

7SG18 Solkor N

Numeric Differential Protection

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 |
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Software Revision History

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APPENDIX

Attached are Setting Configuration Sheets, which can be photocopied and used to store a record of a relay's settings and general Notes Pages, for customer use.

| | |
|----------------------------|---|
| GENERAL INFORMATION | |
| Relay Type | : |
| Article Number | : |
| Serial Number | : |
| Date | : |
| Station | : |
| Circuit | : |

The following Setting Menu Tables are for **SETTINGS GROUP G**

| SYSTEM CONFIGURATION MENU | | |
|----------------------------------|----------------------------------|------------------|
| SETTING | RANGE | SET VALUE |
| Active Settings Group | G1-G8 | |
| Power System Frequency | 50 / 60 Hz | |
| Local P/F Rating | 1A, 5A | |
| Local E/F Rating | 1A, 5A | |
| Local P/F CT Ratio | 5 to 10000 : 1 or 5 | |
| Local E/F CT Ratio | 5 to 10000 : 1 or 5 | |
| Remote P/F Rating | 1A, 5A | |
| Remote P/F CT Ratio | 5 to 10000 : 1 or 5 | |
| Current Display | xIn, PRIMARY, SECONDARY | |
| Set Identifier | Up to 16 alphanumeric characters | |
| Set Alarm 1 | Up to 13 alphanumeric characters | |
| Set Alarm 2 | Up to 13 alphanumeric characters | |
| Set Alarm 3 | Up to 13 alphanumeric characters | |
| Set Alarm 4 | Up to 13 alphanumeric characters | |
| Set Alarm 5 | Up to 13 alphanumeric characters | |
| Set Alarm 6 | Up to 13 alphanumeric characters | |
| Set Alarm 7 | Up to 13 alphanumeric characters | |
| Set Alarm 8 | Up to 13 alphanumeric characters | |
| Set Alarm 9 | Up to 13 alphanumeric characters | |
| Calendar – Set Date | DD/MM/YY | |
| Clock - Set Time | HH:MM:SS | |
| Clock Sync. From Status | Seconds or Minutes | |
| Default Screen Timer | 10sec, 60sec, 5min, 1hour | |
| Change Password | 4 alphanumeric characters | |

| DIFF. PROTECTION MENU | | |
|------------------------------|--|------------------|
| SETTING | RANGE | SET VALUE |
| Gn P/F Diff. Setting | 0.10 – 2.50xIn step 0.05xIn | |
| Gn P/F Bias Slope 1 | 20%, 30%, 50%, 70% | |
| Gn P/F Bias Slope 2 | 50%, 100%, 150% | |
| Gn Bias Break Point | 0.50xIn – 20.00xIn step 0.10xIn | |
| Gn Differential Delay | 0.000s – 0.200s step 0.005s 0.210s – 1.000s step 0.010s 1.100s – 10.000s step 0.100s | |
| P/F CT Ratio Correction | 0.50 – 1.00 step 0.01 | |
| Gn Internal Intertrip | ON, OFF | |
| Gn External Intertrip | ON, OFF | |
| Gn Ext Intertrip Delay | 0.000s – 0.200s step 0.005s 0.210s – 1.000s step 0.010s 1.100s – 10.000s step 0.100s | |
| Gn Internal Intertrip | ON, OFF | |

