	
Vy2 (B)	0.100 to 2.000	1.000	
Vy3 (C)	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vy1 (A)	-180.0 to 180.0 (Degree)	0.0	
Vy2 (B)	-180.0 to 180.0 (Degree)	0.0	
Vy3 (C)	-180.0 to 180.0 (Degree)	0.0	
Y Side Calibrated Voltage		–	

**Z Side (Low) continues on next page.**

## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>LEA Hardware L6 (Continued from Previous Page)</b>			
<b>LEA Usage Z Side (Low)</b>			
LEA Output Voltage (■ <b>NOTE:</b> This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vz1 (A)	*Enter "Primary Nominal Voltage, PTR and RCF"	4.00	
Vz2 (B)	– <i>Ensure that calculated value is within</i>	4.00	
Vz3 (C)	<b>0.01 to 12.0 (V)</b>	4.00	
PTR (PT Ratio)			
Vz1 (A)	1 to 10000	1800	
Vz2 (B)	1 to 10000	1800	
Vz3 (C)	1 to 10000	1800	
RCF (Ratio Correction Coefficient)			
Vz1 (A)	0.100 to 2.000	1.000	
Vz2 (B)	0.100 to 2.000	1.000	
Vz3 (C)	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vz1 (A)	-180.0 to 180.0 (Degree)	0.0	
Vz2 (B)	-180.0 to 180.0 (Degree)	0.0	
Vz3 (C)	-180.0 to 180.0 (Degree)	0.0	
Z Side Calibrated Voltage		–	

<b>M-7679 Configuration Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>LEA Hardware X6 (Continued on Next Page)</b>			
Primary Nominal Voltage	2000 to 40000 (V l-g, pri)	7200	
Source Orientation	Vy or Vz	Vy	
<b>LEA Usage Y Side (Low)</b>			
LEA Output Voltage (■ <b>NOTE:</b> This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vy1 (A)	*Enter "Primary Nominal Voltage, PTR and RCF"	4.00	
Vy2 (B)	– <i>Ensure that calculated value is within</i>	4.00	
Vy3 (C)	<b>0.01 to 12.0 (V)</b>	4.00	
PTR (PT Ratio)			
Vy1 (A)	1 to 10000	1800	
Vy2 (B)	1 to 10000	1800	
Vy3 (C)	1 to 10000	1800	
RCF (Ratio Correction Coefficient)			
Vy1 (A)	0.100 to 2.000	1.000	
Vy2 (B)	0.100 to 2.000	1.000	
Vy3 (C)	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vy1 (A)	-180.0 to 180.0 (Degree)	0.0	
Vy2 (B)	-180.0 to 180.0 (Degree)	0.0	
Vy3 (C)	-180.0 to 180.0 (Degree)	0.0	
Y Side Calibrated Voltage		–	

**Z Side (High) continues on next page.**

## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>LEA Hardware X6</b> (Continued from Previous Page)			
<b>LEA Usage Z Side (High)</b>			
LEA Output Voltage (■NOTE: This is a Calculated Field = Primary Nominal Voltage/PTR * RCF)			
Vz1 (A)	*Enter "Primary Nominal Voltage, PTR and RCF"	120.00	
Vz2 (B)	– <i>Ensure that calculated value is within</i>	120.00	
Vz3 (C)	<b>60.0 to 300.0 (V)</b>	120.00	
PTR (PT Ratio)			
Vz1 (A)	1 to 10000	60	
Vz2 (B)	1 to 10000	60	
Vz3 (C)	1 to 10000	60	
RCF (Ratio Correction Coefficient)			
Vz1 (A)	0.100 to 2.000	1.000	
Vz2 (B)	0.100 to 2.000	1.000	
Vz3 (C)	0.100 to 2.000	1.000	
Phase Shift Compensation			
Vz1 (A)	-180.0 to 180.0 (Degree)	0.0	
Vz2 (B)	-180.0 to 180.0 (Degree)	0.0	
Vz3 (C)	-180.0 to 180.0 (Degree)	0.0	
Z Side Calibrated Voltage		–	

<b>M-7679 Configuration Settings</b>			
<b>SETTING</b>	<b>RANGE</b>	<b>DEFAULT</b>	<b>SETTING</b>
<b>SYSTEM INPUT SETTINGS – THREE PHASE</b>			
<b>Input 1 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	52a Phases ABC	52a Phases ABC	52a Phases ABC
<b>Input 2 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	52b Phases ABC 52b/69 Lockout	52b Phases ABC	
<b>Input 3 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	69 Lockout/ General	69 Lockout	
<b>Input 4 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching	General	
<b>Input 5 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching	General	
<b>Input 6 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching	General	

<b>M-7679 Configuration Settings</b>			
<b>SETTING</b>	<b>RANGE</b>	<b>DEFAULT</b>	<b>SETTING</b>
<b>Input 7 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching	General	
<b>Input 8 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching	General	
<b>Input 9 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching	General	
<b>Input 10 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching	General	
<b>Input 11 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching Battery Alarm	General	
<b>Input 12 (Three Phase)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching AC Status	General	

*Configuration Settings (13 of 22)*

<b>M-7679 Configuration Settings</b>			
<b>SETTING</b>	<b>RANGE</b>	<b>DEFAULT</b>	<b>SETTING</b>
<b>SYSTEM INPUT SETTINGS – TRIPLE SINGLE</b>			
<b>Input 1 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	52a Phase A	52a Phase A	52a Phase A
<b>Input 2 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	52b Phase A Gas Pressure Hot Line Tag Profile Switching General 52b/69 Phase A Lockout 69 Lockout Phase A	52b Phase A	
<b>Input 3 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	69 Lockout Phase A General	General	
<b>Input 4 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	69 Lockout Phase B General	General	
<b>Input 5 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	69 Lockout Phase C General	General	
<b>Input 6 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	52a Phase B	52a Phase B	52a Phase B

## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>Input 7 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	52b Phase B Gas Pressure Hot Line Tag Profile Switching General 52b/69 Phase B Lockout 69 Lockout Phase B	52b Phase B	
<b>Input 8 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	52a Phase C	52a Phase C	52a Phase C
<b>Input 9 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	52b Phase C Gas Pressure Hot Line Tag Profile Switching General 52b/69 Phase C Lockout 69 Lockout Phase C	52b Phase C	
<b>Input 10 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching	General	
<b>Input 11 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching Battery Alarm	General	
<b>Input 12 (Triple Single)</b>			
Active State	Close or Open (Inverted)	Close	
Function	General Gas Pressure Hot Line Tag Profile Switching AC Status	General	

*Configuration Settings (15 of 22)*

<b>M-7679 Configuration Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>SYSTEM OUTPUT SETTINGS – THREE PHASE</b>			
Manual Close Delay	0 to 90 (Sec)	0	
<b>Output 1 (Three Phase)</b>			
Operation	Pulsed	Pulsed	Pulsed
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	Trip Phases ABC	Trip Phases ABC	Trip Phases ABC
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 2 (Three Phase)</b>			
Operation	Pulsed	Pulsed	Pulsed
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	Close Phases ABC	Close Phases ABC	Close Phases ABC
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 3 (Three Phase)</b>			
Operation	Direct/Latched/Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 4 (Three Phase)</b>			
Operation	Direct/Latched/Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag/ Alarm	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable

*Configuration Settings (16 of 22)*

<b>M-7679 Configuration Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>Output 5 (Three Phase)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 6 (Three Phase)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 7 (Three Phase)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 8 (Three Phase)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 9 (Three Phase)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable

*Configuration Settings (17 of 22)*

<b>M-7679 Configuration Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>Output 10 (Three Phase)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 11 (Three Phase)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 12 (Three Phase)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General Hot Line Tag Battery Alarm/Test	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable

<b>M-7679 Configuration Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>SYSTEM OUTPUT SETTINGS – TRIPLE SINGLE</b>			
Manual Close Delay	0 to 90 (Sec)	0	
<b>Output 1 (Triple Single)</b>			
Operation	Pulsed	Pulsed	Pulsed
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	Trip A	Trip A	Trip A
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 2 (Triple Single)</b>			
Operation	Pulsed	Pulsed	Pulsed
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	Close A	Close A	Close A
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 3 (Triple Single)</b>			
Operation	Direct/Latched/Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 4 (Triple Single)</b>			
Operation	Direct/Latched/Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/Hot Line Tag/ Alarm	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 5 (Triple Single)</b>			
Operation	Pulsed	Pulsed	Pulsed
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	Trip B	Trip B	Trip B
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable

*Configuration Settings (19 of 22)*

## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>Output 6 (Triple Single)</b>			
Operation	Pulsed	Pulsed	Pulsed
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	Close B	Close B	Close B
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 7 (Triple Single)</b>			
Operation	Pulsed	Pulsed	Pulsed
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	Trip C	Trip C	Trip C
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 8 (Triple Single)</b>			
Operation	Pulsed	Pulsed	Pulsed
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	Close C	Close C	Close C
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 9 (Triple Single)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 10 (Triple Single)</b>			
Operation	Direct/ Latched/ Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/ Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable

*Configuration Settings (20 of 22)*

## M-7679 Configuration Settings

SETTING	RANGE	DEFAULT	SETTING
<b>Output 11 (Triple Single)</b>			
Operation	Direct/Latched/Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General/Hot Line Tag	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Output 12 (Triple Single)</b>			
Operation	Direct/Latched/Pulsed	Direct	
Pulse Width/Seal-In Time	0.03 to 136.00 (Sec)	0.07	
Function	General Hot Line Tag Battery Alarm/Test	General	
Enable Remote Control	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable

*Configuration Settings (21 of 22)*

<b>M-7679 Configuration Settings</b>		
<b>SETTING</b>	<b>DEFAULT</b>	<b>SETTING</b>
<b>USER LINES (20 Characters Max Each Line)</b>		
<b>Profile 1</b>		
Line 1	Beckwith Electric P1	
Line 2	M-7679	
<b>Profile 2</b>		
Line 1	Beckwith Electric P2	
Line 2	M-7679	
<b>Profile 3</b>		
Line 1	Beckwith Electric P3	
Line 2	M-7679	
<b>Profile 4</b>		
Line 1	Beckwith Electric P4	
Line 2	M-7679	
<b>Profile 5</b>		
Line 1	Beckwith Electric P5	
Line 2	M-7679	
<b>Profile 6</b>		
Line 1	Beckwith Electric P6	
Line 2	M-7679	
<b>Profile 7</b>		
Line 1	Beckwith Electric P7	
Line 2	M-7679	
<b>Profile 8</b>		
Line 1	Beckwith Electric P8	
Line 2	M-7679	

*Configuration Settings (22 of 22)*

## M-7679 Front Panel Setup – Wake-Up Screens

### Wake-Up Screen Selections

000 MONITOR	036 Current % TDD C	072 Watts A
001 Status	037 Voltage Harmonics C	073 Watts B
002 Input Status 14	038 Current Harmonics C	074 Watts C
003 Input Status 58	039 Frequency Metering	075 VARs A
004 Input Status 912	040 Frequency	076 VARs B
005 Output Status 14	041 ROCOF	077 VARs C
006 Output Status 58	042 Primary Metering	078 VA A
007 Output Status 912	043 Seq Components	079 VA B
008 Power Supply Voltage	044 V1	080 VA C
009 Over I Pkp Cnt A	045 V2	081 Watts(3 Phase)
010 Over I Trp Cnt A	046 Vo	082 VARs(3 Phase)
011 Over I Pkp Cnt B	047 Y side: V1	083 VA(3 Phase)
012 Over I Trp Cnt B	048 Y side: V2	084 Battery charger
013 Over I Pkp Cnt C	049 Y side: Vo	085 Battery status
014 Over I Trp Cnt C	050 Z side: V1	086 Battery voltage
015 Over I Pkp Cnt G	051 Z side: V2	087 Charging Current
016 Over I Trp Cnt G	052 Z side: Vo	088 Secondary Metering
017 Brk Op Counters A	053 I1	089 Seq Components
018 Brk Op Counters B	054 I2	090 V1(V) V2(V) Vo(V)
019 Brk Op Counters C	055 Io	091 Y: V1(V) V2(V) Vo(V)
020 Harmonics	056 Current and Voltages	092 Z: V1(V) V2(V) Vo(V)
021 Phase A	057 Va	093 I1(A) I2(A) Io(A)
022 Voltage % THD A	058 Vb	094 Current and Voltages
023 Current % THD A	059 Vc	095 Magnitude
024 Current % TDD A	060 Vya	096 Va(V) Vb(V) Vc(V)
025 Voltage Harmonics A	061 Vyb	097 Vya(V) Vyb(V) Vyc(V)
026 Current Harmonics A	062 Vyc	098 Vz1(V)
027 Phase B	063 Vz1	099 Vza(V) Vz1(V) Vz2(V)
028 Voltage % THD B	064 Vza	100 Ia(A) Ib(A) Ic(A)
029 Current % THD B	065 Vz2	101 In/Ig(A)
030 Current % TDD B	066 Vzc	102 Phase
031 Voltage Harmonics B	067 Ia	103 Va(dg) Vb(dg) Vc(dg)
032 Current Harmonics B	068 Ib	104 Vya(d) Vyb(d) Vyc(d)
033 Phase C	069 Ic	105 Vz1(dg)
034 Voltage % THD C	070 In/Ig	106 Vza(d) Vz1(d) Vz2(d)
035 Current % THD C	071 Power	107 Ia(dg) Ib(dg) Ic(dg)

## M-7679 Front Panel Setup – Wake-Up Screens

### Wake-Up Screen Selections (Cont'd.)

108 In/Ig(dg)	144 Max Ib	180 KWatt Hours Fwd B
109 Power and Demand	145 Min Pb	181 Lagging KVAr Hours B
110 Demand Interval	146 Max Pb	182 KWatt Hours Rev B
111 Max Demand IA	147 Min Qb	183 Leading KVAr Hours B
112 Max Demand IB	148 Max Qb	184 KWatt Hours Fwd C
113 Max Demand IC	149 Min Sb	185 Lagging KVAr Hours C
114 Demand Voltage A	150 Max Sb	186 KWatt Hours Rev C
115 Demand Voltage B	151 Phase C	187 Leading KVAr Hours C
116 Demand Voltage C	152 Min Vc	188 Energy Meter Reset
117 Demand Voltage S	153 Max Vc	
118 Demand Current A	154 Min Ic	
119 Demand Current B	155 Max Ic	
120 Demand Current C	156 Min Pc	
121 Demand Current G	157 Max Pc	
122 Present Watts	158 Min Qc	
123 Present VArS	159 Max Qc	
124 Present VA	160 Min Sc	
125 Present Pow(3 Phase)	161 Max Sc	
126 Present Power Factor	162 Three Phase	
127 Present PF (3 Phase)	163 Min P3Ph	
128 Demand History	164 Max P3Ph	
129 Phase A	165 Min Q3Ph	
130 Min Va	166 Max Q3Ph	
131 Max Va	167 Min S3Ph	
132 Min Ia	168 Max S3Ph	
133 Max Ia	169 Demand History Reset	
134 Min Pa	170 Ground/Neutral	
135 Max Pa	171 Min Vz1	
136 Min Qa	172 Max Vz1	
137 Max Qa	173 Min Ig	
138 Min Sa	174 Max Ig	
139 Max Sa	175 Energy Metering	
140 Phase B	176 KWatt Hours Fwd A	
141 Min Vb	177 Lagging KVAr Hours A	
142 Max Vb	178 KWatt Hours Rev A	
143 Min Ib	179 Leading KVAr Hours A	

## M-7679 Front Panel Setup – Buttons

SETTING	RANGE	DEFAULT	SETTING	
<b>Button S11</b>				
Assigned Function	See Button Functions Table	HOT LINE TAG		
User Confirmation to Execute	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Smart Function	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable

Button S11 Smart Functions				
Button	Assigned Function	Default Smart Function Name	User Defined Smart Function Name	User Conf.
1		SF1		
2		SF2		
3		SF3		
4		SF4		
5		SF5		
6		SF6		
7		SF7		
8		SF8		
9		SF9		
10		SF10		
11		SF11		
12		SF12		
13		SF13		
14		SF14		
15		SF15		
16		SF16		
17		SF17		
18		SF18		
19		SF19		
20		SF20		

*Front Panel Setup – Buttons (1 of 6)*

## M-7679 Front Panel Setup – Buttons

SETTING	RANGE	DEFAULT	SETTING	
<b>Button S12</b>				
Assigned Function	See Button Functions Table	Unassigned		
User Confirmation to Execute	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Smart Function	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable

Button S12 Smart Functions				
Button	Assigned Function	Default Smart Function Name	User Defined Smart Function Name	User Conf.
1		SF1		
2		SF2		
3		SF3		
4		SF4		
5		SF5		
6		SF6		
7		SF7		
8		SF8		
9		SF9		
10		SF10		
11		SF11		
12		SF12		
13		SF13		
14		SF14		
15		SF15		
16		SF16		
17		SF17		
18		SF18		
19		SF19		
20		SF20		

## M-7679 Front Panel Setup – Buttons

SETTING	RANGE	DEFAULT	SETTING	
<b>Button S13</b>				
Assigned Function	See Button Functions Table	Unassigned		
User Confirmation to Execute	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Smart Function	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable

Button S13 Smart Functions				
Button	Assigned Function	Default Smart Function Name	User Defined Smart Function Name	User Conf.
1		SF1		
2		SF2		
3		SF3		
4		SF4		
5		SF5		
6		SF6		
7		SF7		
8		SF8		
9		SF9		
10		SF10		
11		SF11		
12		SF12		
13		SF13		
14		SF14		
15		SF15		
16		SF16		
17		SF17		
18		SF18		
19		SF19		
20		SF20		

*Front Panel Setup – Buttons (3 of 6)*

## M-7679 Front Panel Setup – Buttons

SETTING	RANGE	DEFAULT	SETTING	
<b>Button S15</b>				
Assigned Function	See Button Functions Table	REMOTE DISABLE		
User Confirmation to Execute	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Smart Function	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable

Button S15 Smart Functions				
Button	Assigned Function	Default Smart Function Name	User Defined Smart Function Name	User Conf.
1		SF1		
2		SF2		
3		SF3		
4		SF4		
5		SF5		
6		SF6		
7		SF7		
8		SF8		
9		SF9		
10		SF10		
11		SF11		
12		SF12		
13		SF13		
14		SF14		
15		SF15		
16		SF16		
17		SF17		
18		SF18		
19		SF19		
20		SF20		

## M-7679 Front Panel Setup – Buttons

SETTING	RANGE	DEFAULT	SETTING	
<b>Button S16</b>				
Assigned Function	See Button Functions Table	RECLOSE DISABLE		
User Confirmation to Execute	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Smart Function	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable

Button S16 Smart Functions				
Button	Assigned Function	Default Smart Function Name	User Defined Smart Function Name	User Conf.
1		SF1		
2		SF2		
3		SF3		
4		SF4		
5		SF5		
6		SF6		
7		SF7		
8		SF8		
9		SF9		
10		SF10		
11		SF11		
12		SF12		
13		SF13		
14		SF14		
15		SF15		
16		SF16		
17		SF17		
18		SF18		
19		SF19		
20		SF20		

*Front Panel Setup – Buttons (5 of 6)*

## M-7679 Front Panel Setup – Buttons

SETTING	RANGE	DEFAULT	SETTING
<b>Button S17</b>			
Assigned Function	See Button Functions Table	GROUND DISABLE	
User Confirmation to Execute	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Smart Function	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable

Button S17 Smart Functions				
Button	Assigned Function	Default Smart Function Name	User Defined Smart Function Name	User Conf.
1		SF1		
2		SF2		
3		SF3		
4		SF4		
5		SF5		
6		SF6		
7		SF7		
8		SF8		
9		SF9		
10		SF10		
11		SF11		
12		SF12		
13		SF13		
14		SF14		
15		SF15		
16		SF16		
17		SF17		
18		SF18		
19		SF19		
20		SF20		

## M-7679 Front Panel Setup – Buttons

### Front Panel Button Editor Selection Table

INITIATE	BLOCKS	
SELECT PHASE	<b>Global</b>	Block F59 #1 Phase A
TRIP LOCKOUT	Block Closing	Block F59 #1 Phase B
CLOSE	Any Phase Protection Function Block	Block F59 #1 Phase C
GROUND DISABLE	Any Overcurrent Block	Block F59 #1 All Phases
RECLOSE DISABLE	Any Phase Overcurrent Block	Block F59 #2 Phase A
RESET	Any Ground Block	Block F59 #2 Phase B
LOCK	Any Residual Block	Block F59 #2 Phase C
REMOTE DISABLE	Any Protection Function Block	Block F59 #2 All Phases
HOT LINE TAG	Any Overvoltage Function Block	Block F59 #3 Phase A
PROFILE SWITCH	Any Undervoltage Block	Block F59 #3 Phase B
External Battery Test	<b>PTOV/PTUV</b>	Block F59 #3 Phase C
Go to Setpoints	Block F27 #1 Phase A	Block F59 #3 All Phases
Go to Monitor	Block F27 #1 Phase B	Block F59 #4 Phase A
Display Fault	Block F27 #1 Phase C	Block F59 #4 Phase B
Activate Profile 1	Block F27 #1 All Phases	Block F59 #4 Phase C
Activate Profile 2	Block F27 #2 Phase A	Block F59 #4 All Phases
Activate Profile 3	Block F27 #2 Phase B	Block F59N
Activate Profile 4	Block F27 #2 Phase C	Block F59Vz1
Activate Profile 5	Block F27 #2 All Phases	Block F59PP Phase A
Activate Profile 6	Block F27 #3 Phase A	Block F59PP Phase B
Activate Profile 7	Block F27 #3 Phase B	Block F59PP Phase C
Activate Profile 8	Block F27 #3 All Phases	Block F59PP All Phases
Output Contact 1	Block F27 #4 Phase A	Block 59I Phase A
Output Contact 2	Block F27 #4 Phase B	Block 59I Phase B
Output Contact 3	Block F27 #4 Phase C	Block 59I Phase C
Output Contact 4	Block F27 #4 All Phases	Block 59I All Phases
Output Contact 5	Block 27PP Phase A	
Output Contact 6	Block 27PP Phase B	
Output Contact 7	Block 27PP Phase C	
Output Contact 8	Block 27PP All Phases	
Output Contact 9	Block 27Vz1	
Output Contact 10	Block F47	
Output Contact 11		
Output Contact 12		

*Front Panel Setup – Button Functions Selection Table (1 of 3)*

# M-7679 Front Panel Setup – Buttons

**Front Panel Button Editor Selection Table (Cont'd.)**

PTOC/PHIZ/POIC
Block F46DT #1
Block F46DT #2
Block F46DT #3
Block F46DT #4
Block F46DT #5
Block F46IT #1
Block F46IT #2
Block F46IT #3
Block F46IT #4
Block F46IT #5
Block F50 #1 Phase A
Block F50 #1 Phase B
Block F50 #1 Phase C
Block F50 #1 All Phases
Block F50 #2 Phase A
Block F50 #2 Phase B
Block F50 #2 Phase C
Block F50 #2 All Phases
Block F50 #3 Phase A
Block F50 #3 Phase B
Block F50 #3 Phase C
Block F50 #3 All Phases
Block F50 #4 Phase A
Block F50 #4 Phase B
Block F50 #4 Phase C
Block F50 #4 All Phases
Block F50 #5 Phase A
Block F50 #5 Phase B
Block F50 #5 Phase C
Block F50 #5 All Phases
Block F50N #1
Block F50N #2
Block F50N #3
Block F50N #4
Block F50N #5

Block F50G #1
Block F50G #2
Block F50G #3
Block F50G #4
Block F50G #5
Block F50BF
Block F51 #1 Phase A
Block F51 #1 Phase B
Block F51 #1 Phase C
Block F51 #1 All Phases
Block F51 #2 Phase A
Block F51 #2 Phase B
Block F51 #2 Phase C
Block F51 #2 All Phases
Block F51 #3 Phase A
Block F51 #3 Phase B
Block F51 #3 Phase C
Block F51 #3 All Phases
Block F51 #4 Phase A
Block F51 #4 Phase B
Block F51 #4 Phase C
Block F51 #4 All Phases
Block F51 #5 Phase A
Block F51 #5 Phase B
Block F51 #5 Phase C
Block F51 #5 All Phases
Block F51N #1
Block F51N #2
Block F51N #3
Block F51N #4
Block F51N #5
Block F51G #1
Block F51G #2
Block F51G #3
Block F51G #4
Block F51G #5

