7SR2420 Duobias

Multi-Function 2-Winding Transformer Protection Relay

Document Release History

This document is issue 2010/02. The list of revisions up to and including this issue is:
Pre release

2010/02	Document reformat due to rebrand

Software Revision History

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RELAY	7SR242x-2xAx1-0CA0
SOFTWARE	2662H80001R4c-3#6405
RELAY IDENTIFIER	DUOBIAS-M 7SR24
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1 SYSTEM CONFIG

Description	Range	Default	Setting
Active Group *Selects which settings group is currently activated*			
System Frequency *Selects the Power System Frequency from 50 or 60 Hz*	50, 60	50Hz	50Hz
View/Edit Group *Selects which settings group is currently being displayed*			
Setting Dependencies *When enabled only active settings are displayed and all others hidden*	Disabled, Enabled	Enabled	Disabled
Favourite Meters Timer *Selects the time delay after which, if no key presses have been detected, the relay will begin to poll through any screens which have been selected as favourite instruments*	Off, 1, 2, 5, 10, 15, 30, 60	60min	60min
Backlight timer *Controls when the LCD backlight turns off*	Off, 1, 2, 5, 10, 15, 30, 60	5min	5min
Date *Sets the date, this setting can only be changed on the fascia or via Relay->Control->Set Time and Date*			
Time *Sets the time, this setting can only be changed on the fascia or via Relay->Control->Set Time and Date*			
W1 Settings Display *Selects whether the winding 1 display is nominal, primary or secondary.*	xNom, Primary, Secondary	xNom	xNom
W2 Settings Display *Selects whether the winding 2 display is nominal, primary or secondary.*	xNom, Primary, Secondary	xNom	xNom
Ig-1 Settings Display *Selects whether the Ig-1 display is nominal, primary or secondary.*	xNom, Primary, Secondary	xNom	xNom
Ig-2 Settings Display *Selects whether the Ig-2 display is nominal, primary or secondary.*	xNom, Primary, Secondary	xNom	xNom
Select Grp Mode *Mode of operation of the group change from status input. Edge triggered ignores the status input once it has changed to the relevant group, where as with Level triggered the relay will only stay in the group it has changed to whilst the status input is being driven, after which it returns to the previous group.*	Edge triggered, Level triggered	Edge triggered	Edge triggered
Clock Sync. From BI *Real time clock may be synchronised using a binary input (See Clock Sync. in Binary Input Menu)*	Disabled, Seconds, Minutes	Minutes	Minutes
Operating Mode *Selects the current operating mode of the relay. This can also be changed by a binary input mode selection.*	Out Of Service, Local, Remote, Local Or Remote	Local Or Remote	Local Or Remote

Description	Range	Default	Setting
Setting Password *Allows a 4 character alpha code to be entered as the password. Note that the display shows a password dependant encrypted code on the second line of the display*	(Password)	NONE	NONE
Control Password *As Above*	(Password)	NONE	NONE
Trip Alert *When Enabled the occurance of a Trip will cause the relay to display the Trip Alert Screen, the only way to leave this screen is by acknowledging the trip through the TEST/RESET button on the relay fascia*	Disabled, Enabled	Enabled	Enabled
General Alarm Alert	Disabled, Enabled	Enabled	Enabled
Relay Identifier *An alphanumeric string shown on the LCD normally used to identifier the circuit the relay is attached to or the relays purpose*	(16 Character String)	DUOBIAS-M 7SR24	DUOBIAS-M 7SR24
Circuit Identifier	(16 Character String)		

2 CT/VT CONFIG

Description	Range	Default	Setting
W1 Phase Input *Selects whether 1 or 5 Amp terminals are being used for winding 1*	1, 5	1A	1A
W1 Phase CT Ratio *Winding 1 CT ratio to scale primary current instruments*	1:0.2, 1:0.21 ... 5000:6.9, 5000:7	2000:1	2000:1
W2 Phase Input *Selects whether 1 or 5 Amp terminals are being used for winding 2*	1, 5	1A	1A
W2 Phase CT Ratio *Winding 2 CT ratio to scale primary current instruments*	1:0.2, 1:0.21 ... 5000:6.9, 5000:7	2000:1	2000:1
Ig-1 Input *Selects whether 1 or 5 Amp terminals are being used for Ig-1*	1, 5	1A	1A
Ig-1 CT Ratio *Ig-1 CT ratio to scale primary current instruments*	1:0.2, 1:0.21 ... 5000:6.9, 5000:7	2000:1	2000:1
Ig-2 Input *Selects whether 1 or 5 Amp terminals are being used for Ig-2*	1, 5	1A	1A
Ig-2 CT Ratio *Ig-2 CT ratio to scale primary current instruments*	1:0.2, 1:0.21 ... 5000:6.9, 5000:7	2000:1	2000:1
Nominal Voltage *Selects the nominal voltage setting Vn of the voltage input*	40, 40.1 ... 159.9, 160	63.5V	63.5V
Voltage Trim Magnitude *Allows trimming of voltage magnitude, the setting value should be the voltage required to be added to get back to the Nominal Voltage.*	-20, -19.9 ... 19.9, 20	0V	0V
Voltage Trim Angle *Allows trimming of voltage angle, the setting value is added to the current voltage angle*	-45, -44.9 ... 44.9, 45	0deg	0deg
VT Ratio Prim	(6 Character String)	132000	132000
VT Ratio Sec	40, 40.5 ... 159.5, 160	110808596273	110808596273

Description	Range	Default	Setting
VT Connection *VT connectionis either phase to neutral or phase to phase.*	Vpn, Vpp	Vpn808596273	Vpn808596273

3 FUNCTION CONFIG

Description	Range	Default	Setting
Gn Differential *When set to Disabled, no Differential elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Inrush Detector *When set to Disabled, no Inrush Detector elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Overfluxing Detector *When set to Disabled, no Overfluxing Detector (5th Harmonic) elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Phase Overcurrent *When set to Disabled, no Phase Overcurrent elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Derived E/F *When set to Disabled, no Derived E/F elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Measured E/F *When set to Disabled, no Measured E/F elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Restricted E/F *When set to Disabled, no Restricted E/F elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn NPS Overcurrent *When set to Disabled, no NPS Overcurrent elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Under Current *When set to Disabled, no Under Current elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn U/O Voltage *When set to Disabled, no U/O Voltage elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Neutral Overvoltage *When set to Disabled, no Neutral Overvoltage elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled

Description	Range	Default	Setting
Gn U/O Frequency *When set to Disabled, no U/O Frequency elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Overfluxing *When set to Disabled, no V/f elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Thermal *When set to Disabled, no Thermal elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Open Circuit	Enabled, Disabled	Disabled	Disabled
Gn CB Fail *When set to Disabled, no CB Fail elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn CB Control	Enabled, Disabled	Disabled	Disabled
Gn Trip Cct Supervision *When set to Disabled, no Trip Cct Supervision elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Close Cct Supervision	Enabled, Disabled	Disabled	Disabled
Gn CB Counters *When set to Disabled, no Gn CB Counter elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn I^2t CB Wear *When set to Disabled, no Gn I^2t CB Wear elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*	Enabled, Disabled	Disabled	Disabled
Gn Demand *When set to Disabled, no Demand elements will be functional and all associated settings will be hidden. (The Setting Dependencies setting being set to Disabled will make all settings visible but will not allow them to operate).*			

4 DIFFERENTIAL PROT'N

Description	Range	Default	Setting
W1 ICT Multiplier *Winding 1 scaling factor*	0.25, 0.26 ... 2.99, 3	1x	1x
W1 ICT Connection *Winding 1 transformer vector group compensation and/or zero sequence filtering*	Yy0,0, Yd1,-30, Yy2,-60, Yd3,-90, Yy4,-120, Yd5,-150, Yy6,180, Yd7,150, Yy8,120, Yd9,90, Yy10,60, Yd11,30, Ydy0,0, Ydy2,-60, Ydy4,-120, Ydy6,180, Ydy8,120, Ydy10,60	Yy0,0deg	Yy0,0deg
W2 ICT Multiplier *Winding 2 scaling factor*	0.25, 0.26 ... 2.99, 3	1x	1x

Description	Range	Default	Setting
W2 ICT Connection *Winding 2 transformer vector group compensation and/or zero sequence filtering*	Yy0,0, Yd1,-30, Yy2,-60, Yd3,-90, Yy4,-120, Yd5,-150, Yy6,180, Yd7,150, Yy8,120, Yd9,90, Yy10,60, Yd11,30, Ydy0,0, Ydy2,-60, Ydy4,-120, Ydy6,180, Ydy8,120, Ydy10,60	Yy0,0deg	Yy0,0deg

4.1 87BD

Description	Range	Default	Setting
Gn 87BD Element *Selects whether the transformer differential protection element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 87BD Initial Setting *The initial unbiased pickup level*	0.1, 0.15 ... 1.95, 2	0.2xIn	0.2xIn
Gn 87BD 1st Bias Slope *The bias slope varies the pickup level to compensates for CT measuring errors and tap changer not mid tap errors as the through current (bias) increases*	0.1, 0.15, 0.2, 0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7	0.2x	0.2x
Gn 87BD 1st Bias Slope Limit *At this point in the characteristics the bias slope increases to provide increased security when additional measuring errors are introduced due to CT saturation effects.*	1, 1.5 ... 19.5, 20	4xIn	4xIn
Gn 87BD 2nd Bias Slope Type *At this point in the characteristics the bias slope can be selected to be a curve or line.*	Line, Curve	Line	Line
Gn 87BD 2nd Bias Slope *When a second bias slope of type line is selected. The gradient can be selected.*	1, 1.05, 1.1, 1.15, 1.2, 1.25, 1.3, 1.35, 1.4, 1.45, 1.5, 1.55, 1.6, 1.65, 1.7, 1.75, 1.8, 1.85, 1.9, 1.95, 2	1.5x	1.5x
Gn 87BD Delay *The operation of the differential may be delayed to cater for special system conditions e.g. for use on cable circuits a delay of 5ms is recommended*	0, 0.005 ... 0.995, 1	0.005s	0.005s
Gn 87BD Inrush Action *Selects whether the biased differential characteristic is inhibited from operating when magnetising inrush is detected*	Off, Inhibit	Off	Off
Gn 87BD Overfluxing Action *Selects whether the biased differential characteristic is inhibited from operating when overfluxing is detected*	Off, Inhibit	Off	Off

