1250-LTC ASCII Programming Interface

Purpose:

- To instruct technicians in installing and using the 1250-LTC Serial Programming Interface software.

Associated Documents and Data:

- 000-2072 1250-LTC Installation and Programming Manual

Procedure:

1. Place the CD into the CDROM drive.
2. The installation Wizard should automatically begin to install the program. Click the "Next" button.
3. Check the installation path. You may change it if desired by clicking the "Browse" button. Click on the "Next" button.
4. When asked if you are ready to install the application click the "Next" button.   Answer the occasional prompts appropriately. The program will be installed. Click the "Finished" button when the installation is done.

5. **Prepare the 1250-LTC** to be programmed through the serial port by entering the Program Mode:
    A)   Press the MENU until the display goes blank, then press the SELECT/ENTER button.
    B)   Scroll up to OP 51 by pressing the UP button then press the SELECT/ENTER button.
    C)   Press the UP button to change the value to "4" then press the SELECT/ENTER button.
    D)   Exit the Program Mode by scrolling to OP 0 then press the SELECT/ENTER button twice.

6. **Connect Serial Adaptor Cable** provided to the1250-LTC's Auxiliary connector at the top-rear of the instrument. The red stripe of the cable must face the outside edge of the connector. Connect the Serial Adaptor Cable to the computer's serial port cable. A null modem adaptor or "nulled" serial cable will be needed. If the computer's serial port cable ends with a 9 pin connector, a 9 to 25 pin adaptor will be needed.

7. **To run the 1250-LTC Serial Programming Interface**, you may create a shortcut to the program, browse to the file "1250-LTC Serial Programming Interface R*n.nn*.exe" with the Explorer, or select the program from the Start button under the "Programs" folder.

Programming:
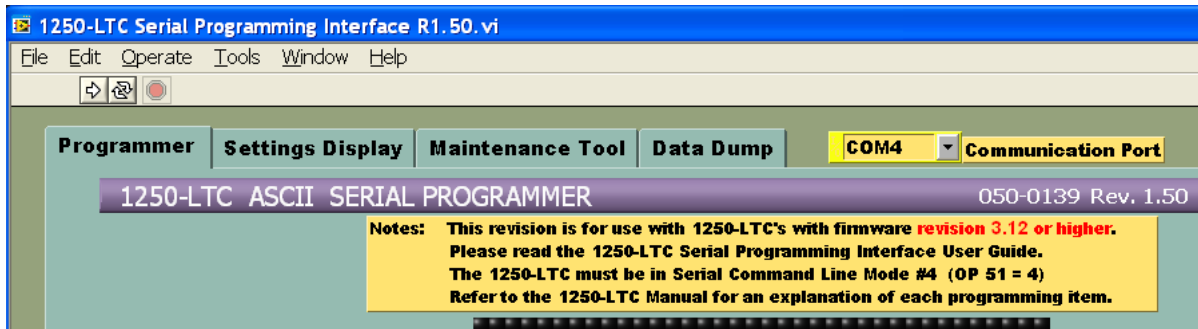
1. There are four tabs across the top of the screen labeled "Programmer"; "Settings Display"; "Maintenance Tool"; "Data Dump". To begin programming the 1250-LTC, select the "**Programmer**" tab.
2. Select the proper Communication Port from the choices in the pull down field.

3. If desired, a reference string can be typed in the Site ID field. Any type of character can be used, numbers, letters, punctuation, etc… to identify this 1250-LTC.

4. Select the Lowest Tap Number of your LTC by clicking the up/down scroll buttons or type it directly into the field.
5. Select the Highest Tap Number of your LTC by clicking the up/down scroll buttons or type it directly into the field.
6. Select the number of neutral taps by clicking the up/down scroll buttons or type it directly into the field.
7. The maximum total number of taps is 40. If this number is exceeded, an alarm will appear on the computer and the program will abort.
8. If the lowest tap of your LTC is "1" and you have any neutral taps, you must enter the Neutral Start Tap number by clicking the up/down scroll buttons or type it directly into the field. If the lowest tap of your LTC is not "1", you do not need to change this field. It will have no effect.

9. Select the proper Degrees Per Tap by clicking the up/down scroll buttons or type it directly into the field.
10. Type the number of the Present Tap Position in the field. Neutral taps must be identified with a   "–" and a number (i.e. "0–2" or "17–1").
11. Click the up/down scroll buttons to choose to display "R" & "L" (ON) or not (OFF).

12. If an alarm is desired for Total Tap Counts, select which relay the alarm will close: "HIGH" or "LOW" (or "OFF" if a display of the active alarm is desired, but no relay closure). To disable the alarm completely, leave the setting "DIS".
13. Set the Total Tap Count Alarm Limit. (See the manufacturer's specification.) Enter a value.

14. If desired, Preset the Total Tap Counter. Enter a value.
15. If desired, type a reference date in the "MM" "DD" "YY" fields. The Month and Day fields must have <u>leading zeros</u> for numbers "01 through 09"!!