PTOF/PTUF/PFRC
Block F81 #1
Block F81 #2
Block F81 #3
Block F81 #4
Block All F81
Block Over Frequency Functions
Block Under Frequency Functions
Block F81R #1
Block F81R #2
Block All F81R
Block All Frequency Functions

## M-7679 Front Panel Setup – Buttons

### Front Panel Button Editor Selection Table (Cont'd.)

PDOP/PDUP/PTOC		RYSN
Block F32 Phase A Directional Power #1	Block F67P #1 All Phases	Block F25 Synchrocheck Magnitude
Block F32 Phase B Directional Power #1	Block F67P #2 Phase A	Block F25 Synchrocheck Angle
Block F32 Phase C Directional Power #1	Block F67P #2 Phase B	Block F25 Synchrocheck Frequency
Block F32 Three Phase Directional Power #1	Block F67P #2 Phase C	Block F25
Block F32 Phase A Directional Power #2	Block F67P #2 All Phases	<b>RREC</b>
Block F32 Phase B Directional Power #2	Block F67P #3 Phase A	Block F79 Sequence Coordination
Block F32 Phase C Directional Power #2	Block F67P #3 Phase B	Block F79/50P High Current Lockout
Block F32 Three Phase Directional Power #2	Block F67P #3 Phase C	Block F79/50N or F79/50G High Current Lockout
Block F32 Phase A Directional Power #3	Block F67P #3 All Phases	Block F79/50P and F79/50G High Current Lockout
Block F32 Phase B Directional Power #3	Block F67P #4 Phase A	Block F79 Recloser Relay
Block F32 Phase C Directional Power #3	Block F67P #4 Phase B	<b>SCBR/XCBR/RBRF</b>
Block F32 Three Phase Directional Power #3	Block F67P #4 Phase C	Block F74 Trip Coil
Block F32 Phase A Directional Power #4	Block F67P #4 All Phases	Block F74 Close Coil
Block F32 Phase B Directional Power #4	Block F67P #5 Phase A	<b>PMRI</b>
Block F32 Phase C Directional Power #4	Block F67P #5 Phase B	Block Cold Load Pickup
Block F32 Three Phase Directional Power #4	Block F67P #5 Phase C	<b>PTOV/PTOC</b>
Block all F67F Directional	Block F67P #5 All Phases	Block F60FL Fuse Failure
Block F67P #1 Phase A	Block F67N #1	
Block F67P #1 Phase B	Block F67N #2	
Block F67P #1 Phase C	Block F67N #3	
	Block F67N #4	
	Block F67N #5	
	Block F67G #1	
	Block F67G #2	
	Block F67G #3	
	Block F67G #4	
	Block F67G #5	
	Block F67Q #1	
	Block F67Q #2	
	Block F67Q #3	
	Block F67Q #4	
	Block F67Q #5	

*Front Panel Setup – Button Functions Selection Table (3 of 3)*

<b>M-7679 Setpoints</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>SETPOINT PROFILE</b>			
Setpoint Profile	1 to 8	Profile 1	Profile

<b>25 – Sync Check</b>			
SETTING	RANGE	DEFAULT	SETTING
Function 25	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Phase	Phase A/ B/ C	Phase A	
<b>Undervoltage Permission</b>			
Dead Line/Dead Bus	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Dead Line/Live Bus	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Live Line/Dead Bus	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Live Line Minimum Voltage	0.0 to 200.0 (V I-g sec)	100.0	
Live Bus Minimum Voltage	0.0 to 200.0 (V I-g sec)	100.0	
<b>Synchrocheck Permission</b>			
Max/Min. Time Delay	0.01 to 600.00 (Sec)	50.00	
Minimum Voltage	10.0 to 300.0 (V I-g sec)	130.00	
Maximum Voltage	10.0 to 300.0 (V I-g sec)	110.00	
Angle Difference	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Difference	0.00 to 90.00 (Degree)	45.00	
Magnitude Difference	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Difference	0.00 to 300.00 (V I-g sec)	150.00	
Frequency Difference	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Difference	0.00 to 5.00 (Hz)	2.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		
	<input type="checkbox"/>		
		<b>Virtual Inputs</b>	1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Setpoint Profile Number and Function 25 Setpoints*

<b>27 – Phase Undervoltage (Three Phase)</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>27 – PHASE UNDERVOLTAGE – THREE PHASE (#1 TO #4 STEPS)</b>													
<b>27 #1 (ABC)</b>													
Function 27 #1 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable									
Pickup	10.00 to 300.00 (V I-g sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable									
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL												
	<input type="checkbox"/>	<b>Virtual Inputs</b>	1 2 3										
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>												
<b>27 #2 (ABC)</b>													
Function 27 #2 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable									
Pickup	10.00 to 300.00 (V I-g sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable									
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL												
	<input type="checkbox"/>	<b>Virtual Inputs</b>	1 2 3										
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>												
<b>27 #3 (ABC)</b>													
Function 27 #3 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable									
Pickup	10.00 to 300.00 (V I-g sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable									
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL												
	<input type="checkbox"/>	<b>Virtual Inputs</b>	1 2 3										
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>												

*Function 27 (Three Phase) Setpoints (1 of 2)*

<b>27 – Phase Undervoltage (Three Phase)</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>27 #4 (ABC)</b>													
Function 27 #4 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-g sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL												
	<input type="checkbox"/>												
		<b>Virtual Inputs</b>											
		1   2   3											
		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>											

## Profile

27 – Phase Undervoltage (Triple Single #1 to #4)			
SETTING	RANGE	DEFAULT	SETTING
<b>27 #1 – PHASE UNDERVOLTAGE – TRIPLE SINGLE</b>			
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>27 #1 Phase A</b>			
Function 27 #1 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup	10.00 to 300.00 (V I-g sec)	150.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>27 #1 Phase B</b>			
Function 27 #1 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup	10.00 to 300.00 (V I-g sec)	150.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>27 #1 Phase C</b>			
Function 27 #1 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup	10.00 to 300.00 (V I-g sec)	150.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 27 (Triple Single) Setpoints (1 of 4)

<b>27 – Phase Undervoltage (Triple Single #1 to #4)</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>27 #2 – PHASE UNDERVOLTAGE – TRIPLE SINGLE</b>																	
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
<b>27 #2 Phase A</b>																	
Function 27 #2 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	150.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>27 #2 Phase B</b>																	
Function 27 #2 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	150.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>27 #2 Phase C</b>																	
Function 27 #2 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	150.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>27 – Phase Undervoltage (Triple Single #1 to #4)</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>27 #3 – PHASE UNDERVOLTAGE – TRIPLE SINGLE</b>																	
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
<b>27 #3 Phase A</b>																	
Function 27 #3 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	150.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>27 #3 Phase B</b>																	
Function 27 #3 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	150.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>27 #3 Phase C</b>																	
Function 27 #3 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	150.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>27 – Phase Undervoltage (Triple Single #1 to #4)</b>																										
SETTING	RANGE	DEFAULT	SETTING																							
<b>27 #4 – PHASE UNDERVOLTAGE – TRIPLE SINGLE</b>																										
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																							
<b>27 #4 Phase A</b>																										
Function 27 #4 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																							
Pickup	10.00 to 300.00 (V I-g sec)	150.00																								
Definite Time	0.00 to 600.00 (Sec)	30.00																								
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12	<table border="1" style="width:100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 25px;"></td><td style="width: 25px;"></td> </tr> </table>																								
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<table border="1" style="width:100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 25px;"></td><td style="width: 25px;"></td> </tr> </table>																								
			<b>Virtual Inputs</b>																							
			<table border="1" style="width: 75px; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 25px;">1</td><td style="width: 25px;">2</td><td style="width: 25px;">3</td> </tr> </table>			1	2	3																		
1	2	3																								
<b>27 #4 Phase B</b>																										
Function 27 #4 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																							
Pickup	10.00 to 300.00 (V I-g sec)	150.00																								
Definite Time	0.00 to 600.00 (Sec)	30.00																								
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12	<table border="1" style="width:100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 25px;"></td><td style="width: 25px;"></td> </tr> </table>																								
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<table border="1" style="width:100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 25px;"></td><td style="width: 25px;"></td> </tr> </table>																								
			<b>Virtual Inputs</b>																							
			<table border="1" style="width: 75px; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 25px;">1</td><td style="width: 25px;">2</td><td style="width: 25px;">3</td> </tr> </table>			1	2	3																		
1	2	3																								
<b>27 #4 Phase C</b>																										
Function 27 #4 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																							
Pickup	10.00 to 300.00 (V I-g sec)	150.00																								
Definite Time	0.00 to 600.00 (Sec)	30.00																								
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12	<table border="1" style="width:100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 25px;"></td><td style="width: 25px;"></td> </tr> </table>																								
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<table border="1" style="width:100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 25px;"></td><td style="width: 25px;"></td> </tr> </table>																								
			<b>Virtual Inputs</b>																							
			<table border="1" style="width: 75px; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 25px;">1</td><td style="width: 25px;">2</td><td style="width: 25px;">3</td> </tr> </table>			1	2	3																		
1	2	3																								

Profile

<b>27PP – Phase to Phase Undervoltage (Three Phase)</b>																						
SETTING	RANGE	DEFAULT	SETTING																			
<b>27PP – PHASE TO PHASE UNDERVOLTAGE – THREE PHASE</b>																						
Function 27PP (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																			
Pickup	10.00 to 300.00 (V I-I sec)	150.00																				
Definite Time	0.00 to 600.00 (Sec)	30.00																				
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12																					
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																					
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL																					
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																					
			<b>Virtual Inputs</b> 1   2   3 <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> </tr> </table>																			

*Function 27PP (Three Phase) Setpoints*

<b>27PP – Phase to Phase Undervoltage (Triple Single)</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>27PP – PHASE TO PHASE UNDERVOLTAGE – TRIPLE SINGLE</b>													
<b>27PP Phase AB</b>													
Function 27PP (Phase AB)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-I sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12	<input type="checkbox"/>											
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL	<input type="checkbox"/>											
			<b>Virtual Inputs</b>										
			1   2   3										
<b>27PP Phase BC</b>													
Function 27PP (Phase BC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-I sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12	<input type="checkbox"/>											
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL	<input type="checkbox"/>											
			<b>Virtual Inputs</b>										
			1   2   3										
<b>27PP Phase CA</b>													
Function 27PP (Phase CA)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-I sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12	<input type="checkbox"/>											
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL	<input type="checkbox"/>											
			<b>Virtual Inputs</b>										
			1   2   3										

*Function 27PP (Triple Single) Setpoints*

## Profile

27Vz1 – Vz1 Undervoltage																
SETTING	RANGE						DEFAULT	SETTING								
<b>27Vz1 – Vz1 UNDERVOLTAGE</b>																
Function 27Vz1	Enable/Disable						Disable	<input type="checkbox"/> Enable		<input type="checkbox"/> Disable						
Pickup	10.00 to 300.00 (V I-g sec)						150.00									
Definite Time	0.00 to 600.00 (Sec)						30.00									
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27BSVS – Bus Side Voltage Supervision													
SETTING	RANGE						DEFAULT	SETTING					
<b>27BSVS – BUS SIDE VOLTAGE SUPERVISION</b>													
Function 27BSVS	Enable/Disable						Disable	<input type="checkbox"/> Enable		<input type="checkbox"/> Disable			
Minimum Closing Voltage	0.00 to 300.00 V						150.00						
Definite Time	0.00 to 600.00 s						2.00						

*Functions 27Vz1 and 27BSVS Setpoints*

## 32 – Directional Power

SETTING	RANGE	DEFAULT	SETTING
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### 32 – DIRECTIONAL POWER (#1 TO #4 STEPS)

#### 32 #1 (ABC)

Function 32 #1 (ABC)                      Enable/Disable                      Disable                       Enable    Disable

Pickup    -3.00 to 3.00 (PU)    0.00

Definite Time                                      0.00 to 600.00 (Sec)                                      300.00

Operating Power                                      Real/ Reactive                                      Real

Operating Power                                      Under power/ Over power                                      Under power

<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12
	<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL
	<input type="checkbox"/>												

<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 32 #2 (ABC)

Function 32 #2 (ABC)                      Enable/Disable                      Disable                       Enable    Disable

Pickup    -3.00 to 3.00 (PU)    0.00

Definite Time                                      0.00 to 600.00 (Sec)                                      300.00

Operating Power                                      Real/ Reactive                                      Real

Operating Power                                      Under power/ Over power                                      Under power

<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12
	<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL
	<input type="checkbox"/>												

<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>32 – Directional Power</b>																											
SETTING	RANGE	DEFAULT	SETTING																								
<b>32 #3 (ABC)</b>																											
Function 32 #3 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																								
Pickup	-3.00 to 3.00 (PU)	0.00																									
Definite Time	0.00 to 600.00 (Sec)	300.00																									
Operating Power	Real/ Reactive	Real																									
Operating Power	Under power/ Over power	Under power																									
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																											
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																											
<b>Virtual Inputs</b>																											
1   2   3																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25px; height: 20px;"></td> <td style="width: 25px; height: 20px;"></td> <td style="width: 25px; height: 20px;"></td> </tr> </table>																											
<b>32 #4 (ABC)</b>																											
Function 32 #4 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																								
Pickup	-3.00 to 3.00 (PU)	0.00																									
Definite Time	0.00 to 600.00 (Sec)	300.00																									
Operating Power	Real/ Reactive	Real																									
Operating Power	Under power/ Over power	Under power																									
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																											
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																											
<b>Virtual Inputs</b>																											
1   2   3																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25px; height: 20px;"></td> <td style="width: 25px; height: 20px;"></td> <td style="width: 25px; height: 20px;"></td> </tr> </table>																											

<b>46DT – Negative Sequence Definite Time Overcurrent</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>46DT – NEGATIVE SEQUENCE DEFINITE TIME OVERCURRENT (#1 TO #5 STEPS)</b>													
<b>46DT #1</b>													
Function 46DT #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup													
1 A CT	0.02 to 20.00 (A)	10.00											
5 A CT	0.10 to 100.00 (A)	10.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3											
<b>46DT #2</b>													
Function 46DT #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup													
1 A CT	0.02 to 20.00 (A)	10.00											
5 A CT	0.10 to 100.00 (A)	10.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3											

## 46DT – Negative Sequence Definite Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
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<b>46DT #3</b>																	
Function 46DT #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup																	
1 A CT	0.02 to 20.00 (A)	10.00															
5 A CT	0.10 to 100.00 (A)	10.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>46DT #4</b>																	
Function 46DT #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup																	
1 A CT	0.02 to 20.00 (A)	10.00															
5 A CT	0.10 to 100.00 (A)	10.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>46DT #5</b>																	
Function 46DT #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup																	
1 A CT	0.02 to 20.00 (A)	10.00															
5 A CT	0.10 to 100.00 (A)	10.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>46IT – Negative Sequence Inverse Time Overcurrent</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>46IT – NEGATIVE SEQUENCE INVERSE TIME OVERCURRENT (#1 TO #5 STEPS)</b>			
<b>46IT #1</b>			
Function 46IT #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 46IT Setpoints (1 of 5)*

## Profile

**46IT – Negative Sequence Inverse Time Overcurrent**

SETTING	RANGE	DEFAULT	SETTING
<b>46IT #2</b>			
Function 46IT #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 46IT Setpoints (2 of 5)*

<b>46IT – Negative Sequence Inverse Time Overcurrent</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>46IT #3</b>			
Function 46IT #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12   FL	<b>Virtual Inputs</b>	
	<input type="checkbox"/>	1   2   3 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves ■ <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 46IT Setpoints (3 of 5)*

## 46IT – Negative Sequence Inverse Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>46IT #4</b>			
Function 46IT #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 46IT Setpoints (4 of 5)*

<b>46IT – Negative Sequence Inverse Time Overcurrent</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>46IT #5</b>			
Function 46IT #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 46IT Setpoints (5 of 5)*

Profile

<b>47 – Negative Sequence Overvoltage</b>													
SETTING	RANGE	DEFAULT	SETTING										
Function 47	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	0.00 to 300.00 (V I-g, sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL												
	<input type="checkbox"/>												
			<b>Virtual Inputs</b>										
			1 2 3										
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>										

<b>50BF – Breaker Failure</b>													
SETTING	RANGE	DEFAULT	SETTING										
Function 50BF	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
<b>Phase Current</b>	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup													
1 A CT	0.02 to 2.00 (A)	1.00											
5 A CT	0.10 to 10.00 (A)	1.00											
<b>Ground/Neutral Current</b>	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup													
1 A CT	0.02 to 2.00 (A)	0.50											
5 A CT	0.10 to 10.00 (A)	0.50											
10 mA	0.001 to 0.160 (A)	0.050											
50 mA	0.005 to 0.800 (A)	0.050											
200 mA	0.020 to 3.200 (A)	0.050											
Breaker Failure Time Delay	0.01 to 600.00 (Sec)	30.00											
Retrip Time Delay	0.01 to 600.00 (Sec)	30.00											
<b>Retrip Output</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Input Initiate</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL												
	<input type="checkbox"/>												
			<b>Virtual Inputs</b>										
			1 2 3										
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>										
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL												
	<input type="checkbox"/>												
			<b>Virtual Inputs</b>										
			1 2 3										
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>										

*Function 47 and Function 50BF Setpoints*

## 50P – Phase Instantaneous/Definite Time Overcurrent (Three Phase) #1 to #5 Steps

SETTING	RANGE	DEFAULT	SETTING
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### 50P – PHASE INSTANTANEOUS/DEFINITE TIME OVERCURRENT – THREE PHASE

#### 50P #1 (ABC)

Function 50P #1 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	

<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12
	<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>																

#### High Current Lockout

HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.10 to 100.00 (A)	50.00	
5 A CT	0.50 to 500.00 (A)	50.00	
Time Delay	0.00 to 600.00 (Sec)	30.00	

#### 50P #2 (ABC)

Function 50P #2 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	

<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12
	<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>																

#### High Current Lockout

HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.10 to 100.00 (A)	50.00	
5 A CT	0.50 to 500.00 (A)	50.00	
Time Delay	0.00 to 600.00 (Sec)	30.00	

*Function 50P (Three Phase) Setpoints (1 of 3)*

## 50P – Phase Instantaneous/Definite Time Overcurrent (Three Phase) #1 to #5 Steps

SETTING	RANGE	DEFAULT	SETTING
<b>50P #3 (ABC)</b>			
Function 50P #3 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout</b>			
HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.10 to 100.00 (A)	50.00	
5 A CT	0.50 to 500.00 (A)	50.00	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>50P #4 (ABC)</b>			
Function 50P #4 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout</b>			
HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.10 to 100.00 (A)	50.00	
5 A CT	0.50 to 500.00 (A)	50.00	
Time Delay	0.00 to 600.00 (Sec)	30.00	

<b>50P – Phase Instantaneous/Definite Time Overcurrent (Three Phase) #1 to #5 Steps</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>50P #5 (ABC)</b>																	
Function 50P #5 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
Pickup																	
1 A CT	0.02 to 20.00 (A)	10.00															
5 A CT	0.10 to 100.00 (A)	10.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>High Current Lockout</b>																	
HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
Reference Current																	
1 A CT	0.10 to 100.00 (A)	50.00															
5 A CT	0.50 to 500.00 (A)	50.00															
Time Delay	0.00 to 600.00 (Sec)	30.00															

## 50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps

SETTING	RANGE	DEFAULT	SETTING
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### 50P #1– PHASE INSTANTANEOUS/DEFINITE TIME OVERCURRENT – TRIPLE SINGLE

#### High Current Lockout

HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.10 to 100.00 (A)	50.00	
5 A CT	0.50 to 500.00 (A)	50.00	
Time Delay	0.00 to 600.00 (Sec)	30.00	

#### 50P #1 (Phase A)

Function 50P #1 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	

<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12
	<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>																

#### 50P #1 (Phase B)

Function 50P #1 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	

<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12
	<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>																

<b>50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>50P #1 (Phase C)</b>													
Function 50P #1 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup													
1 A CT	0.02 to 20.00 (A)	10.00											
5 A CT	0.10 to 100.00 (A)	10.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
													<b>Virtual Inputs</b>
													1    2    3
													<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

## 50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps

SETTING	RANGE	DEFAULT	SETTING
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### 50P #2– PHASE INSTANTANEOUS/DEFINITE TIME OVERCURRENT – TRIPLE SINGLE

#### High Current Lockout

HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.10 to 100.00 (A)	50.00	
5 A CT	0.50 to 500.00 (A)	50.00	
Time Delay	0.00 to 600.00 (Sec)	30.00	

#### 50P #2 (Phase A)

Function 50P #2 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	

**Outputs**

1	2	3	4	5	6	7	8	9	10	11	12
<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												

#### 50P #2 (Phase B)

Function 50P #2 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	

**Outputs**

1	2	3	4	5	6	7	8	9	10	11	12
<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												

<b>50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>50P #2 (Phase C)</b>																	
Function 50P #2 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup																	
1 A CT	0.02 to 20.00 (A)	10.00															
5 A CT	0.10 to 100.00 (A)	10.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps

SETTING	RANGE	DEFAULT	SETTING
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### 50P #3– PHASE INSTANTANEOUS/DEFINITE TIME OVERCURRENT – TRIPLE SINGLE

#### High Current Lockout

HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Reference Current				
1 A CT	0.10 to 100.00 (A)	50.00		
5 A CT	0.50 to 500.00 (A)	50.00		
Time Delay	0.00 to 600.00 (Sec)	30.00		

#### 50P #3 (Phase A)

Function 50P #3 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Pickup				
1 A CT	0.02 to 20.00 (A)	10.00		
5 A CT	0.10 to 100.00 (A)	10.00		
Definite Time	0.00 to 600.00 (Sec)	30.00		

<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12
	<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>																

#### 50P #3 (Phase B)

Function 50P #3 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Pickup				
1 A CT	0.02 to 20.00 (A)	10.00		
5 A CT	0.10 to 100.00 (A)	10.00		
Definite Time	0.00 to 600.00 (Sec)	30.00		

<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12
	<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>																

<b>50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>50P #3 (Phase C)</b>																	
Function 50P #3 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup																	
1 A CT	0.02 to 20.00 (A)	10.00															
5 A CT	0.10 to 100.00 (A)	10.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3

## 50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps

SETTING	RANGE	DEFAULT	SETTING
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### 50P #4– PHASE INSTANTANEOUS/DEFINITE TIME OVERCURRENT – TRIPLE SINGLE

**High Current Lockout**

HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Reference Current				
1 A CT	0.10 to 100.00 (A)	50.00		
5 A CT	0.50 to 500.00 (A)	50.00		
Time Delay	0.00 to 600.00 (Sec)	30.00		

### 50P #4 (Phase A)

Function 50P #4 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Pickup				
1 A CT	0.02 to 20.00 (A)	10.00		
5 A CT	0.10 to 100.00 (A)	10.00		
Definite Time	0.00 to 600.00 (Sec)	30.00		

**Outputs**

1	2	3	4	5	6	7	8	9	10	11	12
<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>																

### 50P #4 (Phase B)

Function 50P #4 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Pickup				
1 A CT	0.02 to 20.00 (A)	10.00		
5 A CT	0.10 to 100.00 (A)	10.00		
Definite Time	0.00 to 600.00 (Sec)	30.00		

**Outputs**

1	2	3	4	5	6	7	8	9	10	11	12
<input type="checkbox"/>											

<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>																

<b>50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>50P #4 (Phase C)</b>																	
Function 50P #4 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup																	
5 A CT	0.10 to 100.00 (A)	10.00															
1 A CT	0.02 to 20.00 (A)	10.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## Profile