4.2 87HS

Description	Range	Default	Setting
Gn 87HS Element *Selects whether the differential Highset element is enabled. Note this element is never blocked by magnetising inrush*	Disabled, Enabled	Disabled	Disabled
Gn 87HS Setting *the differential setting pickup setting*	1, 2 ... 29, 30	20xIn	20xIn
Gn 87HS Delay *the operation of the differential may be delayed to cater for special system conditions e.g. for use on cable circuits a delay of 5ms is recommended*	0, 0.005 ... 0.995, 1	0.005s	0.005s
Gn 87HS Inrush Action *Selects whether the biased differential high set characteristic is inhibited from operating when magnetising inrush is detected*	Off, Inhibit	Off	Off
Gn 87HS Overfluxing Action *Selects whether the biased differential high set characteristic is inhibited from operating when overfluxing is detected*	Off, Inhibit	Off	Off

5 CURRENT PROT'N

5.1 PHASE OVERCURRENT

Description	Range	Default	Setting
Gn 51/50 Measurement *Selects whether the RMS value used by the 51 & 50 elements is True RMS or only calculated at fundamental frequency*	RMS, Fundamental	RMS	RMS

5.1.1 51-1

Description	Range	Default	Setting
Gn 51-1 Element *Selects whether the 51-1 IDMTL Overcurrent element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 51-1 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 51-1 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	1xIn	1xIn
Gn 51-1 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 51-1 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 51-1 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s
Gn 51-1 Min Operate Time *Minimum operate time of element.*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51-1 Follower DTL *Additional definite time added after characteristic time*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51-1 Reset *Selects between an ANSI decaying reset characteristic or a definite time reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s
Gn 51-1 Inrush Action *Selects if the 51-1 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

5.1.2 51-2

Description	Range	Default	Setting
Gn 51-2 Element *Selects whether the 51-2 IDMTL Overcurrent element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 51-2 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 51-2 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	1xIn	1xIn
Gn 51-2 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 51-2 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 51-2 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s

Description	Range	Default	Setting
Gn 51-2 Min Operate Time *Minimum operate time of element.*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51-2 Follower DTL *Additional definite time added after characteristic time*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51-2 Reset *Selects between an ANSI decaying reset characteristic or a definite time reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s
Gn 51-2 Inrush Action *Selects if the 51-2 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

5.1.3 50-1

Description	Range	Default	Setting
Gn 50-1 Element *Selects whether the INST/ DTL Overcurrent element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 50-1 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 50-1 Setting *Pickup level*	0.05, 0.06 ... 49.5, 50	20xIn	20xIn
Gn 50-1 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 50-1 Inrush Action *Selects if the 50-1 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

5.1.4 50-2

Description	Range	Default	Setting
Gn 50-2 Element *Selects whether the INST/ DTL Overcurrent element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 50-2 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 50-2 Setting *Pickup level*	0.05, 0.06 ... 49.5, 50	20xIn	20xIn
Gn 50-2 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 50-2 Inrush Action *Selects if the 50-2 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

6 DERIVED E/F

6.1 51N-1

Description	Range	Default	Setting
Gn 51N-1 Element *Selects whether the 51N-1 IDMTL derived Earth Fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 51N-1 Select *Choose which winding the current is measured from*	W1, W2	W1	W1

Description	Range	Default	Setting
Gn 51N-1 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	0.5xIn	0.5xIn
Gn 51N-1 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 51N-1 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 51N-1 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s
Gn 51N-1 Min Operate Time *Minimum operate time of element.*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51N-1 Follower DTL *Additional definite time added after characteristic time*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51N-1 Reset *Selects between an ANSI decaying reset characteristic or a definite time reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s
Gn 51N-1 Inrush Action *Selects if the 51N-1 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

6.2 51N-2

Description	Range	Default	Setting
Gn 51N-2 Element *Selects whether the 51N-2 IDMTL derived Earth Fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 51N-2 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 51N-2 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	0.5xIn	0.5xIn
Gn 51N-2 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 51N-2 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 51N-2 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s
Gn 51N-2 Min Operate Time *Minimum operate time of element.*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51N-2 Follower DTL *Additional definite time added after characteristic time*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51N-2 Reset *Selects between an ANSI decaying reset characteristic or a definite time reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s
Gn 51N-2 Inrush Action *Selects if the 51N-2 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

6.3 50N-1

Description	Range	Default	Setting
Gn 50N-1 Element *Selects whether the DTL derived Earth fault element is enabled*	Disabled, Enabled	Disabled	Disabled

Description	Range	Default	Setting
Gn 50N-1 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 50N-1 Setting *Pickup level*	0.05, 0.06 ... 49.5, 50	0.5xIn	0.5xIn
Gn 50N-1 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 50N-1 Inrush Action *Selects if the 50N-1 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

6.4 50N-2

Description	Range	Default	Setting
Gn 50N-2 Element *Selects whether the DTL derived Earth fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 50N-2 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 50N-2 Setting *Pickup level*	0.05, 0.06 ... 49.5, 50	0.5xIn	0.5xIn
Gn 50N-2 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 50N-2 Inrush Action *Selects if the 50N-2 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

7 MEASURED E/F

Description	Range	Default	Setting
Gn 51G/50G Measurement *Selects whether the RMS value used by the 51G & 50G elements is True RMS or only calculated at fundamental frequency*	RMS, Fundamental	RMS	RMS

7.1 51G-1

Description	Range	Default	Setting
Gn 51G-1 Element *Selects whether the 51G-1 IDMTL measured Earth Fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 51G-1 Select *Choose which winding the current is measured from*	Ig-1, Ig-2	Ig-1	Ig-1
Gn 51G-1 Setting *Pickup level*	0.005, 0.006 ... 0.995, 1	0.5xIn	0.5xIn
Gn 51G-1 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 51G-1 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 51G-1 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s
Gn 51G-1 Min Operate Time *Minimum operate time of element.*	0, 0.01 ... 19.99, 20	0s	0s

Description	Range	Default	Setting
Gn 51G-1 Follower DTL *Additional definite time added after characteristic time*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51G-1 Reset *Selects between an ANSI decaying reset characteristic or DTL reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s
Gn 51G-1 Inrush Action *Selects if the 51G-1 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

7.2 51G-2

Description	Range	Default	Setting
Gn 51G-2 Element *Selects whether the 51G-2 IDMTL measured Earth Fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 51G-2 Select *Choose which winding the current is measured from*	Ig-1, Ig-2	Ig-1	Ig-1
Gn 51G-2 Setting *Pickup level*	0.005, 0.006 ... 0.995, 1	0.5xIn	0.5xIn
Gn 51G-2 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 51G-2 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 51G-2 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s
Gn 51G-2 Min Operate Time *Minimum operate time of element.*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51G-2 Follower DTL *Additional definite time added after characteristic time*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51G-2 Reset *Selects between an ANSI decaying reset characteristic or DTL reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s
Gn 51G-2 Inrush Action *Selects if the 51G-2 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

7.3 51G-3

Description	Range	Default	Setting
Gn 51G-3 Element *Selects whether the 51G-3 IDMTL measured Earth Fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 51G-3 Select *Choose which winding the current is measured from*	Ig-1, Ig-2	Ig-1	Ig-1
Gn 51G-3 Setting *Pickup level*	0.005, 0.006 ... 0.995, 1	0.5xIn	0.5xIn
Gn 51G-3 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 51G-3 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 51G-3 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s

Description	Range	Default	Setting
Gn 51G-3 Min Operate Time *Minimum operate time of element.*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51G-3 Follower DTL *Additional definite time added after characteristic time*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51G-3 Reset *Selects between an ANSI decaying reset characteristic or DTL reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s
Gn 51G-3 Inrush Action *Selects if the 51G-3 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

7.4 51G-4

Description	Range	Default	Setting
Gn 51G-4 Element *Selects whether the 51G-4 IDMTL measured Earth Fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 51G-4 Select *Choose which winding the current is measured from*	Ig-1, Ig-2	Ig-1	Ig-1
Gn 51G-4 Setting *Pickup level*	0.005, 0.006 ... 0.995, 1	0.5xIn	0.5xIn
Gn 51G-4 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 51G-4 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 51G-4 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s
Gn 51G-4 Min Operate Time *Minimum operate time of element.*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51G-4 Follower DTL *Additional definite time added after characteristic time*	0, 0.01 ... 19.99, 20	0s	0s
Gn 51G-4 Reset *Selects between an ANSI decaying reset characteristic or DTL reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s
Gn 51G-4 Inrush Action *Selects if the 51G-4 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

7.5 50G-1

Description	Range	Default	Setting
Gn 50G-1 Element *Selects whether the DTL measured Earth fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 50G-1 Select *Choose which winding the current is measured from*	Ig-1, Ig-2	Ig-1	Ig-1
Gn 50G-1 Setting *Pickup level*	0.005, 0.006 ... 24.95, 25	0.5xIn	0.5xIn
Gn 50G-1 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 50G-1 Inrush Action *Selects if the 50G-1 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

7.6 50G-2

Description	Range	Default	Setting
Gn 50G-2 Element *Selects whether the DTL measured Earth fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 50G-2 Select *Choose which winding the current is measured from*	Ig-1, Ig-2	Ig-1	Ig-1
Gn 50G-2 Setting *Pickup level*	0.005, 0.006 ... 24.95, 25	0.5xIn	0.5xIn
Gn 50G-2 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 50G-2 Inrush Action *Selects if the 50G-2 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

8 RESTRICTED E/F

8.1 64H-1

Description	Range	Default	Setting
Gn 64H-1 Element *High impedance restricted earth fault current element*	Disabled, Enabled	Disabled	Disabled
Gn 64H-1 Select *Choose which winding the current is measured from*	Ig-1, Ig-2	Ig-1	Ig-1
Gn 64H-1 Setting *Pickup level*	0.005, 0.006 ... 0.945, 0.95	0.2xIn	0.2xIn
Gn 64H-1 Delay *Sets operate delay time*	0, 0.005 ... 14100, 14400	0s	0s

