RELAY	7SR1204-2xA12-xDA0
SOFTWARE	2436H80004R1g-1c#b783
RELAY IDENTIFIER	ARGUS-C 7SR12
INPUTS	3
OUTPUTS	5

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	Enabled
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*			
E/F Curr Set Display *Select whether the Pickup values are shown in terms of x Nominal, Primary or Secondary values on the Relay Fascia*	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
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

Description	Range	Default	Setting
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
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)	ARGUS-C 7SR12	ARGUS-C 7SR12

2 CT/VT CONFIG

Description	Range	Default	Setting
Phase Nom Voltage *Selects the nominal voltage setting Vn of the voltage input*	40, 40.1 ... 159.9, 160	63.5V	63.5V
Phase Voltage Trim Magnitude *Allows trimming of voltage magnitude, the setting value should be the voltage required to be added to get back to Phase Nom Voltage.*	0, 0.1 ... 19.9, 20	0V	0V
Phase 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
Phase Voltage Config *Required to allow for different types of physical VT connections.*	Van,Vbn,Vcn, Vab,Vbc,3V0, Va,Vb,Vc	Van,Vbn,Vcn	Van,Vbn,Vcn
Phase VT Ratio *VT ratio to scale primary voltage instrument*	3300:40, 3300:40.5 ... 500000:159.5, 500000:160	132000:110	132000:110
Earth Current Input *Selects whether 1 or 5 Amp terminals are being used for Measured Earth inputs*	1, 5	1A	1A
Earth CT Ratio *Measured Earth CT ratio to scale primary current instruments*	1:0.2, 1:0.21 ... 5000:6.9, 5000:7	2000:1	2000:1

3 FUNCTION CONFIG

Description	Range	Default	Setting
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 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 Phase U/O Voltage *When set to Disabled, no Phase 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

Description	Range	Default	Setting
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
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 Supervis'n *When set to Disabled, no Close 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 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 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 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).*	Enabled, Disabled	Disabled	Disabled

4 CURRENT PROT'N

4.1 MEASURED E/F

Description	Range	Default	Setting
Gn 67G Char Angle *Maximum torque angle for measured earth fault elements*	-95, -94 ... 94, 95	-15deg	-15deg
Gn 67G Minimum Voltage *Selects the directional elements minimum voltage, below which the element will be inhibited*	0.33, 0.5, 1, 1.5, 2, 2.5, 3	0.33V	0.33V
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

4.1.1 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 Dir. Control *Selects whether 51G-1 element is non-directional, forward or reverse*	Non-Dir, Forward, Reverse	Non-Dir	Non-Dir
Gn 51G-1 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	0.5xIn	0.5xIn

Description	Range	Default	Setting
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
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

4.1.2 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 Dir. Control *Selects whether 51G-2 element is non-directional, forward or reverse*	Non-Dir, Forward, Reverse	Non-Dir	Non-Dir
Gn 51G-2 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	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

4.1.3 51G-3

Description	Range	Default	Setting

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 Dir. Control *Selects whether 51G-3 element is non-directional, forward or reverse*	Non-Dir, Forward, Reverse	Non-Dir	Non-Dir
Gn 51G-3 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	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
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

4.1.4 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 Dir. Control *Selects whether 51G-4 element is non-directional, forward or reverse*	Non-Dir, Forward, Reverse	Non-Dir	Non-Dir
Gn 51G-4 Setting *Pickup level*	0.05, 0.06 ... 2.49, 2.5	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

Description	Range	Default	Setting
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

4.1.5 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 Dir. Control *Selects whether 50G-1 element is non-directional, forward or reverse*	Non-Dir, Forward, Reverse	Non-Dir	Non-Dir
Gn 50G-1 Setting *Pickup level*	0.05, 0.06 ... 49.5, 50	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

4.1.6 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 Dir. Control *Selects whether 50G-2 element is non-directional, forward or reverse*	Non-Dir, Forward, Reverse	Non-Dir	Non-Dir
Gn 50G-2 Setting *Pickup level*	0.05, 0.06 ... 49.5, 50	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

4.1.7 50G-3

Description	Range	Default	Setting
Gn 50G-3 Element *Selects whether the DTL measured Earth fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 50G-3 Dir. Control *Selects whether 50G-3 element is non-directional, forward or reverse*	Non-Dir, Forward, Reverse	Non-Dir	Non-Dir
Gn 50G-3 Setting *Pickup level*	0.05, 0.06 ... 49.5, 50	0.5xIn	0.5xIn

