



CONFIGURATION SUMMARY

SEAR II APPLICATION CN028 (9V737-A01E) PREPARED FOR CANADIAN NATIONAL RAILWAY COMPANY

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VERSION E.1

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The equipment covered in this manual has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

DOCUMENT HISTORY

Version	Release Date	Sections Changed	Details of Change
E	January 2008	1.0	<ul style="list-style-type: none">• Updated Input 17 Label and Normal Logic State in table.• Added Note 4.
		14.4	<ul style="list-style-type: none">• Modified paragraph for TESTSWK operation.
E.1	April 2014	all	Rebrand for Siemens

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1.0 DIGITAL INPUT CONFIGURATION

Input	Usage	Label	Normal Logic State
1	MD/GCP 1	MD/GCP1K / NMD/GCP1K (Note 2)	1
2	Island 1	ISL1K / NISL1K (Note 2)	1
3	GOD	GODK (Note 2)	1
4	Gate Control 1	1GCK (Note 2)	1
5	Gate Up	GPK (Note 2)	1
6	Gate Down 1	1GDK (Note 3)	0 or 1 (Note 1)
7	Gate Down 2	2GDK (Note 3)	0 or 1 (Note 1)
8	Bell/Lights 1	1BELLK (Note 2)	0
9	MD/GCP 2	MD/GCP2K / NMD/GCP2K (Note 2)	1
10	Island 2	ISL2K / NISL2K (Note 2)	1
11	Wrap 1	1WAK (Note 2)	1
12	Wrap 2	2WAK (Note 2)	1
13	Bell/Lights 2	2BELLK (Note 2)	0
14	Gate Down 3	3GDK (Note 3)	0 or 1 (Note 1)
15	Gate Down 4	4GDK (Note 3)	0 or 1 (Note 1)
16	Gate Control 2	2GCK (Note 2)	1
17	Test Switch	TSTUP or TESTSWK (Note 4)	0 or 1 (Note 1)
18	DAX1	DAX1 (Note 2)	1

NOTES:

1. Depending on the design of the circuit.
2. These inputs are automatically detected, see Auto Detection (paragraph 6).
3. GDK1, 2 , 3 & 4 input tags will be assigned by existing Menu questions. If not assigned, these inputs will be open for use by other tags, which can be assigned from the digital configuration menu on the SEAR II.
4. Input 17 will be configured as TSTUP when the Site Setup Menu question "HOW MANY SSCC III UNITS?" is answered with 1 or 2. When configured as TSTUP, input 17 will monitor the Gate Control bypass position of the external test switch.

Input 17 will be configured as TESTSWK when the Site Setup Menu question "HOW MANY SSCC III UNITS?" is answered with 0. When configured as TESTSWK, Note 2 above will apply.

2.0 INDICATOR LED ASSIGNMENTS

LED	Label	Off =	On =
01	CROSSING ACTIVE	MD/GCP1K & MD/GCP2K & XK & ISL1K and ISL2K all up	MD/GCP1K or MD/GCP2K or XK or ISL1K or ISL2K down
02	GATE CONTROL 1	1GCK up	1GCK down
03	GATE 1 DOWN	1GDK off (Gate 1 not down)	1GDK on (Gate 1 down)
04	GATE 2 DOWN	2GDK off (Gate 2 not down)	2GDK on (Gate 2 down)
05	GATE(S) UP	on (gates up)	off (gates not up)
06	BELL CONTROL 1	1BELLK off	1BELLK on
07	WRAP 1	1WAK up	1WAK down
08	DAX	DAX1-4 all up	DAX 1,2 ,3 or 4 down
09	ISLAND OCCUPIED	Island 1 and Island 2 not occupied	Island 1 or Island 2 occupied
10	GATE CONTROL 2	2GCK up	2GCK down
11	GATE 3 DOWN	3GDK off (Gate 3 not down)	3GDK on (Gate 3 down)
12	GATE 4 DOWN	4GDK off (Gate 4 not down)	4GDK on (Gate 4 down)
13	GATE OFF	GOD on	GOD off
14	BELL CONTROL 2	2BELLK off	2BELLK on
15	WRAP 2	2WAK up	2WAK down
16	CONTROLLER FAIL	Controller OK	Controller Fail

NOTES:

1. LEDs 01-16 all OFF in Normal Logic State (no train).
2. All LEDs will be OFF, unless the circuit represented is in the Active state, i.e. if 1GCK is low, gates will drop, LED2 will be ON, then when 1GDK , 2GDK are in the down state, LEDs 3 & 4 will be lit.

3.0 BATTERY INPUT CONFIGURATION

Input	Usage	Label	Normal Range
1	LIGHT BATTERY	XB12 / XN12	Minimum Level - 18 VDC
2	STANDBY BATTERY	B12 / N12	Minimum Level - 18 VDC
3	POR	AC/POR	Power on > 0.5 VDC

NOTES:

1. The Standby Battery may be wired to SEAR II J1-4 (B), J1-3(N).
2. All Battery Tags are subject to Auto Detection. (See Auto Detection, paragraph 6)

4.0 RELAY OUTPUT CONFIGURATION

Output	Usage	Label	Contact Closed	Contact Open	Toggle
1	TROUBLE LIGHT	TRBLE LITE	OFF	ON	FLASH
2	DTMF OUTPUT 1	DTMFOUT1	ACTIVE	INACTIVE	N/U
3	DTMF OUTPUT 2	DTMFOUT2	ACTIVE	INACTIVE	N/U

5.0 ECHELON CONFIGURATION

Slot Number	Usage	Label
1	ILOD	ILOD1
2	ILOD	ILOD2
3	ILOD	ILOD3
4	ILOD	ILOD4
5	GCP	MAIN GCP1
6	GCP	STBY GCP1
7	GCP	MAIN GCP2
8	GCP	STBY GCP2
9	SSCC	SSCC1
10	SSCC	SSCC2
11	VHF Communicator	VHF

NOTE: Node names will be assigned when Menu questions are answered accordingly.

6.0 AUTO DETECTION ANALOG/DIGITAL INPUTS

- Digital input tags and Analog input tags, when configured, must have an active input for 3 seconds to be determined “Detected”. Each tag that is listed in the “Default” or “User-Defined” section of the application must be “Detected” before use in the logic calculations.
- Auto Detection allows these inputs to remain inactive if no wiring is physically attached and is most useful when “USE DEFAULT” is selected for the DIGITAL INPUT NAMES question in Site Setup. Tags that are assigned manually and do not exist in the application lists, are not affected by the auto-detect feature.
- A digital input will be determined active in the application logic if a high voltage is present for more than 3 seconds. A battery input will be determined active in the application logic if a voltage greater than 2.0 volts is present for more than 3 seconds. After a reboot of the SEAR II, the application will re-detect the high inputs after 3 seconds and the input will remain active until the unit is reconfigured or until the next reboot.
- When the SEAR II is first powered up, reconfigured or a reboot occurs, the application will have all wired inputs active after the first crossing activation. i.e. The 1BELLK input is not high until commanded to ring by the crossing controller, therefore, once the crossing activation occurs after a reboot, the 1BELLK input will remain activated.