8.2 64H-2

Description	Range	Default	Setting
Gn 64H-2 Element *High impedance restricted earth fault current element*	Disabled, Enabled	Disabled	Disabled
Gn 64H-2 Select *Choose which winding the current is measured from*	Ig-1, Ig-2	Ig-1	Ig-1
Gn 64H-2 Setting *Pickup level*	0.005, 0.006 ... 0.945, 0.95	0.2xIn	0.2xIn
Gn 64H-2 Delay *Sets operate delay time*	0, 0.005 ... 14100, 14400	0s	0s

9 NPS OVERCURRENT

9.1 46IT-1

Description	Range	Default	Setting
Gn 46IT-1 Element *Selects whether the 46IT IDMTL/DTL negative phase sequence current element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 46IT-1 Select	W1, W2	W1	W1

Description	Range	Default	Setting
Gn 46IT-1 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	0.25xIn	0.25xIn
Gn 46IT-1 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 46IT-1 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 46IT-1 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s
Gn 46IT-1 Reset *Selects between an ANSI decaying reset characteristic or a definite time reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s

9.2 46IT-2

Description	Range	Default	Setting
Gn 46IT-2 Element *Selects whether the 46IT IDMTL/DTL negative phase sequence current element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 46IT-2 Select	W1, W2	W1	W1
Gn 46IT-2 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	0.25xIn	0.25xIn
Gn 46IT-2 Char *Selects characteristic curve to be IEC or ANSI IDMTL or DTL*	DTL, IEC-NI, IEC-VI, IEC-EI, IEC-LTI, ANSI-MI, ANSI-VI, ANSI-EI	IEC-NI	IEC-NI
Gn 46IT-2 Time Mult (IEC/ANSI) *Time multiplier (applicable to IEC and ANSI curves but not DTL selection)*	0.025, 0.05 ... 1.575, 1.6	1	1
Gn 46IT-2 Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s
Gn 46IT-2 Reset *Selects between an ANSI decaying reset characteristic or a definite time reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s

9.3 46DT-1

Description	Range	Default	Setting
Gn 46DT-1 Element *Selects whether the 46DT INST/DTL negative sequence current element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 46DT-1 Select	W1, W2	W1	W1
Gn 46DT-1 Setting *Pickup level*	0.05, 0.06 ... 3.99, 4	0.1xIn	0.1xIn
Gn 46DT-1 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.02s	0.02s

9.4 46DT-2

Description	Range	Default	Setting
Gn 46DT-2 Element *Selects whether the 46DT INST/DTL negative sequence current element is enabled*	Disabled, Enabled	Disabled	Disabled

Description	Range	Default	Setting
Gn 46DT-2 Select	W1, W2	W1	W1
Gn 46DT-2 Setting *Pickup level*	0.05, 0.06 ... 3.99, 4	0.1xIn	0.1xIn
Gn 46DT-2 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.02s	0.02s

10 UNDER CURRENT

10.1 37-1

Description	Range	Default	Setting
Gn 37-1 Element *Phase under current element 37-1*	Disabled, Enabled	Disabled	Disabled
Gn 37-1 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 37-1 Setting *Pickup level*	0.05, 0.1 ... 4.95, 5	0.25xIn	0.25xIn
Gn 37-1 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 37-1 U/I Guarded	No, Yes	No	No
Gn 37-1 U/I Guard Setting	0.05, 0.1 ... 4.95, 5	0.1xIn	0.1xIn

10.2 37-2

Description	Range	Default	Setting
Gn 37-2 Element *Phase under current element 37-2*	Disabled, Enabled	Disabled	Disabled
Gn 37-2 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 37-2 Setting *Pickup level*	0.05, 0.1 ... 4.95, 5	0.25xIn	0.25xIn
Gn 37-2 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 37-2 U/I Guarded	No, Yes	No	No
Gn 37-2 U/I Guard Setting	0.05, 0.1 ... 4.95, 5	0.1xIn	0.1xIn

10.3 37G-1

Description	Range	Default	Setting
Gn 37G-1 Element	Disabled, Enabled	Disabled	Disabled
Gn 37G-1 Select	Ig-1, Ig-2	Ig-1	Ig-1
Gn 37G-1 Setting	0.005, 0.006 ... 4.995, 5	0.2xIn	0.2xIn

Description	Range	Default	Setting
Gn 37G-1 Delay	0, 0.01 ... 14300, 14400	0s	0s

10.4 37G-2

Description	Range	Default	Setting
Gn 37G-2 Element	Disabled, Enabled	Disabled	Disabled
Gn 37G-2 Select	Ig-1, Ig-2	Ig-1	Ig-1
Gn 37G-2 Setting	0.005, 0.006 ... 4.995, 5	0.2xIn	0.2xIn
Gn 37G-2 Delay	0, 0.01 ... 14300, 14400	0s	0s

11 THERMAL

Description	Range	Default	Setting
Gn 49 Thermal Overload *Selects whether the thermal overload protection element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 49 Select *Choose which winding the current is measured from*	W1, W2	W1	W1
Gn 49 Overload Setting *Pickup level*	0.1, 0.11 ... 2.99, 3	1.05xIn	1.05xIn
Gn 49 Time Constant *Thermal time constant*	1, 1.5 ... 999.5, 1000	10m	10m
Gn 49 Capacity Alarm *Selects whether thermal capacity alarm enabled*	Disabled, 50 ... 99, 100	Disabled	Disabled
49 Reset Therm State *Control that allows thermal state to be manually reset*			

12 OPEN CIRCUIT

12.1 46BC-1

Description	Range	Default	Setting
Gn 46BC-1 Element	Disabled, Enabled	Disabled	Disabled
Gn 46BC-1 Select	W1, W2	W1	W1
Gn 46BC-1 Setting	20, 21 ... 99, 100	20%	20%
Gn 46BC-1 Delay	0.03, 0.04 ... 14300, 14400	20s	20s
Gn 46BC-1 U/I Guarded	No, Yes	No	No
Gn 46BC-1 U/I Guard Setting	0.05, 0.1 ... 4.95, 5	0.1xIn	0.1xIn

12.2 46BC-2

Description	Range	Default	Setting
Gn 46BC-2 Element	Disabled, Enabled	Disabled	Disabled
Gn 46BC-2 Select	W1, W2	W1	W1
Gn 46BC-2 Setting	20, 21 ... 99, 100	20%	20%
Gn 46BC-2 Delay	0.03, 0.04 ... 14300, 14400	20s	20s
Gn 46BC-2 U/I Guarded	No, Yes	No	No
Gn 46BC-2 U/I Guard Setting	0.05, 0.1 ... 4.95, 5	0.1xIn	0.1xIn

13 VOLTAGE PROT'N

13.1 U/O VOLTAGE

Description	Range	Default	Setting
Gn 27/59 U/V Guard Setting *Selects voltage level below which the guard element is applied.*	1, 1.5 ... 199.5, 200	5V	5V

13.1.1 27/59-1

Description	Range	Default	Setting
Gn 27/59-1 Element *Selects whether the Under/Over voltage element stage 1 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 27/59-1 Operation *Selects between Undervoltage and Overvoltage pickup for this element*	Under, Over	Over	Over
Gn 27/59-1 Setting *Under or over voltage pickup level*	5, 5.5 ... 199.5, 200	80V	80V
Gn 27/59-1 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	3%	3%
Gn 27/59-1 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.1s	0.1s
Gn 27/59-1 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	No	No

13.1.2 27/59-2

Description	Range	Default	Setting
Gn 27/59-2 Element *Selects whether the Under/Over voltage element stage 2 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 27/59-2 Operation *Selects between Undervoltage and Overvoltage pickup for this element*	Under, Over	Over	Over

Description	Range	Default	Setting
Gn 27/59-2 Setting *Under or over voltage pickup level*	5, 5.5 ... 199.5, 200	80V	80V
Gn 27/59-2 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	3%	3%
Gn 27/59-2 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.1s	0.1s
Gn 27/59-2 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	No	No

13.1.3 27/59-3

Description	Range	Default	Setting
Gn 27/59-3 Element *Selects whether the Under/Over voltage element stage 3 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 27/59-3 Operation *Selects between Undervoltage and Overvoltage pickup for this element*	Under, Over	Under	Under
Gn 27/59-3 Setting *Under or over voltage pickup level*	5, 5.5 ... 199.5, 200	50V	50V
Gn 27/59-3 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	3%	3%
Gn 27/59-3 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.1s	0.1s
Gn 27/59-3 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	Yes	Yes

13.1.4 27/59-4

Description	Range	Default	Setting
Gn 27/59-4 Element *Selects whether the Under/Over voltage element stage 4 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 27/59-4 Operation *Selects between Undervoltage and Overvoltage pickup for this element*	Under, Over	Under	Under
Gn 27/59-4 Setting *Under or over voltage pickup level*	5, 5.5 ... 199.5, 200	50V	50V
Gn 27/59-4 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	3%	3%
Gn 27/59-4 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.1s	0.1s
Gn 27/59-4 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	Yes	Yes

14 NEUTRAL OVERVOLTAGE

14.1 59NIT

Description	Range	Default	Setting
Gn 59NIT Element *Selects whether the inverse time neutral over voltage element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 59NIT Setting *Pickup level*	1, 1.5 ... 99.5, 100	5V	5V
Gn 59NIT Char *Selects characteristic curve to be IDMTL or DTL*	DTL, IDMTL	IDMTL	IDMTL
Gn 59NIT Time Mult (IDMTL) *Time multiplier (applicable to IDMTL curve but not DTL selection)*	0.1, 0.2 ... 139.5, 140	1	1
Gn 59NIT Delay (DTL) *Delay (applicable only when DTL is selected for characteristic)*	0, 0.01 ... 19.99, 20	5s	5s
Gn 59NIT Reset *Selects between an instantaneous reset characteristic or a definite time reset*	(ANSI) Decaying, 0 ... 59, 60	0s	0s

14.2 59NDT

Description	Range	Default	Setting
Gn 59NDT Element *Selects whether the definite time neutral over voltage element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 59NDT Setting *Pickup level*	1, 1.5 ... 99.5, 100	5V	5V
Gn 59NDT Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.01s	0.01s

15 U/O FREQUENCY

Description	Range	Default	Setting
Gn 81 U/V Guard Setting *Selects voltage level below which the guard element is applied.*	5, 5.5 ... 199.5, 200	5V	5V