Description	Range	Default	Setting
Gn 50G-3 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 50G-3 Inrush Action *Selects if the 50G-3 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

4.1.8 50G-4

Description	Range	Default	Setting
Gn 50G-4 Element *Selects whether the DTL measured Earth fault element is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 50G-4 Dir. Control *Selects whether 50G-4 element is non-directional, forward or reverse*	Non-Dir, Forward, Reverse	Non-Dir	Non-Dir
Gn 50G-4 Setting *Pickup level*	0.05, 0.06 ... 49.5, 50	0.5xIn	0.5xIn
Gn 50G-4 Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s
Gn 50G-4 Inrush Action *Selects if the 50G-4 element is blocked from operating when 2nd Harmonic Inrush Detector operates*	Off, Inhibit	Off	Off

5 RESTRICTED E/F

Description	Range	Default	Setting
Gn 64H Element *High impedance restricted earth fault current element*	Disabled, Enabled	Disabled	Disabled
Gn 64H Setting *Pickup level*	0.05, 0.055 ... 0.945, 0.95	0.2xIn	0.2xIn
Gn 64H Delay *Sets operate delay time*	0, 0.01 ... 14300, 14400	0s	0s

6 UNDER CURRENT

6.1 37-1

Description	Range	Default	Setting
Gn 37-1 Element *Phase under current element 37-1*	Disabled, Enabled	Disabled	Disabled
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

6.2 37-2

Description	Range	Default	Setting
Gn 37-2 Element *Phase under current element 37-2*	Disabled, Enabled	Disabled	Disabled

Description	Range	Default	Setting
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

7 VOLTAGE PROT'N

7.1 PHASE U/O VOLTAGE

Description	Range	Default	Setting
Gn Voltage Input Mode *Selects Ph-Ph or Ph-N voltages for U/V guard element & 27/59 elements operation.*	Ph-N, Ph-Ph	Ph-N	Ph-N
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

7.1.1 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
Gn 27/59-1 O/P Phases *Selects whether element operates for any phase picked up or only when all phases are picked up*	Any, All	Any	Any

7.1.2 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
Gn 27/59-2 Setting *Under or over voltage pickup level*	5, 5.5 ... 199.5, 200	80V	80V

Description	Range	Default	Setting
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
Gn 27/59-2 O/P Phases *Selects whether element operates for any phase picked up or only when all phases are picked up*	Any, All	Any	Any

7.1.3 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
Gn 27/59-3 O/P Phases *Selects whether element operates for any phase picked up or only when all phases are picked up*	Any, All	Any	Any

7.1.4 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%

Description	Range	Default	Setting
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
Gn 27/59-4 O/P Phases *Selects whether element operates for any phase picked up or only when all phases are picked up*	Any, All	Any	Any

8 NEUTRAL OVERVOLTAGE

8.1 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

8.2 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

9 SUPERVISION

9.1 CB FAIL

9.2 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

Description	Range	Default	Setting
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

9.3 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

9.4 INRUSH DETECTOR

Description	Range	Default	Setting
Gn 81HBL2 Element *Selects whether the phase inrush detector 81HBL2 is enabled*	Disabled, Enabled	Disabled	Disabled
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

9.5 DEMAND

Description	Range	Default	Setting
Gn Demand Element *Selects whether the Demand Element is enabled*	Disabled, Enabled	Disabled	Disabled

Description	Range	Default	Setting
Gn Demand Reset *Reset all Demand values*			
Gn Demand Update Period *Determines the Demand calculation update period.*	1, 2, 3, 4, 5, 10, 15, 30, 45, 60	5mins	5mins
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

10 CONTROL & LOGIC

10.1 AUTORECLOSE PROT'N

Description	Range	Default	Setting
Gn 79 E/F Inst Trips *Selects which earth fault protection elements are classed as Instantaneous elements and start an autoreclose sequence. These will be blocked from operating during Delayed autoreclose sequences. See autoreclose section of manual for detail of what elements can cause only Delayed protection to be used.*	Combination of (51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4)	--------	--------
Gn 79 E/F Delayed Trips *Selects which earth fault protection are classed as Delayed elements, any selected elements operating will start an autoreclose sequence.*	Combination of (51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4)	51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4	51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4
Gn 79 E/F HS Trips *Selects which earth fault elements are classed as High Set elements, any selected elements operating will start an autoreclose sequence.*	Combination of (50G-1, 50G-2, 50G-3, 50G-4)	----	----