7.0 SITE SETUP MENU ITEMS

Menu Question	Minimum	Maximum
RESET NAMES/MODULES	YES	NO
AC OFF ALARM TIME (minutes)	1	180
MINIMUM NORMAL WARNING TIME (seconds)	20	94
DESIRED WARNING TIME (seconds)	20	99
IGNORE WARNING TIMES BELOW (seconds)	0	10
PRERING / STNSTOP TIME (minutes)	1	10
SWITCHING MOVE TIMER (minutes)	0	90
HOW MANY GATES?	0	4
<i>IF 'HOW MANY GATES?' > 0</i> GATE 1 DOWN	NOT ENERGIZED	ENERGIZED
<i>IF 'HOW MANY GATES?' > 1</i> GATE 2 DOWN	NOT ENERGIZED	ENERGIZED
<i>IF 'HOW MANY GATES?' > 2</i> GATE 3 DOWN	NOT ENERGIZED	ENERGIZED
<i>IF 'HOW MANY GATES?' > 3</i> GATE 4 DOWN	NOT ENERGIZED	ENERGIZED
HOW MANY GCPS?	0	2
<i>IF 'HOW MANY GCPS?' > 0</i> DOES GCP HAVE A STANDBY	YES	NO
<i>IF 'HOW MANY GCPS?' > 1</i> DOES SECOND GCP HAVE A STANDBY	YES	NO
HOW MANY ILODS?	0	4
<i>If ILOD # > 0</i> MINIMUM FLASHRATE?	35	55
HOW MANY SSCC III UNITS?	0	2
1SSCC TESTSW INPUT?	1	8
<i>If "HOW MANY GATES?" is > 0</i> GATE NOT DOWN ALARM TIME (seconds) (default = 15)	8	30
CROSSING ACTIVE ALARM AFTER (minutes) (default = 20)	20	60
FLASHING TROUBLE LIGHT OUTPUT?	NO	YES
DIGITAL INPUT NAMES?	USE DEFAULT	USER-DEFINED
XB12 LOW VOLTAGE ALARM,(in tenths):	90	150
B12 LOW VOLTAGE ALARM,(in tenths):	90	150
<i>If "DIGITAL INPUT NAMES?" is "USER_DEFINED</i> B14 LOW VOLTAGE ALARM,(in tenths):	90	150
ALLOW DTMF CONTROL	NO	YES
<i>If DTMF CONTROL = YES</i> DIGIT #1: DIGIT #2: DIGIT #3: DIGIT #4: DIGIT #5: VHFC CHANNEL (1-8): DTMF TIME-OUT DTMF OUTPUT 2 DELAY:	0 0 0 0 0 1 30 0	9 9 9 9 9 8 240 20

NOTE: Lines or text in Italics are not shown in the menu questions. These are only to define the conditions under which the line following will be displayed.

8.0 DTMF OPERATION

Activate crossing (station stop track 1)	xxxxx11#
De-activate crossing (station stop track 1)	xxxxx10#
Activate crossing (station stop track 2)	xxxxx21#
De-activate crossing (station stop track 2)	xxxxx20#
Activate crossing (maintenance)	xxxxx31#
De-activate crossing (maintenance)	xxxxx30#

NOTES:

1. xxxxx = Digits as entered during site setup.
2. When a valid code is received, a beep tone will be returned via radio.
3. When a digit is received, a 10 second timer will be started. The digit receive queue will be cleared when the timer expires, or when a valid code is received.
4. DTMF1 Output will be assigned to Relay Output 2 onboard the SEAR II module.
5. DTMF2 Output can be assigned to a Relay Output on an external I/O module, connected via Echelon to the SEAR II.

8.1 ACTIVATION

DTMF1 output contact will be open during the INACTIVE state. When any of the activation codes are detected, DTMF1 will be determined ACTIVE, contact closed.

If DTMF2 exists, its output contact will be open during the INACTIVE state. The DTMF2 output will become ACTIVE, contact closed, after the DTMF OUTPUT 2 DELAY time programmed by the user configuration, 0 to 20 seconds. The timer will be started by DTMF1 becoming active.

8.2 DE-ACTIVATION

If the de-activate code is received while the corresponding activate code is true, both DTMF1 and DTMF2 outputs will be set to INACTIVE.

Island 1 occupancy for more than 5 seconds will cause both DTMF1 and DTMF2 to be set to INACTIVE, only if the Station Stop Track 1 code was received to cause the activation.

Island 2 occupancy for more than 5 seconds will cause both DTMF1 and DTMF2 to be set to INACTIVE, only if the Station Stop Track 2 code was received to cause the activation.

The DTMF TIME-OUT timer, which is programmed by the user configuration (time 30 to 240 seconds) will start whenever any of the 3 activation codes are received. If the timer reaches the preset time, DTMF1 and DTMF2 will both be set to INACTIVE.

If the maintenance activation code causes the activation, then de-activation will occur at the end of the DTMF TIME-OUT timer, or upon receipt of the maintenance de-activation code. An island occupancy will not de-activate a maintenance code activation.

8.3 OTHER NOTES

Upon power-up, or after a reset, the SEAR II will set the DTMF1, and DTMF2 outputs to the INACTIVE state, contact open.

8.4 EVENT LOG MESSAGES

“DTMF STATION TRACK 1 CONTROL RECEIVED”

“DTMF STATION TRACK 2 CONTROL RECEIVED”

“DTMF MAINTENANCE CONTROL RECEIVED”

“DTMF TIME-OUT”

“DTMF STOP CONTROL RECEIVED”

“DTMF STOP DUE TO ISLAND”