## 50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps

SETTING	RANGE	DEFAULT	SETTING
<b>50P #5– PHASE INSTANTANEOUS/DEFINITE TIME OVERCURRENT – TRIPLE SINGLE</b>			
<b>High Current Lockout</b>			
HCL Phase Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.10 to 100.00 (A)	50.00	
5 A CT	0.50 to 500.00 (A)	50.00	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>50P #5 (Phase A)</b>			
Function 50P #5 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>50P #5 (Phase B)</b>			
Function 50P #5 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 50P (Triple Single) Setpoints (9 of 10)*

<b>50P – Phase Instantaneous/Definite Time Overcurrent (Triple Single) #1 to #5 Steps</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>50P #5 (Phase C)</b>																	
Function 50P #5 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup																	
1 A CT	0.02 to 20.00 (A)	10.00															
5 A CT	0.10 to 100.00 (A)	10.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## Profile

**50N – Residual Instantaneous/Definite Time Overcurrent**

SETTING	RANGE	DEFAULT	SETTING
<b>50N – RESIDUAL INSTANTANEOUS/DEFINITE TIME OVERCURRENT (#1 TO #5 STEPS)</b>			
<b>50N #1</b>			
Function 50N #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout</b> (with 3I <sub>0</sub> HCL Operating Current Reference)			
HCL Neutral Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.03 to 100.00 (A)	0.20	
5 A CT	0.15 to 500.00 (A)	0.20	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>50N #2</b>			
Function 50N #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout</b> (with 3I <sub>0</sub> HCL Operating Current Reference)			
HCL Neutral Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.03 to 100.00 (A)	0.20	
5 A CT	0.15 to 500.00 (A)	0.20	
Time Delay	0.00 to 600.00 (Sec)	30.00	

Function 50N Setpoints (1 of 3)

## 50N – Residual Instantaneous/Definite Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>50N #3</b>			
Function 50N #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout</b> (with 3I <sub>0</sub> HCL Operating Current Reference)			
HCL Neutral Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.03 to 100.00 (A)	0.20	
5 A CT	0.15 to 500.00 (A)	0.20	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>50N #4</b>			
Function 50N #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout</b> (with 3I <sub>0</sub> HCL Operating Current Reference)			
HCL Neutral Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.03 to 100.00 (A)	0.20	
5 A CT	0.15 to 500.00 (A)	0.20	
Time Delay	0.00 to 600.00 (Sec)	30.00	

## Profile

**50N – Residual Instantaneous/Definite Time Overcurrent**

SETTING	RANGE	DEFAULT	SETTING
<b>50N #5</b>			
Function 50N #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/> FL		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout</b> (with $3I_0$ HCL Operating Current Reference)			
HCL Neutral Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.03 to 100.00 (A)	0.20	
5 A CT	0.15 to 500.00 (A)	0.20	
Time Delay	0.00 to 600.00 (Sec)	30.00	

*Function 50N Setpoints (3 of 3)*

<b>50G – Ground Instantaneous/Definite Time Overcurrent</b>																											
SETTING	RANGE	DEFAULT	SETTING																								
<b>50G – GROUND INSTANTANEOUS/DEFINITE TIME OVERCURRENT (#1 TO #5 STEPS)</b>																											
<b>50G #1</b>																											
Function 50G #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																								
Pickup																											
1 A CT	0.02 to 20.00 (A)	0.20																									
5 A CT	0.10 to 100.00 (A)	0.20																									
Definite Time	0.00 to 600.00 (Sec)	30.00																									
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																								
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																								
			<b>Virtual Inputs</b>																								
			<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> </tr> </table>																								
<b>High Current Lockout (with G HCL Operating Current Reference)</b>																											
HCL Ground Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																								
Reference Current																											
1 A CT	0.03 to 100.00 (A)	0.20																									
5 A CT	0.15 to 500.00 (A)	0.20																									
Time Delay	0.00 to 600.00 (Sec)	30.00																									
<b>50G #2</b>																											
Function 50G #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																								
Pickup																											
1 A CT	0.02 to 20.00 (A)	0.20																									
5 A CT	0.10 to 100.00 (A)	0.20																									
Definite Time	0.00 to 600.00 (Sec)	30.00																									
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																								
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																								
			<b>Virtual Inputs</b>																								
			<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> </tr> </table>																								
<b>High Current Lockout (with G HCL Operating Current Reference)</b>																											
HCL Ground Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																								
Reference Current																											
1 A CT	0.03 to 100.00 (A)	0.20																									
5 A CT	0.15 to 500.00 (A)	0.20																									
Time Delay	0.00 to 600.00 (Sec)	30.00																									

*Function 50G Setpoints (1 of 3)*

## Profile

50G – Ground Instantaneous/Definite Time Overcurrent																
SETTING	RANGE											DEFAULT	SETTING			
<b>50G #3</b>																
Function 50G #3	Enable/Disable											Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable			
Pickup																
1 A CT	0.02 to 20.00 (A)											0.20				
5 A CT	0.10 to 100.00 (A)											0.20				
Definite Time	0.00 to 600.00 (Sec)											30.00				
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>															
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	1	2	3												
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<b>High Current Lockout</b> (with G HCL Operating Current Reference)																
HCL Ground Enable	Enable/Disable											Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable			
Reference Current																
1 A CT	0.03 to 100.00 (A)											0.20				
5 A CT	0.15 to 500.00 (A)											0.20				
Time Delay	0.00 to 600.00 (Sec)											30.00				
<b>50G #4</b>																
Function 50G #4	Enable/Disable											Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable			
Pickup																
1 A CT	0.02 to 20.00 (A)											0.20				
5 A CT	0.10 to 100.00 (A)											0.20				
Definite Time	0.00 to 600.00 (Sec)											30.00				
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>															
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	1	2	3												
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<b>High Current Lockout</b> (with G HCL Operating Current Reference)																
HCL Ground Enable	Enable/Disable											Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable			
Reference Current																
1 A CT	0.03 to 100.00 (A)											0.20				
5 A CT	0.15 to 500.00 (A)											0.20				
Time Delay	0.00 to 600.00 (Sec)											30.00				

Function 50G Setpoints (2 of 3)

<b>50G – Ground Instantaneous/Definite Time Overcurrent</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>50G #5</b>																	
Function 50G #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup																	
1 A CT	0.02 to 20.00 (A)	0.20															
5 A CT	0.10 to 100.00 (A)	0.20															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>High Current Lockout</b> (with G HCL Operating Current Reference)																	
HCL Ground Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Reference Current																	
1 A CT	0.03 to 100.00 (A)	0.20															
5 A CT	0.15 to 500.00 (A)	0.20															
Time Delay	0.00 to 600.00 (Sec)	30.00															

## Profile

## 50GS – Sensitive Ground Instantaneous/ Definite Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>50GS – SENSITIVE GROUND INSTANTANEOUS/DEFINITE TIME OVERCURRENT (#1 TO #5 STEPS)</b>			
<b>50GS #1</b>			
Function 50GS #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout (with G HCL Operating Current Reference)</b>			
HCL Ground Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Time Delay	0.00 to 600.00 (Sec)	30.00	

*Function 50GS Setpoints (1 of 5)*

<b>50GS – Sensitive Ground Instantaneous/ Definite Time Overcurrent</b>														
SETTING	RANGE						DEFAULT			SETTING				
<b>50GS #2</b>														
Function 50GS #2	Enable/Disable						Disable			<input type="checkbox"/> Enable <input type="checkbox"/> Disable				
Pickup														
10 mA CT	0.001 to 0.160 (A)						0.020							
50 mA CT	0.005 to 0.800 (A)						0.020							
200 mA CT	0.020 to 3.200 (A)						0.020							
Definite Time	0.00 to 600.00 (Sec)						30.00							
<b>Outputs</b>														
	1	2	3	4	5	6	7	8	9	10	11	12		
<b>Blocking Inputs</b>														
	1	2	3	4	5	6	7	8	9	10	11	12	FL	
<b>Virtual Inputs</b>														
	1	2	3											
<b>High Current Lockout</b> (with G HCL Operating Current Reference)														
HCL Ground Enable	Enable/Disable						Disable			<input type="checkbox"/> Enable <input type="checkbox"/> Disable				
Reference Current														
10 mA CT	0.001 to 0.160 (A)						0.020							
50 mA CT	0.005 to 0.800 (A)						0.020							
200 mA CT	0.020 to 3.200 (A)						0.020							
Time Delay	0.00 to 600.00 (Sec)						30.00							

## Profile

## 50GS – Sensitive Ground Instantaneous/ Definite Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>50GS #3</b>			
Function 50GS #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12   FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout</b> (with G HCL Operating Current Reference)			
HCL Ground Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Time Delay	0.00 to 600.00 (Sec)	30.00	

*Function 50GS Setpoints (3 of 5)*

<b>50GS – Sensitive Ground Instantaneous/ Definite Time Overcurrent</b>																
SETTING				RANGE				DEFAULT				SETTING				
<b>50GS #4</b>																
Function 50GS #4	Enable/Disable			Disable			<input type="checkbox"/> Enable <input type="checkbox"/> Disable									
Pickup																
10 mA CT	0.001 to 0.160 (A)			0.020												
50 mA CT	0.005 to 0.800 (A)			0.020												
200 mA CT	0.020 to 3.200 (A)			0.020												
Definite Time	0.00 to 600.00 (Sec)			30.00												
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
<b>High Current Lockout</b>	(with G HCL Operating Current Reference)															
HCL Ground Enable	Enable/Disable			Disable			<input type="checkbox"/> Enable <input type="checkbox"/> Disable									
Reference Current																
10 mA CT	0.001 to 0.160 (A)			0.020												
50 mA CT	0.005 to 0.800 (A)			0.020												
200 mA CT	0.020 to 3.200 (A)			0.020												
Time Delay	0.00 to 600.00 (Sec)			30.00												

## Profile

## 50GS – Sensitive Ground Instantaneous/ Definite Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>50GS #5</b>			
Function 50GS #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12   FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>High Current Lockout</b> (with G HCL Operating Current Reference)			
HCL Ground Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Time Delay	0.00 to 600.00 (Sec)	30.00	

*Function 50GS Setpoints (5 of 5)*

<b>51P – Phase Inverse Time Overcurrent (Three Phase)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51P – PHASE INVERSE TIME OVERCURRENT – THREE PHASE (#1 TO #5 STEPS)</b>			
<b>51P #1 (ABC)</b>			
Function 51P #1 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Use LEL (Load Encroachment Logic)	Yes/No	No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>			
	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>			
	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Three Phase) Setpoints (1 of 5)*

## Profile

**51P – Phase Inverse Time Overcurrent (Three Phase)**

SETTING	RANGE	DEFAULT	SETTING
<b>51P #2 (ABC)</b>			
Function 51P #2 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Use LEL (Load Encroachment Logic)	Yes/No	No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/> FL		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Three Phase) Setpoints (2 of 5)*

<b>51P – Phase Inverse Time Overcurrent (Three Phase)</b>				
SETTING	RANGE	DEFAULT	SETTING	
<b>51P #3 (ABC)</b>				
Function 51P #3 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Use LEL (Load Encroachment Logic)	Yes/No	No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Pickup				
1 A CT	0.02 to 3.20 (A)	1.00		
5 A CT	0.10 to 16.00 (A)	1.00		
Curve Selection	See Table Below	IEC Inverse		
Time Multiplier (Dial)				
IEC Curves	0.05 to 1.00	1.00		
IEEE Curves	0.10 to 25.00	1.00		
US Curves	0.05 to 15.00	1.00		
Traditional Recloser Curves	0.10 to 2.00	1.00		
Definite Time	0.10 to 100.00	1.00		
Time Adder	0.00 to 30.00 (Sec)	0.00		
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00		
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001		
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable	<input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0		
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12			
	<input type="checkbox"/>			
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>	
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Three Phase) Setpoints (3 of 5)*

## Profile

**51P – Phase Inverse Time Overcurrent (Three Phase)**

SETTING	RANGE	DEFAULT	SETTING
<b>51P #4 (ABC)</b>			
Function 51P #4 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Use LEL (Load Encroachment Logic)	Yes/No	No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/> FL		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves ■NOTE: (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Three Phase) Setpoints (4 of 5)*

<b>51P – Phase Inverse Time Overcurrent (Three Phase)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51P #5 (ABC)</b>			
Function 51P #5 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Use LEL (Load Encroachment Logic)	Yes/No	No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12   FL	<b>Virtual Inputs</b>	
	<input type="checkbox"/>	1   2   3	
	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves ■ <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Three Phase) Setpoints (5 of 5)*

## Profile

**51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>51P #1 – PHASE INVERSE TIME OVERCURRENT – TRIPLE SINGLE</b>			
<b>51P #1 (Phase A)</b>			
Function 51P #1 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 51P (Triple Single) Setpoints (1 of 15)

51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)			
SETTING	RANGE	DEFAULT	SETTING
<b>51P #1 (Phase B)</b>			
Function 51P #1 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 51P (Triple Single) Setpoints (2 of 15)

## Profile

**51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>51P #1 (Phase C)</b>			
Function 51P #1 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/> FL		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves ■NOTE: (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 51P (Triple Single) Setpoints (3 of 15)

<b>51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)</b>																				
SETTING	RANGE	DEFAULT	SETTING																	
<b>51P #2 (Phase A)</b>																				
Function 51P #2 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																	
Pickup																				
1 A CT	0.02 to 3.20 (A)	1.00																		
5 A CT	0.10 to 16.00 (A)	1.00																		
Curve Selection	See Table Below	IEC Inverse																		
Time Multiplier (Dial)																				
IEC Curves	0.05 to 1.00	1.00																		
IEEE Curves	0.10 to 25.00	1.00																		
US Curves	0.05 to 15.00	1.00																		
Traditional Recloser Curves	0.10 to 2.00	1.00																		
Definite Time	0.10 to 100.00	1.00																		
Time Adder	0.00 to 30.00 (Sec)	0.00																		
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00																		
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																	
Reset Coefficient	0.001 to 30.000 (Sec)	0.001																		
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr																	
Voltage Control	4.0 to 150.0 (%)	10.0																		
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12																			
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																			
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3																	
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> </tr> </table>			

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (4 of 15)*

Profile

### 51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>51P #2 (Phase B)</b>			
Function 51P #2 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 51P (Triple Single) Setpoints (5 of 15)

<b>51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51P #2 (Phase C)</b>			
Function 51P #2 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (6 of 15)*

## Profile

**51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>51P #3 (Phase A)</b>			
Function 51P #3 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (7 of 15)*

<b>51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51P #3 (Phase B)</b>			
Function 51P #3 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12   FL	<b>Virtual Inputs</b>	
	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (8 of 15)*

## Profile

**51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>51P #3 (Phase C)</b>			
Function 51P #3 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 51P (Triple Single) Setpoints (9 of 15)

<b>51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51P #4 (Phase A)</b>			
Function 51P #4 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (10 of 15)*

## Profile

**51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>51P #4 (Phase B)</b>			
Function 51P #4 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (11 of 15)*

<b>51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51P #4 (Phase C)</b>			
Function 51P #4 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (12 of 15)*

## Profile

**51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>51P #5 (Phase A)</b>			
Function 51P #5 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (13 of 15)*

<b>51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)</b>																				
SETTING	RANGE	DEFAULT	SETTING																	
<b>51P #5 (Phase B)</b>																				
Function 51P #5 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																	
Pickup																				
1 A CT	0.02 to 3.20 (A)	1.00																		
5 A CT	0.10 to 16.00 (A)	1.00																		
Curve Selection	See Table Below	IEC Inverse																		
Time Multiplier (Dial)																				
IEC Curves	0.05 to 1.00	1.00																		
IEEE Curves	0.10 to 25.00	1.00																		
US Curves	0.05 to 15.00	1.00																		
Traditional Recloser Curves	0.10 to 2.00	1.00																		
Definite Time	0.10 to 100.00	1.00																		
Time Adder	0.00 to 30.00 (Sec)	0.00																		
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00																		
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																	
Reset Coefficient	0.001 to 30.000 (Sec)	0.001																		
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr																	
Voltage Control	4.0 to 150.0 (%)	10.0																		
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12																			
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																			
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3																	
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> </tr> </table>			

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (14 of 15)*

## Profile

**51P – Phase Inverse Time Overcurrent (Triple Single #1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>51P #5 (Phase C)</b>			
Function 51P #5 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
Voltage Control	Disable/Voltage Control/ Voltage Restraint	Disable	<input type="checkbox"/> Disable <input type="checkbox"/> VCtrl <input type="checkbox"/> VRstr
Voltage Control	4.0 to 150.0 (%)	10.0	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51P (Triple Single) Setpoints (15 of 15)*

<b>51N – Residual Inverse Time Overcurrent</b>																		
SETTING	RANGE	DEFAULT	SETTING															
<b>51N – RESIDUAL INVERSE TIME OVERCURRENT (#1 TO #5 STEPS)</b>																		
<b>51N #1</b>																		
Function 51N #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable															
Pickup																		
1 A CT	0.02 to 3.20 (A)	1.00																
5 A CT	0.10 to 16.00 (A)	1.00																
Curve Selection	See Table Below	IEC Inverse																
Time Multiplier (Dial)																		
IEC Curves	0.05 to 1.00	1.00																
IEEE Curves	0.10 to 25.00	1.00																
US Curves	0.05 to 15.00	1.00																
Traditional Recloser Curves	0.10 to 2.00	1.00																
Definite Time	0.10 to 100.00	1.00																
Time Adder	0.00 to 30.00 (Sec)	0.00																
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00																
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable															
Reset Coefficient	0.001 to 30.000 (Sec)	0.001																
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12																	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																	
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>															
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>														<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> </tr> </table>			

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51N Setpoints (1 of 5)*

## Profile

**51N – Residual Inverse Time Overcurrent**

SETTING	RANGE	DEFAULT	SETTING
<b>51N #2</b>			
Function 51N #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 51N Setpoints (2 of 5)

<b>51N – Residual Inverse Time Overcurrent</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51N #3</b>			
Function 51N #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>			
	1   2   3   4   5   6   7   8   9   10   11   12   FL	<b>Virtual Inputs</b>	
	<input type="checkbox"/>	1   2   3 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves ■ <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51N Setpoints (3 of 5)*

## 51N – Residual Inverse Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>51N #4</b>			
Function 51N #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51N Setpoints (4 of 5)*

<b>51N – Residual Inverse Time Overcurrent</b>																																			
SETTING	RANGE	DEFAULT	SETTING																																
<b>51N #5</b>																																			
Function 51N #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																
Pickup																																			
1 A CT	0.02 to 3.20 (A)	1.00																																	
5 A CT	0.10 to 16.00 (A)	1.00																																	
Curve Selection	See Table Below	IEC Inverse																																	
Time Multiplier (Dial)																																			
IEC Curves	0.05 to 1.00	1.00																																	
IEEE Curves	0.10 to 25.00	1.00																																	
US Curves	0.05 to 15.00	1.00																																	
Traditional Recloser Curves	0.10 to 2.00	1.00																																	
Definite Time	0.10 to 100.00	1.00																																	
Time Adder	0.00 to 30.00 (Sec)	0.00																																	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00																																	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																
Reset Coefficient	0.001 to 30.000 (Sec)	0.001																																	
<b>Outputs</b>	<table style="width:100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td><td style="width: 12.5%;">2</td><td style="width: 12.5%;">3</td><td style="width: 12.5%;">4</td><td style="width: 12.5%;">5</td><td style="width: 12.5%;">6</td><td style="width: 12.5%;">7</td><td style="width: 12.5%;">8</td><td style="width: 12.5%;">9</td><td style="width: 12.5%;">10</td><td style="width: 12.5%;">11</td><td style="width: 12.5%;">12</td> </tr> <tr> <td style="border: 1px solid black; height: 20px;"></td><td style="border: 1px solid black; height: 20px;"></td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12																						
1	2	3	4	5	6	7	8	9	10	11	12																								
<b>Blocking Inputs</b>	<table style="width:100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 12.5%;">1</td><td style="width: 12.5%;">2</td><td style="width: 12.5%;">3</td><td style="width: 12.5%;">4</td><td style="width: 12.5%;">5</td><td style="width: 12.5%;">6</td><td style="width: 12.5%;">7</td><td style="width: 12.5%;">8</td><td style="width: 12.5%;">9</td><td style="width: 12.5%;">10</td><td style="width: 12.5%;">11</td><td style="width: 12.5%;">12</td><td style="width: 12.5%;">FL</td> </tr> <tr> <td style="border: 1px solid black; height: 20px;"></td><td style="border: 1px solid black; height: 20px;"></td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	FL														<b>Virtual Inputs</b>	<table style="width:100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 33.3%;">1</td><td style="width: 33.3%;">2</td><td style="width: 33.3%;">3</td> </tr> <tr> <td style="border: 1px solid black; height: 20px;"></td><td style="border: 1px solid black; height: 20px;"></td><td style="border: 1px solid black; height: 20px;"></td> </tr> </table>	1	2	3			
1	2	3	4	5	6	7	8	9	10	11	12	FL																							
1	2	3																																	

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

## 51G – Ground Inverse Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
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### 51G – GROUND INVERSE TIME OVERCURRENT (#1 TO #5 STEPS)

#### 51G #1

Function 51G #1                      Enable/Disable                      Disable                       Enable     Disable

Pickup

    1 A CT                              0.02 to 3.20 (A)                      0.20

    5 A CT                              0.10 to 16.00 (A)                      0.20

Curve Selection                      See Table Below                      IEC Inverse

Time Multiplier (Dial)

    IEC Curves                              0.05 to 1.00                      1.00

    IEEE Curves                              0.10 to 25.00                      1.00

    US Curves                              0.05 to 15.00                      1.00

    Traditional Recloser Curves                      0.10 to 2.00                      1.00

    Definite Time                              0.10 to 100.00                      1.00

Time Adder                              0.00 to 30.00 (Sec)                      0.00

Minimum Response Time Adder                      0.00 to 1.00 (Sec)                      0.00

Electromechanical Reset                      Enable/Disable                      Disable                       Enable     Disable

    Reset Coefficient                              0.001 to 30.000 (Sec)                      0.001

**Outputs**

1	2	3	4	5	6	7	8	9	10	11	12
<input type="checkbox"/>											

**Blocking Inputs**

1	2	3	4	5	6	7	8	9	10	11	12	FL
<input type="checkbox"/>												

**Virtual Inputs**

1	2	3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51G Setpoints (1 of 5)*

<b>51G – Ground Inverse Time Overcurrent</b>																
SETTING	RANGE	DEFAULT	SETTING													
<b>51G #2</b>																
Function 51G #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
Pickup																
1 A CT	0.02 to 3.20 (A)	0.20														
5 A CT	0.10 to 16.00 (A)	0.20														
Curve Selection	See Table Below	IEC Inverse														
Time Multiplier (Dial)																
IEC Curves	0.05 to 1.00	1.00														
IEEE Curves	0.10 to 25.00	1.00														
US Curves	0.05 to 15.00	1.00														
Traditional Recloser Curves	0.10 to 2.00	1.00														
Definite Time	0.10 to 100.00	1.00														
Time Adder	0.00 to 30.00 (Sec)	0.00														
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00														
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
Reset Coefficient	0.001 to 30.000 (Sec)	0.001														
<b>Outputs</b>																
	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>												<b>Virtual Inputs</b>				
	1	2	3	4	5	6	7	8	9	10	11	12	FL	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51G Setpoints (2 of 5)*

## 51G – Ground Inverse Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>51G #3</b>			
Function 51G #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	0.20	
5 A CT	0.10 to 16.00 (A)	0.20	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51G Setpoints (3 of 5)*