15.1 81-1

Description	Range	Default	Setting
Gn 81-1 Element *Selects whether the Under/Over frequency element stage 1 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 81-1 Operation *Selects between Underfrequency and Overfrequency pickup for this element*	Under, Over	Under	Under
Gn 81-1 Setting *Under or over frequency pickup level*	40, 40.01 ... 70, 70.01	49.5Hz	49.5Hz
Gn 81-1 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	0.1%	0.1%
Gn 81-1 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	1s	1s

Description	Range	Default	Setting
Gn 81-1 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	Yes	Yes

15.2 81-2

Description	Range	Default	Setting
Gn 81-2 Element *Selects whether the Under/Over frequency element stage 2 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 81-2 Operation *Selects between Underfrequency and Overfrequency pickup for this element*	Under, Over	Under	Under
Gn 81-2 Setting *Under or over frequency pickup level*	40, 40.01 ... 70, 70.01	49Hz	49Hz
Gn 81-2 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	0.1%	0.1%
Gn 81-2 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.8s	0.8s
Gn 81-2 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	Yes	Yes

15.3 81-3

Description	Range	Default	Setting
Gn 81-3 Element *Selects whether the Under/Over frequency element stage 3 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 81-3 Operation *Selects between Underfrequency and Overfrequency pickup for this element*	Under, Over	Under	Under
Gn 81-3 Setting *Under or over frequency pickup level*	40, 40.01 ... 70, 70.01	48Hz	48Hz
Gn 81-3 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	0.1%	0.1%
Gn 81-3 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.6s	0.6s
Gn 81-3 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	Yes	Yes

15.4 81-4

Description	Range	Default	Setting
Gn 81-4 Element *Selects whether the Under/Over frequency element stage 4 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 81-4 Operation *Selects between Underfrequency and Overfrequency pickup for this element*	Under, Over	Under	Under

Description	Range	Default	Setting
Gn 81-4 Setting *Under or over frequency pickup level*	40, 40.01 ... 70, 70.01	47.5Hz	47.5Hz
Gn 81-4 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	0.1%	0.1%
Gn 81-4 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.4s	0.4s
Gn 81-4 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	Yes	Yes

15.5 81-5

Description	Range	Default	Setting
Gn 81-5 Element *Selects whether the Under/Over frequency element stage 5 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 81-5 Operation *Selects between Underfrequency and Overfrequency pickup for this element*	Under, Over	Under	Under
Gn 81-5 Setting *Under or over frequency pickup level*	40, 40.01 ... 70, 70.01	47.5Hz	47.5Hz
Gn 81-5 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	0.1%	0.1%
Gn 81-5 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.4s	0.4s
Gn 81-5 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	Yes	Yes

15.6 81-6

Description	Range	Default	Setting
Gn 81-6 Element *Selects whether the Under/Over frequency element stage 6 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 81-6 Operation *Selects between Underfrequency and Overfrequency pickup for this element*	Under, Over	Under	Under
Gn 81-6 Setting *Under or over frequency pickup level*	40, 40.01 ... 70, 70.01	47.5Hz	47.5Hz
Gn 81-6 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting, 3% on Underlevel picks up below setting and drops off above 103% of setting*	0, 0.1 ... 79.9, 80	0.1%	0.1%
Gn 81-6 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0.4s	0.4s
Gn 81-6 U/V Guarded *Selects whether U/V Guard element can block the operation of this element*	No, Yes	Yes	Yes

16 OVERFLUXING

16.1 24DT-1

Description	Range	Default	Setting
Gn 24DT-1 Element *Overfluxing element 24DT-1*	Disabled, Enabled	Disabled	Disabled
Gn 24DT-1 Setting *Pickup level*	0.1, 0.11 ... 1.99, 2	1.1x	1.1x
Gn 24DT-1 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting*	0, 0.1 ... 79.9, 80	0.1%	0.1%
Gn 24DT-1 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	60s	60s

16.2 24DT-2

Description	Range	Default	Setting
Gn 24DT-2 Element *Overfluxing element 24DT-2*	Disabled, Enabled	Disabled	Disabled
Gn 24DT-2 Setting *Pickup level*	0.1, 0.11 ... 1.99, 2	1.1x	1.1x
Gn 24DT-2 Hysteresis *Sets the pickup to dropoff thresholds e.g. 3% on Overlevel picks up above pickup setting and drops off below 97% of setting*	0, 0.1 ... 79.9, 80	0.1%	0.1%
Gn 24DT-2 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	60s	60s

16.3 24IT

Description	Range	Default	Setting
Gn 24IT Element	Disabled, Enabled	Disabled	Disabled
Gn 24IT Reset *Reset setting*	0s, 1 ... 999, 1000	0s	0s
Gn 24IT X0 PickUp Setting *Sets the V/f curve's first point current pickup*	1, 1.01 ... 1.99, 2	1.1x	1.1x
Gn 24IT Y0 Point Setting *Sets the V/f curve's first point time delay*	0.1, 0.2 ... 19900, 20000	20000s	20000s
Gn 24IT X1 Point Setting *Sets the V/f curve's second point current pickup*	1, 1.01 ... 1.99, 2	1.14x	1.14x
Gn 24IT Y1 Point Setting *Sets the V/f curve's second point time delay*	0.1, 0.2 ... 19900, 20000	1200s	1200s
Gn 24IT X2 Point Setting *Sets the V/f curve's third point current pickup*	1, 1.01 ... 1.99, 2	1.16x	1.16x
Gn 24IT Y2 Point Setting *Sets the V/f curve's third point time delay*	0.1, 0.2 ... 19900, 20000	540s	540s
Gn 24IT X3 Point Setting *Sets the V/f curve's fourth point current pickup*	1, 1.01 ... 1.99, 2	1.21x	1.21x
Gn 24IT Y3 Point Setting *Sets the V/f curve's fourth point time delay*	0.1, 0.2 ... 19900, 20000	240s	240s

Description	Range	Default	Setting
Gn 24IT X4 Point Setting *Sets the V/f curve's fifth point current pickup*	1, 1.01 ... 1.99, 2	1.24x	1.24x
Gn 24IT Y4 Point Setting *Sets the V/f curve's fifth point time delay*	0.1, 0.2 ... 19900, 20000	120s	120s
Gn 24IT X5 Point Setting *Sets the V/f curve's sixth point current pickup*	1, 1.01 ... 1.99, 2	1.28x	1.28x
Gn 24IT Y5 Point Setting *Sets the V/f curve's sixth point time delay*	0.1, 0.2 ... 19900, 20000	60s	60s
Gn 24IT X6 Point Setting *Sets the V/f curve's seventh point current pickup*	1, 1.01 ... 1.99, 2	1.4x	1.4x
Gn 24IT Y6 Point Setting *Sets the V/f curve's seventh point time delay*	0.1, 0.2 ... 19900, 20000	20s	20s

17 SUPERVISION

17.1 INRUSH DETECTOR

Description	Range	Default	Setting
Gn 81HBL2 Element *Selects whether the phase inrush detector 81HBL2 is enabled*	Disabled, Enabled	Enabled	Enabled
Gn 81HBL2 Bias *Selects the bias method used for magnetising inrush. Phase – Segregated, each phase blocks itself. Cross – Blocked, each phase can block the operation of other phases. Sum - Of Squares, each phase blocks itself using the square root of the sum of squares of the 2nd harmonic.*	Phase, Cross, Sum	Cross	Cross
Gn 81HBL2 Setting *The magnetising inrush detector operates when the 2nd harmonic current exceeds a set percentage of the fundamental current*	0.1, 0.11 ... 0.49, 0.5	0.2xI	0.2xI

17.2 OVERFLUXING DETECTOR

Description	Range	Default	Setting
Gn 81HBL5 Element *Selects whether the phase overfluxing detector 81HBL5 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 81HBL5 Bias *Selects the bias method used for overfluxing. Phase – Segregated, each phase blocks itself. Cross – Blocked, each phase can block the operation of other phases. Sum - Of Squares, each phase blocks itself using the square root of the sum of squares of the 5th harmonic.*	Phase, Cross, Sum	Cross	Cross
Gn 81HBL5 Setting *The overfluxing detector operates when the 5th harmonic current exceeds a set percentage of the fundamental current*	0.1, 0.11 ... 0.49, 0.5	0.3xI	0.3xI

17.3 CB FAIL

17.3.1 50BF-1

Description	Range	Default	Setting
Gn 50BF-1 Element *Selects whether the Circuit Breaker Fail element is enabled*	Disabled, Enabled	Disabled	Disabled

Description	Range	Default	Setting
Gn 50BF-1 Setting *Breaker Fail Current Pickup level. If the current falls below this level then the CB is deemed to have opened and the element is reset.*	0.05, 0.055 ... 1.995, 2	0.2xIn	0.2xIn
Gn 50BF-1-I4 Select	Off, Ig-1, Ig-2	Off	Off
Gn 50BF-1-I4 Setting	0.005, 0.01 ... 1.995, 2	0.05xIn	0.05xIn
Gn 50BF-1-1 Delay *Delay before Circuit Breaker Fail stage 1 operates*	20, 25 ... 59995, 60000	60ms	60ms
Gn 50BF-1-2 Delay *Delay before Circuit Breaker Fail stage 2 operates*	20, 25 ... 59995, 60000	120ms	120ms

17.3.2 50BF-2

Description	Range	Default	Setting
Gn 50BF-2 Element *Selects whether the Circuit Breaker Fail element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 50BF-2 Setting *Breaker Fail Current Pickup level. If the current falls below this level then the CB is deemed to have opened and the element is reset.*	0.05, 0.055 ... 1.995, 2	0.2xIn	0.2xIn
Gn 50BF-2-I4 Select	Off, Ig-1, Ig-2	Off	Off
Gn 50BF-2-I4 Setting	0.005, 0.01 ... 1.995, 2	0.05xIn	0.05xIn
Gn 50BF-2-1 Delay *Delay before Circuit Breaker Fail stage 1 operates*	20, 25 ... 59995, 60000	60ms	60ms
Gn 50BF-2-2 Delay *Delay before Circuit Breaker Fail stage 2 operates*	20, 25 ... 59995, 60000	120ms	120ms