10.2 AUTORECLOSE CONFIG

Description	Range	Default	Setting
Gn 79 Autoreclose *If disabled then all attempts to control the AR IN/OUT status will fail and the AR will be permanently Out Of Service. When enabled the AR IN/OUT state may be controlled via the CONTROL MODE menu option, via Binary Input or via local or remote communications.*	Disabled, Enabled	Disabled	Disabled
Gn 79 Num Shots *Selects the number of auto-reclose attempts before the Autorecloser locks out*	1, 2, 3, 4	1	1
Gn 79 Retry Enable *Selects whether the Retry close functionality is enabled*	Disabled, Enabled	Disabled	Disabled
Gn 79 Retry Attempts *Selects the number of retries allowed per shot*	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	1	1
Gn 79 Retry Interval *Time delay between retries*	0, 1 ... 599, 600	60s	60s
Gn 79 Reclose Blocked Delay *Specifies the maximum time that the Autorecloser can be blocked before proceeding to the lockout state. (NOTE: The block delay timer only starts after the Deadtime.)*	0, 1 ... 599, 600	60s	60s

Description	Range	Default	Setting
Gn 79 Sequence Fail Timer *Time before lockout occurs on an incomplete reclose sequence. (i.e Trip & starter conditions have not been cleared after Sequence Fail Time.)*	0, 1 ... 599, 600	60s	60s
Gn 79 Minimum LO Delay *The time after entering lockout before any further external close commands are allowed.*	0, 1 ... 599, 600	2s	2s
Gn 79 Reset LO By Timer *Select whether Lockout is automatically reset after a time delay.*	Disabled, Enabled	Enabled	Enabled
Gn 79 Sequence Co-ord *Selects whether Sequence co-ordination functionality is used or not.*	Disabled, Enabled	Enabled	Enabled

10.2.1 P/F SHOTS

10.2.2 SEF SHOTS

Description	Range	Default	Setting
Gn 79 First Deadtime 1			
Gn 79 First Deadtime 3			
Gn 79 Second Deadtime 1			
Gn 79 Second Deadtime 3			
Gn 79 Third Deadtime 1			
Gn 79 Third Deadtime 3			
Gn 79 Fourth Deadtime 1			
Gn 79 Fourth Deadtime 3			
Gn 79 Cold Load Action *Selects whether whist Cold Load is active the relay will perform only Delayed Trips or not.*			

10.2.3 E/F SHOTS

Description	Range	Default	Setting
Gn 79 E/F Prot'n Trip 1 *Selects whether the first earth fault trip is Instantaneous (Fast) or Delayed. When set to Delayed all E/F Inst Trips will be Inhibited for this shot.*	Inst, Delayed	Inst	Inst
Gn 79 E/F Deadtime 1 *Time period between the fault being cleared and the close pulse being issued*	0, 0.1 ... 14300, 14400	5s	5s

Description	Range	Default	Setting
Gn 79 E/F Prot'n Trip 2 *Selects whether the second earth fault trip is Instantaneous (Fast) or Delayed. When set to Delayed all E/F Inst Trips will be Inhibited for this shot.*	Inst, Delayed	Inst	Inst
Gn 79 E/F Deadtime 2 *Time period between the fault being cleared and the close pulse being issued*	0, 0.1 ... 14300, 14400	5s	5s
Gn 79 E/F Prot'n Trip 3 *Selects whether the third earth fault trip is Instantaneous (Fast) or Delayed. When set to Delayed all E/F Inst Trips will be Inhibited for this shot.*	Inst, Delayed	Delayed	Delayed
Gn 79 E/F Deadtime 3 *Time period between the fault being cleared and the close pulse being issued*	0, 0.1 ... 14300, 14400	5s	5s
Gn 79 E/F Prot'n Trip 4 *Selects whether the fourth earth fault trip is Instantaneous (Fast) or Delayed. When set to Delayed all E/F Inst Trips will be Inhibited for this shot.*	Inst, Delayed	Delayed	Delayed
Gn 79 E/F Deadtime 4 *Time period between the fault being cleared and the close pulse being issued*	0, 0.1 ... 14300, 14400	5s	5s
Gn 79 E/F Prot'n Trip 5 *Selects whether the fifth earth fault trip is Instantaneous (Fast) or Delayed. When set to Delayed all E/F Inst Trips will be Inhibited for this shot.*	Inst, Delayed	Delayed	Delayed
Gn 79 E/F HS Trips To Lockout *Selects how many High Set trips are allowed before going to Lockout*	1, 2, 3, 4, 5	5	5
Gn 79 E/F Delayed Trips To Lockout *Selects how many Delayed trips are allowed before going to Lockout*	1, 2, 3, 4, 5	5	5