<b>51G – Ground Inverse Time Overcurrent</b>																																			
SETTING	RANGE	DEFAULT	SETTING																																
<b>51G #4</b>																																			
Function 51G #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																
Pickup																																			
1 A CT	0.02 to 3.20 (A)	0.20																																	
5 A CT	0.10 to 16.00 (A)	0.20																																	
Curve Selection	See Table Below	IEC Inverse																																	
Time Multiplier (Dial)																																			
IEC Curves	0.05 to 1.00	1.00																																	
IEEE Curves	0.10 to 25.00	1.00																																	
US Curves	0.05 to 15.00	1.00																																	
Traditional Recloser Curves	0.10 to 2.00	1.00																																	
Definite Time	0.10 to 100.00	1.00																																	
Time Adder	0.00 to 30.00 (Sec)	0.00																																	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00																																	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																
Reset Coefficient	0.001 to 30.000 (Sec)	0.001																																	
<b>Outputs</b>	<table style="width:100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 20px;">1</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td><td style="width: 20px;">4</td><td style="width: 20px;">5</td><td style="width: 20px;">6</td><td style="width: 20px;">7</td><td style="width: 20px;">8</td><td style="width: 20px;">9</td><td style="width: 20px;">10</td><td style="width: 20px;">11</td><td style="width: 20px;">12</td> </tr> <tr> <td style="border: 1px solid black; height: 20px;"></td><td style="border: 1px solid black; height: 20px;"></td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12																						
1	2	3	4	5	6	7	8	9	10	11	12																								
<b>Blocking Inputs</b>	<table style="width:100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 20px;">1</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td><td style="width: 20px;">4</td><td style="width: 20px;">5</td><td style="width: 20px;">6</td><td style="width: 20px;">7</td><td style="width: 20px;">8</td><td style="width: 20px;">9</td><td style="width: 20px;">10</td><td style="width: 20px;">11</td><td style="width: 20px;">12</td><td style="width: 20px;">FL</td> </tr> <tr> <td style="border: 1px solid black; height: 20px;"></td><td style="border: 1px solid black; height: 20px;"></td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	FL														<b>Virtual Inputs</b>	<table style="width:100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 20px;">1</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td> </tr> <tr> <td style="border: 1px solid black; height: 20px;"></td><td style="border: 1px solid black; height: 20px;"></td><td style="border: 1px solid black; height: 20px;"></td> </tr> </table>	1	2	3			
1	2	3	4	5	6	7	8	9	10	11	12	FL																							
1	2	3																																	

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51G Setpoints (4 of 5)*

## 51G – Ground Inverse Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>51G #5</b>			
Function 51G #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	0.20	
5 A CT	0.10 to 16.00 (A)	0.20	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51G Setpoints (5 of 5)*

<b>51GS – Sensitive Ground Inverse Time Overcurrent</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51GS – SENSITIVE GROUND INVERSE TIME OVERCURRENT (#1 TO #5 STEPS)</b>			
<b>51GS #1</b>			
Function 51GS #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51GS Setpoints (1 of 5)*

# 51GS – Sensitive Ground Inverse Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>51GS #2</b>			
Function 51GS #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves ■ <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51GS Setpoints (2 of 5)*

<b>51GS – Sensitive Ground Inverse Time Overcurrent</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51GS #3</b>			
Function 51GS #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51GS Setpoints (3 of 5)*

## 51GS – Sensitive Ground Inverse Time Overcurrent

SETTING	RANGE	DEFAULT	SETTING
<b>51GS #4</b>			
Function 51GS #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51GS Setpoints (4 of 5)*

<b>51GS – Sensitive Ground Inverse Time Overcurrent</b>																			
SETTING	RANGE	DEFAULT	SETTING																
<b>51GS #5</b>																			
Function 51GS #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																
Pickup																			
10 mA CT	0.001 to 0.160 (A)	0.020																	
50 mA CT	0.005 to 0.800 (A)	0.020																	
200 mA CT	0.020 to 3.200 (A)	0.020																	
Curve Selection	See Table Below	IEC Inverse																	
Time Multiplier (Dial)																			
IEC Curves	0.05 to 1.00	1.00																	
IEEE Curves	0.10 to 25.00	1.00																	
US Curves	0.05 to 15.00	1.00																	
Traditional Recloser Curves	0.10 to 2.00	1.00																	
Definite Time	0.10 to 100.00	1.00																	
Time Adder	0.00 to 30.00 (Sec)	0.00																	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00																	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																
Reset Coefficient	0.001 to 30.000 (Sec)	0.001																	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12																		
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>																		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>																
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 25px; height: 20px;"></td> </tr> </table>															<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> <td style="width: 33px; height: 20px;"></td> </tr> </table>			

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 51GS Setpoints (5 of 5)*

## 59 – Overvoltage (Three Phase)

SETTING	RANGE	DEFAULT	SETTING
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### 59 – PHASE OVERVOLTAGE – THREE PHASE (#1 TO #4 STEPS)

#### 59 #1 (ABC)

Function 59 #1 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup	10.00 to 300.00 (V l-g sec)	300.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

#### 59 #2 (ABC)

Function 59 #2 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup	10.00 to 300.00 (V l-g sec)	300.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

#### 59 #3 (ABC)

Function 59 #3 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup	10.00 to 300.00 (V l-g sec)	300.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<b>59 – Overvoltage (Three Phase)</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>59 #4 (ABC)</b>													
Function 59 #4 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-g sec)	300.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL												
	<input type="checkbox"/>	<b>Virtual Inputs</b>											
		1   2   3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>										

<b>59 – Overvoltage (Triple Single #1 to #4)</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>59 – PHASE OVERVOLTAGE – TRIPLE SINGLE</b>																	
<b>59 #1 Triple Single</b>																	
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
<b>59 #1 (Phase A)</b>																	
Function 59 #1 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	300.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>59 #1 (Phase B)</b>																	
Function 59 #1 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	300.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>59 #1 (Phase C)</b>																	
Function 59 #1 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	300.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

*Function 59 (Triple Single) Setpoints (1 of 4)*

<b>59 – Overvoltage (Triple Single #1 to #4)</b>																
SETTING	RANGE	DEFAULT	SETTING													
<b>59 #2 Triple Single</b>																
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
<b>59 #2 (Phase A)</b>																
Function 59 #2 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
Pickup	10.00 to 300.00 (V I-g sec)	300.00														
Definite Time	0.00 to 600.00 (Sec)	30.00														
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>59 #2 (Phase B)</b>																
Function 59 #2 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
Pickup	10.00 to 300.00 (V I-g sec)	300.00														
Definite Time	0.00 to 600.00 (Sec)	30.00														
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>59 #2 (Phase C)</b>																
Function 59 #2 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
Pickup	10.00 to 300.00 (V I-g sec)	300.00														
Definite Time	0.00 to 600.00 (Sec)	30.00														
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>59 – Overvoltage (Triple Single #1 to #4)</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>59 #3 Triple Single</b>																	
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
<b>59 #3 (Phase A)</b>																	
Function 59 #3 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	300.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>59 #3 (Phase B)</b>																	
Function 59 #3 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	300.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>59 #3 (Phase C)</b>																	
Function 59 #3 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
Pickup	10.00 to 300.00 (V I-g sec)	300.00															
Definite Time	0.00 to 600.00 (Sec)	30.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>59 – Overvoltage (Triple Single #1 to #4)</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>59 #4 Triple Single</b>													
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
<b>59 #4 (Phase A)</b>													
Function 59 #4 (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-g sec)	300.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	1 2 3											
		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>											
<b>59 #4 (Phase B)</b>													
Function 59 #4 (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-g sec)	300.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	1 2 3											
		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>											
<b>59 #4 (Phase C)</b>													
Function 59 #4 (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-g sec)	300.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	1 2 3											
		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>											

Profile

### 59PP – Phase to Phase Overvoltage (Three Phase)

SETTING	RANGE	DEFAULT	SETTING
<b>59PP – PHASE TO PHASE OVERVOLTAGE – THREE PHASE</b>			
Function 59PP (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup	10.00 to 300.00 (V I-I sec)	300.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 59PP (Three Phase) Setpoints*

<b>59PP – Phase to Phase Overvoltage (Triple Single)</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>59PP – PHASE TO PHASE OVERVOLTAGE – TRIPLE SINGLE</b>													
<b>59PP Phase AB</b>													
Function 59PP (Phase AB)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-I sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	1 2 3											
	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>											
<b>59PP Phase BC</b>													
Function 59PP (Phase BC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-I sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	1 2 3											
	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>											
<b>59PP Phase CA</b>													
Function 59PP (Phase CA)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	10.00 to 300.00 (V I-I sec)	150.00											
Definite Time	0.00 to 600.00 (Sec)	30.00											
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	1 2 3											
	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>											

*Function 59PP (Triple Single) Setpoints*

<b>59I – Peak Overvoltage (Three Phase)</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>59I – PEAK OVERVOLTAGE – THREE PHASE</b>													
Function 59I (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	100 to 150 (%)	120											
Definite Time	0.01 to 140.00 (Sec)	10.00											
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL												
	<input type="checkbox"/>	<b>Virtual Inputs</b>											
		1   2   3											
		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>											

*Function 59I (Three Phase) Setpoints*

<b>59I – Peak Overvoltage (Triple Single)</b>													
SETTING	RANGE	DEFAULT	SETTING										
<b>59I – PEAK OVERVOLTAGE – TRIPLE SINGLE</b>													
<b>59I Phase A</b>													
Function 59I (Phase A)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	100 to 150 (%)	120											
Definite Time	0.01 to 140.00 (Sec)	10.00											
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3											
<b>59I Phase B</b>													
Function 59I (Phase B)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	100 to 150 (%)	120											
Definite Time	0.01 to 140.00 (Sec)	10.00											
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3											
<b>59I Phase C</b>													
Function 59I (Phase C)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable										
Pickup	100 to 150 (%)	120											
Definite Time	0.01 to 140.00 (Sec)	10.00											
<b>Outputs</b>	1   2   3   4   5   6   7   8   9   10   11   12												
	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1   2   3   4   5   6   7   8   9   10   11   12   FL	<b>Virtual Inputs</b>											
	<input type="checkbox"/>	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3											

*Function 59I (Triple Single) Setpoints*

Profile

<b>59Vz1 – Vz1 Overvoltage</b>																
SETTING	RANGE	DEFAULT	SETTING													
<b>59Vz1 – Vz1 OVERVOLTAGE</b>																
Function 59Vz1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
Pickup	10.00 to 300.00 (V I-g sec)	150.00														
Definite Time	0.00 to 600.00 (Sec)	300.00														
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>59N – Residual Overvoltage</b>																
SETTING	RANGE	DEFAULT	SETTING													
<b>59N – RESIDUAL OVERVOLTAGE</b>																
Function 59N	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
Pickup	10.00 to 300.00 (V I-g sec)	150.00														
Definite Time	0.00 to 600.00 (Sec)	300.00														
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Functions 59Vz1 and 59N Setpoints*

<b>67P – Phase Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67P #1 (ABC)</b>			
Function 67P #1 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	V <sub>1</sub>	V <sub>1</sub>
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67P Setpoints (1 of 6)

<b>67P – Phase Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67P #2 (ABC)</b>			
Function 67P #2 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	V <sub>1</sub>	V <sub>1</sub>
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		
	<input type="checkbox"/>	<b>Virtual Inputs</b>	
		1 2 3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67P Setpoints (2 of 6)

<b>67P – Phase Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67P #3 (ABC)</b>			
Function 67P #3 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	V <sub>1</sub>	V <sub>1</sub>
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67P Setpoints (3 of 6)

Profile

**67P – Phase Directional Overcurrent (#1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>67P #4 (ABC)</b>			
Function 67P #4 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	V <sub>1</sub>	V <sub>1</sub>
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		
	<input type="checkbox"/>	<b>Virtual Inputs</b>	
		1 2 3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67P Setpoints (4 of 6)

<b>67P – Phase Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67P #5 (ABC)</b>			
Function 67P #5 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	V <sub>1</sub>	V <sub>1</sub>
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67P Setpoints (5 of 6)

**Profile**

<b>INVERSE TIME CURVES</b>	
<b>Curve Category</b>	<b>Curve Selection</b>
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Function 67 Inverse Time Curve Selection Table*

## 67Q – Negative Sequence Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67Q #1</b>			
Function 67Q #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	$V_2$	$V_2$
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 67Q Setpoints (1 of 5)*

### 67Q – Negative Sequence Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67Q #2</b>			
Function 67Q #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	V <sub>2</sub>	V <sub>2</sub>
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		
	<input type="checkbox"/>	<b>Virtual Inputs</b>	
		1 2 3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67Q Setpoints (2 of 5)

## 67Q – Negative Sequence Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67Q #3</b>			
Function 67Q #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	$V_2$	$V_2$
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 67Q Setpoints (3 of 5)*

Profile

### 67Q – Negative Sequence Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67Q #4</b>			
Function 67Q #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	V <sub>2</sub>	V <sub>2</sub>
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		
	<input type="checkbox"/>	<b>Virtual Inputs</b>	
		1 2 3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67Q Setpoints (4 of 5)

## 67Q – Negative Sequence Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67Q #5</b>			
Function 67Q #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	–	$V_2$	$V_2$
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 67Q Setpoints (5 of 5)*

## 67G – Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67G #1</b>			
Function 67G #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	2.00	
Pickup 5 A CT	0.25 to 100.00 (A)	2.00	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	0.20	
Pickup 5 A CT	0.10 to 16.00 (A)	0.20	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 67G Setpoints (1 of 5)*

## 67G – Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67G #2</b>			
Function 67G #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	2.00	
Pickup 5 A CT	0.25 to 100.00 (A)	2.00	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	0.20	
Pickup 5 A CT	0.10 to 16.00 (A)	0.20	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/> FL		1 2 3
	<input type="checkbox"/> FL		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 67G Setpoints (2 of 5)*

## 67G – Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67G #3</b>			
Function 67G #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	2.00	
Pickup 5 A CT	0.25 to 100.00 (A)	2.00	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	0.20	
Pickup 5 A CT	0.10 to 16.00 (A)	0.20	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		
	<input type="checkbox"/>	<b>Virtual Inputs</b>	
		1 2 3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 67G Setpoints (3 of 5)*

## 67G – Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67G #4</b>			
Function 67G #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	2.00	
Pickup 5 A CT	0.25 to 100.00 (A)	2.00	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	0.20	
Pickup 5 A CT	0.10 to 16.00 (A)	0.20	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 67G Setpoints (4 of 5)*

## 67G – Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67G #5</b>			
Function 67G #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	2.00	
Pickup 5 A CT	0.25 to 100.00 (A)	2.00	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	0.20	
Pickup 5 A CT	0.10 to 16.00 (A)	0.20	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 67G Setpoints (5 of 5)*

<b>67GS – Sensitive Ground Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67GS #1</b>			
Function 67GS #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
10 mA CT	0.005 to 0.200 (A)	0.200	
50 mA CT	0.025 to 1.000 (A)	0.200	
200 mA CT	0.100 to 4.000 (A)	0.200	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<i>(Continues on following page)</i>			

Profile

### 67GS – Sensitive Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67GS #1 (Cont.'d)</b>			
<b>Inverse Time</b>			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>			
	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>			
	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>	1 2 3
	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 67GS Setpoints (2 of 10)

<b>67GS – Sensitive Ground Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67GS #2</b>			
Function 67GS #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
10 mA CT	0.005 to 0.200 (A)	0.200	
50 mA CT	0.025 to 1.000 (A)	0.200	
200 mA CT	0.100 to 4.000 (A)	0.200	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<i>(Continues on following page)</i>			

Profile

**67GS – Sensitive Ground Directional Overcurrent (#1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>67GS #2 (Cont.'d)</b>			
<b>Inverse Time</b>			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 67GS Setpoints (4 of 10)

**67GS – Sensitive Ground Directional Overcurrent (#1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>67GS #3</b>			
Function 67GS #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
10 mA CT	0.005 to 0.200 (A)	0.200	
50 mA CT	0.025 to 1.000 (A)	0.200	
200 mA CT	0.100 to 4.000 (A)	0.200	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b><i>(Continues on following page)</i></b>			

Profile

### 67GS – Sensitive Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67GS #3 (Cont.'d)</b>			
<b>Inverse Time</b>			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 67GS Setpoints (6 of 10)

### 67GS – Sensitive Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67GS #4</b>			
Function 67GS #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
10 mA CT	0.005 to 0.200 (A)	0.200	
50 mA CT	0.025 to 1.000 (A)	0.200	
200 mA CT	0.100 to 4.000 (A)	0.200	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<i>(Continues on following page)</i>			

Profile

### 67GS – Sensitive Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67GS #4 (Cont.'d)</b>			
<b>Inverse Time</b>			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 67GS Setpoints (8 of 10)

**67GS – Sensitive Ground Directional Overcurrent (#1 to #5)**

SETTING	RANGE	DEFAULT	SETTING
<b>67GS #5</b>			
Function 67GS #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
10 mA CT	0.005 to 0.200 (A)	0.200	
50 mA CT	0.025 to 1.000 (A)	0.200	
200 mA CT	0.100 to 4.000 (A)	0.200	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b><i>(Continues on following page)</i></b>			

Profile

### 67GS – Sensitive Ground Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67GS #5 (Cont.'d)</b>			
<b>Inverse Time</b>			
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>			
	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>			
	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>	1 2 3
	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Function 67GS Setpoints (10 of 10)

<b>67N – Residual Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67N #1</b>			
Function 67N #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67N Setpoints (1 of 5)

<b>67N – Residual Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67N #2</b>			
Function 67N #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		
	<input type="checkbox"/>	<b>Virtual Inputs</b>	
		1 2 3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67N Setpoints (2 of 5)

<b>67N – Residual Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67N #3</b>			
Function 67N #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67N Setpoints (3 of 5)

## 67N – Residual Directional Overcurrent (#1 to #5)

SETTING	RANGE	DEFAULT	SETTING
<b>67N #4</b>			
Function 67N #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		
	<input type="checkbox"/>	<b>Virtual Inputs</b>	
		1 2 3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Function 67N Setpoints (4 of 5)*

<b>67N – Residual Directional Overcurrent (#1 to #5)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>67N #5</b>			
Function 67N #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Polarization Voltage	Vz <sub>1</sub> / V <sub>1</sub> / V <sub>2</sub> / V <sub>0</sub>	Vz <sub>1</sub>	
Enabled Direction	No-Direction/Directional	No-Direction	
Minimum Polarization Voltage	2.0 to 10.0 (%) of Nominal Voltage	5.0	
Action if Below	Block Trip/ Trip	Block Trip	
Maximum Sensitivity Angle #1	0° to 359° (Degree)	45	
Maximum Sensitivity Angle #2	5° to 90° (Degree)	45	
Time Delay	Definite/Inverse	Definite	<input type="checkbox"/> Definite <input type="checkbox"/> Inverse
<b>Definite Time</b>			
Pickup 1 A CT	0.05 to 20.00 (A)	0.50	
Pickup 5 A CT	0.25 to 100.00 (A)	0.50	
Definite Time	0.00 to 600.00 (Sec)	10.00	
<b>Inverse Time</b>			
Pickup 1 A CT	0.02 to 3.20 (A)	1.00	
Pickup 5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table on <a href="#">Page 129</a>	IEC Inverse	
<b>Time Multiplier (Dial)</b>			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b>
	<input type="checkbox"/>		1 2 3
			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Function 67N Setpoints (5 of 5)

<b>81 – Frequency</b>																
SETTING	RANGE	DEFAULT							SETTING							
<b>81 – FREQUENCY (#1 TO #4 STEPS)</b>																
<b>81 #1</b>																
Function 81 #1	Enable/Disable	Disable							<input type="checkbox"/> Enable <input type="checkbox"/> Disable							
Pickup	40.00 to 65.00 (Hz)	55.00														
Definite Time	0.00 to 600.00 (Sec)	300.00														
Hysteresis	0.0 to 1.0 (Hz)	0.0														
Auto Restoration	Enable/Disable	Disable							<input type="checkbox"/> Enable <input type="checkbox"/> Disable							
Undervoltage Block																
Undervoltage Block	Enable/Disable	Disable							<input type="checkbox"/> Enable <input type="checkbox"/> Disable							
Minimum Voltage	1.00 to 180.00 (V)	20.00														
Minimum Load																
Minimum Load	Enable/Disable	Disable							<input type="checkbox"/> Enable <input type="checkbox"/> Disable							
1 A CT	0.00 to 40.00 (A)	1.00														
5 A CT	0.00 to 200.00 (A)	1.00														
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3								
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>								

<b>81 – Frequency</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>81 #2</b>																	
Function 81 #2	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
Pickup	40.00 to 65.00 (Hz)	55.00															
Definite Time	0.00 to 600.00 (Sec)	300.00															
Hysteresis	0.0 to 1.0 (Hz)	0.0															
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
Undervoltage Block																	
Undervoltage Block	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
Minimum Voltage	1.00 to 180.00 (V)	20.00															
Minimum Load																	
Minimum Load	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
1 A CT	0.00 to 40.00 (A)	1.00															
5 A CT	0.00 to 200.00 (A)	1.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3

<b>81 – Frequency</b>																
SETTING	RANGE	DEFAULT	SETTING													
<b>81 #3</b>																
Function 81 #3	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable												
Pickup	40.00 to 65.00 (Hz)	55.00														
Definite Time	0.00 to 600.00 (Sec)	300.00														
Hysteresis	0.0 to 1.0 (Hz)	0.0														
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable												
Undervoltage Block																
Undervoltage Block	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable												
Minimum Voltage	1.00 to 180.00 (V)	20.00														
Minimum Load																
Minimum Load	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable												
1 A CT	0.00 to 40.00 (A)	1.00														
5 A CT	0.00 to 200.00 (A)	1.00														
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>81 – Frequency</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>81 #4</b>																	
Function 81 #4	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
Pickup	40.00 to 65.00 (Hz)	55.00															
Definite Time	0.00 to 600.00 (Sec)	300.00															
Hysteresis	0.0 to 1.0 (Hz)	0.0															
Auto Restoration	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
Undervoltage Block																	
Undervoltage Block	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
Minimum Voltage	1.00 to 180.00 (V)	20.00															
Minimum Load																	
Minimum Load	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable													
1 A CT	0.00 to 40.00 (A)	1.00															
5 A CT	0.00 to 200.00 (A)	1.00															
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 81R – Rate of Change of Frequency

SETTING	RANGE	DEFAULT	SETTING
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### 81R – RATE OF CHANGE OF FREQUENCY (#1 TO #2 STEPS)

#### 81R #1

Function 81R #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup	0.20 to 5.00 (Hz/s)	2.00	
Definite Time	0.00 to 2.00 (Sec)	1.00	
Maximum Frequency	40.00 to 70.00 (Hz)	60.00	
Minimum Current			
1 A CT	0.00 to 20.00 (A)	1.00	
5 A CT	0.00 to 100.00 (A)	1.00	
Minimum Voltage	0.00 to 300.00 (V)	110.00	
Pickup Cycle Number	3 to 15	5	

**Outputs**

1	2	3	4	5	6	7	8	9	10	11	12

**Blocking Inputs**

1	2	3	4	5	6	7	8	9	10	11	12	FL

**Virtual Inputs**

1	2	3

#### 81R #2

Function 81R #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup	0.20 to 5.00 (Hz/s)	2.00	
Definite Time	0.00 to 2.00 (Sec)	1.00	
Maximum Frequency	40.00 to 70.00 (Hz)	60.00	
Minimum Current			
1 A CT	0.00 to 20.00 (A)	1.00	
5 A CT	0.00 to 100.00 (A)	1.00	
Minimum Voltage	0.00 to 300.00 (V)	110.00	
Pickup Cycle Number	3 to 15	5	

**Outputs**

1	2	3	4	5	6	7	8	9	10	11	12

**Blocking Inputs**

1	2	3	4	5	6	7	8	9	10	11	12	FL

**Virtual Inputs**

1	2	3

*Function 81R Setpoints*

<b>CLP – Cold Load Pickup</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>Cold Load Pickup Settings</b>			
Cold Load Pickup	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Time Locked Out to Activate Cold Load	1 to 60000 (Sec)	5000	
Maximum Number of Trips	1 to 5	1	
Reclosing			
Reclose Timer 1	0.01 to 600.00 (Sec)	300.00	
Reclose Timer 2	0.01 to 600.00 (Sec)	300.00	
Reclose Timer 3	0.01 to 600.00 (Sec)	300.00	
Reclose Timer 4	0.01 to 600.00 (Sec)	300.00	
<b>Virtual Inputs</b>			
<b>Breaker Input Status</b>	52A 52B 3 4 5 6 7 8 9 10 11 12 FL		1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>■ NOTE: When CLP is active, the following settings will override all the enabled elements of the corresponding overcurrent function settings.</b>			
<b>50P</b>			
50P Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>50G (50GS)</b>			
50G (50GS) Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	0.20	
5 A CT	0.10 to 100.00 (A)	0.20	
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Definite Time	0.00 to 600.00 (Sec)	30.00	