18 TRIP CCT SUPERVISION

Description	Range	Default	Setting
Gn 74TCS-1 *Selects whether the trip circuit supervision element 74TCS-1 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74TCS-1 Delay *Time delay before trip circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
Gn 74TCS-2 *Selects whether the trip circuit supervision element 74TCS-2 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74TCS-2 Delay *Time delay before trip circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
Gn 74TCS-3 *Selects whether the trip circuit supervision element 74TCS-3 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74TCS-3 Delay *Time delay before trip circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
Gn 74TCS-4 *Selects whether the trip circuit supervision element 74TCS-4 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74TCS-4 Delay *Time delay before trip circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s

Description	Range	Default	Setting
Gn 74TCS-5 *Selects whether the trip circuit supervision element 74TCS-5 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74TCS-5 Delay *Time delay before trip circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
Gn 74TCS-6 *Selects whether the trip circuit supervision element 74TCS-6 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74TCS-6 Delay *Time delay before trip circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s

19 CLOSE CCT SUPERVIS'N

Description	Range	Default	Setting
Gn 74CCS-1 *Selects whether the close circuit supervision element 74CCS-1 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74CCS-1 Delay *Time delay before close circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
Gn 74CCS-2 *Selects whether the close circuit supervision element 74CCS-2 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74CCS-2 Delay *Time delay before close circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
Gn 74CCS-3 *Selects whether the close circuit supervision element 74CCS-3 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74CCS-3 Delay *Time delay before close circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
Gn 74CCS-4 *Selects whether the close circuit supervision element 74CCS-4 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74CCS-4 Delay *Time delay before close circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
Gn 74CCS-5 *Selects whether the close circuit supervision element 74CCS-5 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74CCS-5 Delay *Time delay before close circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
Gn 74CCS-6 *Selects whether the close circuit supervision element 74CCS-6 is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 74CCS-6 Delay *Time delay before close circuit supervision operates*	0, 0.02 ... 59.98, 60	0.4s	0.4s
DEMAND			
Gn Demand Element *Selects whether the Demand Element is enabled*			
Gn Demand Log Time Sync *When set to Enabled the Demand update period is determined by the "Data Log Period", in "DATA STORAGE" menu, in place of "Demand Update Period".*			
Gn Demand Update Period *Determines the Demand calculation update period.*			

20 CONTROL & LOGIC

20.1 CB CONTROL

20.1.1 CB-1

Description	Range	Default	Setting
Gn Close CB1 Delay	0, 0.1 ... 899, 900	0s	0s
Gn Close CB1 Pulse	0, 0.1 ... 899, 900	2s	2s
Gn CB1 Blocked Close Delay	0, 1 ... 599, 600	5s	5s
Gn Open CB1 Delay	0, 0.1 ... 899, 900	10s	10s
Gn Open CB1 Pulse	0, 0.1 ... 899, 900	1s	1s
Gn CB1 Travel Alarm	0.01, 0.02 ... 1.99, 2	1s	1s
Gn CB1 Controls Latched	Latch, Reset	Latch	Latch
Gn CB1 Trip Time Alarm	0, 0.01 ... 99.5, 100	0.2s	0.2s
Gn CB1 Trip Time Adjust	0, 0.005 ... 1.995, 2	0.015s	0.015s

20.1.2 CB-2

Description	Range	Default	Setting
Gn Close CB2 Delay	0, 0.1 ... 899, 900	0s	0s
Gn Close CB2 Pulse	0, 0.1 ... 899, 900	2s	2s
Gn CB2 Blocked Close Delay	0, 1 ... 599, 600	5s	5s
Gn Open CB2 Delay	0, 0.1 ... 899, 900	10s	10s
Gn Open CB2 Pulse	0, 0.1 ... 899, 900	1s	1s
Gn CB2 Travel Alarm	0.01, 0.02 ... 1.99, 2	1s	1s
Gn CB2 Controls Latched	Latch, Reset	Latch	Latch
Gn CB2 Trip Time Alarm	0, 0.01 ... 99.5, 100	0.2s	0.2s
Gn CB2 Trip Time Adjust	0, 0.005 ... 1.995, 2	0.015s	0.015s

21 QUICK LOGIC

Description	Range	Default	Setting

Description	Range	Default	Setting
Quick Logic *Enable or Disable all logic equations*	Disabled, Enabled	Disabled	Disabled
E1 Equation *Enable or Disable logic equation E1*	Disabled, Enabled	Disabled	Disabled
E1 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E1 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E1 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E1 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E1 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E1 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E2 Equation *Enable or Disable logic equation E2*	Disabled, Enabled	Disabled538976288	Disabled538976288
E2 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E2 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E2 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E2 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E2 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E2 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E3 Equation *Enable or Disable logic equation E3*	Disabled, Enabled	Disabled538976288	Disabled538976288

Description	Range	Default	Setting
E3 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E3 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E3 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E3 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E3 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E3 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E4 Equation *Enable or Disable logic equation E4*	Disabled, Enabled	Disabled538976288	Disabled538976288
E4 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E4 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E4 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E4 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E4 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E4 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E5 Equation *Enable or Disable logic equation E5*	Disabled, Enabled	Disabled538976288	Disabled538976288
E5 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		

Description	Range	Default	Setting
E5 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E5 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E5 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E5 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E5 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E6 Equation *Enable or Disable logic equation E6*	Disabled, Enabled	Disabled538976288	Disabled538976288
E6 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E6 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E6 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E6 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E6 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E6 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E7 Equation *Enable or Disable logic equation E7*	Disabled, Enabled	Disabled538976288	Disabled538976288
E7 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E7 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E7 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E7 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288

Description	Range	Default	Setting
E7 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E7 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E8 Equation *Enable or Disable logic equation E8*	Disabled, Enabled	Disabled538976288	Disabled538976288
E8 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E8 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E8 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E8 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E8 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E8 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E9 Equation *Enable or Disable logic equation E9*	Disabled, Enabled	Disabled538976288	Disabled538976288
E9 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E9 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E9 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E9 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E9 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E9 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E10 Equation *Enable or Disable logic equation E10*	Disabled, Enabled	Disabled538976288	Disabled538976288

Description	Range	Default	Setting
E10 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E10 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E10 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E10 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E10 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E10 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E11 Equation *Enable or Disable logic equation E11*	Disabled, Enabled	Disabled538976288	Disabled538976288
E11 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E11 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E11 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E11 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E11 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E11 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E12 Equation *Enable or Disable logic equation E12*	Disabled, Enabled	Disabled538976288	Disabled538976288
E12 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		

Description	Range	Default	Setting
E12 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E12 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E12 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E12 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E12 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E13 Equation *Enable or Disable logic equation E13*	Disabled, Enabled	Disabled538976288	Disabled538976288
E13 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E13 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E13 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E13 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E13 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E13 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E14 Equation *Enable or Disable logic equation E14*	Disabled, Enabled	Disabled538976288	Disabled538976288
E14 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E14 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E14 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E14 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288

Description	Range	Default	Setting
E14 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E14 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E15 Equation *Enable or Disable logic equation E15*	Disabled, Enabled	Disabled538976288	Disabled538976288
E15 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E15 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E15 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E15 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E15 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E15 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E16 Equation *Enable or Disable logic equation E16*	Disabled, Enabled	Disabled538976288	Disabled538976288
E16 *Specify logic equations of the form En = <Operand><Operator><Operand>using the following:0123456789=Digit() = Parenthesis! = NOT operation. = AND operation^ = EXCLUSIVE OR operationE(followed by a digit) = Equation numberF (Followed by a digit) = Function Key numberI(Followed by a digit) = Binary Input numberL(Followed by a digit) = LED numberO(Followed by a digit) = output relay numberV(Followed by a digit) =Virtual Input/Output number.ExamplesMake a function key LED toggle when function key is pressed(requires E1 to drive L11 in output matrix)E1 = F3^L11*	(20 Character String)		
E16 Pickup Delay *Time before equation output operates, after equation satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E16 Dropoff Delay *Time before equation output resets, after equation nolonger satisfied*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288
E16 Counter Target *Select number of times equation must be satisfied before equation output operates*	1, 2 ... 998, 999	1538976288	1538976288
E16 Counter Reset Mode *Select type of counter reset mode*	Off, Multi-shot, Single-shot	Off538976288	Off538976288
E16 Counter Reset Time *Select counter reset time*	0, 0.01 ... 14300, 14400	0s538976288	0s538976288

22 INPUT CONFIG

22.1 INPUT MATRIX

Description	Range	Default	Setting
Inhibit 87BD *Selects which inputs inhibit the 87BD element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 87HS *Selects which inputs inhibit the 87HS element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 51-1 *Selects which inputs inhibit the 51-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 51-2 *Selects which inputs inhibit the 51-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 50-1 *Selects which inputs inhibit the 50-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 50-2 *Selects which inputs inhibit the 50-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 51N-1 *Selects which inputs inhibit the 51N-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 51N-2 *Selects which inputs inhibit the 51N-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 50N-1 *Selects which inputs inhibit the 50N-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 50N-2 *Selects which inputs inhibit the 50N-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 51G-1 *Selects which inputs inhibit the 51G-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 51G-2 *Selects which inputs inhibit the 51G-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 51G-3 *Selects which inputs inhibit the 51G-3 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---

Description	Range	Default	Setting
Inhibit 51G-4 *Selects which inputs inhibit the 51G-4 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 50G-1 *Selects which inputs inhibit the 50G-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 50G-2 *Selects which inputs inhibit the 50G-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 64H-1 *Selects which inputs inhibit the 64H-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 64H-2 *Selects which inputs inhibit the 64H-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 46IT-1 *Selects which inputs inhibit the 46IT-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 46IT-2 *Selects which inputs inhibit the 46IT-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 46DT-1 *Selects which inputs inhibit the 46DT-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 46DT-2 *Selects which inputs inhibit the 46DT-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 37-1 *Selects which inputs inhibit the 37-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 37-2 *Selects which inputs inhibit the 37-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 37G-1	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 37G-2	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---

Description	Range	Default	Setting
Inhibit 27/59-1 *Selects which inputs inhibit the 27/59-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 27/59-2 *Selects which inputs inhibit the 27/59-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 27/59-3 *Selects which inputs inhibit the 27/59-3 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 27/59-4 *Selects which inputs inhibit the 27/59-4 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 59NIT *Selects which inputs inhibit the 59N IDMTL/DTL element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 59NDT *Selects which inputs inhibit the 59N INST/DTL element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 81-1 *Selects which inputs inhibit the 81-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 81-2 *Selects which inputs inhibit the 81-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 81-3 *Selects which inputs inhibit the 81-3 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 81-4 *Selects which inputs inhibit the 81-4 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 81-5 *Selects which inputs inhibit the 81-5 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 81-6 *Selects which inputs inhibit the 81-6 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit 24DT-1 *Selects which inputs inhibit the 24DT-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---