10.2.4 EXTERN SHOTS

Description	Range	Default	Setting
Gn 79 Extern Prot'n Trip 1 *Selects whether the first external trip is Instantaneous or Delayed*	Not Blocked, Blocked	Not Blocked	Not Blocked
Gn 79 Extern Deadtime 1 *Time period between the fault being cleared and the close pulse being issued*	0, 0.1 ... 14300, 14400	5s	5s
Gn 79 Extern Prot'n Trip 2 *Selects whether the second external trip is Instantaneous or Delayed*	Not Blocked, Blocked	Not Blocked	Not Blocked
Gn 79 Extern Deadtime 2 *Time period between the fault being cleared and the close pulse being issued*	0, 0.1 ... 14300, 14400	5s	5s
Gn 79 Extern Prot'n Trip 3 *Selects whether the third external trip is Instantaneous or Delayed*	Not Blocked, Blocked	Not Blocked	Not Blocked
Gn 79 Extern Deadtime 3 *Time period between the fault being cleared and the close pulse being issued*	0, 0.1 ... 14300, 14400	5s	5s

Description	Range	Default	Setting
Gn 79 Extern Prot'n Trip 4 *Selects whether the fourth external trip is Instantaneous or Delayed*	Not Blocked, Blocked	Not Blocked	Not Blocked
Gn 79 Extern Deadtime 4 *Time period between the fault being cleared and the close pulse being issued*	0, 0.1 ... 14300, 14400	5s	5s
Gn 79 Extern Prot'n Trip 5 *Selects whether the fifth external trip is Instantaneous or Delayed*	Not Blocked, Blocked	Not Blocked	Not Blocked
Gn 79 Extern Trips To Lockout *Selects how many external trips are allowed before going to Lockout*	1, 2, 3, 4, 5	5	5

11 MANUAL CLOSE

Description	Range	Default	Setting
Gn Line Check Trip *Selects whether line check trip is enabled, if enabled no AR sequence initiated*	Disabled, Enabled	Enabled	Enabled
Gn E/F Line Check Trip *Selects whether an earth fault line check trip is Instantaneous or Delayed. When set to Delayed all E/F Inst Trips will be Inhibited for this shot.*	Inst, Delayed	Inst	Inst
Gn Extern Line Check Trip *Selects whether an external line check trip is Instantaneous (Fast) or Delayed*	Not Blocked, Blocked	Not Blocked	Not Blocked

12 CIRCUIT BREAKER

Description	Range	Default	Setting
Gn Close CB Delay *Delay between a Close CB control being received and the Close CB contacts being operated to allow operator walk away.*	0, 1 ... 59900, 60000	10000ms	10000ms
Gn Close CB Pulse *Specifies the duration of the circuit breaker close pulse*	0, 0.1 ... 19.9, 20	2s	2s
Gn Reclaim Timer *The period of time after a CB has closed and remained closed before the reclosure is deemed to be successful and the AR is re-initialised. If the CB remains open at the end of the reclaim time then the AR goes to lockout.*	0, 1 ... 599, 600	2s	2s
Gn Blocked Close Delay *Selects the maximum time that the manual Close CB may be blocked by interlocking before the command or control is cancelled. The relay will signal "Blocked by Interlocking".*	0, 1 ... 599, 600	5s	5s
Gn Open CB Delay *Delay between an Open CB control being received and the Open CB contacts being operated.*	0, 1 ... 59900, 60000	10000ms	10000ms
Gn Open CB Pulse *Selects the maximum time of the Open CB pulse. If the CB is not closed when this timer expires then an alarm will be raised to signify failure to close.*	0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2	1s	1s
Gn CB Travel Alarm *Selects the maximum time that the CB should take to either Open or Close before a failure is recorded.*	0.01, 0.02 ... 1.99, 2	1s	1s