## Profile

CLP – Cold Load Pickup			
SETTING	RANGE	DEFAULT	SETTING
<b>50N</b>			
50N Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>51P</b>			
51P Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Cold Load Pickup Setpoints (2 of 5)*

CLP – Cold Load Pickup			
SETTING	RANGE	DEFAULT	SETTING
<b>51G (51GS)</b>			
51G (51GS) Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	0.20	
5 A CT	0.10 to 16.00 (A)	0.20	
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

## Profile

CLP – Cold Load Pickup			
SETTING	RANGE	DEFAULT	SETTING
<b>51N</b>			
51N Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Min. Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	

INVERSE TIME CURVES	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

Cold Load Pickup Setpoints (4 of 5)

<b>CLP – Cold Load Pickup</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>High Current Lockout</b>			
Phase HCL	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.10 to 100.00 (A)	50.00	
5 A CT	0.50 to 500.00 (A)	50.00	
Time Delay	0.00 to 600.00 (Sec)	30.00	
Ground/Neutral HCL	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reference Current			
1 A CT	0.03 to 100.00 (A)	0.20	
5 A CT	0.15 to 500.00 (A)	0.20	
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>Restore to Normal</b>			
Active Duration	1 to 10000 (Sec)	5000	
Phase I is below	0 to 100 (%) of Minimum Trip	50	
Ground I is below	0 to 100 (%) of Minimum Trip	50	
Time Delay	0.01 to 600.00 (Sec)	30.00	

## Profile

HLT – Hot Line Tag			
SETTING	RANGE	DEFAULT	SETTING
<p>■ <b>NOTE:</b> When HLT is active, the following settings will override all the enabled elements of the corresponding overcurrent function settings and will send the control to lockout after the first trip <b>ONLY</b> if F79 is enabled.</p>			
<b>50P</b>			
50P Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	10.00	
5 A CT	0.10 to 100.00 (A)	10.00	
Definite Time	0.00 to 600.00 (Sec)	30.00	
<b>50G (50GS)</b>			
50G (50GS) Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 20.00 (A)	0.20	
5 A CT	0.10 to 100.00 (A)	0.20	
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Definite Time	0.00 to 600.00 (Sec)	30.00	

*Hot Line Tag Setpoints (1 of 3)*

<b>HLT – Hot Line Tag</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51P</b>			
51P Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	1.00	
5 A CT	0.10 to 16.00 (A)	1.00	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Hot Line Tag Setpoints (2 of 3)*

## Profile

<b>HLT – Hot Line Tag</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>51G (51GS)</b>			
51G (51GS) Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Pickup			
1 A CT	0.02 to 3.20 (A)	0.20	
5 A CT	0.10 to 16.00 (A)	0.20	
10 mA CT	0.001 to 0.160 (A)	0.020	
50 mA CT	0.005 to 0.800 (A)	0.020	
200 mA CT	0.020 to 3.200 (A)	0.020	
Curve Selection	See Table Below	IEC Inverse	
Time Multiplier (Dial)			
IEC Curves	0.05 to 1.00	1.00	
IEEE Curves	0.10 to 25.00	1.00	
US Curves	0.05 to 15.00	1.00	
Traditional Recloser Curves	0.10 to 2.00	1.00	
Definite Time	0.10 to 100.00	1.00	
Time Adder	0.00 to 30.00 (Sec)	0.00	
Minimum Response Time Adder	0.00 to 1.00 (Sec)	0.00	
Electromechanical Reset	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Reset Coefficient	0.001 to 30.000 (Sec)	0.001	

<b>INVERSE TIME CURVES</b>	
Curve Category	Curve Selection
IEC Curves (IEC 60255-151)	Inverse, Very Inverse, Extremely Inverse
US Curves	Moderately Inverse, Standard Inverse, Very Inverse, Extremely Inverse, Short Time Inverse
IEEE Curves (IEEE C37.112)	Moderately Inverse, Very Inverse, Extremely Inverse
Traditional Recloser Curves <b>NOTE:</b> (Newer curves are shown with the older curve designations in parentheses)	101 (A); 102 (1); 103 (17); 104 (N); 105 (R); 106 (4); 107 (L); 111 (8*); 112 (15); 113 (8); 114 (5); 115 (P); 116 (D); 117 (B); 118 (M); 119 (14); 120 (Y); 121 (G); 122 (H); 131 (9); 132 (E); 133 (C); 134 (Z); 135 (2); 136 (6); 137 (V); 138 (W); 139 (16); 140 (3); 141 (11); 142 (13); 151 (18); 152 (7); 161 (T); 162 (KP); 163 (F); 164 (J); 165 (KG); 200; 201; 202
Definite Time	Definite Time
User-Designed Curves	Four Programmable Curves

*Hot Line Tag Setpoints (3 of 3)*

<b>Auto Restoration</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>Undervoltage/Overvoltage Loadshed Restoration</b>			
Restoration Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
High Voltage Limit	10.00 300.00 (V, sec)	130.00	
Low Voltage Limit	10.00 to 300.00 (V, sec)	110.00	
Mode	Three Phase/ Single Phase	Three Phase	
<b>Under Frequency Loadshed Restoration</b>			
Restoration Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
60 Hz:			
High Frequency Limit	60.00 to 70.00 (Hz)	61.00	
Low Frequency Limit	50.00 to 59.98 (Hz)	59.00	
50 Hz:			
High Frequency Limit	50.00 to 60.00 (Hz)	60.00	
Low Frequency Limit	40.00 to 49.98 (Hz)	45.00	
Schedule Time	0.0 to 3600.0 (Sec)	300.0	
Abort Time	0.1 to 3600.0 (Sec)	600.0	
Time Delay	0.1 to 3600.0 (Sec)	5.0	
Use Voltage AND Frequency Restoration Limits	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable

*Auto Restoration Setpoints*

Profile

<b>IPS Logic</b>																					
SETTING	RANGE	DEFAULT	SETTING																		
<b>IPS LOGIC (#1 TO #8 STEPS)</b>																					
<b>IPS Logic #1</b>																					
IPS Logic #1	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																		
IPS Logic	[empty]/PROGRAMMED	[empty]																			
Time Delay	0.00 to 600.00 (Sec)	0.00																			
Profile Switching	None/Profile 1-8	None																			
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12																				
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>																				
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>																			
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>															<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>					
<b>IPS Logic #2</b>																					
IPS Logic #2	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																		
IPS Logic	[empty]/PROGRAMMED	[empty]																			
Time Delay	0.00 to 600.00 (Sec)	0.00																			
Profile Switching	None/Profile 1-8	None																			
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12																				
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>																				
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>																			
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>															<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>					
<b>IPS Logic #3</b>																					
IPS Logic #3	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																		
IPS Logic	[empty]/PROGRAMMED	[empty]																			
Time Delay	0.00 to 600.00 (Sec)	0.00																			
Profile Switching	None/Profile 1-8	None																			
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12																				
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>																				
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL	<b>Virtual Inputs</b>																			
	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>															<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>					

*IPS Logic Setpoints (1 of 3)*

<b>IPS Logic</b>																
SETTING	RANGE	DEFAULT	SETTING													
<b>IPS Logic #4</b>																
IPS Logic #4	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
IPS Logic	[empty]/PROGRAMMED		[empty]													
Time Delay	0.00 to 600.00 (Sec)		0.00													
Profile Switching	None/Profile 1-8		None													
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>IPS Logic #5</b>																
IPS Logic #5	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
IPS Logic	[empty]/PROGRAMMED		[empty]													
Time Delay	0.00 to 600.00 (Sec)		0.00													
Profile Switching	None/Profile 1-8		None													
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>IPS Logic #6</b>																
IPS Logic #6	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
IPS Logic	[empty]/PROGRAMMED		[empty]													
Time Delay	0.00 to 600.00 (Sec)		0.00													
Profile Switching	None/Profile 1-8		None													
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Profile

<b>IPS Logic</b>																	
SETTING	RANGE	DEFAULT	SETTING														
<b>IPS Logic #7</b>																	
IPS Logic #7	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
IPS Logic	[empty]/PROGRAMMED		[empty]														
Time Delay	0.00 to 600.00 (Sec)		0.00														
Profile Switching	None/Profile 1-8		None														
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IPS Logic #8</b>																	
IPS Logic #8	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable														
IPS Logic	[empty]/PROGRAMMED		[empty]														
Time Delay	0.00 to 600.00 (Sec)		0.00														
Profile Switching	None/Profile 1-8		None														
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	1	2	3
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>LEL – Load Encroachment Logic</b>			
SETTING	RANGE	DEFAULT	SETTING
<p>The diagram shows a logic circuit. On the left, there are three inputs: 'F51P', 'Directional Element', and 'LEL'. 'F51P' and 'Directional Element' are connected to the inputs of a first AND gate. The output of this AND gate and the 'LEL' input are connected to the inputs of a second, larger AND gate. The output of the second AND gate is labeled 'TRIP'.</p>			
LEL	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Directional Element	is asserted/ is from 67P#1 – 67P#5	is asserted	
Forward Impedance	1 to 200 (ohm)	100	
Reverse Impedance	1 to 200 (ohm)	50	
Max Positive Angle Forward	-90 to 90 (degree)	45	
Max Negative Angle Forward	-90 to 90 (degree)	-45	
Max Positive Angle Reverse	90 to 270 (degree)	135	
Max Negative Angle Reverse	90 to 270 (degree)	225	

*Load Encroachment Logic Setpoints*

<b>79 – Recloser Relay (Three Phase)</b>															
SETTING	RANGE	DEFAULT	SETTING												
<b>RECLOSER SETTINGS – THREE PHASE</b>															
Function 79 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable												
Ground Precedence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable												
Seq. coordination active for	None to 3 (trips)	None													
Maximum number of phase trips	1 to 5	2													
Maximum number of ground/residual trips	1 to 5	2													
Reset Time after Auto Reclose	1 to 1800 (Sec)	300													
Reset Time from Lockout	1 to 1800 (Sec)	200													
<b>Blocking Inputs</b>	1	2	3*	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>NOTE:</b> *When Input 3 is configured as "69 Lockout", Input 3 is locked and is not selectable.															
<b>Reclose #1 (ABC)</b>															
Time Delay for Reclose #1															
Phase Fault	0.01 to 600.00 (Sec)	300.00													
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00													
<b>Reclose #2 (ABC)</b>															
Time Delay for Reclose #2															
Phase Fault	0.01 to 600.00 (Sec)	300.00													
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00													
<b>Reclose #3 (ABC)</b>															
Time Delay for Reclose #3															
Phase Fault	0.01 to 600.00 (Sec)	300.00													
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00													
<b>Reclose #4 (ABC)</b>															
Time Delay for Reclose #4															
Phase Fault	0.01 to 600.00 (Sec)	300.00													
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00													

*Function 79 Recloser Relay (Three Phase) Setpoints*

<b>79 – Recloser Relay (Triple Single – 3T3LO)</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>RECLOSER SETTINGS – TRIPLE SINGLE MODE (3 Phase Trip &amp; 3 Phase Lockout)</b>			
Function 79 (ABC)	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Synchronized Phase Sequence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Deactivate G/N Functions	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Reclose ABC Settings</b>			
Ground Precedence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Seq. coordination active for	None to 3 (trips)	None	
Maximum number of phase trips	1 to 5	2	
Max. number of ground/residual trips	1 to 5	2	
Reset Time after Auto Reclose	1 to 1800 (Sec)	300	
Reset Time from Lockout	1 to 1800 (Sec)	200	
<b>Blocking Inputs</b>	1 2 3* 4* 5* 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>■ <b>NOTE:</b> *When Inputs 3, 4 &amp; 5 are configured as "69 Lockout", Inputs 3, 4 &amp; 5 are locked and not selectable.</p>			
<b>Reclose #1 (ABC)</b>			
Time Delay for Reclose #1			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #2 (ABC)</b>			
Time Delay for Reclose #2			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #3 (ABC)</b>			
Time Delay for Reclose #3			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #4 (ABC)</b>			
Time Delay for Reclose #4			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	

*Function 79 Recloser Relay (Triple Single 3T3LO – 3 Phase Trip & 3 Phase Lockout) Setpoints*

## Profile

**79 – Recloser Relay (Triple Single – 1T3LO)**

SETTING	RANGE	DEFAULT	SETTING
<b>RECLOSER SETTINGS – TRIPLE SINGLE MODE (1 Phase Trip &amp; 3 Phase Lockout)</b>			
Function 79	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Synchronized Phase Sequence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Deactivate G/N Functions	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>Reclose A Settings</b>			
Ground Precedence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Seq. coordination active for	None to 3 (trips)	None	
Maximum number of phase trips	1 to 5	2	
Max. number of ground/residual trips	1 to 5	2	
Reset Time after Auto Reclose	1 to 1800 (Sec)	300	
Reset Time from Lockout	1 to 1800 (Sec)	200	
<b>Blocking Inputs</b>	1 2 3* 4* 5* 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>NOTE:</b> *When Inputs 3, 4 & 5 are configured as "69 Lockout", Inputs 3, 4 & 5 are locked and not selectable.			
<b>Reclose #1 (A)</b>			
Time Delay for Reclose #1			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #2 (A)</b>			
Time Delay for Reclose #2			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #3 (A)</b>			
Time Delay for Reclose #3			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #4 (A)</b>			
Time Delay for Reclose #4			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	

*Function 79 Recloser Relay (Triple Single 1T3LO – 1 Phase Trip & 3 Phase Lockout) Setpoints (1 of 3)*

<b>79 – Recloser Relay (Triple Single – 1T3LO)</b>																																													
SETTING	RANGE	DEFAULT	SETTING																																										
<b>Reclose B Settings</b>																																													
Ground Precedence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																										
Seq. coordination active for	None to 3 (trips)	None																																											
Maximum number of phase trips	1 to 5	2																																											
Max. number of ground/residual trips	1 to 5	2																																											
Reset Time after Auto Reclose	1 to 1800 (Sec)	300																																											
Reset Time from Lockout	1 to 1800 (Sec)	200																																											
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 60%;"> <p><b>Blocking Inputs</b></p> <table border="1" style="border-collapse: collapse; text-align: center; width: 100%;"> <tr> <td style="width: 15%;">1</td><td style="width: 15%;">2</td><td style="width: 15%;">3*</td><td style="width: 15%;">4*</td><td style="width: 15%;">5*</td><td style="width: 15%;">6</td><td style="width: 15%;">7</td><td style="width: 15%;">8</td><td style="width: 15%;">9</td><td style="width: 15%;">10</td><td style="width: 15%;">11</td><td style="width: 15%;">12</td><td style="width: 15%;">FL</td> </tr> <tr> <td style="height: 20px;"></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> </div> <div style="width: 35%; text-align: center;"> <p><b>Virtual Inputs</b></p> <table border="1" style="border-collapse: collapse; text-align: center; width: 100%;"> <tr> <td style="width: 33%;">1</td><td style="width: 33%;">2</td><td style="width: 33%;">3</td> </tr> <tr> <td style="height: 20px;"></td><td></td><td></td> </tr> </table> </div> </div> <p>■ <b>NOTE:</b> *When Inputs 3, 4 &amp; 5 are configured as "69 Lockout", Inputs 3, 4 &amp; 5 are locked and not selectable.</p>														1	2	3*	4*	5*	6	7	8	9	10	11	12	FL														1	2	3			
1	2	3*	4*	5*	6	7	8	9	10	11	12	FL																																	
1	2	3																																											
<b>Reclose #1 (B)</b>																																													
Time Delay for Reclose #1																																													
Phase Fault	0.01 to 600.00 (Sec)	300.00																																											
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00																																											
<b>Reclose #2 (B)</b>																																													
Time Delay for Reclose #2																																													
Phase Fault	0.01 to 600.00 (Sec)	300.00																																											
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00																																											
<b>Reclose #3 (B)</b>																																													
Time Delay for Reclose #3																																													
Phase Fault	0.01 to 600.00 (Sec)	300.00																																											
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00																																											
<b>Reclose #4 (B)</b>																																													
Time Delay for Reclose #4																																													
Phase Fault	0.01 to 600.00 (Sec)	300.00																																											
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00																																											

*Function 79 Recloser Relay (Triple Single 1T3LO – 1 Phase Trip & 3 Phase Lockout) Setpoints (2 of 3)*

## Profile

**79 – Recloser Relay (Triple Single – 1T3LO)**

SETTING	RANGE	DEFAULT	SETTING
<b>Reclose C Settings</b>			
Ground Precedence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Seq. coordination active for	None to 3 (trips)	None	
Maximum number of phase trips	1 to 5	2	
Max. number of ground/residual trips	1 to 5	2	
Reset Time after Auto Reclose	1 to 1800 (Sec)	300	
Reset Time from Lockout	1 to 1800 (Sec)	200	
<b>Blocking Inputs</b>	1 2 3* 4* 5* 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>NOTE:</b> *When Inputs 3, 4 & 5 are configured as "69 Lockout", Inputs 3, 4 & 5 are locked and not selectable.			
<b>Reclose #1 (C)</b>			
Time Delay for Reclose #1			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #2 (C)</b>			
Time Delay for Reclose #2			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #3 (C)</b>			
Time Delay for Reclose #3			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #4 (C)</b>			
Time Delay for Reclose #4			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	

*Function 79 Recloser Relay (Triple Single 1T3LO – 1 Phase Trip & 3 Phase Lockout) Setpoints (3 of 3)*

## 79 – Recloser Relay (Triple Single – 1T1LO)

SETTING	RANGE	DEFAULT	SETTING																																		
<b>RECLOSER SETTINGS – TRIPLE SINGLE MODE (1 Phase Trip &amp; 1 Phase Lockout)</b>																																					
Function 79	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																		
Synchronized Phase Sequence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																		
Deactivate G/N Functions	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																		
Trip All Phases for 1T1LO	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																		
<b>Reclose A Settings</b>																																					
Ground Precedence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																		
Seq. coordination active for	None to 3 (trips)	None																																			
Maximum number of phase trips	1 to 5	2																																			
Max. number of ground/residual trips	1 to 5	2																																			
Reset Time after Auto Reclose	1 to 1800 (Sec)	300																																			
Reset Time from Lockout	1 to 1800 (Sec)	200																																			
<b>Blocking Inputs</b>	<table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 20px; text-align: center;">1</td> <td style="border: 1px solid black; width: 20px; text-align: center;">2</td> <td style="border: 1px solid black; width: 20px; text-align: center;">3*</td> <td style="border: 1px solid black; width: 20px; text-align: center;">4*</td> <td style="border: 1px solid black; width: 20px; text-align: center;">5*</td> <td style="border: 1px solid black; width: 20px; text-align: center;">6</td> <td style="border: 1px solid black; width: 20px; text-align: center;">7</td> <td style="border: 1px solid black; width: 20px; text-align: center;">8</td> <td style="border: 1px solid black; width: 20px; text-align: center;">9</td> <td style="border: 1px solid black; width: 20px; text-align: center;">10</td> <td style="border: 1px solid black; width: 20px; text-align: center;">11</td> <td style="border: 1px solid black; width: 20px; text-align: center;">12</td> <td style="border: 1px solid black; width: 20px; text-align: center;">FL</td> </tr> <tr> <td style="border: 1px solid black; width: 20px;"></td> </tr> </table>	1	2	3*	4*	5*	6	7	8	9	10	11	12	FL														<table style="display: inline-table; border-collapse: collapse;"> <tr> <td colspan="3" style="text-align: center;"><b>Virtual Inputs</b></td> </tr> <tr> <td style="border: 1px solid black; width: 20px; text-align: center;">1</td> <td style="border: 1px solid black; width: 20px; text-align: center;">2</td> <td style="border: 1px solid black; width: 20px; text-align: center;">3</td> </tr> <tr> <td style="border: 1px solid black; width: 20px;"></td> <td style="border: 1px solid black; width: 20px;"></td> <td style="border: 1px solid black; width: 20px;"></td> </tr> </table>	<b>Virtual Inputs</b>			1	2	3			
1	2	3*	4*	5*	6	7	8	9	10	11	12	FL																									
<b>Virtual Inputs</b>																																					
1	2	3																																			
<p>■ <b>NOTE:</b> *When Inputs 3, 4 &amp; 5 are configured as "69 Lockout", Inputs 3, 4 &amp; 5 are locked and not selectable.</p>																																					
<b>Reclose #1 (A)</b>																																					
Time Delay for Reclose #1																																					
Phase Fault	0.01 to 600.00 (Sec)	300.00																																			
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00																																			
<b>Reclose #2 (A)</b>																																					
Time Delay for Reclose #2																																					
Phase Fault	0.01 to 600.00 (Sec)	300.00																																			
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00																																			
<b>Reclose #3 (A)</b>																																					
Time Delay for Reclose #3																																					
Phase Fault	0.01 to 600.00 (Sec)	300.00																																			
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00																																			
<b>Reclose #4 (A)</b>																																					
Time Delay for Reclose #4																																					
Phase Fault	0.01 to 600.00 (Sec)	300.00																																			
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00																																			

*Function 79 Recloser Relay (Triple Single 1T1LO – 1 Phase Trip & 1 Phase Lockout) Setpoints (1 of 3)*

## 79 – Recloser Relay (Triple Single – 1T1LO)

SETTING	RANGE	DEFAULT	SETTING
<b>Reclose B Settings</b>			
Ground Precedence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Seq. coordination active for	None to 3 (trips)	None	
Maximum number of phase trips	1 to 5	2	
Max. number of ground/residual trips	1 to 5	2	
Reset Time after Auto Reclose	1 to 1800 (Sec)	300	
Reset Time from Lockout	1 to 1800 (Sec)	200	
<b>Virtual Inputs</b>			
<b>Blocking Inputs</b>	1 2 3* 4* 5* 6 7 8 9 10 11 12 FL		1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p>■ <b>NOTE:</b> *When Inputs 3, 4 &amp; 5 are configured as "69 Lockout", Inputs 3, 4 &amp; 5 are locked and not selectable.</p>			
<b>Reclose #1 (B)</b>			
Time Delay for Reclose #1			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #2 (B)</b>			
Time Delay for Reclose #2			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #3 (B)</b>			
Time Delay for Reclose #3			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	
<b>Reclose #4 (B)</b>			
Time Delay for Reclose #4			
Phase Fault	0.01 to 600.00 (Sec)	300.00	
Ground/Residual Fault	0.01 to 600.00 (Sec)	300.00	

*Function 79 Recloser Relay (Triple Single 1T1LO – 1 Phase Trip & 1 Phase Lockout) Setpoints (2 of 3)*

<b>79 – Recloser Relay (Triple Single – 1T1LO)</b>																
SETTING	RANGE	DEFAULT	SETTING													
<b>Reclose C Settings</b>																
Ground Precedence	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable													
Seq. coordination active for	None to 3 (trips)	None														
Maximum number of phase trips	1 to 5	2														
Max. number of ground/residual trips	1 to 5	2														
Reset Time after Auto Reclose	1 to 1800 (Sec)	300														
Reset Time from Lockout	1 to 1800 (Sec)	200														
<b>Blocking Inputs</b>	1	2	3*	4*	5*	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	3
<b>NOTE:</b> *When Inputs 3, 4 & 5 are configured as "69 Lockout", Inputs 3, 4 & 5 are locked and not selectable.																
<b>Reclose #1 (C)</b>																
Time Delay for Reclose #1																
Phase Fault	0.01 to 600.00 (Sec)		300.00													
Ground/Residual Fault	0.01 to 600.00 (Sec)		300.00													
<b>Reclose #2 (C)</b>																
Time Delay for Reclose #2																
Phase Fault	0.01 to 600.00 (Sec)		300.00													
Ground/Residual Fault	0.01 to 600.00 (Sec)		300.00													
<b>Reclose #3 (C)</b>																
Time Delay for Reclose #3																
Phase Fault	0.01 to 600.00 (Sec)		300.00													
Ground/Residual Fault	0.01 to 600.00 (Sec)		300.00													
<b>Reclose #4 (C)</b>																
Time Delay for Reclose #4																
Phase Fault	0.01 to 600.00 (Sec)		300.00													
Ground/Residual Fault	0.01 to 600.00 (Sec)		300.00													