Description	Range	Default	Setting
Inhibit 24DT-2 *Selects which inputs inhibit the 24DT-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 24IT *Selects which inputs inhibit the 24IT element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 49 *Selects which inputs inhibit the 49 thermal element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset 49 *Selects which inputs resets the 49 thermal model element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 46BC-1	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 46BC-2	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Trig CB1 Trip *Selects which inputs will trigger the CB1 Trip contacts*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Trig CB2 Trip *Selects which inputs will trigger the CB2 Trip contacts*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
CB1 Closed	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Inhibit 50BF-1 *Selects which inputs inhibit the 50BF-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
50BF-1 CB Faulty	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
50BF-1 Mech Trip	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
50BF-1 Ext Trip *Selects which inputs can also start the 50BF-1 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---

Description	Range	Default	Setting
CB2 Closed	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Inhibit 50BF-2 *Selects which inputs inhibit the 50BF-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
50BF-2 CB Faulty	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
50BF-2 Mech Trip	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
50BF-2 Ext Trip *Selects which inputs can also start the 50BF-2 element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Close CB1	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Inhibit CB1 Close	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
CB1 Open	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Open CB1	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Inhibit CB1 Open	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Close CB2	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Inhibit CB2 Close	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
CB2 Open	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------

Description	Range	Default	Setting
Open CB2	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Inhibit CB2 Open	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74TCS-1 *Selects which inputs are monitoring trip circuits*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74TCS-2 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74TCS-3 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74TCS-4 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74TCS-5 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74TCS-6 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74CCS-1 *Selects which inputs are monitoring close circuits*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74CCS-2 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74CCS-3 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74CCS-4 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
74CCS-5 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---

Description	Range	Default	Setting
74CCS-6 *As Above*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset CB1 Total Trip *Selects which inputs Reset the CB1 Total Trip count*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset CB1 Delta Trip *Selects which inputs Reset the CB1 Delta Trip count*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset CB2 Total Trip *Selects which inputs Reset the CB2 Total Trip count*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset CB2 Delta Trip *Selects which inputs Reset the CB2 Delta Trip count*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset I^2t CB1Wear *Selects which inputs Reset the I^2t CB1 Wear element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Trigger I^2t CB1Wear *Selects which inputs will cause an external trigger of the I^2t CB1 Wear element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset I^2t CB2Wear *Selects which inputs Reset the I^2t CB2 Wear element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Trigger I^2t CB2Wear *Selects which inputs will cause an external trigger of the I^2t CB2 Wear element*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset CB1 Trip Time	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset CB2 Trip Time	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 1 *Selects which inputs will activate the General Alarm 1 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 2 *Selects which inputs will activate the General Alarm 2 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---

Description	Range	Default	Setting
General Alarm 3 *Selects which inputs will activate the General Alarm 3 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 4 *Selects which inputs will activate the General Alarm 4 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 5 *Selects which inputs will activate the General Alarm 5 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 6 *Selects which inputs will activate the General Alarm 6 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 7 *Selects which inputs will activate the General Alarm 7 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 8 *Selects which inputs will activate the General Alarm 8 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 9 *Selects which inputs will activate the General Alarm 9 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 10 *Selects which inputs will activate the General Alarm 10 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 11 *Selects which inputs will activate the General Alarm 11 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
General Alarm 12 *Selects which inputs will activate the General Alarm 12 text*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Reset Demand *Selects which inputs will rest the Demand elements.*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Out Of Service Mode *Selects which inputs will put the relay into Out Of Service Mode*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Local Mode *Selects which inputs will put the relay into Local Mode*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---

Description	Range	Default	Setting
Remote Mode *Selects which inputs will put the relay into Remote Mode*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Local Or Remote Mode *Selects which inputs will put the relay into Local Or Remote Mode*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
E/F Out *Selects which inputs will switch out the E/F protection elements.*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
E/F In *Selects which inputs will switch in the E/F protection elements.*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Trigger Wave Rec *Selects which inputs can trigger a waveform record*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Trigger Fault Rec *Selects which inputs can trigger a fault record*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Select Group 1 *Switches active setting group to group 1*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Select Group 2 *Switches active setting group to group 2*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Select Group 3 *Switches active setting group to group 3*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Select Group 4 *Switches active setting group to group 4*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Select Group 5 *Switches active setting group to group 5*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Select Group 6 *Switches active setting group to group 6*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---
Select Group 7 *Switches active setting group to group 7*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	--- ---	--- ---

Description	Range	Default	Setting
Select Group 8 *Switches active setting group to group 8*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Clock Sync. *Selects which input is used to synchronise the real time clock*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---
Reset LEDs & O/Ps *Selects which inputs will reset the latched LEDs and binary outputs*	Combination of (BI1, BI2, BI3, BI4, BI5, BI6, BI7, BI8, BI9, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ---	---------- ---

22.2 FUNCTION KEY MATRIX

22.3 BINARY INPUT CONFIG

Description	Range	Default	Setting
Inverted Inputs *Selects which inputs pickup when voltage is removed.*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9)	---------	---------
BI 1 Pickup Delay *Delay on pickup of DC Binary Input 1*	0, 0.005 ... 14300, 14400	0.02s	0.02s
BI 1 Dropoff Delay *Delay on dropoff of DC Binary Input 1*	0, 0.005 ... 14300, 14400	0s	0s
BI 2 Pickup Delay *Delay on pickup of DC Binary Input 2*	0, 0.005 ... 14300, 14400	0.02s	0.02s
BI 2 Dropoff Delay *Delay on dropoff of DC Binary Input 2*	0, 0.005 ... 14300, 14400	0s	0s
BI 3 Pickup Delay *Delay on pickup of DC Binary Input 3*	0, 0.005 ... 14300, 14400	0.02s	0.02s
BI 3 Dropoff Delay *Delay on dropoff of DC Binary Input 3*	0, 0.005 ... 14300, 14400	0s	0s
BI 4 Pickup Delay *Delay on pickup of DC Binary Input 4*	0, 0.005 ... 14300, 14400	0.02s	0.02s
BI 4 Dropoff Delay *Delay on dropoff of DC Binary Input 4*	0, 0.005 ... 14300, 14400	0s	0s
BI 5 Pickup Delay *Delay on pickup of DC Binary Input 5*	0, 0.005 ... 14300, 14400	0.02s	0.02s
BI 5 Dropoff Delay *Delay on dropoff of DC Binary Input 5*	0, 0.005 ... 14300, 14400	0s	0s
BI 6 Pickup Delay *Delay on pickup of DC Binary Input 6*	0, 0.005 ... 14300, 14400	0.02s	0.02s
BI 6 Dropoff Delay *Delay on dropoff of DC Binary Input 6*	0, 0.005 ... 14300, 14400	0s	0s
BI 7 Pickup Delay *Delay on pickup of DC Binary Input 7*	0, 0.005 ... 14300, 14400	0.02s	0.02s
BI 7 Dropoff Delay *Delay on dropoff of DC Binary Input 7*	0, 0.005 ... 14300, 14400	0s	0s
BI 8 Pickup Delay *Delay on pickup of DC Binary Input 8*	0, 0.005 ... 14300, 14400	0.02s	0.02s

Description	Range	Default	Setting
BI 8 Dropoff Delay *Delay on dropoff of DC Binary Input 8*	0, 0.005 ... 14300, 14400	0s	0s
BI 9 Pickup Delay *Delay on pickup of DC Binary Input 9*	0, 0.005 ... 14300, 14400	0.02s	0.02s
BI 9 Dropoff Delay *Delay on dropoff of DC Binary Input 9*	0, 0.005 ... 14300, 14400	0s	0s
Enabled In Local *Selects which inputs are enabled when the relay is in Operating Mode 'Local' or 'Local Or Remote'*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9)	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9
Enabled In Remote *Selects which inputs are enabled when the relay is in Operating Mode 'Remote' or 'Local Or Remote'*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9)	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9

22.4 GENERAL ALARMS

Description	Range	Default	Setting
General Alarm-1 *Defines the text to be displayed for General Alarm 1*	(16 Character String)	ALARM 1	ALARM 1
General Alarm-2 *Defines the text to be displayed for General Alarm 2*	(16 Character String)	ALARM 2	ALARM 2
General Alarm-3 *Defines the text to be displayed for General Alarm 3*	(16 Character String)	ALARM 3	ALARM 3
General Alarm-4 *Defines the text to be displayed for General Alarm 4*	(16 Character String)	ALARM 4	ALARM 4
General Alarm-5 *Defines the text to be displayed for General Alarm 5*	(16 Character String)	ALARM 5	ALARM 5
General Alarm-6 *Defines the text to be displayed for General Alarm 6*	(16 Character String)	ALARM 6	ALARM 6
General Alarm-7 *Defines the text to be displayed for General Alarm 7*	(16 Character String)	ALARM 7	ALARM 7
General Alarm-8 *Defines the text to be displayed for General Alarm 8*	(16 Character String)	ALARM 8	ALARM 8
General Alarm-9 *Defines the text to be displayed for General Alarm 9*	(16 Character String)	ALARM 9	ALARM 9
General Alarm-10 *Defines the text to be displayed for General Alarm 10*	(16 Character String)	ALARM 10	ALARM 10
General Alarm-11 *Defines the text to be displayed for General Alarm 11*	(16 Character String)	ALARM 11	ALARM 11
General Alarm-12 *Defines the text to be displayed for General Alarm 12*	(16 Character String)	ALARM 12	ALARM 12
REYLOGIC ELEMENT			
Gn SetOutOfServiceTmr PU			
Gn SetOutOfServiceTmr DO			
Gn SetLocalModeTmr PU			
Gn SetLocalModeTmr DO			