Description	Range	Default	Setting
Gn Trip Time Alarm *An alarm is issued when the Trip time is exceeded*	0, 0.01 ... 1.99, 2	0.2s	0.2s
Gn Trip Time Adjust *Adjustment to take into account any binary input delays for Trip Time Alarm*	0, 0.005 ... 1.995, 2	0.015s	0.015s
Gn CB Controls Latched *Selects whether Binary Input triggers of Close CB and Open CB are latched.*	Disabled, Enabled	Enabled	Enabled

13 QUICK LOGIC

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

Description	Range	Default	Setting
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
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

Description	Range	Default	Setting
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

14 INPUT CONFIG

14.1 INPUT MATRIX

Description	Range	Default	Setting
Inhibit 51G-1 *Selects which inputs inhibit the 51G-1 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 51G-2 *Selects which inputs inhibit the 51G-2 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 51G-3 *Selects which inputs inhibit the 51G-3 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 51G-4 *Selects which inputs inhibit the 51G-4 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 50G-1 *Selects which inputs inhibit the 50G-1 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 50G-2 *Selects which inputs inhibit the 50G-2 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 50G-3 *Selects which inputs inhibit the 50G-3 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 50G-4 *Selects which inputs inhibit the 50G-4 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 64H *Selects which inputs inhibit the 64H element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 37-1 *Selects which inputs inhibit the 37-1 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 37-2 *Selects which inputs inhibit the 37-2 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 27/59-1 *Selects which inputs inhibit the 27/59-1 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 27/59-2 *Selects which inputs inhibit the 27/59-2 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 27/59-3 *Selects which inputs inhibit the 27/59-3 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 27/59-4 *Selects which inputs inhibit the 27/59-4 element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 59NIT *Selects which inputs inhibit the 59N IDMTL/DTL element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inhibit 59NDT *Selects which inputs inhibit the 59N INST/DTL element*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

Description	Range	Default	Setting
74TCS-1 *Selects which inputs are monitoring trip circuits*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74TCS-2 *As Above*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74TCS-3 *As Above*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74CCS-1 *Selects which inputs are monitoring close circuits*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74CCS-2 *As Above*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74CCS-3 *As Above*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Trig Trip Contacts *Selects which inputs will trigger the Trip contacts*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Reset CB Total Trip *Selects which inputs Reset the CB Total Trip count*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Reset CB Delta Trip *Selects which inputs Reset the CB Delta Trip count*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Reset ARBlock Count *Selects which inputs Reset the AR Block count*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Reset Freq Ops Count *Selects which inputs Reset the Frequent Ops count*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Reset Trip Time *Selects which inputs will reset the CB trip time alarm*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
General Alarm 1 *Selects which inputs will activate the General Alarm 1 text*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
General Alarm 2 *Selects which inputs will activate the General Alarm 2 text*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
General Alarm 3 *Selects which inputs will activate the General Alarm 3 text*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
General Alarm 4 *Selects which inputs will activate the General Alarm 4 text*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
General Alarm 5 *Selects which inputs will activate the General Alarm 5 text*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
General Alarm 6 *Selects which inputs will activate the General Alarm 6 text*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Reset Demand *Selects which inputs will rest the Demand elements.*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Close CB *Selects which inputs will issue a close to the circuit breaker.*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Block Close CB *Selects which inputs will block the manual closing of the circuit breaker.*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Open CB *Selects which inputs will issue an open to the circuit breaker.*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