*Function 79 Recloser Relay (Triple Single ITILO – 1 Phase Trip & 1 Phase Lockout) Setpoints (3 of 3)*

## 79 – Trip Recloser Sequence (Three Phase)

Trip #1					
FUNC.	1	2	3	4	5
50P					
50N					
50G					
46DT					
51P					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

Trip #2					
FUNC.	1	2	3	4	5
50P					
50N					
50G					
46DT					
51P					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

Trip #3					
FUNC.	1	2	3	4	5
50P					
50N					
50G					
46DT					
51P					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

Trip #4					
FUNC.	1	2	3	4	5
50P					
50N					
50G					
46DT					
51P					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

Trip #5					
FUNC.	1	2	3	4	5
50P					
50N					
50G					
46DT					
51P					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

*Function 79 Trip Recloser Sequence (Three Phase) Setpoints*

**79 – Trip Recloser Sequence (Triple Single)**  
**3T3LO – 3 Phase Trip & 3 Phase Lockout**

<b>Trip #1</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

<b>Trip #2</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

<b>Trip #3</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

*Function 79 Trip Recloser Sequence (Triple Single 3T3LO – 3 Phase Trip & 3 Phase Lockout) Setpoints (1 of 2)*

**79 – Trip Recloser Sequence (Triple Single)**  
**3T3LO – 3 Phase Trip & 3 Phase Lockout**

<b>Trip #4</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

<b>Trip #5</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

**79 – Trip Recloser Sequence (Triple Single)**  
**1T3LO – 1 Phase Trip & 3 Phase Lockout**

<b>Trip #1</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

<b>Trip #2</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

<b>Trip #3</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

*Function 79 Trip Recloser Sequence (Triple Single 1T3LO – 1 Phase Trip & 3 Phase Lockout) Setpoints (1 of 2)*

**79 – Trip Recloser Sequence (Triple Single)**  
**1T3LO – 1 Phase Trip-3 Phase Lockout**

<b>Trip #4</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

<b>Trip #5</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

**79 – Trip Recloser Sequence (Triple Single)**  
**1T1LO – 1 Phase Trip & 1 Phase Lockout**

<b>Trip #1</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

<b>Trip #2</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

<b>Trip #3</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

*Function 79 Trip Recloser Sequence (Triple Single 1T1LO – 1 Phase Trip & 1 Phase Lockout) Setpoints (1 of 2)*

**79 – Trip Recloser Sequence (Triple Single)**  
**1T1LO – 1 Phase Trip-1 Phase Lockout**

<b>Trip #4</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

<b>Trip #5</b>					
FUNC.	1	2	3	4	5
50P A					
50P B					
50P C					
50N					
50G					
46DT					
51P A					
51P B					
51P C					
51N					
51G					
46IT					
67P					
67N					
67G					
67Q					

## 79 - Drive to Lockout

79 Lockout					
TRIP SEQUENCE	1	2	3	4	5
50P HCL					
50G (50GS) HCL					

Protective Functions Elements				
	1	2	3	4
27				
32				
81U/O				

## 79 Supervision Functions

SETTING	RANGE	DEFAULT	SETTING
<b>Blocking Functions</b>			
<b>Supervision Function</b>			
Supervision Time	0.00 to 600.00 (Sec)	300.00	

*Function 79 Drive to Lockout and Supervision Functions Setpoints*

PSBC – Power Supply/Battery Charger Monitor																
SETTING	RANGE												DEFAULT	SETTING		
<b>Power Supply Test</b>																
Enable Automatic Test	Enable/Disable												Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable		
Time Delay	0 to 60000 (Sec)												0			
Reference High Voltage	18.0 to 100.0 (V)												100.0			
Reference Low Voltage	18.0 to 60.0 (V)												18.0			
<b>Outputs</b>	1	2	3	4	5	6	7	8	9	10	11	12				
	<input type="checkbox"/>															
<b>Blocking Inputs</b>	1	2	3	4	5	6	7	8	9	10	11	12	FL	<b>Virtual Inputs</b>		
	<input type="checkbox"/>	1	2	3												
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
<b>Battery Charger</b>																
Enable Battery Charger	Enable/Disable												Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable		
Minimum voltage to turn OFF main 24 V ( $V_{min}$ )	10.00 to 30.00 (V)												20.00			
Time to perform load test	–												11:00 PM			
Battery Charger Model	M-2032A/G & W												M-2032A			

*Other Setpoints – Power Supply/Battery Charger Monitor*

<b>TCCM – Trip/Close Circuit Monitor (Three Phase)</b>																																															
SETTING	RANGE	DEFAULT	SETTING																																												
<b>TCM (THREE PHASE)</b>																																															
Enable TCM	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																												
Time Delay	0.01 to 600.00 (Sec)	0.50																																													
<b>Trip Coil Input</b>	52A 52B 3* 4 5 6 7 8 9 10 11 12 FL	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">-</td> <td style="width: 20px;">-</td> <td style="width: 20px;"></td> <td style="width: 20px;">-</td> </tr> </table>												-	-												-																				
-	-												-																																		
<p>■ <b>NOTE:</b> *When Input 3 is configured as "69 Lockout", Input 3 is locked and is not selectable. Only one Trip Coil Input may be selected.</p>																																															
<b>Outputs</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">1</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td><td style="width: 20px;">4</td><td style="width: 20px;">5</td><td style="width: 20px;">6</td><td style="width: 20px;">7</td><td style="width: 20px;">8</td><td style="width: 20px;">9</td><td style="width: 20px;">10</td><td style="width: 20px;">11</td><td style="width: 20px;">12</td> </tr> <tr> <td style="width: 20px;"></td><td style="width: 20px;"></td> </tr> </table>													1	2	3	4	5	6	7	8	9	10	11	12																						
1	2	3	4	5	6	7	8	9	10	11	12																																				
<b>Blocking Inputs</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">1</td><td style="width: 20px;">52B</td><td style="width: 20px;">3</td><td style="width: 20px;">4</td><td style="width: 20px;">5</td><td style="width: 20px;">6</td><td style="width: 20px;">7</td><td style="width: 20px;">8</td><td style="width: 20px;">9</td><td style="width: 20px;">10</td><td style="width: 20px;">11</td><td style="width: 20px;">12</td><td style="width: 20px;">FL</td> </tr> <tr> <td style="width: 20px;"></td><td style="width: 20px;"></td> </tr> </table>												1	52B	3	4	5	6	7	8	9	10	11	12	FL														<b>Virtual Inputs</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">1</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td> </tr> <tr> <td style="width: 20px;"></td><td style="width: 20px;"></td><td style="width: 20px;"></td> </tr> </table>		1	2	3			
1	52B	3	4	5	6	7	8	9	10	11	12	FL																																			
1	2	3																																													
<b>CCM (THREE PHASE)</b>																																															
Enable CCM	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																																												
Time Delay	0.01 to 600.00 (Sec)	0.50																																													
<b>Close Coil Input</b>	52A 52B 3* 4 5 6 7 8 9 10 11 12 FL	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">-</td> <td style="width: 20px;">-</td> <td style="width: 20px;"></td> <td style="width: 20px;">-</td> </tr> </table>												-	-												-																				
-	-												-																																		
<p>■ <b>NOTE:</b> *When Input 3 is configured as "69 Lockout", Input 3 is locked and is not selectable. Only one Close Coil Input may be selected.</p>																																															
<b>Outputs</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">1</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td><td style="width: 20px;">4</td><td style="width: 20px;">5</td><td style="width: 20px;">6</td><td style="width: 20px;">7</td><td style="width: 20px;">8</td><td style="width: 20px;">9</td><td style="width: 20px;">10</td><td style="width: 20px;">11</td><td style="width: 20px;">12</td> </tr> <tr> <td style="width: 20px;"></td><td style="width: 20px;"></td> </tr> </table>													1	2	3	4	5	6	7	8	9	10	11	12																						
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<b>Blocking Inputs</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">52A</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td><td style="width: 20px;">4</td><td style="width: 20px;">5</td><td style="width: 20px;">6</td><td style="width: 20px;">7</td><td style="width: 20px;">8</td><td style="width: 20px;">9</td><td style="width: 20px;">10</td><td style="width: 20px;">11</td><td style="width: 20px;">12</td><td style="width: 20px;">FL</td> </tr> <tr> <td style="width: 20px;"></td><td style="width: 20px;"></td> </tr> </table>												52A	2	3	4	5	6	7	8	9	10	11	12	FL														<b>Virtual Inputs</b>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">1</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td> </tr> <tr> <td style="width: 20px;"></td><td style="width: 20px;"></td><td style="width: 20px;"></td> </tr> </table>		1	2	3			
52A	2	3	4	5	6	7	8	9	10	11	12	FL																																			
1	2	3																																													

*Other Setpoints – Trip/Close Circuit Monitor (Three Phase)*

<b>TCCM – Trip/Close Circuit Monitor (Triple Single)</b>																											
SETTING	RANGE	DEFAULT	SETTING																								
<b>TCM (TRIPLE SINGLE)</b>																											
Enable TCM	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																								
Time Delay	0.01 to 600.00 (Sec)	0.50																									
<b>Trip Coil Input</b>	52A 52B 3* 4* 5* 6 7 8 9 10 11 12 FL	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">-</td> <td style="width: 20px;">-</td> <td style="width: 20px;"></td> <td style="width: 20px;">-</td> </tr> </table>												-	-												-
-	-												-														
<p>■ <b>NOTE:</b> *When Inputs 3, 4 &amp; 5 are configured as "69 Lockout", Inputs 3, 4 &amp; 5 are locked and not selectable. Only one Trip Coil Input may be selected.</p>																											
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;"></td> </tr> </table>																									
<b>Blocking Inputs</b>	1 52B 3 4 5 6 7 8 9 10 11 12 FL												<b>Virtual Inputs</b> 1 2 3 <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> </table>														
<b>CCM (TRIPLE SINGLE)</b>																											
Enable CCM	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable																								
Time Delay	0.01 to 600.00 (Sec)	0.50																									
<b>Close Coil Input</b>	52A 52B 3* 4* 5* 6 7 8 9 10 11 12 FL	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">-</td> <td style="width: 20px;">-</td> <td style="width: 20px;"></td> <td style="width: 20px;">-</td> </tr> </table>												-	-												-
-	-												-														
<p>■ <b>NOTE:</b> *When Inputs 3, 4 &amp; 5 are configured as "69 Lockout", Inputs 3, 4 &amp; 5 are locked and not selectable. Only one Trip Coil Input may be selected.</p>																											
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;"></td> </tr> </table>																									
<b>Blocking Inputs</b>	52A 2 3 4 5 6 7 8 9 10 11 12 FL												<b>Virtual Inputs</b> 1 2 3 <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> </table>														

*Other Setpoints – Trip/Close Circuit Monitor (Triple Single)*

<b>60FL – VT Fuse Loss Detection</b>																							
SETTING	RANGE	DEFAULT	SETTING																				
Enable 60FL	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable																			
Time Delay	0.03 to 600.00 (Sec)	10.00																					
Three Phase Fuse Loss Detection	Enable/Disable	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable																			
			<b>Virtual Inputs</b>																				
<b>Input Initiate</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		1 2 3																				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>																	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30px; height: 20px;"></td> <td style="width: 30px; height: 20px;"></td> <td style="width: 30px; height: 20px;"></td> </tr> </table>					
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12																						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>																						
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		1 2 3																				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> </tr> </table>																	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30px; height: 20px;"></td> <td style="width: 30px; height: 20px;"></td> <td style="width: 30px; height: 20px;"></td> </tr> </table>					

*Other Setpoints – 60FL VT Fuse Loss Detection*

## THD/TDD – Total Harmonic Distortion/Total Demand Distortion

SETTING	RANGE	DEFAULT	SETTING
<b>THD/TDD – TOTAL HARMONIC (DEMAND) DISTORTION (#1 TO #2 STEPS)</b>			
<b>THD/TDD #1 (ABC)</b>			
Enable Phase ABC	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
THD/TDD Selection	THD or TDD	THD	<input type="checkbox"/> THD <input type="checkbox"/> TDD
THD Operating Quantity	Current/ Voltage	Current	
TDD Operating Quantity	–	Current	Current
THD (TDD) Limit	0.1 to 10.0 (%)	5.0	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>THD/TDD #1 (Phase A)</b>			
Enable Phase A	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
THD/TDD Selection	THD or TDD	THD	<input type="checkbox"/> THD <input type="checkbox"/> TDD
THD Operating Quantity	Current/ Voltage	Current	
TDD Operating Quantity	–	Current	Current
THD (TDD) Limit	0.1 to 10.0 (%)	5.0	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Other Setpoints – THD/TDD (1 of 4)*

## THD/TDD – Total Harmonic Distortion/Total Demand Distortion

SETTING	RANGE	DEFAULT	SETTING
<b>THD/TDD #1 (Phase B)</b>			
Enable Phase B	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
THD/TDD Selection	THD or TDD	THD	<input type="checkbox"/> THD <input type="checkbox"/> TDD
THD Operating Quantity	Current/ Voltage	Current	
TDD Operating Quantity	–	Current	Current
THD (TDD) Limit	0.1 to 10.0 (%)	5.0	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>THD/TDD #1 (Phase C)</b>			
Enable Phase C	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
THD/TDD Selection	THD or TDD	THD	<input type="checkbox"/> THD <input type="checkbox"/> TDD
THD Operating Quantity	Current/ Voltage	Current	
TDD Operating Quantity	–	Current	Current
THD (TDD) Limit	0.1 to 10.0 (%)	5.0	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

*Other Setpoints – THD/TDD (2 of 4)*

## THD/TDD – Total Harmonic Distortion/Total Demand Distortion

SETTING	RANGE	DEFAULT	SETTING
<b>THD/TDD #2 (ABC)</b>			
Enable Phase ABC	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
THD/TDD Selection	THD or TDD	THD	<input type="checkbox"/> THD <input type="checkbox"/> TDD
THD Operating Quantity	Current/ Voltage	Current	
TDD Operating Quantity	–	Current	Current
THD (TDD) Limit	0.1 to 10.0 (%)	5.0	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>THD/TDD #2 (Phase A)</b>			
Enable Phase A	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
THD/TDD Selection	THD or TDD	THD	<input type="checkbox"/> THD <input type="checkbox"/> TDD
THD Operating Quantity	Current/ Voltage	Current	
TDD Operating Quantity	–	Current	Current
THD (TDD) Limit	0.1 to 10.0 (%)	5.0	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

## THD/TDD – Total Harmonic Distortion/Total Demand Distortion

SETTING	RANGE	DEFAULT	SETTING
<b>THD/TDD #2 (Phase B)</b>			
Enable Phase B	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
THD/TDD Selection	THD or TDD	THD	<input type="checkbox"/> THD <input type="checkbox"/> TDD
THD Operating Quantity	Current/ Voltage	Current	
TDD Operating Quantity	–	Current	Current
THD (TDD) Limit	0.1 to 10.0 (%)	5.0	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>THD/TDD #2 (Phase C)</b>			
Enable Phase C	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
THD/TDD Selection	THD or TDD	THD	<input type="checkbox"/> THD <input type="checkbox"/> TDD
THD Operating Quantity	Current/ Voltage	Current	
TDD Operating Quantity	–	Current	Current
THD (TDD) Limit	0.1 to 10.0 (%)	5.0	
Time Delay	0.00 to 600.00 (Sec)	30.00	
<b>Outputs</b>	1 2 3 4 5 6 7 8 9 10 11 12		
	<input type="checkbox"/>		
<b>Blocking Inputs</b>	1 2 3 4 5 6 7 8 9 10 11 12 FL		<b>Virtual Inputs</b> 1 2 3
	<input type="checkbox"/>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<b>Alarms</b>			
<b>SETTING</b>	<b>DEFAULT</b>	<b>SETTING</b>	
Trip Close	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
EEprom Setpoints Checksum	Enable	<input type="checkbox"/> Enable	
Gas Pressure	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
Flash Not Formatted	Enable	<input type="checkbox"/> Enable	
Internal Battery Failure	Enable	<input type="checkbox"/> Enable	
AC Power / Battery Status	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable
DSP Watchdog	Enable	<input type="checkbox"/> Enable	
EEprom Calibration Checksum	Enable	<input type="checkbox"/> Enable	
Max Breaker Operations	Disable	<input type="checkbox"/> Enable	<input type="checkbox"/> Disable

<b>Data Logging</b>			
<b>SETTING</b>	<b>RANGE</b>	<b>DEFAULT</b>	<b>SETTING</b>
Data Log Interval	0 to 3600 (Sec)	300	
Duration	–	729 Day 04:00:00	

*Alarms and Data Logging Settings*

<b>Oscillograph Recorder</b>			
<b>SETTING</b>	<b>RANGE</b>	<b>DEFAULT</b>	<b>SETTING</b>
Samples/Cycle	16/ 32/ 64/ 128	16	
Post Trigger Delay	5 to 95 (%)	45	
Length of OSC	60 to 480 (Cycles/ 60 Hz) 50 to 400 (Cycles/ 50 Hz)	300	

**Oscillograph Triggers**

25 Pickup	50PA #2 Pickup	51PB #2 Pickup
27A #1 Pickup	50PB #2 Pickup	51PC #2 Pickup
27B #1 Pickup	50PC #2 Pickup	51PA #3 Pickup
27C #1 Pickup	50PA #3 Pickup	51PB #3 Pickup
27A #2 Pickup	50PB #3 Pickup	51PC #3 Pickup
27B #2 Pickup	50PC #3 Pickup	51PA #4 Pickup
27C #2 Pickup	50PA #4 Pickup	51PB #4 Pickup
27A #3 Pickup	50PB #4 Pickup	51PC #4 Pickup
27B #3 Pickup	50PC #4 Pickup	51PA #5 Pickup
27C #3 Pickup	50PA #5 Pickup	51PB #5 Pickup
27A #4 Pickup	50PB #5 Pickup	51PC #5 Pickup
27B #4 Pickup	50PC #5 Pickup	51N #1 Pickup
27C #4 Pickup	50N #1 Pickup	51N #2 Pickup
27PPA Pickup	50N #2 Pickup	51N #3 Pickup
27PPB Pickup	50N #3 Pickup	51N #4 Pickup
27PPC Pickup	50N #4 Pickup	51N #5 Pickup
27Vz1 Pickup	50N #5 Pickup	51G #1 Pickup
32A #1 Pickup	50G #1 Pickup	51G #2 Pickup
32B #1 Pickup	50G #2 Pickup	51G #3 Pickup
32C #1 Pickup	50G #3 Pickup	51G #4 Pickup
32A #2 Pickup	50G #4 Pickup	51G #5 Pickup
32B #2 Pickup	50G #5 Pickup	46IT #1 Pickup
32C #2 Pickup	46DT #1 Pickup	46IT #2 Pickup
32A #3 Pickup	46DT #2 Pickup	46IT #3 Pickup
32B #3 Pickup	46DT #3 Pickup	46IT #4 Pickup
32C #3 Pickup	46DT #4 Pickup	46IT #5 Pickup
32A #4 Pickup	46DT #5 Pickup	59A #1 Pickup
32B #4 Pickup	50BF Pickup	59B #1 Pickup
32C #4 Pickup	51PA #1 Pickup	59C #1 Pickup
50PA #1 Pickup	51PB #1 Pickup	59A #2 Pickup
50PB #1 Pickup	51PC #1 Pickup	59B #2 Pickup
50PC #1 Pickup	51PA #2 Pickup	59C #2 Pickup

## Oscilloscope Triggers (Cont'd.)

59A #3 Pickup	67Q #1 Pickup	27A #4 Timeout
59B #3 Pickup	67Q #2 Pickup	27B #4 Timeout
59C #3 Pickup	67Q #3 Pickup	27C #4 Timeout
59A #4 Pickup	67Q #4 Pickup	27PPA Timeout
59B #4 Pickup	67Q #5 Pickup	27PPB Timeout
59C #4 Pickup	81 #1 Pickup	27PPC Timeout
59PPA Pickup	81 #2 Pickup	27Vz1 Timeout
59PPB Pickup	81 #3 Pickup	32A #1 Timeout
59PPC Pickup	81 #4 Pickup	32B #1 Timeout
59N Pickup	81R #1 Pickup	32C #1 Timeout
59Vz1 Pickup	81R #2 Pickup	32A #2 Timeout
59IA Pickup	IPS #1 Pickup	32B #2 Timeout
59IB Pickup	IPS #2 Pickup	32C #2 Timeout
59IC Pickup	IPS #3 Pickup	32A #3 Timeout
47 Pickup	IPS #4 Pickup	32B #3 Timeout
67PA #1 Pickup	IPS #5 Pickup	32C #3 Timeout
67PB #1 Pickup	IPS #6 Pickup	32A #4 Timeout
67PC #1 Pickup	IPS #7 Pickup	32B #4 Timeout
67PA #2 Pickup	IPS #8 Pickup	32C #4 Timeout
67PB #2 Pickup	60FL Pickup	50PA #1 Timeout
67PC #2 Pickup	TCM Pickup	50PB #1 Timeout
67PA #3 Pickup	CCM Pickup	50PC #1 Timeout
67PB #3 Pickup	PSM Pickup	50PA #2 Timeout
67PC #3 Pickup	FAR Pickup	50PB #2 Timeout
67PA #4 Pickup	THD/TDDA #1 Pickup	50PC #2 Timeout
67PB #4 Pickup	THD/Tddb #1 Pickup	50PA #3 Timeout
67PC #4 Pickup	THD/TDDC #1 Pickup	50PB #3 Timeout
67PA #5 Pickup	THD/TDDA #2 Pickup	50PC #3 Timeout
67PB #5 Pickup	THD/Tddb #2 Pickup	50PA #4 Timeout
67PC #5 Pickup	THD/TDDC #2 Pickup	50PB #4 Timeout
67N #1 Pickup	25 Timeout	50PC #4 Timeout
67N #2 Pickup	27A #1 Timeout	50PA #5 Timeout
67N #3 Pickup	27B #1 Timeout	50PB #5 Timeout
67N #4 Pickup	27C #1 Timeout	50PC #5 Timeout
67N #5 Pickup	27A #2 Timeout	50N #1 Timeout
67G #1 Pickup	27B #2 Timeout	50N #2 Timeout
67G #2 Pickup	27C #2 Timeout	50N #3 Timeout
67G #3 Pickup	27A #3 Timeout	50N #4 Timeout
67G #4 Pickup	27B #3 Timeout	50N #5 Timeout
67G #5 Pickup	27C #3 Timeout	50G #1 Timeout