Description	Range	Default	Setting
Gn SetRemoteModeTmr PU			
Gn SetRemoteModeTmr DO			
Gn SetLocalOrRemoteModeTmr PU			
Gn SetLocalOrRemoteModeTmr DO			
Gn ControlEFOut PU			
Gn ControlEfOut DO			
Gn ControlEFIn PU			
Gn ControlEFIn DO			
Gn TriggerHold PU			
Gn TriggerHold DO			
Gn TriggerReset DO			

23 OUTPUT CONFIG

23.1 OUTPUT MATRIX

Description	Range	Default	Setting
Protection Healthy *Relays selected are energised whilst relay self-monitoring does NOT detect any hardware or software errors and DC Supply is healthy. A changeover contact or normally closed contact may be used to generate Protection Defective from this output*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	BO1	BO1
81HBL2	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
81HBL5	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
87BD *Biased Differential operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------

Description	Range	Default	Setting
87HS *Differential Highset operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
51-1 *51-1 IDMTL/DTL Overcurrent operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
51-2 *51-2 IDMTL/DTL Overcurrent operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
50-1 *50-1 INST/DTL Overcurrent operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
50-2 *50-2 INST/DTL Overcurrent operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
51N-1 *51N-1 IDMTL/DTL derived Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
51N-2 *51N-2 IDMTL/DTL derived Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
50N-1 *50N-1 INST/DTL derived Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
50N-2 *50N-2 INST/DTL derived Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
51G-1 *51G-1 IDMTL/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
51G-2 *51G-2 IDMTL/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------

Description	Range	Default	Setting
51G-3 *51G-3 IDMTL/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
51G-4 *51G-4 IDMTL/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
50G-1 *50G-1 INST/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
50G-2 *50G-2 INST/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
64H-1 *64H-1 Restricted Earth Fault element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
64H-2 *64H-2 Restricted Earth Fault element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
46IT-1 *46IT-1 NPS Overcurrent element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
46IT-2 *46IT-2 NPS Overcurrent element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
46DT-1 *46IT-1 NPS Overcurrent element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
46DT-2 *46IT-2 NPS Overcurrent element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
37-1 *37-1 Under Current operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------

Description	Range	Default	Setting
37-2 *37-2 Under Current operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
37G-1	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
37G-2	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
27/59-1 *Under/Overvoltage stage 1 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
27/59-2 *Under/Overvoltage stage 2 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
27/59-3 *Under/Overvoltage stage 3 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
27/59-4 *Under/Overvoltage stage 4 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
59NIT *Neutral Overvoltage IDMTL/DTL operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
59NDT *Neutral Overvoltage INST/DTL operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
81-1 *Under/Over frequency stage 1 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
81-2 *Under/Over frequency stage 2 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------

Description	Range	Default	Setting
81-3 *Under/Over frequency stage 3 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
81-4 *Under/Over frequency stage 4 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
81-5 *Under/Over frequency stage 5 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
81-6 *Under/Over frequency stage 6 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
24DT-1 *24DT-1 V/f element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
24DT-2 *24DT-2 V/f element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
24IT *24IT V/f element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
49 Trip *Thermal capacity trip operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
49 Alarm *Thermal capacity alarm operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
46BC-1	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
46BC-2	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------

Description	Range	Default	Setting
Phase A Pickup *Phase A Pickup operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Phase B Pickup *Phase B Pickup operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Phase C Pickup *Phase C Pickup operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Phase N Pickup *Phase N Pickup operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
General Pickup *General Pickup operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Phase A *A phase A element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	L1	L1
Phase B *A phase B element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	L2	L2
Phase C *A phase C element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	L3	L3
Phase N *A phase N element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	L4	L4
50BF-1-1 *Circuit Breaker Fail stage 1 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
50BF-1-2 *Circuit Breaker Fail stage 2 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------

Description	Range	Default	Setting
50BF-2-1 *Circuit Breaker Fail stage 1 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
50BF-2-2 *Circuit Breaker Fail stage 2 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CloseCB1	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB1FailToClose	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB1 DBI Alarm	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB1 Open	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB1 Closed	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
Close CB1 Blocked	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
OpenCB1	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB1FailToOpen	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CloseCB2	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------

Description	Range	Default	Setting
CB2FailToClose	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
CB2 DBI Alarm	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
CB2 Open	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
CB2 Closed	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
Close CB2 Blocked	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
OpenCB2	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
CB2FailToOpen	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
74TCS-1 *Trip Circuit 1 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
74TCS-2 *Trip Circuit 2 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
74TCS-3 *Trip Circuit 3 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
74TCS-4 *Trip Circuit 4 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------

Description	Range	Default	Setting
74TCS-5 *Trip Circuit 5 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
74TCS-6 *Trip Circuit 6 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
74CCS-1 *Close Circuit 1 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
74CCS-2 *Close Circuit 2 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
74CCS-3 *Close Circuit 3 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
74CCS-4 *Close Circuit 4 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
74CCS-5 *Close Circuit 5 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
74CCS-6 *Close Circuit 6 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB1 Total Trip Count *Total CB1 trip count exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB1 Delta Trip Count *Delta CB1 trip count exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB2 Total Trip Count *Total CB2 trip count exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------

Description	Range	Default	Setting
CB2 Delta Trip Count *Delta CB2 trip count exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
I^2t CB1 Wear *I^2t CB1 Wear limit exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
I^2t CB2 Wear *I^2t CB2 Wear limit exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB1 Trip Time Alarm	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
CB2 Trip Time Alarm	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
Out Of Service Mode *Indicates the relay is in Out Of Service Mode*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
Local Mode *Indicates the relay is in Local Mode*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
Remote Mode *Indicates the relay is in Remote Mode*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
E/F Out *Indicates that the instantaneous protection elements are switched out.*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
New Wave Stored *The waveform recorder has stored new information Note: this is a pulsed output*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
New Fault Stored *The fault recorder has stored new information Note: this is a pulsed output*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------

Description	Range	Default	Setting
BI 1 Operated *DC Binary Input 1 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
BI 2 Operated *DC Binary Input 2 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
BI 3 Operated *DC Binary Input 3 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
BI 4 Operated *DC Binary Input 4 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
BI 5 Operated *DC Binary Input 5 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
BI 6 Operated *DC Binary Input 6 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
BI 7 Operated *DC Binary Input 7 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
BI 8 Operated *DC Binary Input 8 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
BI 9 Operated *DC Binary Input 9 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
E1 *Quick Logic equation 1 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
E2 *Quick Logic equation 2 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------

Description	Range	Default	Setting
E3 *Quick Logic equation 3 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E4 *Quick Logic equation 4 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E5 *Quick Logic equation 5 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E6 *Quick Logic equation 6 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E7 *Quick Logic equation 7 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E8 *Quick Logic equation 8 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E9 *Quick Logic equation 9 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E10 *Quick Logic equation 10 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E11 *Quick Logic equation 11 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E12 *Quick Logic equation 12 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------
E13 *Quick Logic equation 13 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	----------	----------

Description	Range	Default	Setting
E14 *Quick Logic equation 14 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
E15 *Quick Logic equation 15 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------
E16 *Quick Logic equation 16 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6, L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, V1, V2, V3, V4, V5, V6, V7, V8, V9, V10, V11, V12, V13, V14, V15, V16)	---------- ----------	---------- ----------

23.2 BINARY OUTPUT CONFIG

Description	Range	Default	Setting
CB1 Trip Contacts *Selects which outputs drive the trip contacts for CB1*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6)	------	------
CB2 Trip Contacts *Selects which outputs drive the trip contacts for CB2*	Combination of (BO1, BO2, BO3, BO4, BO5, BO6)	------	------
Hand Reset Outputs *Relays selected, as Hand Reset will remain latched until manually reset from front panel or via communications link or by removing DC Supply. By default relays are Self Resetting and will reset when the driving signal is removed.*	Combination of (1, 2, 3, 4, 5, 6)	------	------
Min Operate Time 1 *Minimum operate time of output relay if set to self reset, if also set to be pulsed then this is the pulse width*	0, 0.01 ... 59, 60	0.1s	0.1s
Min Operate Time 2 *Minimum operate time of output relay 2 if set to self reset, if also set to be pulsed then this is the pulse width*	0, 0.01 ... 59, 60	0.1s	0.1s
Min Operate Time 3 *Minimum operate time of output relay 3 if set to self reset, if also set to be pulsed then this is the pulse width*	0, 0.01 ... 59, 60	0.1s	0.1s
Min Operate Time 4 *Minimum operate time of output relay 4 if set to self reset, if also set to be pulsed then this is the pulse width*	0, 0.01 ... 59, 60	0.1s	0.1s
Min Operate Time 5 *Minimum operate time of output relay 5 if set to self reset, if also set to be pulsed then this is the pulse width*	0, 0.01 ... 59, 60	0.1s	0.1s
Min Operate Time 6 *Minimum operate time of output relay 6 if set to self reset, if also set to be pulsed then this is the pulse width*	0, 0.01 ... 59, 60	0.1s	0.1s
Pickup Outputs *Selects which outputs can operate because a pickup condition exists*	Combination of (1, 2, 3, 4, 5, 6)	------	------
Pulsed Outputs *Selects which outputs are pulsed. The pulse width is set by the Min Operate Time setting for each output*	Combination of (1, 2, 3, 4, 5, 6)	------	------

23.3 LED CONFIG

Description	Range	Default	Setting

Description	Range	Default	Setting
Self Reset LEDs *LEDs selected, as Self Reset will automatically reset when the driving signal is removed. By default all LEDs are Hand Reset and must be manually reset either locally via the front fascia or remotely via communications.*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16)	----------	----------
PU Self Reset LEDs *LEDs selected, as Self Reset will automatically reset when the driving signal is removed. By default all PU LEDs are Self Reset.*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
Green LEDs *Selects which LEDs will be green when driven*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16)	----------	----------
Red LEDs *Selects which LEDs will be red when driven*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
PU Green LEDs *Selects which LEDs will be green when driven by a pickup*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
PU Red LEDs *Selects which LEDs will be red when driven by a pickup*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