9.0 ALARM CONDITIONS

LED	Label	RED	YELLOW
T1	AC POWER	Flashing – AC currently off, more than the user selected time. Steady – AC was off more than user time selected, but has since been restored.	Flashing – AC currently off, for less than user selected time. Steady – AC was off less than user time selected, but has since been restored.
T2	BATTERY	Flashing – One of the battery banks is in alarm for more than 5 seconds Steady – One of the battery banks has been in alarm for more than 5 seconds, but has since been restored	Flashing – One of the battery banks is in alarm for less than 5 seconds Steady – One of the battery banks has been in alarm for less than 5 seconds, but has since been restored
T3	FLASH RATE / LIGHT(S) OUT	Flashing – One or more bulbs was out during a train move, or, one or more iLODs are offline Steady – One of the above conditions had occurred, but has since recovered.	Flashing – The flash rate was not normal for last train move. Steady – Flash rate was in alarm state, but has since cleared.
T4	WARNING TIME	Flashing – Last train move had a warning time less than the Min warning time entered during Site Setup, default is 20 seconds. Steady – Warning time alarm had been set, but last train move had a normal warning time.	Flashing – Last train move had a warning time less than the Desired warning time but more than Min warning time. Steady – Warning time monitor had been set, but last train move had a normal warning time.
T5	CROSSING ACTIVE TOO LONG	Flashing – Xing is active and has been for more than the User setting, default is 20 minutes Steady – Xing was active for more than the User setting, default is 20 minutes, and has since recovered.	
T6	GATE REMAINS DOWN	Flashing – GCK is UP, but one of the Gates has been down for 20+ minutes Steady – Alarm was triggered, but the gate(s) have since recovered.	
T7	GATE NOT DOWN	Flashing – 1 or more gates, took longer than the user defined setting to lower after GCK went down Steady – Alarm was triggered, but the last gate move was ok.	
T8	GATE NOT RECOVERED	Flashing – Gate Off has been detected.	Flashing – 1 or more gates took longer than 20 seconds to raise after GCK went UP, or one or more gates not UP for 30 minutes or more. Steady – Alarm was triggered, but gates have since recovered to pick the GPK.
I16	CONTROLLER FAIL	STEADY – MAINTK input is low OFF –SSCC OK	

- NOTES:**
1. All alarm LEDs can be reset to their current state by pressing the CLEAR ALARM key. If an alarm condition is still valid, the LED will continue to flash.
 2. All steady-colored LEDs will be reset to GREEN STEADY (T1 through T8 only).
 3. Any ALARM (TEST) LEDs not lit are defective or a problem exists with the application program.
 4. GREEN ALARM (TEST) LEDs that are GREEN = No Alarm (T1 through T8 only).

9.1 AC POWER ALARM (T1)

Alarm if POR input has been < 0.5 VDC for AC OFF ALARM TIME (1 to 180 minutes) or more, send in "AC OFF".

An alarm will be sent in each time a train passes the location with POR < 0.5 VDC for AC OFF ALARM TIME (1 to 180 minutes) or more: PWR OFF TRAIN.

Alarm clears if POR input is normal for a minimum of 5 minutes.

Only voltage changes of greater than 0.5 V will be logged in the Standard Event Report.

9.1.1 Alarm Text

(XNG)AC OFF

(XNG)AC ON

With AC OFF (POR input has been < 0.5 VDC for AC OFF ALARM TIME [1 to 180 minutes] or more), send in the following alarm each time a train passes the location:

(XNG)PWR OFF TRAIN

9.1.2 T1 LED

GREEN upon start of the application program.

YELLOW FLASHING if AC power is lost for less than AC OFF ALARM TIME (1 to 180 minutes).

YELLOW STEADY if power lost for less than AC OFF ALARM TIME (1 to 180 minutes) and then restored.

RED FLASHING if AC power is lost for AC OFF ALARM TIME (1 to 180 minutes) or more.

RED STEADY if power is lost for AC OFF ALARM TIME (1 to 180 minutes) or more, and then restored for a minimum of 5 minutes.

NOTE: AC OFF ALARM TIME is set by user during Site Setup

9.1.3 Office Alarm Management System

Call maintainer after AC power has been off for a total of 180 minutes.

The "pwr off train" messages received will only be used for statistic / investigation (not for calling out the supervisor / maintainer).

*** For the initial phase-in period, contact supervisor instead of maintainer.

9.2 BATTERY (B12, XB12, B14) ALARM (T2)

Alarm if the input is outside of the normal range, between a user-defined minimum voltage and 18 VDC, for over 5 seconds. The user-defined minimum voltage will be determined after checking the failure voltage for all equipment at the location. The default value will be 9.0 VDC.

Alarm clears when input returns to within normal limits for 10 seconds.

Only voltage changes of greater than 0.5 V will be logged in the Standard Event Report. However, all voltage readings outside of the normal range, between a user-defined minimum voltage and 18 VDC, will be logged.

9.2.1 Alarm Text

(XNG)B12 LOW: xx.x VDC	xx.x = actual read voltage
(XNG)B12 HIGH: xx.x VDC	xx.x = actual read voltage
(XNG)B12 NORMAL: xx.x VDC	xx.x = actual read voltage
(XNG)XB12 LOW: xx.x VDC	xx.x = actual read voltage
(XNG)XB12 HIGH: xx.x VDC	xx.x = actual read voltage
(XNG)XB12 NORMAL: xx.x VDC	xx.x = actual read voltage
(XNG)B14 LOW: xx.x VDC	xx.x = actual read voltage
(XNG)B14 HIGH: xx.x VDC	xx.x = actual read voltage
(XNG)B14 NORMAL: xx.x VDC	xx.x = actual read voltage

9.2.2 T2 LED

GREEN upon start of application program.

YELLOW FLASHING if battery power moves out of range, but not long enough for an alarm.

YELLOW STEADY if battery power moved out of range, no alarm was generated and is now back in range.

RED FLASHING if battery has been out of range for over 5 seconds.

RED STEADY if power moved out of range, generated an alarm and is now back in range for 10 seconds.

NOTE: The actual battery bank and alarm type (high, low) will be scrolled on the display as part of the normal messages.

9.2.3 Office Alarm Management System

Do not age alarm, call maintainer immediately.

*** For the initial phase-in period, contact supervisor instead of maintainer.

9.3 FLASH RATE / LIGHT(S) OUT (T3)

Alarm if any number of burnt bulbs are detected.

Monitor current flow through lamp circuits and alarm if flash rate is above 65 FPM, or below the Menu Setting of 35 or 55 FPM.

An alarm will be sent in each time a train passes the location for any number of burnt bulbs or abnormal flash rate.

9.3.1 Alarm Text

(XNG)SLOW FLASH: xx FPM xx = actual flash rate

(XNG)FAST FLASH: xx FPM xx = actual flash rate

(XNG)NORMAL FLASH

(XNG)BULB OUT

(XNG)2 BULBS OUT

(XNG)MULTIPLE BULBS OUT

(XNG)NORMAL BULBS

9.3.2 T3 LED

GREEN upon start of application program.

Flasher failure:

YELLOW FLASHING if the flash rate of any lamp during the last activation is above 65 FPM, or below the Menu setting of 35 or 55 FPM.

YELLOW STEADY if the flash rate has returned to normal since the flash rate was last in error.

Bulb failure:

RED FLASHING - if any number of burnt bulb(s) is detected or one or more iLODs is offline. The offline iLOD(s) will be displayed on SEAR II display locally.