## Oscilloscope Triggers (Cont'd.)

50G #2 Timeout	59A #1 Timeout	67N #5 Timeout
50G #3 Timeout	59B #1 Timeout	67G #1 Timeout
50G #4 Timeout	59C #1 Timeout	67G #2 Timeout
50G #5 Timeout	59A #2 Timeout	67G #3 Timeout
46DT #1 Timeout	59B #2 Timeout	67G #4 Timeout
46DT #2 Timeout	59C #2 Timeout	67G #5 Timeout
46DT #3 Timeout	59A #3 Timeout	67Q #1 Timeout
46DT #4 Timeout	59B #3 Timeout	67Q #2 Timeout
46DT #5 Timeout	59C #3 Timeout	67Q #3 Timeout
50BF Timeout	59A #4 Timeout	67Q #4 Timeout
51PA #1 Timeout	59B #4 Timeout	67Q #5 Timeout
51PB #1 Timeout	59C #4 Timeout	81 #1 Timeout
51PC #1 Timeout	59PPA Timeout	81 #2 Timeout
51PA #2 Timeout	59PPB Timeout	81 #3 Timeout
51PB #2 Timeout	59PPC Timeout	81 #4 Timeout
51PC #2 Timeout	59N Timeout	81R #1 Timeout
51PA #3 Timeout	59Vz1 Timeout	81R #2 Timeout
51PB #3 Timeout	59IA Timeout	IPS #1 Timeout
51PC #3 Timeout	59IB Timeout	IPS #2 Timeout
51PA #4 Timeout	59IC Timeout	IPS #3 Timeout
51PB #4 Timeout	47 Timeout	IPS #4 Timeout
51PC #4 Timeout	67PA #1 Timeout	IPS #5 Timeout
51PA #5 Timeout	67PB #1 Timeout	IPS #6 Timeout
51PB #5 Timeout	67PC #1 Timeout	IPS #7 Timeout
51PC #5 Timeout	67PA #2 Timeout	IPS #8 Timeout
51N #1 Timeout	67PB #2 Timeout	60FL Timeout
51N #2 Timeout	67PC #2 Timeout	TCM Timeout
51N #3 Timeout	67PA #3 Timeout	CCM Timeout
51N #4 Timeout	67PB #3 Timeout	PSM Timeout
51N #5 Timeout	67PC #3 Timeout	FAR Timeout
51G #1 Timeout	67PA #4 Timeout	THD/TDDA #1 Timeout
51G #2 Timeout	67PB #4 Timeout	THD/TDDB #1 Timeout
51G #3 Timeout	67PC #4 Timeout	THD/TDDC #1 Timeout
51G #4 Timeout	67PA #5 Timeout	THD/TDDA #2 Timeout
51G #5 Timeout	67PB #5 Timeout	THD/TDDB #2 Timeout
46IT #1 Timeout	67PC #5 Timeout	THD/TDDC #2 Timeout
46IT #2 Timeout	67N #1 Timeout	25 Pickup Dropout
46IT #3 Timeout	67N #2 Timeout	27A #1 Pickup Dropout
46IT #4 Timeout	67N #3 Timeout	27B #1 Pickup Dropout
46IT #5 Timeout	67N #4 Timeout	27C #1 Pickup Dropout

## Oscilloscope Triggers (Cont'd.)

27A #2 Pickup Dropout	50N #1 Pickup Dropout	51G #5 Pickup Dropout
27B #2 Pickup Dropout	50N #2 Pickup Dropout	46IT #1 Pickup Dropout
27C #2 Pickup Dropout	50N #3 Pickup Dropout	46IT #2 Pickup Dropout
27A #3 Pickup Dropout	50N #4 Pickup Dropout	46IT #3 Pickup Dropout
27B #3 Pickup Dropout	50N #5 Pickup Dropout	46IT #4 Pickup Dropout
27C #3 Pickup Dropout	50G #1 Pickup Dropout	46IT #5 Pickup Dropout
27A #4 Pickup Dropout	50G #2 Pickup Dropout	59A #1 Pickup Dropout
27B #4 Pickup Dropout	50G #3 Pickup Dropout	59B #1 Pickup Dropout
27C #4 Pickup Dropout	50G #4 Pickup Dropout	59C #1 Pickup Dropout
27PPA Pickup Dropout	50G #5 Pickup Dropout	59A #2 Pickup Dropout
27PPB Pickup Dropout	46DT #1 Pickup Dropout	59B #2 Pickup Dropout
27PPC Pickup Dropout	46DT #2 Pickup Dropout	59C #2 Pickup Dropout
27Vz1 Pickup Dropout	46DT #3 Pickup Dropout	59A #3 Pickup Dropout
32A #1 Pickup Dropout	46DT #4 Pickup Dropout	59B #3 Pickup Dropout
32B #1 Pickup Dropout	46DT #5 Pickup Dropout	59C #3 Pickup Dropout
32C #1 Pickup Dropout	50BF Pickup Dropout	59A #4 Pickup Dropout
32A #2 Pickup Dropout	51PA #1 Pickup Dropout	59B #4 Pickup Dropout
32B #2 Pickup Dropout	51PB #1 Pickup Dropout	59C #4 Pickup Dropout
32C #2 Pickup Dropout	51PC #1 Pickup Dropout	59PPA Pickup Dropout
32A #3 Pickup Dropout	51PA #2 Pickup Dropout	59PPB Pickup Dropout
32B #3 Pickup Dropout	51PB #2 Pickup Dropout	59PPC Pickup Dropout
32C #3 Pickup Dropout	51PC #2 Pickup Dropout	59N Pickup Dropout
32A #4 Pickup Dropout	51PA #3 Pickup Dropout	59Vz1 Pickup Dropout
32B #4 Pickup Dropout	51PB #3 Pickup Dropout	59IA Pickup Dropout
32C #4 Pickup Dropout	51PC #3 Pickup Dropout	59IB Pickup Dropout
50PA #1 Pickup Dropout	51PA #4 Pickup Dropout	59IC Pickup Dropout
50PB #1 Pickup Dropout	51PB #4 Pickup Dropout	47 Pickup Dropout
50PC #1 Pickup Dropout	51PC #4 Pickup Dropout	67PA #1 Pickup Dropout
50PA #2 Pickup Dropout	51PA #5 Pickup Dropout	67PB #1 Pickup Dropout
50PB #2 Pickup Dropout	51PB #5 Pickup Dropout	67PC #1 Pickup Dropout
50PC #2 Pickup Dropout	51PC #5 Pickup Dropout	67PA #2 Pickup Dropout
50PA #3 Pickup Dropout	51N #1 Pickup Dropout	67PB #2 Pickup Dropout
50PB #3 Pickup Dropout	51N #2 Pickup Dropout	67PC #2 Pickup Dropout
50PC #3 Pickup Dropout	51N #3 Pickup Dropout	67PA #3 Pickup Dropout
50PA #4 Pickup Dropout	51N #4 Pickup Dropout	67PB #3 Pickup Dropout
50PB #4 Pickup Dropout	51N #5 Pickup Dropout	67PC #3 Pickup Dropout
50PC #4 Pickup Dropout	51G #1 Pickup Dropout	67PA #4 Pickup Dropout
50PA #5 Pickup Dropout	51G #2 Pickup Dropout	67PB #4 Pickup Dropout
50PB #5 Pickup Dropout	51G #3 Pickup Dropout	67PC #4 Pickup Dropout
50PC #5 Pickup Dropout	51G #4 Pickup Dropout	67PA #5 Pickup Dropout

*Oscilloscope Recorder Settings (4 of 7)*

## Oscilloscope Triggers (Cont'd.)

67PB #5 Pickup Dropout	THD/TDDB #2 Pickup Dropout	50PA #4 Timeout Dropout
67PC #5 Pickup Dropout	THD/TDDC #2 Pickup Dropout	50PB #4 Timeout Dropout
67N #1 Pickup Dropout	25 Timeout Dropout	50PC #4 Timeout Dropout
67N #2 Pickup Dropout	27A #1 Timeout Dropout	50PA #5 Timeout Dropout
67N #3 Pickup Dropout	27B #1 Timeout Dropout	50PB #5 Timeout Dropout
67N #4 Pickup Dropout	27C #1 Timeout Dropout	50PC #5 Timeout Dropout
67N #5 Pickup Dropout	27A #2 Timeout Dropout	50N #1 Timeout Dropout
67G #1 Pickup Dropout	27B #2 Timeout Dropout	50N #2 Timeout Dropout
67G #2 Pickup Dropout	27C #2 Timeout Dropout	50N #3 Timeout Dropout
67G #3 Pickup Dropout	27A #3 Timeout Dropout	50N #4 Timeout Dropout
67G #4 Pickup Dropout	27B #3 Timeout Dropout	50N #5 Timeout Dropout
67G #5 Pickup Dropout	27C #3 Timeout Dropout	50G #1 Timeout Dropout
67Q #1 Pickup Dropout	27A #4 Timeout Dropout	50G #2 Timeout Dropout
67Q #2 Pickup Dropout	27B #4 Timeout Dropout	50G #3 Timeout Dropout
67Q #3 Pickup Dropout	27C #4 Timeout Dropout	50G #4 Timeout Dropout
67Q #4 Pickup Dropout	27PPA Timeout Dropout	50G #5 Timeout Dropout
67Q #5 Pickup Dropout	27PPB Timeout Dropout	46DT #1 Timeout Dropout
81 #1 Pickup Dropout	27PPC Timeout Dropout	46DT #2 Timeout Dropout
81 #2 Pickup Dropout	27Vz1 Timeout Dropout	46DT #3 Timeout Dropout
81 #3 Pickup Dropout	32A #1 Timeout Dropout	46DT #4 Timeout Dropout
81 #4 Pickup Dropout	32B #1 Timeout Dropout	46DT #5 Timeout Dropout
81R #1 Pickup Dropout	32C #1 Timeout Dropout	50BF Timeout Dropout
81R #2 Pickup Dropout	32A #2 Timeout Dropout	51PA #1 Timeout Dropout
IPS #1 Pickup Dropout	32B #2 Timeout Dropout	51PB #1 Timeout Dropout
IPS #2 Pickup Dropout	32C #2 Timeout Dropout	51PC #1 Timeout Dropout
IPS #3 Pickup Dropout	32A #3 Timeout Dropout	51PA #2 Timeout Dropout
IPS #4 Pickup Dropout	32B #3 Timeout Dropout	51PB #2 Timeout Dropout
IPS #5 Pickup Dropout	32C #3 Timeout Dropout	51PC #2 Timeout Dropout
IPS #6 Pickup Dropout	32A #4 Timeout Dropout	51PA #3 Timeout Dropout
IPS #7 Pickup Dropout	32B #4 Timeout Dropout	51PB #3 Timeout Dropout
IPS #8 Pickup Dropout	32C #4 Timeout Dropout	51PC #3 Timeout Dropout
60FL Pickup Dropout	50PA #1 Timeout Dropout	51PA #4 Timeout Dropout
TCM Pickup Dropout	50PB #1 Timeout Dropout	51PB #4 Timeout Dropout
CCM Pickup Dropout	50PC #1 Timeout Dropout	51PC #4 Timeout Dropout
PSM Pickup Dropout	50PA #2 Timeout Dropout	51PA #5 Timeout Dropout
FAR Pickup Dropout	50PB #2 Timeout Dropout	51PB #5 Timeout Dropout
THD/TDDA #1 Pickup Dropout	50PC #2 Timeout Dropout	51PC #5 Timeout Dropout
THD/TDDB #1 Pickup Dropout	50PA #3 Timeout Dropout	51N #1 Timeout Dropout
THD/TDDC #1 Pickup Dropout	50PB #3 Timeout Dropout	51N #2 Timeout Dropout
THD/TDDA #2 Pickup Dropout	50PC #3 Timeout Dropout	51N #3 Timeout Dropout

## Oscilloscope Triggers (Cont'd.)

51N #4 Timeout Dropout	67PB #3 Timeout Dropout	PSM Timeout Dropout
51N #5 Timeout Dropout	67PC #3 Timeout Dropout	FAR Timeout Dropout
51G #1 Timeout Dropout	67PA #4 Timeout Dropout	THD/TDDA #1 Timeout Dropout
51G #2 Timeout Dropout	67PB #4 Timeout Dropout	THD/TDDB #1 Timeout Dropout
51G #3 Timeout Dropout	67PC #4 Timeout Dropout	THD/TDDC #1 Timeout Dropout
51G #4 Timeout Dropout	67PA #5 Timeout Dropout	THD/TDDA #2 Timeout Dropout
51G #5 Timeout Dropout	67PB #5 Timeout Dropout	THD/TDDB #2 Timeout Dropout
46IT #1 Timeout Dropout	67PC #5 Timeout Dropout	THD/TDDC #2 Timeout Dropout
46IT #2 Timeout Dropout	67N #1 Timeout Dropout	Input Pickup 1
46IT #3 Timeout Dropout	67N #2 Timeout Dropout	Input Pickup 2
46IT #4 Timeout Dropout	67N #3 Timeout Dropout	Input Pickup 3
46IT #5 Timeout Dropout	67N #4 Timeout Dropout	Input Pickup 4
59A #1 Timeout Dropout	67N #5 Timeout Dropout	Input Pickup 5
59B #1 Timeout Dropout	67G #1 Timeout Dropout	Input Pickup 6
59C #1 Timeout Dropout	67G #2 Timeout Dropout	Input Pickup 7
59A #2 Timeout Dropout	67G #3 Timeout Dropout	Input Pickup 8
59B #2 Timeout Dropout	67G #4 Timeout Dropout	Input Pickup 9
59C #2 Timeout Dropout	67G #5 Timeout Dropout	Input Pickup 10
59A #3 Timeout Dropout	67Q #1 Timeout Dropout	Input Pickup 11
59B #3 Timeout Dropout	67Q #2 Timeout Dropout	Input Pickup 12
59C #3 Timeout Dropout	67Q #3 Timeout Dropout	Output Pickup 1
59A #4 Timeout Dropout	67Q #4 Timeout Dropout	Output Pickup 2
59B #4 Timeout Dropout	67Q #5 Timeout Dropout	Output Pickup 3
59C #4 Timeout Dropout	81 #1 Timeout Dropout	Output Pickup 4
59PPA Timeout Dropout	81 #2 Timeout Dropout	Output Pickup 5
59PPB Timeout Dropout	81 #3 Timeout Dropout	Output Pickup 6
59PPC Timeout Dropout	81 #4 Timeout Dropout	Output Pickup 7
59N Timeout Dropout	81R #1 Timeout Dropout	Output Pickup 8
59Vz1 Timeout Dropout	81R #2 Timeout Dropout	Output Pickup 9
59IA Timeout Dropout	IPS #1 Timeout Dropout	Output Pickup 10
59IB Timeout Dropout	IPS #2 Timeout Dropout	Output Pickup 11
59IC Timeout Dropout	IPS #3 Timeout Dropout	Output Pickup 12
47 Timeout Dropout	IPS #4 Timeout Dropout	Input Dropout 1
67PA #1 Timeout Dropout	IPS #5 Timeout Dropout	Input Dropout 2
67PB #1 Timeout Dropout	IPS #6 Timeout Dropout	Input Dropout 3
67PC #1 Timeout Dropout	IPS #7 Timeout Dropout	Input Dropout 4
67PA #2 Timeout Dropout	IPS #8 Timeout Dropout	Input Dropout 5
67PB #2 Timeout Dropout	60FL Timeout Dropout	Input Dropout 6
67PC #2 Timeout Dropout	TCM Timeout Dropout	Input Dropout 7
67PA #3 Timeout Dropout	CCM Timeout Dropout	Input Dropout 8

**Oscillograph Triggers (Cont'd.)**

Input Dropout 9

Input Dropout 10

Input Dropout 11

Input Dropout 12

Output Dropout 1

Output Dropout 2

Output Dropout 3

Output Dropout 4

Output Dropout 5

Output Dropout 6

Output Dropout 7

Output Dropout 8

Output Dropout 9

Output Dropout 10

Output Dropout 11

Output Dropout 12

## Sequence of Events

### Sequence of Events Triggers

25 Pickup	50PA #4 Pickup	51N #2 Pickup
27A #1 Pickup	50PB #4 Pickup	51N #3 Pickup
27B #1 Pickup	50PC #4 Pickup	51N #4 Pickup
27C #1 Pickup	50PA #5 Pickup	51N #5 Pickup
27A #2 Pickup	50PB #5 Pickup	51G #1 Pickup
27B #2 Pickup	50PC #5 Pickup	51G #2 Pickup
27C #2 Pickup	50N #1 Pickup	51G #3 Pickup
27A #3 Pickup	50N #2 Pickup	51G #4 Pickup
27B #3 Pickup	50N #3 Pickup	51G #5 Pickup
27C #3 Pickup	50N #4 Pickup	46IT #1 Pickup
27A #4 Pickup	50N #5 Pickup	46IT #2 Pickup
27B #4 Pickup	50G #1 Pickup	46IT #3 Pickup
27C #4 Pickup	50G #2 Pickup	46IT #4 Pickup
27PPA Pickup	50G #3 Pickup	46IT #5 Pickup
27PPB Pickup	50G #4 Pickup	59A #1 Pickup
27PPC Pickup	50G #5 Pickup	59B #1 Pickup
27Vz1 Pickup	46DT #1 Pickup	59C #1 Pickup
32A #1 Pickup	46DT #2 Pickup	59A #2 Pickup
32B #1 Pickup	46DT #3 Pickup	59B #2 Pickup
32C #1 Pickup	46DT #4 Pickup	59C #2 Pickup
32A #2 Pickup	46DT #5 Pickup	59A #3 Pickup
32B #2 Pickup	50BF Pickup	59B #3 Pickup
32C #2 Pickup	51PA #1 Pickup	59C #3 Pickup
32A #3 Pickup	51PB #1 Pickup	59A #4 Pickup
32B #3 Pickup	51PC #1 Pickup	59B #4 Pickup
32C #3 Pickup	51PA #2 Pickup	59C #4 Pickup
32A #4 Pickup	51PB #2 Pickup	59PPA Pickup
32B #4 Pickup	51PC #2 Pickup	59PPB Pickup
32C #4 Pickup	51PA #3 Pickup	59PPC Pickup
50PA #1 Pickup	51PB #3 Pickup	59N Pickup
50PB #1 Pickup	51PC #3 Pickup	59Vz1 Pickup
50PC #1 Pickup	51PA #4 Pickup	59IA Pickup
50PA #2 Pickup	51PB #4 Pickup	59IB Pickup
50PB #2 Pickup	51PC #4 Pickup	59IC Pickup
50PC #2 Pickup	51PA #5 Pickup	47 Pickup
50PA #3 Pickup	51PB #5 Pickup	67PA #1 Pickup
50PB #3 Pickup	51PC #5 Pickup	67PB #1 Pickup
50PC #3 Pickup	51N #1 Pickup	67PC #1 Pickup

*Sequence of Events Settings (1 of 6)*

<b>Sequence of Events Triggers (Cont'd.)</b>
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67PA #2 Pickup	IPS #8 Pickup	32C #4 Timeout
67PB #2 Pickup	60FL Pickup	50PA #1 Timeout
67PC #2 Pickup	TCM Pickup	50PB #1 Timeout
67PA #3 Pickup	CCM Pickup	50PC #1 Timeout
67PB #3 Pickup	PSM Pickup	50PA #2 Timeout
67PC #3 Pickup	FAR Pickup	50PB #2 Timeout
67PA #4 Pickup	THD/TDDA #1 Pickup	50PC #2 Timeout
67PB #4 Pickup	THD/TDDB #1 Pickup	50PA #3 Timeout
67PC #4 Pickup	THD/TDDC #1 Pickup	50PB #3 Timeout
67PA #5 Pickup	THD/TDDA #2 Pickup	50PC #3 Timeout
67PB #5 Pickup	THD/TDDB #2 Pickup	50PA #4 Timeout
67PC #5 Pickup	THD/TDDC #2 Pickup	50PB #4 Timeout
67N #1 Pickup	25 Timeout	50PC #4 Timeout
67N #2 Pickup	27A #1 Timeout	50PA #5 Timeout
67N #3 Pickup	27B #1 Timeout	50PB #5 Timeout
67N #4 Pickup	27C #1 Timeout	50PC #5 Timeout
67N #5 Pickup	27A #2 Timeout	50N #1 Timeout
67G #1 Pickup	27B #2 Timeout	50N #2 Timeout
67G #2 Pickup	27C #2 Timeout	50N #3 Timeout
67G #3 Pickup	27A #3 Timeout	50N #4 Timeout
67G #4 Pickup	27B #3 Timeout	50N #5 Timeout
67G #5 Pickup	27C #3 Timeout	50G #1 Timeout
67Q #1 Pickup	27A #4 Timeout	50G #2 Timeout
67Q #2 Pickup	27B #4 Timeout	50G #3 Timeout
67Q #3 Pickup	27C #4 Timeout	50G #4 Timeout
67Q #4 Pickup	27PPA Timeout	50G #5 Timeout
67Q #5 Pickup	27PPB Timeout	46DT #1 Timeout
81 #1 Pickup	27PPC Timeout	46DT #2 Timeout
81 #2 Pickup	27Vz1 Timeout	46DT #3 Timeout
81 #3 Pickup	32A #1 Timeout	46DT #4 Timeout
81 #4 Pickup	32B #1 Timeout	46DT #5 Timeout
81R #1 Pickup	32C #1 Timeout	50BF Timeout
81R #2 Pickup	32A #2 Timeout	51PA #1 Timeout
IPS #1 Pickup	32B #2 Timeout	51PB #1 Timeout
IPS #2 Pickup	32C #2 Timeout	51PC #1 Timeout
IPS #3 Pickup	32A #3 Timeout	51PA #2 Timeout
IPS #4 Pickup	32B #3 Timeout	51PB #2 Timeout
IPS #5 Pickup	32C #3 Timeout	51PC #2 Timeout
IPS #6 Pickup	32A #4 Timeout	51PA #3 Timeout
IPS #7 Pickup	32B #4 Timeout	51PB #3 Timeout

*Sequence of Events Settings (2 of 6)*

### Sequence of Events Triggers (Cont'd.)

51PC #3 Timeout	59IB Timeout	IPS #2 Timeout
51PA #4 Timeout	59IC Timeout	IPS #3 Timeout
51PB #4 Timeout	47 Timeout	IPS #4 Timeout
51PC #4 Timeout	67PA #1 Timeout	IPS #5 Timeout
51PA #5 Timeout	67PB #1 Timeout	IPS #6 Timeout
51PB #5 Timeout	67PC #1 Timeout	IPS #7 Timeout
51PC #5 Timeout	67PA #2 Timeout	IPS #8 Timeout
51N #1 Timeout	67PB #2 Timeout	60FL Timeout
51N #2 Timeout	67PC #2 Timeout	TCM Timeout
51N #3 Timeout	67PA #3 Timeout	CCM Timeout
51N #4 Timeout	67PB #3 Timeout	PSM Timeout
51N #5 Timeout	67PC #3 Timeout	FAR Timeout
51G #1 Timeout	67PA #4 Timeout	THD/TDDA #1 Timeout
51G #2 Timeout	67PB #4 Timeout	THD/TDDB #1 Timeout
51G #3 Timeout	67PC #4 Timeout	THD/TDDC #1 Timeout
51G #4 Timeout	67PA #5 Timeout	THD/TDDA #2 Timeout
51G #5 Timeout	67PB #5 Timeout	THD/TDDB #2 Timeout
46IT #1 Timeout	67PC #5 Timeout	THD/TDDC #2 Timeout
46IT #2 Timeout	67N #1 Timeout	25 Pickup Dropout
46IT #3 Timeout	67N #2 Timeout	27A #1 Pickup Dropout
46IT #4 Timeout	67N #3 Timeout	27B #1 Pickup Dropout
46IT #5 Timeout	67N #4 Timeout	27C #1 Pickup Dropout
59A #1 Timeout	67N #5 Timeout	27A #2 Pickup Dropout
59B #1 Timeout	67G #1 Timeout	27B #2 Pickup Dropout
59C #1 Timeout	67G #2 Timeout	27C #2 Pickup Dropout
59A #2 Timeout	67G #3 Timeout	27A #3 Pickup Dropout
59B #2 Timeout	67G #4 Timeout	27B #3 Pickup Dropout
59C #2 Timeout	67G #5 Timeout	27C #3 Pickup Dropout
59A #3 Timeout	67Q #1 Timeout	27A #4 Pickup Dropout
59B #3 Timeout	67Q #2 Timeout	27B #4 Pickup Dropout
59C #3 Timeout	67Q #3 Timeout	27C #4 Pickup Dropout
59A #4 Timeout	67Q #4 Timeout	27PPA Pickup Dropout
59B #4 Timeout	67Q #5 Timeout	27PPB Pickup Dropout
59C #4 Timeout	81 #1 Timeout	27PPC Pickup Dropout
59PPA Timeout	81 #2 Timeout	27Vz1 Pickup Dropout
59PPB Timeout	81 #3 Timeout	32A #1 Pickup Dropout
59PPC Timeout	81 #4 Timeout	32B #1 Pickup Dropout
59N Timeout	81R #1 Timeout	32C #1 Pickup Dropout
59Vz1 Timeout	81R #2 Timeout	32A #2 Pickup Dropout
59IA Timeout	IPS #1 Timeout	32B #2 Pickup Dropout