| O/C PROTECTION MENU | | |
|----------------------------|---|------------------|
| SETTING | RANGE | SET VALUE |
| Gn P/F Charact. Setting | 0.10xIn – 2.50xIn step 0.05xIn | |
| Gn P/F Charact. | NI, VI, EI, LTI, DTL | |
| Gn P/F Charact. Time Mult | 0.025 – 1.600 step 0.025 | |
| Gn P/F Charact. Delay | 0.00s – 20.00s step 0.01s | |
| Gn P/F Lowset Setting | OFF, 0.10xIn – 2.50xIn step 0.05xIn 3.0xIn – 52.5xIn step 0.5xIn | |
| Gn P/F Lowset Delay | 0.00s – 20.00s step 0.01s | |
| Gn P/F Highset1 Setting | OFF, 0.10xIn – 2.50xIn step 0.05xIn 3.0xIn – 52.5xIn step 0.5xIn | |
| Gn P/F Highset1 Delay | 0.00s – 20.00s step 0.01s | |
| Gn P/F Highset2 Setting | OFF, 0.10xIn – 2.50xIn step 0.05xIn 3.0xIn – 52.5xIn step 0.5xIn | |
| Gn P/F Highset2 Delay | 0.00s – 20.00s step 0.01s | |
| Gn E/F Charact. Setting | 0.10xIn – 2.50xIn step 0.05xIn | |
| Gn E/F Charact. | NI, VI, EI, LTI, DTL | |
| Gn E/F Charact. Time Mult | 0.025 – 1.600 step 0.025 | |
| Gn E/F Charact. Delay | 0.00s – 20.00s step 0.01s | |
| Gn E/F Lowset Setting | OFF, 0.10xIn – 2.50xIn step 0.05xIn 3.0xIn – 52.5xIn step 0.5xIn | |
| Gn E/F Lowset Delay | 0.00s – 20.00s step 0.01s | |
| Gn E/F Highset1 Setting | OFF, 0.10xIn – 2.50xIn step 0.05xIn 3.0xIn – 52.5xIn step 0.5xIn | |
| Gn E/F Highset1 Delay | 0.00s – 20.00s step 0.01s | |
| Gn E/F Highset2 Setting | OFF, 0.10xIn – 2.50xIn step 0.05xIn 3.0xIn – 52.5xIn step 0.5xIn | |
| Gn E/F Highset2 Delay | 0.00s – 20.00s step 0.01s | |
| Gn CB Fail Time Delay1 | OFF, 0.01s – 20.00s step 0.01s | |
| Gn CB Fail Time Delay2 | OFF, 0.01s – 20.00s step 0.01s | |
| Gn P/F CB Fail Setting | 0.10xIn – 1.00xIn step 0.05xIn | |
| Gn E/F CB Fail Setting | 0.10xIn – 1.00xIn step 0.05xIn | |
| Gn CT Failure Setting | OFF, 0.10xIn – 1.00xIn step 0.05xIn | |
| Gn CT Failure Delay | 0.00s – 20s step 0.01s | |
| Gn Relay Reset Delay | INST, 1s – 60s step 1s | |

| O/P RELAY CONFIG MENU | | |
|--------------------------------|-------------------------|------------------|
| SETTING | RANGE | SET VALUE |
| Gn Prot. Healthy | RL1..RL7 | |
| Gn P/F Diff. | RL1..RL7 | |
| Gn P/F Starter | RL1..RL7, GPF | |
| Gn P/F Charact. | RL1..RL7, GPF | |
| Gn P/F Lowset | RL1..RL7, GPF | |
| Gn P/F Highset1 | RL1..RL7, GPF | |
| Gn P/F Highset2 | RL1..RL7, GPF | |
| Gn E/F Starter | RL1..RL7, GPF | |
| Gn E/F Charact. | RL1..RL7, GPF | |
| Gn E/F Lowset | RL1..RL7, GPF | |
| Gn E/F Highset1 | RL1..RL7, GPF | |
| Gn E/F Highset2 | RL1..RL7, GPF | |
| Gn Remote Int. iTrip | RL1..RL7, GPF | |
| Gn Remote Ext. iTrip1 | RL1..RL7, GPF | |
| Gn Remote Ext. iTrip2 | RL1..RL7, GPF | |
| Gn Status 1 | RL1..RL7, GPF | |
| Gn Status 2 | RL1..RL7, GPF | |
| Gn Status 3 | RL1..RL7, GPF | |
| Gn Status 4 | RL1..RL7, GPF | |
| Gn Status 5 | RL1..RL7, GPF | |
| Gn Status 6 | RL1..RL7, GPF | |
| Gn Status 7 | RL1..RL7, GPF | |
| Gn Status 8 | RL1..RL7, GPF | |
| Gn Status 9 | RL1..RL7, GPF | |
| Gn CB Fail 1 | RL1..RL7, GPF | |
| Gn CB Fail 2 | RL1..RL7, GPF | |
| Gn Counter Alarm | RL1..RL7, GPF | |
| Gn Sum of I ² Alarm | RL1..RL7, GPF | |
| Gn Power on Count. | RL1..RL7 | |
| Gn Signal Dist. | RL1..RL7 | |
| Gn Signal Alarm | RL1..RL7 | |
| Gn Signal Test | RL1..RL7 | |
| Gn Hand Reset | RL1..RL7, GPF | |
| Gn Min O/P Energise Time | 100ms – 500ms step 50ms | |

| STATUS CONFIG MENU | | |
|---------------------------|---|------------------|
| SETTING | RANGE | SET VALUE |
| Settings Group Select | S1..S9 (Note : special setting where each status can be set from 1-8 to select active group 1-8) | |
| Inverted Inputs | S1..S9 | |
| Gn P/F Diff. Inhibit | S1..S9 | |
| Gn P/F Charac. Inhibit | S1..S9, SIG | |
| Gn P/F Lowset Inhibit | S1..S9, SIG | |
| Gn P/F Highset1 Inhibit | S1..S9, SIG | |
| Gn P/F Highset2 Inhibit | S1..S9, SIG | |
| Gn E/F Charac. Inhibit | S1..S9, SIG | |
| Gn E/F Lowset Inhibit | S1..S9, SIG | |
| Gn E/F Highset1 Inhibit | S1..S9, SIG | |
| Gn E/F Highset2 Inhibit | S1..S9, SIG | |