RED STEADY - if a burnt bulb condition or iLOD offline condition had occurred, but has since recovered.

9.3.3 Office Alarm Management System

Review train movements in the area (OS Graph); if the alarm was generated during a train movement, do not age alarm, call maintainer immediately; otherwise, log and report to supervisor for possible maintenance issue for next day coverage.

*** For the initial phase-in period, contact supervisor instead of maintainer.

9.4 WARNING TIME (TRACK 1 OR 2) ALARM (T4)

The minimum warning time (MW) will be specified by the user (range = 20 to 94 seconds; default = 20).

The desired warning time (DW) will be specified by the user (range = 20 to 99 seconds; default = 25).

The ignored warning time (IW), below which will be treated as a false alarm, will be specified by the user (range = 0 to 10 seconds; default = 3).

Warning time (WT) is calculated from **CrossingActive** to **IslandDropped**.

Alarm if warning time is less than the specified minimum warning time (MW).

Alarm clears after next train move with normal warning time.

For Warning time Message Alarm:

- If 2 tracks, 1 island: Island 1 will be used for all Warning time messages, no input for Island 2.
- If 1 track, 2 islands: the Warning time messages for track 2 will be disabled. Island 1 will be used for track 1, Island 2 is only an input, not used in warning time calculations.

9.4.1 Alarm Text

ALM – For Warning Time less than the user-specified minimum warning time (MW), but greater than IW. Record the following message in the event log and send to office.

(XNG)WT TKy ALM: xx

IGN – For Warning Time less than the user-specified ignored warning time (IW). Record the following message in the event log only.

(XNG)WT TKy IGN: xx

MON – For Warning Time less than the user-specified desired warning time (DW), but greater than MW. Record the following message in the event log only.

(XNG)WT TKy MON: xx

The above message will be sent to the office for the first good train move after one or more of the WT ALM messages, if the warning time is less than (DW), but greater than (MW).

INFO – For each normal train move, record the following message in the event log if no other train move message is required.

(XNG)WT TKy INFO: xx

The above message will be sent to the office for the first good train move after one or more of the WT alarm messages, if warning time is greater than (DW).

NOTE: where y = track number, xx is Warning time in seconds

The user-specified minimum warning time, desired warning time and ignored warning time will be sent to the office when the application program is restarted.

9.4.2 T4 LED

GREEN upon start of application program.

YELLOW FLASHING if last train by crossing had a warning time less than DW but greater than MW.

YELLOW STEADY if prior train had a warning time less than DW and last train had normal warning time.

RED FLASHING if last train by crossing had a warning time alarm (less than MW).

RED STEADY if prior train had alarm and last train had no alarm.

CrossingActive is calculated by looking at the MD/GCP1K, MD/GCP2K and XK inputs to see if any have dropped. If any of these names are not assigned, they are ignored.

IslandDropped is calculated by either the ISL1K or ISL2K inputs dropping. The first to drop will be recognized. If **CrossingActive** is not TRUE when this flag becomes TRUE, then it is also set to TRUE. If either name is not assigned, it will be ignored.

9.4.3 Office Alarm Management System

Review train movements in the area (OS Graph); if the alarm was generated during a train movement, proceed with the following for the different types of alarms (ALM/IGN/MON); otherwise, log and report to supervisor and responsible engineer for information by email.

ALM – For short warning time (less than the minimum required, MW, but greater than the ignored warning time, IW):

1. Connect to / dial into the location (refer to section 10 on “Dialing into a SEAR II location” for instructions) and obtain the SEAR II Standard Event Report.
2. Check the train speeds recorded associated with the ALM short warning time alarm.

If the alarm does not appear to have been caused by a slow moving train or an accelerating train (see below for explanation), treat as crossing failure critical alarm and restrict crossing.

Slow moving trains: trains with speeds of less than 15MPH were likely switching or doing some work in the area. Log and report to supervisor and responsible engineer for information by email. An example for this type of alarm:

WT ALM TK1: 16 sec, WABASH, 199.50, 289190G, 06/11/03 16:43:22

Investigation revealed that this was caused by Train M3197104 northbound. It appears that Train 319 was switching or doing some work in the area. OS log indicates that it was at M.199.5 from 14:50 to 17:11. The following speeds were logged in the SEAR II Standard Event Report for Train 319 for the short warning time alarm:

Thu 11-06-2003 16:43:22.34 main gcp1: Track 1 Warn Time 16

Thu 11-06-2003 16:43:22.34 main gcp1: Track 1 Det Speed 5

Thu 11-06-2003 16:43:22.34 main gcp1: Track 1 Avg Speed 5

Thu 11-06-2003 16:43:22.34 main gcp1: Track 1 Isl Speed 7

Accelerating trains: the SEAR II crossing monitors have recorded a number of short warning time alarms caused by accelerating passenger trains. Log and report to supervisor and responsible engineer for information by email. An example for this type of alarm:

WT ALM TK1: 19 sec, WABASH, 199.50, 289190G, 07/11/03 05:21:02

Investigation revealed that this was caused by Train P0587106 northbound. This alarm was caused by an accelerating passenger train with the following speeds logged in the SEAR II Standard Event Report:

Fri 11-07-2003 5:21:02.29 main gcp1: Track 1 Warn Time 18

Fri 11-07-2003 5:21:02.29 main gcp1: Track 1 Det Speed 14

Fri 11-07-2003 5:21:02.29 main gcp1: Track 1 Avg Speed 16

Fri 11-07-2003 5:21:02.29 main gcp1: Track 1 Isl Speed 19

IGN – For null warning time (below the time user entered for ignore warning times, IW) – log and investigate train move – determine whether this was caused by a slow-moving train using the OS Graph. Connect to / dial into location and download the Standard Event Report if necessary. Log and report to supervisor and responsible engineer for information by email.

MON – For warning time lower than desired (DW), but greater than the minimum required (MW) – monitor crossing, wait for the next train (indefinitely) and check its warning time, escalate to an alarm (ALM) stage for second occurrence in 24 hours, call supervisor for next day coverage. Log and report to supervisor and responsible engineer for information by email.

9.5 CROSSING ACTIVE TOO LONG (T5)

Alarm if **CrossingActive** TRUE for a user-specified number of minutes (default = 20 minutes).

CrossingActive means either the MD/GCP1K, MD/GCP2K, XR is down or the Island is down.

NOTE: No new T5 alarm will be generated after an "XING ACTIVE xx MIN" alarm has been generated and sent to the office.

Alarm clears when **CrossingActive** becomes FALSE.

9.5.1 Alarm Text

(XNG)XING ACTIVE: xxx MINUTES xxx= user-specified number of minutes.