*Sequence of Events Settings (3 of 6)*

### Sequence of Events Triggers (Cont'd.)

32C #2 Pickup Dropout	51PC #1 Pickup Dropout	59PPA Pickup Dropout
32A #3 Pickup Dropout	51PA #2 Pickup Dropout	59PPB Pickup Dropout
32B #3 Pickup Dropout	51PB #2 Pickup Dropout	59PPC Pickup Dropout
32C #3 Pickup Dropout	51PC #2 Pickup Dropout	59N Pickup Dropout
32A #4 Pickup Dropout	51PA #3 Pickup Dropout	59Vz1 Pickup Dropout
32B #4 Pickup Dropout	51PB #3 Pickup Dropout	59IA Pickup Dropout
32C #4 Pickup Dropout	51PC #3 Pickup Dropout	59IB Pickup Dropout
50PA #1 Pickup Dropout	51PA #4 Pickup Dropout	59IC Pickup Dropout
50PB #1 Pickup Dropout	51PB #4 Pickup Dropout	47 Pickup Dropout
50PC #1 Pickup Dropout	51PC #4 Pickup Dropout	67PA #1 Pickup Dropout
50PA #2 Pickup Dropout	51PA #5 Pickup Dropout	67PB #1 Pickup Dropout
50PB #2 Pickup Dropout	51PB #5 Pickup Dropout	67PC #1 Pickup Dropout
50PC #2 Pickup Dropout	51PC #5 Pickup Dropout	67PA #2 Pickup Dropout
50PA #3 Pickup Dropout	51N #1 Pickup Dropout	67PB #2 Pickup Dropout
50PB #3 Pickup Dropout	51N #2 Pickup Dropout	67PC #2 Pickup Dropout
50PC #3 Pickup Dropout	51N #3 Pickup Dropout	67PA #3 Pickup Dropout
50PA #4 Pickup Dropout	51N #4 Pickup Dropout	67PB #3 Pickup Dropout
50PB #4 Pickup Dropout	51N #5 Pickup Dropout	67PC #3 Pickup Dropout
50PC #4 Pickup Dropout	51G #1 Pickup Dropout	67PA #4 Pickup Dropout
50PA #5 Pickup Dropout	51G #2 Pickup Dropout	67PB #4 Pickup Dropout
50PB #5 Pickup Dropout	51G #3 Pickup Dropout	67PC #4 Pickup Dropout
50PC #5 Pickup Dropout	51G #4 Pickup Dropout	67PA #5 Pickup Dropout
50N #1 Pickup Dropout	51G #5 Pickup Dropout	67PB #5 Pickup Dropout
50N #2 Pickup Dropout	46IT #1 Pickup Dropout	67PC #5 Pickup Dropout
50N #3 Pickup Dropout	46IT #2 Pickup Dropout	67N #1 Pickup Dropout
50N #4 Pickup Dropout	46IT #3 Pickup Dropout	67N #2 Pickup Dropout
50N #5 Pickup Dropout	46IT #4 Pickup Dropout	67N #3 Pickup Dropout
50G #1 Pickup Dropout	46IT #5 Pickup Dropout	67N #4 Pickup Dropout
50G #2 Pickup Dropout	59A #1 Pickup Dropout	67N #5 Pickup Dropout
50G #3 Pickup Dropout	59B #1 Pickup Dropout	67G #1 Pickup Dropout
50G #4 Pickup Dropout	59C #1 Pickup Dropout	67G #2 Pickup Dropout
50G #5 Pickup Dropout	59A #2 Pickup Dropout	67G #3 Pickup Dropout
46DT #1 Pickup Dropout	59B #2 Pickup Dropout	67G #4 Pickup Dropout
46DT #2 Pickup Dropout	59C #2 Pickup Dropout	67G #5 Pickup Dropout
46DT #3 Pickup Dropout	59A #3 Pickup Dropout	67Q #1 Pickup Dropout
46DT #4 Pickup Dropout	59B #3 Pickup Dropout	67Q #2 Pickup Dropout
46DT #5 Pickup Dropout	59C #3 Pickup Dropout	67Q #3 Pickup Dropout
50BF Pickup Dropout	59A #4 Pickup Dropout	67Q #4 Pickup Dropout
51PA #1 Pickup Dropout	59B #4 Pickup Dropout	67Q #5 Pickup Dropout
51PB #1 Pickup Dropout	59C #4 Pickup Dropout	81 #1 Pickup Dropout

### Sequence of Events Triggers (Cont'd.)

81 #2 Pickup Dropout	27Vz1 Timeout Dropout	46DT #3 Timeout Dropout
81 #3 Pickup Dropout	32A #1 Timeout Dropout	46DT #4 Timeout Dropout
81 #4 Pickup Dropout	32B #1 Timeout Dropout	46DT #5 Timeout Dropout
81R #1 Pickup Dropout	32C #1 Timeout Dropout	50BF Timeout Dropout
81R #2 Pickup Dropout	32A #2 Timeout Dropout	51PA #1 Timeout Dropout
IPS #1 Pickup Dropout	32B #2 Timeout Dropout	51PB #1 Timeout Dropout
IPS #2 Pickup Dropout	32C #2 Timeout Dropout	51PC #1 Timeout Dropout
IPS #3 Pickup Dropout	32A #3 Timeout Dropout	51PA #2 Timeout Dropout
IPS #4 Pickup Dropout	32B #3 Timeout Dropout	51PB #2 Timeout Dropout
IPS #5 Pickup Dropout	32C #3 Timeout Dropout	51PC #2 Timeout Dropout
IPS #6 Pickup Dropout	32A #4 Timeout Dropout	51PA #3 Timeout Dropout
IPS #7 Pickup Dropout	32B #4 Timeout Dropout	51PB #3 Timeout Dropout
IPS #8 Pickup Dropout	32C #4 Timeout Dropout	51PC #3 Timeout Dropout
60FL Pickup Dropout	50PA #1 Timeout Dropout	51PA #4 Timeout Dropout
TCM Pickup Dropout	50PB #1 Timeout Dropout	51PB #4 Timeout Dropout
CCM Pickup Dropout	50PC #1 Timeout Dropout	51PC #4 Timeout Dropout
PSM Pickup Dropout	50PA #2 Timeout Dropout	51PA #5 Timeout Dropout
FAR Pickup Dropout	50PB #2 Timeout Dropout	51PB #5 Timeout Dropout
THD/TDDA #1 Pickup Dropout	50PC #2 Timeout Dropout	51PC #5 Timeout Dropout
THD/TDDB #1 Pickup Dropout	50PA #3 Timeout Dropout	51N #1 Timeout Dropout
THD/TDDC #1 Pickup Dropout	50PB #3 Timeout Dropout	51N #2 Timeout Dropout
THD/TDDA #2 Pickup Dropout	50PC #3 Timeout Dropout	51N #3 Timeout Dropout
THD/TDDB #2 Pickup Dropout	50PA #4 Timeout Dropout	51N #4 Timeout Dropout
THD/TDDC #2 Pickup Dropout	50PB #4 Timeout Dropout	51N #5 Timeout Dropout
25 Timeout Dropout	50PC #4 Timeout Dropout	51G #1 Timeout Dropout
27A #1 Timeout Dropout	50PA #5 Timeout Dropout	51G #2 Timeout Dropout
27B #1 Timeout Dropout	50PB #5 Timeout Dropout	51G #3 Timeout Dropout
27C #1 Timeout Dropout	50PC #5 Timeout Dropout	51G #4 Timeout Dropout
27A #2 Timeout Dropout	50N #1 Timeout Dropout	51G #5 Timeout Dropout
27B #2 Timeout Dropout	50N #2 Timeout Dropout	46IT #1 Timeout Dropout
27C #2 Timeout Dropout	50N #3 Timeout Dropout	46IT #2 Timeout Dropout
27A #3 Timeout Dropout	50N #4 Timeout Dropout	46IT #3 Timeout Dropout
27B #3 Timeout Dropout	50N #5 Timeout Dropout	46IT #4 Timeout Dropout
27C #3 Timeout Dropout	50G #1 Timeout Dropout	46IT #5 Timeout Dropout
27A #4 Timeout Dropout	50G #2 Timeout Dropout	59A #1 Timeout Dropout
27B #4 Timeout Dropout	50G #3 Timeout Dropout	59B #1 Timeout Dropout
27C #4 Timeout Dropout	50G #4 Timeout Dropout	59C #1 Timeout Dropout
27PPA Timeout Dropout	50G #5 Timeout Dropout	59A #2 Timeout Dropout
27PPB Timeout Dropout	46DT #1 Timeout Dropout	59B #2 Timeout Dropout
27PPC Timeout Dropout	46DT #2 Timeout Dropout	59C #2 Timeout Dropout

### Sequence of Events Triggers (Cont'd.)

59A #3 Timeout Dropout	67Q #1 Timeout Dropout	Input Pickup 11
59B #3 Timeout Dropout	67Q #2 Timeout Dropout	Input Pickup 12
59C #3 Timeout Dropout	67Q #3 Timeout Dropout	Output Pickup 1
59A #4 Timeout Dropout	67Q #4 Timeout Dropout	Output Pickup 2
59B #4 Timeout Dropout	67Q #5 Timeout Dropout	Output Pickup 3
59C #4 Timeout Dropout	81 #1 Timeout Dropout	Output Pickup 4
59PPA Timeout Dropout	81 #2 Timeout Dropout	Output Pickup 5
59PPB Timeout Dropout	81 #3 Timeout Dropout	Output Pickup 6
59PPC Timeout Dropout	81 #4 Timeout Dropout	Output Pickup 7
59N Timeout Dropout	81R #1 Timeout Dropout	Output Pickup 8
59Vz1 Timeout Dropout	81R #2 Timeout Dropout	Output Pickup 9
59IA Timeout Dropout	IPS #1 Timeout Dropout	Output Pickup 10
59IB Timeout Dropout	IPS #2 Timeout Dropout	Output Pickup 11
59IC Timeout Dropout	IPS #3 Timeout Dropout	Output Pickup 12
47 Timeout Dropout	IPS #4 Timeout Dropout	Input Dropout 1
67PA #1 Timeout Dropout	IPS #5 Timeout Dropout	Input Dropout 2
67PB #1 Timeout Dropout	IPS #6 Timeout Dropout	Input Dropout 3
67PC #1 Timeout Dropout	IPS #7 Timeout Dropout	Input Dropout 4
67PA #2 Timeout Dropout	IPS #8 Timeout Dropout	Input Dropout 5
67PB #2 Timeout Dropout	60FL Timeout Dropout	Input Dropout 6
67PC #2 Timeout Dropout	TCM Timeout Dropout	Input Dropout 7
67PA #3 Timeout Dropout	CCM Timeout Dropout	Input Dropout 8
67PB #3 Timeout Dropout	PSM Timeout Dropout	Input Dropout 9
67PC #3 Timeout Dropout	FAR Timeout Dropout	Input Dropout 10
67PA #4 Timeout Dropout	THD/TDDA #1 Timeout Dropout	Input Dropout 11
67PB #4 Timeout Dropout	THD/TDDB #1 Timeout Dropout	Input Dropout 12
67PC #4 Timeout Dropout	THD/TDDC #1 Timeout Dropout	Output Dropout 1
67PA #5 Timeout Dropout	THD/TDDA #2 Timeout Dropout	Output Dropout 2
67PB #5 Timeout Dropout	THD/TDDB #2 Timeout Dropout	Output Dropout 3
67PC #5 Timeout Dropout	THD/TDDC #2 Timeout Dropout	Output Dropout 4
67N #1 Timeout Dropout	Input Pickup 1	Output Dropout 5
67N #2 Timeout Dropout	Input Pickup 2	Output Dropout 6
67N #3 Timeout Dropout	Input Pickup 3	Output Dropout 7
67N #4 Timeout Dropout	Input Pickup 4	Output Dropout 8
67N #5 Timeout Dropout	Input Pickup 5	Output Dropout 9
67G #1 Timeout Dropout	Input Pickup 6	Output Dropout 10
67G #2 Timeout Dropout	Input Pickup 7	Output Dropout 11
67G #3 Timeout Dropout	Input Pickup 8	Output Dropout 12
67G #4 Timeout Dropout	Input Pickup 9	ITIC VA
67G #5 Timeout Dropout	Input Pickup 10	ITIC VB
		ITIC VC

*Sequence of Events Settings (6 of 6)*

<b>Communication Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>COMM PORT 1</b>			
Protocol	MODBUS® / DNP	MODBUS	
Baud Rate (bps)	1200/ 2400/ 4800/ 9600/ 19200/ 38400/ 57600/ 115200	115200	
Parity	None/ Even/ Odd	None	
Stop Bit	1/2	1	
TX Delay	1 to 5000 (ms)	10	
Sync Time	1 to 5000 (ms)	100	
<b>COMM PORT 4</b>			
Protocol	MODBUS/ DNP	MODBUS	
Baud Rate (bps)	1200/ 2400/ 4800/ 9600/ 19200/ 38400/ 57600/ 115200	115200	
Parity	None/ Even/ Odd	None	
Stop Bit	1/2	1	
TX Delay	1 to 5000 (ms)	10	
Sync Time	1 to 5000 (ms)	100	
<b>ETHERNET SETTINGS</b>			
Auto Negotiate	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
DHCP Protocol	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Static IP Address (DHCP Disabled)	–	5.16.16.16	
Net Mask (DHCP Disabled)	–	5.16.16.16	
Gateway (DHCP Disabled)	–	5.16.16.16	
Keep Alive Time	1 to 50000 (sec)	120	
Port			
MODBUS Port	1 to 65535	502	
DNP Port	1 to 65535	20000	
Simple Network Time Protocol			
SNTP	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
SNTP Server	–	–	
SNTP Address	–	129.6.15.30	

<b>Communication Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>PROTOCOL ADDRESS</b>			
MODBUS	1 to 255	502	
DNP	1 to 65519	20000	
<b>COMM PORT SECURITY</b>			
Physical Ports			
Port 1	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Port 4	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
USB	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Ethernet	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
SD Card	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Protocol Access			
Enable MODBUS	Enable/Disable	Enable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Enable FTP	Not available at this time		
Enable ICMP	-	Enable	<input type="checkbox"/> Enable
Enable HTTP	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Enable DNP TCP	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Enable DNP UDP	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Enable IEC 61850	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Enable Terminal	Not available at this time		

<b>Communication Settings</b>			
SETTING	RANGE	DEFAULT	SETTING
<b>COMMUNICATION SECURITY</b>			
<b>Radius Configuration</b>			
Radius Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Accounting Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Primary Server			
IP Address	–	5.16.16.16	
Authentication Port	1 to 65535	1812	
Accounting Port	1 to 65535	1813	
Secondary Server			
IP Address	–	10.10.10.10	
Authentication Port	1 to 65535	1812	
Accounting Port	1 to 65535	1813	
Secret Key	–	–	
<b>IPSec Configuration</b>			
Enable IPSec	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
<b>SYNCHROPHASOR CONFIGURATION</b>			
Synchrophasor Enable	Enable/Disable	Disable	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
IP Address	–	0.0.0.0	
Local Port	1 to 65535	4712	
Remote UDP Port	1 to 65535	4712	
Protocol	TCP/UDP/Serial	TCP	
Channel Config	0 to 10	0	
ID Code	1 to 65535	1	
Config Frame Interval	1 to 65535 (sec)	60	
Data Frame Interval	1 to 65535 (ms)	100	
Station Name	–	–	

Function	Enable	Disable	OUTPUTS												BLOCKING INPUTS												Virtual Input												
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	FL	V1	V2	V3									
<b>25 – Sync Check</b>																																							
25																																							
<b>27 – Undervoltage</b>																																							
27 #1 (ABC)																																							
27 #1 A																																							
27 #1 B																																							
27 #1 C																																							
27 #2 (ABC)																																							
27 #2 A																																							
27 #2 B																																							
27 #2 C																																							
27 #3 (ABC)																																							
27 #3 A																																							
27 #3 B																																							
27 #3 C																																							
27 #4 (ABC)																																							
27 #4 A																																							
27 #4 B																																							
27 #4 C																																							
<b>27PP – Phase to Phase Undervoltage</b>																																							
27PP (ABC)																																							
27PP AB																																							
27PP BC																																							
27PP CA																																							



Function	Enable	Disable	OUTPUTS												BLOCKING INPUTS												Virtual Input											
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	FL	V1	V2	V3								
<b>50P – Phase Instantaneous/Definite Time Overcurrent</b>																																						
50P #1 (ABC)																																						
50P #1 A																																						
50P #1 B																																						
50P #1 C																																						
50P #2 (ABC)																																						
50P #2 A																																						
50P #2 B																																						
50P #2 C																																						
50P #3 (ABC)																																						
50P #3 A																																						
50P #3 B																																						
50P #3 C																																						
50P #4 (ABC)																																						
50P #4 A																																						
50P #4 B																																						
50P #4 C																																						
50P #5 (ABC)																																						
50P #5 A																																						
50P #5 B																																						
50P #5 C																																						



Function	Enable	Disable	OUTPUTS												BLOCKING INPUTS												Virtual Input										
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	FL	V1	V2	V3							
<b>51P – Phase Inverse Time Overcurrent</b>																																					
51P #1 (ABC)																																					
51P #1 A																																					
51P #1 B																																					
51P #1 C																																					
51P #2 (ABC)																																					
51P #2 A																																					
51P #2 B																																					
51P #2 C																																					
51P #3 (ABC)																																					
51P #3 A																																					
51P #3 B																																					
51P #3 C																																					
51P #4 (ABC)																																					
51P #4 A																																					
51P #4 B																																					
51P #4 C																																					
51P #5 (ABC)																																					
51P #5 A																																					
51P #5 B																																					
51P #5 C																																					

Function	Enable	Disable	OUTPUTS												BLOCKING INPUTS												Virtual Input										
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	FL	V1	V2	V3							
<b>51N – Residual Inverse Time Overcurrent</b>																																					
51N #1																																					
51N #2																																					
51N #3																																					
51N #4																																					
51N #5																																					
<b>51G – Ground Inverse Time Overcurrent</b>																																					
51G #1																																					
51G #2																																					
51G #3																																					
51G #4																																					
51G #5																																					
<b>51GS – Sensitive Ground Inverse Time Overcurrent</b>																																					
51GS #1																																					
51GS #2																																					
51GS #3																																					
51GS #4																																					
51GS #5																																					

Function	Enable	Disable	OUTPUTS												BLOCKING INPUTS												Virtual Input										
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	FL	V1	V2	V3							
<b>59 – Overvoltage</b>																																					
59 #1 (ABC)																																					
59 #1 A																																					
59 #1 B																																					
59 #1 C																																					
59 #2 (ABC)																																					
59 #2 A																																					
59 #2 B																																					
59 #2 C																																					
59 #3 (ABC)																																					
59 #3 A																																					
59 #3 B																																					
59 #3 C																																					
59 #4 (ABC)																																					
59 #4 A																																					
59 #4 B																																					
59 #4 C																																					
<b>59PP – Phase to Phase Overvoltage</b>																																					
59PP (ABC)																																					
59PP AB																																					
59PP BC																																					
59PP CA																																					

Function	Enable	Disable	OUTPUTS												BLOCKING INPUTS												Virtual Input									
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	FL	V1	V2	V3						
<b>59I – Peak Overvoltage</b>																																				
59I (ABC)																																				
59I A																																				
59I B																																				
59I C																																				
<b>59Vz1 – Vz1 Overvoltage</b>																																				
59Vz1																																				
<b>59N – Residual Overvoltage</b>																																				
59N																																				
<b>67P – Phase Directional Overcurrent</b>																																				
67P #1 (ABC)																																				
67P #2 (ABC)																																				
67P #3 (ABC)																																				
67P #4 (ABC)																																				
67P #5 (ABC)																																				
<b>67Q – Negative Sequence Directional Overcurrent</b>																																				
67Q #1																																				
67Q #2																																				
67Q #3																																				
67Q #4																																				
67Q #5																																				

Function	Enable	Disable	OUTPUTS												BLOCKING INPUTS												Virtual Input											
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	FL	V1	V2	V3								
<b>67G – Ground Directional Overcurrent</b>																																						
67G #1																																						
67G #2																																						
67G #3																																						
67G #4																																						
67G #5																																						
<b>67GS – Sensitive Ground Directional Overcurrent</b>																																						
67GS #1																																						
67GS #2																																						
67GS #3																																						
67GS #4																																						
67GS #5																																						
<b>67N – Residual Directional Overcurrent</b>																																						
67N #1																																						
67N #2																																						
67N #3																																						
67N #4																																						
67N #5																																						
<b>81 – Frequency</b>																																						
81 #1																																						
81 #2																																						
81 #3																																						
81 #4																																						
<b>81R – Rate of Change of Frequency</b>																																						
81R #1																																						
81R #2																																						

Function	Enable	Disable	OUTPUTS												BLOCKING INPUTS												Virtual Input							
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	FL	V1	V2	V3				
<b>CLP – Cold Load Pickup</b>																																		
			N/A												52A	52B	Breaker Input Status																	
CLP			N/A																															
<b>IPS – IPSlogic™</b>																																		
IPSlogic #1																																		
IPSlogic #2																																		
IPSlogic #3																																		
IPSlogic #4																																		
IPSlogic #5																																		
IPSlogic #6																																		
IPSlogic #7																																		
IPSlogic #8																																		
<b>79 – Recloser Relay (Three Phase)</b>																																		
Function 79			N/A																															
<b>79 – Recloser Relay (Triple Single 3T3LO – 3 Phase Trip &amp; 3 Phase Lockout)</b>																																		
Enable 79			N/A																															
<b>79 – Recloser Relay (Triple Single 1T3LO – 1 Phase Trip &amp; 3 Phase Lockout)</b>																																		
Enable 79																																		
		Reclose A	N/A																															
		Reclose B	N/A																															
		Reclose C	N/A																															
<b>79 – Recloser Relay (Triple Single 1T1LO – 1 Phase Trip &amp; 1 Phase Lockout)</b>																																		
Enable 79																																		
		Reclose A	N/A																															
		Reclose B	N/A																															
		Reclose C	N/A																															

Function	Enable	Disable	OUTPUTS												BLOCKING INPUTS												Virtual Input																											
			1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	FL	V1	V2	V3																								
<b>PSBC – Power Supply/Battery Charger Monitor</b>																																																						
Automatic Test																																																						
<b>TCM – Trip Circuit Monitor (Three Phase)</b>																																																						
TCM																																																						
															52A	52B	Trip Coil Input																																					
															-	-																																						
																52B	Blocking Inputs																																					
<b>TCM – Trip Circuit Monitor (Triple Single)</b>																																																						
TCM																																																						
															52A	52B	Trip Coil Input																																					
															-	-																																						
																52B	Blocking Inputs																																					
<b>CCM – Close Circuit Monitor (Three Phase)</b>																																																						
CCM																																																						
															52A	52B	Close Coil Input																																					
															-	-																																						
																52A	Blocking Inputs																																					
<b>CCM – Close Circuit Monitor (Triple Single)</b>																																																						
CCM																																																						
															52A	52B	Close Coil Input																																					
															-	-																																						
																52A	Blocking Inputs																																					



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**BECKWITH ELECTRIC CO., INC.**

6190 - 118th Avenue North • Largo, Florida 33773-3724 U.S.A.

PHONE (727) 544-2326 • FAX (727) 546-0121

[marketing@beckwithelectric.com](mailto:marketing@beckwithelectric.com)

[www.beckwithelectric.com](http://www.beckwithelectric.com)

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