Description	Range	Default	Setting
CB Closed *Selects which inputs are connected to the circuit breaker closed contacts*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
CB Open *Selects which inputs are connected to the circuit breaker open contacts*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Out *Selects which inputs will switch the Auto-recloser out of service*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 In *Selects which inputs will switch the Auto-recloser in service*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Trip & Reclose *Selects which inputs will trigger a trip & reclose*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Trip & Lockout *Selects which inputs will trigger a trip & lockout*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Ext Trip *Selects which input will start the external an Auto-relose sequence*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Ext Pickup *Selects which input should be connected to the pickup of the external elements required to start an Auto-reclose sequence*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Block Reclose *Selects which inputs will block the Auto-recloser*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Reset Lockout *Selects which inputs will force the Auto-recloser into the Lockout state*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Line Check *Selects which inputs will start the Line Check functionality of the Auto-recloser*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Lockout *Selects which inputs will force the Auto-recloser into the Lockout state*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Hot Line Out *Selects which inputs will switch out Hot Line Working*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Hot Line In *Selects which inputs will switch in Hot Line Working*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inst Prot'n Out *Selects which inputs will switch out the instantaneous protection elements*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inst Prot'n In *Selects which inputs will switch in the instantaneous protection elements*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
E/F Out *Selects which inputs will switch out the E/F protection elements.*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
E/F In *Selects which inputs will switch in the E/F protection elements.*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Trigger Wave Rec *Selects which inputs can trigger a waveform record*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

Description	Range	Default	Setting
Trigger Fault Rec *Selects which inputs can trigger a fault record*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Select Group 1 *Switches active setting group to group 1*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Select Group 2 *Switches active setting group to group 2*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Select Group 3 *Switches active setting group to group 3*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Select Group 4 *Switches active setting group to group 4*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Out Of Service Mode *Selects which inputs will put the relay into Out Of Service Mode*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Local Mode *Selects which inputs will put the relay into Local Mode*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Remote Mode *Selects which inputs will put the relay into Remote Mode*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Local Or Remote Mode *Selects which inputs will put the relay into Local Or Remote Mode*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Clock Sync. *Selects which input is used to synchronise the real time clock*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Reset LEDs & O/Ps *Selects which inputs will reset the latched LEDs and binary outputs*	Combination of (BI1, BI2, BI3, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

14.2 FUNCTION KEY MATRIX

14.3 BINARY INPUT CONFIG

Description	Range	Default	Setting
Inverted Inputs *Selects which inputs pickup when voltage is removed.*	Combination of (1, 2, 3)	---	---
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
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)	1, 2, 3	1, 2, 3

Description	Range	Default	Setting
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)	1, 2, 3	1, 2, 3

14.4 FUNCTION KEY CONFIG

14.5 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
REYLOGIC ELEMENT			
Gn Close CB Delay DO			
Gn CloseCBPulse PU			
Gn CloseCBPulse DO			
Gn InhibitedByInterlockingTimer PU			
Gn InhibitedByInterlockingTimer DO			
Gn Open CB Delay DO			
Gn CB_DBI_Timer PU			
Gn CB_DBI_Timer DO			
Gn CB_Mem_Timer PU			
Gn CB_Mem_Timer DO			
Gn ControlAROut PU			

Description	Range	Default	Setting
Gn ControlAROut DO			
Gn ControlARIn PU			
Gn ControlARIn DO			
Gn TripAndReclose PU			
Gn TripAndReclose DO			
Gn TripAndLockout PU			
Gn TripAndLockout DO			
Gn OpsCounterLOTimer PU			
Gn OpsCounterLOTimer DO			
Gn ClearProtTrip PU			
Gn ClearProtTrip DO			
Gn SuccesCloseThisTime PU			
Gn SuccesCloseThisTime DO			
Gn HotLineOut PU			
Gn HotLineOut DO			
Gn HotLineIn PU			
Gn HotLineIn DO			
Gn InstProtOut PU			
Gn InstProtOut DO			
Gn InstProtIn PU			
Gn InstProtIn DO			
Gn ControlEFOut PU			

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

15 OUTPUT CONFIG

15.1 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, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	BO1	BO1
51G-1 *51G-1 IDMTL/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
51G-2 *51G-2 IDMTL/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

Description	Range	Default	Setting
51G-3 *51G-3 IDMTL/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
51G-4 *51G-4 IDMTL/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
50G-1 *50G-1 INST/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
50G-2 *50G-2 INST/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
50G-3 *50G-3 INST/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
50G-4 *50G-4 INST/DTL measured Earth Fault operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
64H *64H Restricted Earth Fault element operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
37-1 *37-1 Under Current operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
37-2 *37-2 Under Current operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
27/59-1 *Under/Overvoltage stage 1 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
27/59-2 *Under/Overvoltage stage 2 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
27/59-3 *Under/Overvoltage stage 3 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
27/59-4 *Under/Overvoltage stage 4 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
59NIT *Neutral Overvoltage IDMTL/DTL operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
59NDT *Neutral Overvoltage INST/DTL operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