| STATUS CONFIG MENU | | |
|---------------------------------|---|------------------|
| SETTING | RANGE | SET VALUE |
| Gn External iTrip1 | S1..S9 | |
| Gn External iTrip2 | S1..S9 | |
| Gn Receive iTrip Inhibit | S1..S9 | |
| Gn Send iTrip Inhibit | S1..S9 | |
| Gn CB Open | S1..S9 | |
| Gn CB Closed | S1..S9 | |
| Gn Trip Circuit Fail | S1..S9 | |
| Gn Waveform Trigger | S1..S9 | |
| Gn Sum of I ² Update | S1..S9 | |
| Gn Reset Flag and Outputs | S1..S9 | |
| Gn Clock Sync. | S1..S9 | |
| Gn ALARM 1 | S1..S9 | |
| Gn ALARM 2 | S1..S9 | |
| Gn ALARM 3 | S1..S9 | |
| Gn ALARM 4 | S1..S9 | |
| Gn ALARM 5 | S1..S9 | |
| Gn ALARM 6 | S1..S9 | |
| Gn ALARM 7 | S1..S9 | |
| Gn ALARM 8 | S1..S9 | |
| Gn ALARM 9 | S1..S9 | |
| Gn Status 1 P/U Delay | 0 – 2.00 sec step 10ms 2.10 – 20.00 sec step 100ms 21 – 300 sec step 1 sec 360 – 3600 sec step 60 sec 3900 – 14400 sec step 300 sec | |
| Gn Status 1 D/O Delay | As above | |
| Gn Status 2 P/U Delay | As above | |
| Gn Status 2 D/O Delay | As above | |
| Gn Status 3 P/U Delay | As above | |
| Gn Status 3 D/O Delay | As above | |
| Gn Status 4 P/U Delay | As above | |
| Gn Status 4 D/O Delay | As above | |
| Gn Status 5 P/U Delay | As above | |
| Gn Status 5 D/O Delay | As above | |
| Gn Status 6 P/U Delay | As above | |
| Gn Status 6 D/O Delay | As above | |
| Gn Status 7 P/U Delay | As above | |
| Gn Status 7 D/O Delay | As above | |
| Gn Status 8 P/U Delay | As above | |
| Gn Status 8 D/O Delay | As above | |
| Gn Status 9 P/U Delay | As above | |
| Gn Status 9 D/O Delay | As above | |

| PROT. SIGNALLING MENU | | |
|------------------------------|---|------------------|
| SETTING | RANGE | SET VALUE |
| Local Address | 0 – 31 step 1 | |
| Baud Rate | 19200, 38400 | |
| Signalling Delay | 0.000ms – 9.375ms 9.375ms – 18.750ms 18.750ms – 28.125ms 28.125ms – 37.500ms | |
| Signal Alarm Timeout | 1s – 60s step 1s | |
| Signal Test Mode | OFF, LINE TEST, LOOP TEST | |
| Signalling Port | DISABLED, ENABLED | |

| COMMS INTERFACE MENU | | |
|-----------------------------|---|------------------|
| SETTING | RANGE | SET VALUE |
| Comms Baud Rate | 75, 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200 | |
| Comms Parity | NONE, EVEN | |
| Relay Address | 0 – 254 | |
| Line Idle | LIGHT ON, LIGHT OFF | |
| Data Echo | OFF / ON | |

| DATA STORAGE MENU | | |
|--------------------------|--|------------------|
| SETTING | RANGE | SET VALUE |
| Gn Fault Trigger | RL1..RL7 | |
| Gn Waveform Trig | STA, DIF, O/C, iTp, SIG | |
| Gn Waveform Pre-trigger | OFF, 10%-100% step 10% | |
| Demand Window Type | OFF, ROLLING, FIXED | |
| Demand Window | 5-50 mins, step 5 mins 90-300 mins, step 30 mins 360-1440 mins, step 60 mins | |

| CB MAINTENANCE MENU | | |
|----------------------------|---|------------------|
| SETTING | RANGE | SET VALUE |
| Trip Counter Alarm | OFF, 1 – 999 step 1 | |
| Sum I ² Alarm | OFF 10 – 100 step 1MA ² 200 – 20000 step 100MA ² 21000 – 100000 step 1000MA ² | |
| Power on Count Alarm | OFF, 999 | |
| Phase A Reversal | OFF, ON | |
| Phase B Reversal | OFF, ON | |
| Phase C Reversal | OFF, ON | |
| Earth Reversal | OFF, ON | |
| Manual Intertrip | OFF, Internal iTrip, External iTrip, External iTrip2 | |