9.5.2 T5 LED

GREEN upon start of application program.

RED FLASHING if CrossingActive is TRUE for user-specified number of minutes.

RED STEADY if alarm condition occurred and is currently not in alarm.

9.5.3 Office Alarm Management System

Review train movements in the area (OS Graph); if the alarm was generated during a train movement, determine whether the alarm was caused by a slow-moving or stopped train using the OS Graph, connect to / dial into location and download the Standard Event Report if necessary. For slow-moving or stopped trains, log and report to supervisor by email. Otherwise, call maintainer immediately.

*** For the initial phase-in period, contact supervisor instead of maintainer.

9.6 GATE REMAINS DOWN ALARM (T6)

Alarm if GCK is up but 1GDK, 2GDK, 3GDK or 4GDK remains down for 20+ minutes.

Alarm clears when all valid inputs are up.

NOTE: The gate down inputs are mapped to internal flags which account for normally-energized or non-energized inputs at the crossing.

9.6.1 Alarm Text

(XNG)GATE1 DWN 20+ MIN

(XNG)GATE2 DWN 20+ MIN

(XNG)GATE3 DWN 20+ MIN

(XNG)GATE4 DWN 20+ MIN

9.6.2 T6 LED

GREEN upon start of application program.

RED FLASHING if currently in alarm.

RED STEADY if alarm occurred and is presently cleared.

9.6.3 Office Alarm Management System

Review train movements in the area (OS Graph); if the alarm was generated during a train movement, do not age alarm, call maintainer immediately. Otherwise, log and report to supervisor for information by email.

*** For the initial phase-in period, contact supervisor instead of maintainer.

9.7 GATE NOT DOWN ALARM (T7)

Alarm "GATE NOT DOWN IN TIME" if any gate down input remains FALSE for more than a user-defined number of seconds (range: 8 to 30 seconds with 15 seconds as the default) after the gate control has de-energized.

Alarm "ISL DWN, GATE NOT DOWN" if the gate never did come down for a train. This alarm will look for the gate down input = TRUE confirmation after the gate control de-energized and before Island 1 or Island 2 dropped.

Alarm clears when gate down inputs are all TRUE in proper time.

9.7.1 Alarm Text

(XNG)GATE1 NOT DWN IN TIME

(XNG)GATE2 NOT DWN IN TIME

(XNG)GATE3 NOT DWN IN TIME

(XNG)GATE4 NOT DWN IN TIME

(XNG)ISL DWN, GATE NOT DOWN

9.7.2 T7 LED

GREEN upon start of application program.

RED FLASHING if currently in alarm.

RED STEADY if alarm occurred and is presently cleared after proper gate operation.

9.7.3 Office Alarm Management System

(XNG)GATEX NOT DOWN IN TIME: (NOTE: X following GATE = 1, 2, 3 or 4)

Review train movements in the area (OS Graph); if the alarm was generated during a train movement, log as one occurrence. Count occurrences in 24 hours – if there are two occurrences within 24 hours, call maintainer immediately. Otherwise, log and report to supervisor for information by e-mail.

(XNG)ISL DWN GATE NOT DOWN:

Review train movements in the area (OS Graph); if the alarm was generated during a train movement, do not age alarm, call maintainer immediately. Otherwise, log and report to supervisor for information by email.

*** For the initial phase-in period, contact supervisor instead of maintainer.

9.8 GATE NOT RECOVERED ALARM (T8)

Alarm if the gate up input remains low for more than 20 seconds after the gate control has energized.

Alarm if gate up input is low for 30 minutes, with all GCK inputs UP.

Alarm clear when gate up input picks.

Alarm if gate off is detected (by the GOD input). If Gate Off is detected, the return of the GODK input for 10 seconds will cause a message to the office.

9.8.1 Alarm Text

(XNG)GATES NOT RECOVERED

(XNG)GATE OFF DETECTED

(XNG)GATE OFF CORRECTED

(XNG)GATE NOT UP

(XNG)GATE UP CLEAR

9.8.2 T8 LED

GREEN upon start of application program.

YELLOW FLASHING if currently in alarm for gate up input remains low for more than 20 seconds after gate control has energized, or if gate up input remains low for 30 minutes with all GCKs up.

YELLOW STEADY if the yellow flashing alarm occurred and is presently cleared.

RED FLASHING if gate off is detected.

9.8.3 Office Alarm Management System

Review train movements in the area (OS Graph); if the alarm was generated during a train movement, do not age alarm, call maintainer immediately. Otherwise, log and report to supervisor for information by e-mail.

*** For the initial phase-in period, contact supervisor instead of maintainer.

10.0 TRAIN MOVE INFORMATIONAL MESSAGES

The SEAR II application will capture train moves, and activations to determine possible events, such as Pre-Ring, Station Stop, Tail Ring, Possible Switching, False Detection, and Slow Train. The events will be detected using GCP3000 messages when available, and onboard I/O when GCP3000's are not available. Special messages will be used and will supersede the Warning time alarm messages. For information purposes, a full move is a crossing activation, accompanied by island activation.

- The PRERING/ STNSTOP TIME, (Pre/Stn) 1 to 10 minutes will be configured during site setup.

10.1 PRE-RING

Xing activates, then deactivates with no island, then after less than (Pre/Stn) time, activates again with an island drop (Full Move).

Methods of detection:

Using GCP3000 messages: Capture TKx detect EZ, and then if XNG deactivates with no island, capture TKx timeout EZ. If the difference in detect EZ and timeout EZ is greater than 15, and time between deactivation and reactivation is less than (Pre/Stn) time, Pre-ring is determined.

Using digital inputs: Xing activates, then deactivates with no island occupied. Then within (Pre/Stn) time of deactivation, the XNG reactivates, and there is a full move, Pre-Ring is determined.

Report:

(XNG)PrerngTKx WT=yy (x = track number, yy= number of seconds).

Send to the office, and record a message in the event log for each occurrence.

10.2 STATION STOP, OR A STOP AND PROCEED, OR DELAYED APPROACH

Xing activates, then deactivates with no island, then more than (Pre/Stn) minutes later, activates again with an island drop (Full Move).

Methods of detection:

Using GCP3000 messages: Capture TKx detect EZ, and then if XNG deactivates with no island, capture TKx timeout EZ. If the difference in EZ is more than 20, and time between deactivation and reactivation is more than (Pre/Stn) time, but less than 15 min, Station stop is determined.

Using digital inputs: Xing activates, then deactivates with no island occupied. Then after (Pre/Stn) minutes of deactivation, but within 15, the XNG reactivates, and there is a full move, Station Stop is declared.

Report:

(XNG)StnStpTKx WT=yy (x = track number, yy= number of seconds)

Record the message in the event log, and send the message to the office if the Warning time is less than Minimum Warning time as entered during Site Setup. Station Stop with short warning time will bypass the regular warning time process.