Description	Range	Default	Setting
74TCS-1 *Trip Circuit 1 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74TCS-2 *Trip Circuit 2 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74TCS-3 *Trip Circuit 3 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74CCS-1 *Close Circuit 1 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74CCS-2 *Close Circuit 2 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
74CCS-3 *Close Circuit 3 fail operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
General Pickup *General Pickup operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	L1	L1
CB Total Trip Count *Total CB trip count exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
CB Delta Trip Count *Delta CB trip count exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
CB Count To ARBlock *Count To AR Block CB trip count exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
CB Freq Ops Count *CB Frequent Operations count exceeded*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Trip Time Alarm *Trip Time Alarm operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Forward E/F *The fault is in the forward direction. Note this output is presented EVEN when relay elements are set to be non-directional.*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Reverse E/F *The fault is in the reverse direction. Note this output is presented EVEN when relay elements are set to be non-directional.*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

Description	Range	Default	Setting
Close CB Blocked *Indicates that the Close CB control is blocked by its interlocking logic.*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Open CB *Open pulse due to Manual Open being issued.*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
CB Alarm *Indicates the CB is either in an illegal state or is stuck neither open or closed.*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
CB Closed *Indicates that the circuit breaker is in the closed position.*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
CB Open *Indicates that the circuit breaker is in the open position.*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Manual Close CB *Close pulse due to Manual close being issued*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 AR Close CB *Close pulse due to auto-reclose sequence*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Trip & Reclose *Indicates the Trip & Reclose sequence being performed*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Trip & Lockout *Indicates the Trip & Lockout sequence being performed*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Lockout *Indicates the auto-recloser is in the Lockout state*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Out Of Service *Indicates the auto-recloser is out of service*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 In Service *Indicates the auto-recloser is in service*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 In Progress *Indicates an auto-reclose sequence is in progress*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Block Extern *Indicates that Extern for the current shot has been selected to be delayed. (This may be used to block external tripping elements in the same way as the internal protection elements are blocked to achieve Instantaneous / Delayed operation.)*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

Description	Range	Default	Setting
79 CB Fail To Close *Indicates the CB was not closed at the end of the Close Pulse*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Close Onto Fault *Indicates an element starter or trip operated during the Close Pulse*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
79 Successful AR *Indicates that after a reclose and at the end of the Reclaim time the CB was closed and there were no auto-reclose trip elements operated. (This is issued for 2 secs)*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Successful Man Close *Indicates that after a manual close and at the end of the Reclaim time the CB was closed and there were no auto-reclose trip elements operated. (This is issued for 2 secs)*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Hot Line Working *Indicates that Hot LineWorking functionality has been selected*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Inst Prot'n Out *Indicates that the protection elements selected to be Instantaneous elements are switched out*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
E/F Out *Indicates that the instantaneous protection elements are switched out.*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
New Wave Stored *The waveform recorder has stored new information Note: this is a pulsed output*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
New Fault Stored *The fault recorder has stored new information Note: this is a pulsed output*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Out Of Service Mode *Indicates the relay is in Out Of Service Mode*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Local Mode *Indicates the relay is in Local Mode*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
Remote Mode *Indicates the relay is in Remote Mode*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
BI 1 Operated *DC Binary Input 1 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
BI 2 Operated *DC Binary Input 2 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

Description	Range	Default	Setting
BI 3 Operated *DC Binary Input 3 has operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
E1 *Quick Logic equation 1 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
E2 *Quick Logic equation 2 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
E3 *Quick Logic equation 3 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------
E4 *Quick Logic equation 4 operated*	Combination of (BO1, BO2, BO3, BO4, BO5, L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	----------	----------

15.2 BINARY OUTPUT CONFIG

Description	Range	Default	Setting
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)	-----	-----
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
Pickup Outputs *Selects which outputs can operate because a pickup condition exists*	Combination of (1, 2, 3, 4, 5)	-----	-----
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)	-----	-----

15.3 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)	1	1
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)	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9
Green LEDs *Selects which LEDs will be green when driven*	Combination of (1, 2, 3, 4, 5, 6, 7, 8, 9)	1	1
Red LEDs *Selects which LEDs will be red when driven*	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
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)	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9
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)	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9