23.4 PICKUP CONFIG

Description	Range	Default	Setting
Gn P/F Pickups *When any of the selected pickups operate General Pickup is driven.*	Combination of (51-1, 51-2, 50-1, 50-2, 87BD, 87HS)	51-1, 51-2, 50-1, 50-2, 87BD, 87HS	51-1, 51-2, 50-1, 50-2, 87BD, 87HS
Gn E/F Pickups *As Above*	Combination of (51N-1, 51N-2, 50N-1, 50N-2, 51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 64H-1, 64H-2)	51N-1, 51N-2, 50N-1, 50N-2, 51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 64H-1, 64H-2	51N-1, 51N-2, 50N-1, 50N-2, 51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 64H-1, 64H-2
Gn Voltage Pickups *As Above*	Combination of (27/59-1, 27/59-2, 27/59-3, 27/59-4, 59NIT, 59NDT, 24DT-1, 24DT-2, 24IT)	27/59-1, 27/59-2, 27/59-3, 27/59-4, 59NIT, 59NDT, 24DT-1, 24DT-2, 24IT	27/59-1, 27/59-2, 27/59-3, 27/59-4, 59NIT, 59NDT, 24DT-1, 24DT-2, 24IT
Gn Freq Pickups *As Above*	Combination of (81-1, 81-2, 81-3, 81-4, 81-5, 81-6)	81-1, 81-2, 81-3, 81-4, 81-5, 81-6	81-1, 81-2, 81-3, 81-4, 81-5, 81-6
Gn Misc Pickups *As Above*	Combination of (46IT-1, 46IT-2, 46DT-1, 46DT-2, 37-1, 37-2, 37G-1, 37G-2, 46BC-1, 46BC-2)	46IT-1, 46IT-2, 46DT-1, 46DT-2, 37-1, 37-2, 37G-1, 37G-2, 46BC-1, 46BC-2	46IT-1, 46IT-2, 46DT-1, 46DT-2, 37-1, 37-2, 37G-1, 37G-2, 46BC-1, 46BC-2

24 MAINTENANCE

24.1 CB COUNTERS

24.1.1 CB1 COUNTERS

Description	Range	Default	Setting
Gn CB1 Total Trip Count *Selects whether the CB1 Total Trip Count counter is enabled*	Disabled, Enabled	Disabled	Disabled

Description	Range	Default	Setting
Gn CB1 Total Trip Count Target *Selects the number of CB1 trips allowed before CB1 Total Trip Count counter output operates*	0, 1 ... 9999, 10000	100	100
Gn CB1 Total Trip Count Reset *Resets CB1 Total Trip Count counter*			
Gn CB1 Delta Trip Count *Selects whether the CB1 Delta Trip Count counter is enabled*	Disabled, Enabled	Disabled	Disabled
Gn CB1 Delta Trip Count Target *Selects the number of CB1 trips allowed before CB1 Delta Trip Count counter output operates*	0, 1 ... 9999, 10000	100	100
Gn CB1 Delta Trip Count Reset *Resets CB1 Delta Trip Count counter*			

24.1.2 CB2 COUNTERS

Description	Range	Default	Setting
Gn CB2 Total Trip Count *Selects whether the CB2 Total Trip Count counter is enabled*	Disabled, Enabled	Disabled	Disabled
Gn CB2 Total Trip Count Target *Selects the number of CB2 trips allowed before CB2 Total Trip Count counter output operates*	0, 1 ... 9999, 10000	100	100
Gn CB2 Total Trip Count Reset *Resets CB2 Total Trip Count counter*			
Gn CB2 Delta Trip Count *Selects whether the CB2 Delta Trip Count counter is enabled*	Disabled, Enabled	Disabled	Disabled
Gn CB2 Delta Trip Count Target *Selects the number of CB2 trips allowed before CB2 Delta Trip Count counter output operates*	0, 1 ... 9999, 10000	100	100
Gn CB2 Delta Trip Count Reset *Resets CB2 Delta Trip Count counter*			

25 I^2T CB WEAR

25.1 I^2T CB1 WEAR

Description	Range	Default	Setting
Gn CB1 I^2t Counter *Selects whether the I^2t CB1 Wear monitor is enabled*	Disabled, Enabled	Disabled	Disabled
Gn CB1 Alarm Limit *Sets limit before CB1 alarm is issued*	10, 11 ... 99000, 100000	10MA^2s	10MA^2s
Gn CB1 Separation Time *Sets the time for CB1 mechanism to start moving, time before contacts start to separate*	0, 0.001 ... 0.199, 0.2	0.02s	0.02s
Gn CB1 Clearance Time *Time for CB1 to clear fault*	0, 0.001 ... 0.199, 0.2	0.04s	0.04s
CB1 Reset I^2t Count *Reset the CB1 wear count*			

25.2 I^2T CB2 WEAR

Description	Range	Default	Setting
Gn CB2 I^2t Counter *Selects whether the I^2t CB2 Wear monitor is enabled*	Disabled, Enabled	Disabled	Disabled

Description	Range	Default	Setting
Gn CB2 Alarm Limit *Sets limit before CB2 alarm is issued*	10, 11 ... 99000, 100000	10MA^2s	10MA^2s
Gn CB2 Separation Time *Sets the time for CB2 mechanism to start moving, time before contacts start to separate*	0, 0.001 ... 0.199, 0.2	0.02s	0.02s
Gn CB2 Clearance Time *Time for CB2 to clear fault*	0, 0.001 ... 0.199, 0.2	0.04s	0.04s
CB2 Reset I^2t Count *Reset the CB2 wear count*			

26 OUTPUT MATRIX TEST

27 DATA STORAGE

27.1 DEMAND/DATA LOG

Description	Range	Default	Setting
Data Log Period *Selects period between stored samples*	5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60	5min	5min
Clear Data Log *Clear the Data Log*			
Gn Demand Window *The time window over which the Min, Max and Mean values are calculated.*	1, 2 ... 23, 24	24hrs	24hrs
Gn Demand Window Type *Method used to calculate Demand values.*	Fixed, Peak, Rolling	Fixed	Fixed
Gn Demand Reset *Reset all Demand values*			

27.2 WAVEFORM STORAGE

Description	Range	Default	Setting
Gn P/F Trig Storage *Select which elements trigger a waveform record*	Combination of (51-1, 51-2, 50-1, 50-2, 87BD, 87HS)	51-1, 51-2, 50-1, 50-2, 87BD, 87HS	51-1, 51-2, 50-1, 50-2, 87BD, 87HS
Gn E/F Trig Storage *As Above*	Combination of (51N-1, 51N-2, 50N-1, 50N-2, 51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 64H-1, 64H-2)	51N-1, 51N-2, 50N-1, 50N-2, 51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 64H-1, 64H-2	51N-1, 51N-2, 50N-1, 50N-2, 51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 64H-1, 64H-2
Gn Misc Current Storage *As Above*	Combination of (46IT-1, 46IT-2, 46DT-1, 46DT-2, 37-1, 37-2, 37G-1, 37G-2, 49 Trip, 49 Alarm, 46BC-1, 46BC-2)	----------	----------
Gn Voltage Trig Storage *As Above*	Combination of (27/59-1, 27/59-2, 27/59-3, 27/59-4, 59NIT, 59NDT, 24DT-1, 24DT-2, 24IT)	---------	---------
Gn Freq Trig Storage *As Above*	Combination of (81-1, 81-2, 81-3, 81-4, 81-5, 81-6)	------	------
Pre-trigger Storage *Select Percentage of waveform record stored before the fault is triggered*	10, 20, 30, 40, 50, 60, 70, 80, 90	20%	20%
Record Duration *Select waveform record duration*	10 Rec x 1 Sec, 5 Rec x 2 Sec, 2 Rec x 5 Sec, 1 Rec x 10 Sec	10 Rec x 1 Sec	10 Rec x 1 Sec

Description	Range	Default	Setting
Trigger Waveform *Trigger waveform storage*			
Clear Waveforms *Clear all stored waveform records*			

27.3 FAULT STORAGE

Description	Range	Default	Setting
Gn Max Fault Rec Time *Maximum time Fault record information will be stored and classed as same fault*	0, 1 ... 59900, 60000	2000ms	2000ms
Clear Faults *Clear all stored fault records*			

27.4 EVENT STORAGE

Description	Range	Default	Setting
Clear Events *Clear all stored event records*			
Data Log *Selects whether the Data Logger is enabled*			

28 COMMUNICATIONS

Description	Range	Default	Setting
Station Address *IEC 60870-5-103 Station Address*	0, 1 ... 65533, 65534	0	0
COM1-RS485 Protocol *Selects protocol to use for COM1-RS485*	OFF, IEC60870-5-103, MODBUS-RTU	IEC60870-5-103	IEC60870-5-103
COM1-RS485 Baud Rate *Sets the communications baud rate for COM1-RS485*	75, 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400	19200	19200
COM1-RS485 Parity *Selects whether parity information is used*	NONE, ODD, EVEN	EVEN	EVEN
COM1-RS485 Mode	Local, Remote, Local Or Remote	Remote	Remote
COM2-USB Protocol *Selects protocol to use for COM2-USB*			
COM2-USB Mode			
COM3 Protocol *Selects protocol to use for COM3*	OFF, IEC60870-5-103, MODBUS-RTU	IEC60870-5-103	IEC60870-5-103
COM3 Baud Rate *Sets the communications baud rate for COM3*	75, 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200	19200	19200
COM3 Parity *Selects whether parity information is used*	NONE, ODD, EVEN	EVEN	EVEN
COM3 Line Idle *Selects the communications line idle sense*	LIGHT OFF, LIGHT ON	LIGHT OFF	LIGHT OFF
COM3 Data Echo *Enables echoing of data from RX port to TX port when operating relays in a Fibre Optic ring configuration*	OFF, ON	OFF	OFF

Description	Range	Default	Setting
COM3 Mode	Local, Remote, Local Or Remote	Remote	Remote
COM4 Protocol *Selects protocol to use for COM4*	OFF, IEC60870-5-103, MODBUS-RTU	OFF	OFF
COM4 Baud Rate *Sets the communications baud rate for COM4*	75, 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400	19200	19200
COM4 Parity *Selects whether parity information is used*	NONE, ODD, EVEN	EVEN	EVEN
COM4 Line Idle *Selects the communications line idle sense*	LIGHT OFF, LIGHT ON	LIGHT OFF	LIGHT OFF
COM4 Data Echo *Enables echoing of data from RX port to TX port when operating relays in a Fibre Optic ring configuration*	OFF, ON	OFF	OFF
COM4 Mode	Local, Remote, Local Or Remote	Remote	Remote
SWITCH MENU			
REYLOGIC CONTROL			