10.3 TAIL RING

If a full move is determined, then within 40 seconds, the crossing reactivates and deactivates with no island.

Methods of detection:

Use GCP3000 messages or digital inputs if no GCP3000. No EZ values are captured for this calculation.

Report:

(XNG)TailrngTKx (x = track number)

Record the message in the event log, and also send it to the office.

10.4 FALSE DETECTION

Crossing activates with no island, with no other activation within 30 minutes (GCP3000), or 60 minutes (no GCP3000).

Methods of detection:

Using GCP3000 messages: If crossing activates, capture detect EX, and detect EZ. If crossing de-activates with no island, capture timeout EZ. If detected EX is less than 50 and 30 minutes elapses with no Island occupancy, False Detection is determined. If detected EZ is 85 or more, and timeout EZ is more than detect EZ minus 20 and 30 minutes elapses without island occupancy, False Detection is determined.

Using digital inputs: If crossing activates, then deactivates with no island, and then 60 minutes elapses with no island occupancy, False Detection is determined.

Report:

(XNG)FLSDTCT (when no GCP)
(XNG)FLSDTCT TKx (if GCP exists, x = track number)

Record each occurrence in the event log, and send each occurrence to the office.

10.5 SLOW TRAIN - GCP3000 EQUIPPED LOCATIONS ONLY

When average train speed recorded by GCP3000 for a train move is less than or equal to 15 MPH.

Report:

(XNG)SlwtrnTKxWT=yy sec (x = track number, yy= number of seconds).

NOTES:

1. If Slow Train detected, and warning time is determined to be less than Minimum Warning time entered during Site Setup, then record the above statement in the event log, and send same to the office.
2. When slow train message is sent to the office, the regular warning time process will not occur.

10.6 SWITCHING MOVES (MULTIPLE ACTIVATIONS)

The possible switch moves timer setting in Site Setup must be greater than 0. A setting of 0 disables the timer. If three or more activations are detected within the Switching Moves Timer time (0 to 90) minutes, and any one of the train move conditions listed below has occurred in that time, then "Possible Switching Moves" will be determined. Train move conditions are Pre-Ring, Tail Ring, Station Stop with short Warning time, regular short WT, or Slow Train with short WT.

Report:

(XNG)PSSBLE SWMOVES

Record the message in the event log, and send to office. This message will only occur if any one of the above train move conditions occurs in the time frame, and there are more than 3 activations.

10.7 ALARM MESSAGE NUMBERS

Alarm Message Numbers are assigned to alarm and alarm clear messages when sent to the Safetran WAMS office application. These numbers are not used when alarms are sent via email.

ALARM TEXT	ALARM NUMBER	ALARM CLEAR
(XNG)AC OFF	1	
(XNG)AC ON		101
(XNG)PWR OFF TRAIN	2	
(XNG)B12 HIGH: xx.x VDC	3	
(XNG)B12 LOW: xx.x VDC	4	
(XNG)B12 NORMAL: xx.x VDC		104
(XNG)XB12 HIGH: xx.x VDC	5	
(XNG)XB12 LOW: xx.x VDC	6	
(XNG)XB12 NORMAL: xx.x VDC		106
(XNG)B14 HIGH: xx.x VDC	7	
(XNG)B14 LOW: xx.x VDC	8	
(XNG)B14 NORMAL: xx.x VDC		108
(XNG)WT TK1 ALM: xxx	9	
(XNG)WT TK1 INFO: xxx		109
(XNG)WT TK2 ALM: xxx	10	
(XNG)WT TK2 INFO: xxx		110
(XNG)WT TK3 ALM: xxx	11	
(XNG)WT TK3 INFO: xxx		111
(XNG)WT TK1 IGN: xxx sec	12	
(XNG)WT TK2 IGN: xxx sec	13	
(XNG)WT TK3 IGN: xxx sec	14	
(XNG)WT TK1 MON: xxx	15	
(XNG)WT TK2 MON: xxx	16	
(XNG)WT TK3 MON: xxx	17	
(XNG)XING ACTIVE: xxx min	18	
(XNG)GATE1 DWN 20+ MIN	19	
(XNG)GATE2 DWN 20+ MIN	20	
(XNG)GATE3 DWN 20+ MIN	21	
(XNG)GATE4 DWN 20+ MIN	22	
(XNG)GATE1 NOT DWN IN TIME	23	
(XNG)GATE2 NOT DWN IN TIME	24	
(XNG)GATE3 NOT DWN IN TIME	25	
(XNG)GATE4 NOT DWN IN TIME	26	
(XNG)ISL DWN,GATE NOT DWN	27	
(XNG)GATES NOT RECOVERED	28	
(XNG)BULB OUT	29	

ALARM TEXT	ALARM NUMBER	ALARM CLEAR
(XNG)NORMAL BULBS		129
(XNG)2 BULBS OUT	30	
(XNG)NORMAL BULBS		130
(XNG)MULTIPLE BULBS OUT	31	
(XNG)NORMAL BULBS		131
(XNG)SLOW FLASH: xxx FPM	32	
(XNG)NORMAL FLASH		132
(XNG)FAST FLASH: xxx FPM	33	
(XNG)NORMAL FLASH		133
(XNG)ILOD1 OFFLINE	34	
(XNG)ILOD1 ONLINE		134
(XNG)ILOD2 OFFLINE	35	
(XNG)ILOD2 ONLINE		135
(XNG)ILOD3 OFFLINE	36	
(XNG)ILOD3 ONLINE		136
(XNG)ILOD4 OFFLINE	37	
(XNG)ILOD4 ONLINE		137
(XNG)MAIN1 ERROR xxxx	38	
(XNG) STBY1 ERROR xxxx	39	
(XNG) MAIN2 ERROR xxxx	40	
(XNG) STBY2 ERROR xxxx	41	
(XNG) MAIN1 RESET	42	
(XNG) STBY1 RESET	43	
(XNG) MAIN2 RESET	44	
(XNG) STBY2 RESET	45	
(XNG) MAIN1=ON, STBY1=OFF	46	
(XNG) MAIN1=OFF, STBY1=ON	47	
(XNG) MAIN2=ON, STBY2=OFF	48	
(XNG) MAIN2=OFF, STBY2=ON	49	
(XNG) GCP1 OFFLINE	50	
(XNG) GCP1 ONLINE		150
(XNG) GCP2 OFFLINE	51	
(XNG) GCP2 ONLINE		151
(XNG) NML1&STBY1 OFFLINE	52	
(XNG)NML2&STBY2 OFFLINE	53	
(XNG)GATE OFF DETECTED	54	
(XNG)GATE OFF CORRECTED		154
(XNG)1SSCC OFFLINE to SEAR	56	
(XNG)1SSCC ONLINE to SEAR		156
(XNG)2SSCC OFFLINE to SEAR	57	
(XNG)2SSCC ONLINE to SEAR		157