15.4 PICKUP CONFIG

Description	Range	Default	Setting
Gn E/F Pickups *When any of the selected pickups operate General Pickup is driven.*	Combination of (51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4)	51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4	51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4
Gn Voltage Pickups *As Above*	Combination of (27/59-1, 27/59-2, 27/59-3, 27/59-4, 59NIT, 59NDT)	27/59-1, 27/59-2, 27/59-3, 27/59-4, 59NIT, 59NDT	27/59-1, 27/59-2, 27/59-3, 27/59-4, 59NIT, 59NDT
Gn Misc Pickups *As Above*	Combination of (37-1, 37-2, 64H)	37-1, 37-2, 64H	37-1, 37-2, 64H

15.5 TRIP CONFIG

Description	Range	Default	Setting
Trip Contacts *The Binary Outputs selected by this setting are classed as Trip contacts. (When any of these BOs operate the Trip LED is lit, CB Fail is started, if enabled, & a Fault Record is stored)*	Combination of (BO1, BO2, BO3, BO4, BO5)	-----	-----
Trip Triggered *The Trip Contacts have been operated*	Combination of (L1, L2, L3, L4, L5, L6, L7, L8, L9, V1, V2, V3, V4, V5, V6, V7, V8)	L2	L2

16 CB MAINTENANCE

16.1 CB COUNTERS

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

Description	Range	Default	Setting
Gn CB Total Trip Count Reset *Resets CB Total Trip Count counter*			
Gn CB Delta Trip Count *Selects whether the CB Delta Trip Count counter is enabled*	Disabled, Enabled	Disabled	Disabled
Gn CB Delta Trip Count Target *Selects the number of CB trips allowed before CB Delta Trip Count counter output operates*	0, 1 ... 9999, 10000	100	100
Gn CB Delta Trip Count Reset *Resets CB Delta Trip Count counter*			
Gn CB Count To AR Block *Selects whether the CB Count To AR Block counter is enabled*	Disabled, Enabled	Disabled	Disabled
Gn CB Count To AR Block Target *Selects the number of CB trips allowed before CB Count To AR Block counter output operates. While count is above target the Autorecloser will only perform 1 x Delayed Shot and Lockout*	0, 1 ... 9999, 10000	100	100
Gn CB Count To AR Block Reset *Resets CB Count To AR Block counter*			
Gn CB Freq Ops Count *Selects whether the CB Frequent Operations Counter is enabled*	Disabled, Enabled	Disabled	Disabled
Gn CB Freq Ops Count Target *Selects the number of CB trips allowed before CB Frequent Operations Counter output operates. While count is above target the Autorecloser will only perform 1 x Delayed Shot and Lockout*	0, 1 ... 9999, 10000	10	10
Gn CB Freq Ops Count Reset *Resets CB Frequent Operations Counter*			

16.2 OUTPUT MATRIX TEST

17 DATA STORAGE

Description	Range	Default	Setting
Gn E/F Trig Storage *Select which elements trigger a waveform record*	Combination of (51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4)	51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4	51G-1, 51G-2, 51G-3, 51G-4, 50G-1, 50G-2, 50G-3, 50G-4
Gn Misc Current Storage *As Above*	Combination of (37-1, 37-2, 64H)	64H	64H
Gn Voltage Trig Storage *As Above*	Combination of (27/59-1, 27/59-2, 27/59-3, 27/59-4, 59NIT, 59NDT)	------	------
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
Trigger Waveform *Trigger waveform storage*			
Clear Waveforms *Clear all stored waveform records*			

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*			
Clear Events *Clear all stored event records*			

18 COMMUNICATIONS

Description	Range	Default	Setting
Station Address *IEC 60870-5-103 Station Address*	0, 1 ... 65533, 65534	0	0
DNP3 Unsolicited Events *Allows unsolicited event support in the relay. When Enabled, unsolicited event transmission can be controlled by the Master. When Disabled, Master requests are ignored.*	Disabled, Enabled	Disabled	Disabled
DNP3 Destination Address *The address of the master to which unsolicited events will be sent.*	0, 1 ... 65533, 65534	0	0
COM1-RS485 Protocol *Selects protocol to use for COM1-RS485*	OFF, IEC60870-5-103, MODBUS-RTU, DNP3	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
COM2-USB Protocol *Selects protocol to use for COM2-USB*			
REYLOGIC CONTROL			
MIMIC SETTINGS			