ALARM TEXT	ALARM NUMBER	ALARM CLEAR
(XNG)SSCC MAINTK FAIL	62	
(XNG)SSCC MAINTK NRML		162
(XNG)VHFRADIO OFFLINE	63	
(XNG)VHFRADIO ONLINE		163
(XNG)SEAR PWR OFF: xxx MIN	70	
(XNG)INT BAT LOW	71	
(XNG)INT BAT OK		171
(XNG)LCL TST ALM: xx	72	
(XNG)RMT TST ALM: xx	73	
(XNG)FLSDTCT	80	
(XNG)FLSDTCT TKx	81	
(XNG)Pre Ring Message	82	
(XNG)StnStp TKx WT=xx	83	
(XNG)Tail Ring Tkx	84	
(XNG)PSSBLE SWMOVES	85	
(XNG)SlwtrnTKx WT=xx	86	
(XNG)GATE NOT UP	87	
(XNG)GATE UP CLEAR		187

10.8 INFORMATIONAL MESSAGE NUMBERS

These numbers are assigned to informational messages when sent to the Safetran WAMS office application. These numbers are not used when messages are sent via email.

MESSAGES	
Message Text	Message Number
(XNG)APP STARTED	231
(XNG)MIN WARN TIME = xxx seconds	232
(XNG)DES WARN TIME = xxx seconds	233
(XNG)IGN WARN TIME = xxx seconds	234
(XNG)SEARII OPERATIONAL	235

10.9 MESSAGE NUMBERING SCHEME

Message numbering scheme:

0	Internal SEAR II Messages
1 –100	Application Alarms
101-200	Application Alarm Clears
201-230	Automatic Inspection Alarms
231-240	Application Information Messages
241-250	Reserved
251-255	Automatic Inspection Information
1000-1099	Office Software Alarms
1100-1199	Office Software Alarm Clears

10.10 TROUBLE LIGHT OUTPUT – (RELAY OUTPUT1 USED TO DRIVE EXTERNAL LAMP)

Relay Output State	Condition
INACTIVE STATE (Contact closed)	<ul style="list-style-type: none"> AC Power OK Batteries OK
ACTIVE STATE – Selected during configuration (Contact is open, or toggling)	<ul style="list-style-type: none"> AC power off for over AC OFF ALARM TIME One or more of the Battery Banks is out of range for over 5 seconds

The Active state will restore to the Inactive state when the AC or Battery bank(s) is/are returned to normal operation.

10.11 ALARMS FROM GCP

GCP versions compatible: 9V121-01E or later. Compatibility allows GCP messages to be logged in the SEAR II event log and passed on to the office. To check the software version on the Model 3000 GCP, look for the second message appearing during the power-up/test cycle.

GCP alarms / messages passed through to SEAR II and sent to the office:

Alarm Type	Situation or Error Codes	Action
Critical	Reset Event of Each GCP	Report each occurrence to Office
Critical	Error codes 9400 & 9401 – Enhanced Detection Error codes 9015, 9016, 9023, 9031, 9032, 9033, 9034	Report each occurrence to Office

10.11.1 Alarm Text

(XNG)MAIN1 RESET -- Main GCP1 reset
 (XNG)STBY1 RESET -- Standby GCP1 reset
 (XNG)MAIN2 RESET -- Main GCP2 reset
 (XNG)STBY2 RESET-- Standby GCP2 reset
 (XNG)MAIN1 ERROR xxxx -- where xxxx is the error code number of the Main1 GCP
 (XNG)STBY1 ERROR xxxx -- where xxxx is the error code number of the Standby1 GCP
 (XNG)MAIN2 ERROR xxxx -- where xxxx is the error code number of the Main2 GCP
 (XNG) STBY2 ERROR xxxx -- where xxxx is the error code number of the Standby 2 GCP

10.11.2 Office Alarm Management System

Call maintainer immediately.

*** For the initial phase-in period, contact supervisor instead of maintainer.

11.0 GCP ONLINE/OFFLINE MESSAGES

Messages are to be sent to the office when:

- the Normal/Standby switches, or
- both Normal and Standby units are offline (to the SEAR II), or
- the Main GCP is offline (to the SEAR II) and there is no Standby.

11.1 ALARM TEXT

(XNG)MAIN1=ON, STBY1=OFF

- sent when GCP1 switches from Standby to Main, or after both units were offline and the Main returned to operation.

(XNG)MAIN1=OFF, STBY1=ON

- sent when GCP1 switches from Main to Standby, or after both units were offline and the Standby returned to operation.

(XNG)MAIN2=ON, STBY2=OFF

- sent when GCP2 switches from Standby to Main, or after both units were offline and the Main returned to operation.

(XNG)MAIN2=OFF, STBY2=ON

- sent when GCP2 switches from Main to Standby, or after both units were offline and the Standby returned to operation.

(XNG)GCP1 OFFLINE

- sent when GCP1 is offline, where no standby unit exists.

(XNG)GCP1 ONLINE

- sent when GCP1 returns online, where no standby unit exists.

(XNG)GCP2 OFFLINE

- sent when GCP2 is offline, where no standby unit exists.

(XNG)GCP2 ONLINE

- sent when GCP2 returns online, where no standby unit exists.

(XNG)NML1&STBY1 OFFLINE

- sent when both GCP1 Main and Standby units are detected offline to the SEAR II for more than 60 seconds.

(XNG)NML2&STBY2 OFFLINE

- sent when both GCP1 Main and Standby units are detected offline to the SEAR II for more than 60 seconds

11.2 OFFICE ALARM MANAGEMENT SYSTEM

Call maintainer immediately.

*** For the initial phase-in period, contact supervisor instead of maintainer.

12.0 SSSC III

Application can handle 1 or 2 SSSC III's. Units will be monitored for online/ offline, and changes of these states will be sent into the office.

Messages:

(XNG)1SSCC ONLINE
(XNG)1SSCC OFFLINE
(XNG)2SSCC ONLINE
(XNG)2SSCC OFFLINE

If the MAINTK input is configured, the application will monitor and cause an alarm to be generated if the input goes low. A return to high input, will cause a normal message to be sent.

Messages:

(XNG)SSCC MAINTK FAIL
(XNG)SSCC MAINTK NRML

13.0 ILODS

Application can handle 0 - 4 iLODs. Units will be monitored for online/ offline, and changes of these states will be sent into the office.

Messages:

(XNG)ILODx ONLINE
(XNG)ILODx OFFLINE; where x = ILOD number, i.e. LOD2

14.0 ADDITIONAL INFORMATION

14.1 HXP DIAGNOSTICS

The HXP diagnostics will be accessible to the modem port.

14.2 SEAR II HEALTH MESSAGES

SEAR II will check in with health message every 24 hours, time will start with power up. All health messages sent will be logged in the Standard Event Report. Message sent will state **(XING)SEARII OPERATIONAL**.

Internal SEAR II Battery:

When SEAR II determines the internal backup battery requires replacement, an alarm will be sent to the office. The battery low message will appear on the SEAR II display. When alarm is triggered, there is normally enough battery left to last 3 months.

Messages:

(XNG)INT BAT LOW
(XNG)INT BAT OK

When the battery has been replaced, a message will be sent to the office.

14.2.1 Office Alarm Management System

If no health message is received from a location after 24 hours, call maintainer for possible SEAR II / modem problem for next day coverage.

*** for the initial phase-in period, contact supervisor instead of maintainer

SEAR II will send in health message directly after reboot.

Alarms are reported using the CDS-9022 modem and its SMS messaging service. The alarms will be received as emails in the following format:

Alarm text, site name (including subdivision), milepost, DOT #, date, time

The email address that all the alarms will be sent to is (xalrm@nlsedm.cn.ca).

All the alarms and messages received from the SEAR II units can be viewed on an Intranet page.

14.2.2 Special E-mails

When the SEAR II comes back on-line after a power off condition, the unit will send the following message: **(XING)SEARII PWR OFF: xx (Seconds, Minutes, Hours)**.

When a new application program is loaded or the unit's configuration changes, the application program is recompiled, reconfigured and restarted. The following message will be sent to the office: **(XING)App Started**.

14.3 USER TEST MODE

The operator can place the SEAR II into **User Test Mode** which will cause all alarms to be ignored. To place the unit into this mode, press the **USER TEST** key.

The unit will prompt the user to enter the time duration for which the unit will be placed into the **User Test Mode** (valid input = 1min, 5, 10, 15, 30, 45, 60 min, LEDTest, LocalAlarm, and RemoteAlarm). Use up or down arrow keys to select the time desired, then Press ENTER. All Test LED's will flash Yellow while in **User Test Mode**. (Note that the LEDTest, LocalAlarm and RemoteAlarm selections will not cause the unit to enter User Test, read further for explanation of those features). The unit will add the following messages to the scrolling list on the LUI display, while in User Test Mode:

PRESS EXIT TO EXIT USER TEST

USER TIME REMAINING = xx MIN

14.4 TEST SWITCH

The TESTSWK will be an input onboard the SEAR II or on the SSCC III (if present). When the TESTSWK input activates, the SEAR II will enter the User Test Mode for the first 10 minutes. If TESTSWK is de-activated before the 10 minutes, User Test Mode will be stopped. The Test LEDs will flash yellow while in User Test Mode.

14.5 LOCAL TEST MESSAGE

A local test alarm can be sent from the SEAR II front panel using the following instructions:

1. Press User Test Key.
2. Press arrow keys, and scroll through the menu until LocalAlarm is displayed.
3. Press Enter, and the Local Test Alarm will be sent via the communications path, and displayed on the SEAR II front panel.
4. To send another alarm, wait more then 4 seconds and then repeat steps 1 to 3.

14.6 REMOTE TEST MESSAGE

A remote test alarm can be sent by logging into the system, then following these steps:

1. Enter "Tests" mode from the Main terminal screen.
2. Select Force Test.
3. Select User Test.
4. Use arrow key, to select "RemoteAlarm", press ENTER.
5. Use arrow key to select "Yes" to answer Are you sure?, press ENTER.
6. Exit out of terminal mode.
7. Hang up the modem connection.
8. The Remote Test Alarm will be sent 60 seconds after pressing enter in step 5 above.

The test alarm messages are:

(XNG)LCL TST ALM: xx

(XNG)RMT TST ALM: xx

xx will increment from 1 – 25, then wrap back to 1.

14.7 INDICATOR LED TEST

The operator can place the SEAR II into **LED Test Mode** which will cause the 16 Indicator LED's to light steady for 10 seconds. To place the unit into this mode, press the **USER TEST** key. The unit will prompt the user with user test time selections, shown in the display. Press the **Up or Down Arrow** keys until "**LEDTest**" is displayed. Then press the **ENTER** key. **The 16 Indicator LED's will light steady for 10 seconds, then revert to the normal operating state**, as defined in the application logic.

15.0 DIALING INTO A SEAR II LOCATION

(For a location with a cellular modem.)

15.1 TO OBTAIN SEAR II STANDARD EVENT REPORT:

Open a HyperTerminal session with 8-N-1 connection settings (8 Data bits, No Parity and 1 stop bit).

Enter the phone number associated with the SEAR II location to connect to (e.g. 116302226145 for Wabash Avenue) and Dial (note that the phone number associated with each alarm can be found in the sender's email address and is available on the server at \\EDM-RG-F05\\TWR21HW2\\CROSSING MONITOR\\SEARII\\Locations).

Upon connecting, press Ctrl-L to display the password prompt, enter **ssc** as the password.

The Main menu will now appear, use the **down arrow** to go to Option B) Reports and press **ENTER**.

Press **ENTER** with 'A) Standard Report' highlighted on the screen.

Specify the Start and End date/time for the report desired, press **ENTER** to accept date/time range.

Use the down arrow to change the Format to Print/Capture, press **ENTER**.

When prompted to "Enable text capturing then hit any key", enable text capturing by going to Transfer – Capture Text and enter a file name. Press any key. The SEAR II Standard Event Report is now being printed on the screen and being captured in the file specified.

When prompted to "Stop text capturing then hit any key to return", stop text capturing by going to Transfer – Capture Text and select Stop. Press any key.

Use the **down arrow** to go to Exit (to exit the Reports menu).

Use the **down arrow** to go to Exit (to exit the Main Menu).

Close Hyper Terminal session and review the SEAR II Standard Event Report obtained.

15.2 TO OBTAIN TRAIN SPEED INFORMATION FOR AN HXP LOCATION:

From the Main menu, use the **down arrow** to go to Option J) Passthrough.

Press any key to enter the pass-through mode.

Press **ENTER** to display the HXP Recorder Main Menu.

Enable text capturing by going to Transfer – Capture Text and enter a file name.

Select Option 1 to Print Train Record Log.

The HXP Train Record Log is now being printed on the screen and being captured in the file specified.

When the HXP Recorder Main Menu appears again, stop text capturing by going to Transfer – Capture Text and select Stop.

Press Ctrl-X to exit the pass-through mode.

Press any key to return to the SEAR II Main Menu.

NOTES

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