16. If an alarm relay closure is desired for loss of input signal (FA 25 Error), select which relay the alarm will close: "HIGH" or "LOW". If no relay closure is desired, leave the setting "OFF".
17. If you desire to have this alarm automatically reset when the input signal returns, change the FA 25 Alarm setting from "Latch-On" to "Auto-Reset".
18. If an alarm relay closure is desired for an unstable input signal (FA 27 Error), select which relay the alarm will close: "HIGH" or "LOW". If no relay closure is desired, leave the setting "OFF".
19. If you desire to have this alarm automatically reset when the input signal returns, change the FA 27 Alarm setting from "Latch-On" to "Auto-Reset".
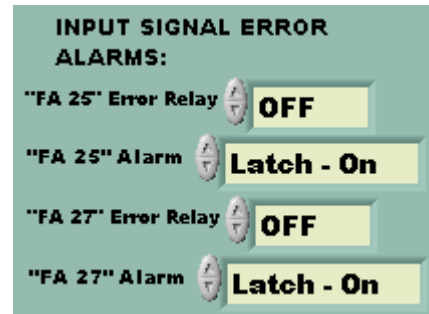
20. If desired, enable the1250-LTC's Display Blanking (like a screen saver) by clicking on the button. It will turn red.
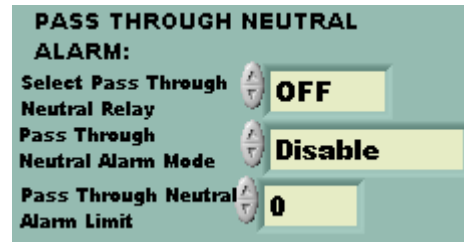
21. If an alarm is desired for excess On-Tap Deviation, change the Alarm Mode from "Disable" to either "Latch-On" or "Auto Reset". In "Latch-On" mode, the alarm will remain active even after the provoking condition clears. In "Auto-Reset" mode, the alarm will turn off when the provoking condition clears.
22. If a relay contact closure is desired when the alarm is active, change the Relay setting from "OFF" to "HIGH" or "LOW", to select which relay will close when the alarm is active. If the Relay setting is left "OFF", the display will indicate when the alarm is active, but no relay will close.
23. Set the On-Tap Guard Limit (in degrees with 1/10th degree resolution) by clicking the up/down scroll buttons or type it directly into the field.
24. If desired, type a reference date in the "MM" "DD" "YY" fields. The Month and Day fields must have <u>leading zeros</u> for numbers "01 through 09"!!
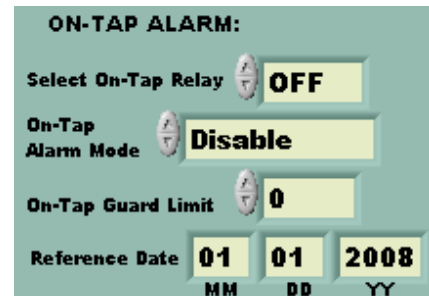
25. If a relay acknowledgement is desired for each tap change, select which relay will close: "HIGH" or "LOW". If no acknowledgement is desired, leave the setting "OFF".
26. If a time delay is desired before the acknowledgement relay closes, set the Delay Time (in seconds with 1/10th second resolution) by clicking the up/down scroll buttons or type it directly into the field.
27. If a time delay is desired after the acknowledgement relay closes, set the Duration Time (in seconds with 1/10th second resolution) by clicking the up/down scroll buttons or type it directly into the field.
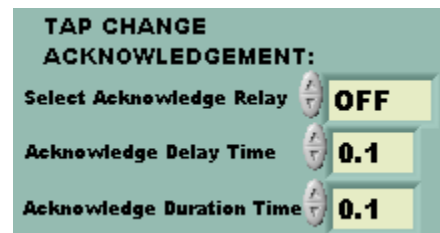
28. If an alarm is desired for excess time since the LTC has passed through neutral, change the Alarm Mode from "Disable" to either "Latch-On" or "Auto Reset". In "Latch-On" mode, the alarm will remain active even after the provoking condition clears. In "Auto-Reset" mode, the alarm will turn off when the provoking condition clears.

PASS THROUGH NEUTRAL ALARM:

Select Pass Through Neutral Relay — **OFF**
Pass Through Neutral Alarm Mode — **Disable**
Pass Through Neutral Alarm Limit — **0**

29. If a relay contact closure is desired when the alarm is active, change the Relay setting from "OFF" to "HIGH" or "LOW", to select which relay will close when the alarm is active. If the Relay setting is left "OFF", the display will indicate when the alarm is active, but no relay will close.

30. Set the Pass Through Neutral Alarm Limit (in days with 1/10th day resolution) by clicking the up/down scroll buttons or type it directly into the field.

31. If an alarm is desired for the number of consecutive tap changes in One Direction, change the Alarm Mode from "Disable" to either "Latch-On" or "Auto Reset". In "Latch-On" mode, the alarm will remain active even after the provoking condition clears. In "Auto-Reset" mode, the alarm will turn off when the provoking condition clears.

One-Direction Change ALARM:

Select One-Direction Change Relay — **OFF**
One-Direction Alarm Mode — **Disable**
One-Direction Change Limit — **0**

32. If a relay contact closure is desired when the alarm is active, change the Relay setting from "OFF" to "HIGH" or "LOW", to select which relay will close when the alarm is active. If the Relay setting is left "OFF", the display will indicate when the alarm is active, but no relay will close.

33. Set the One-Direction Change Limit (in taps) by clicking the up/down scroll buttons or type it directly into the field.
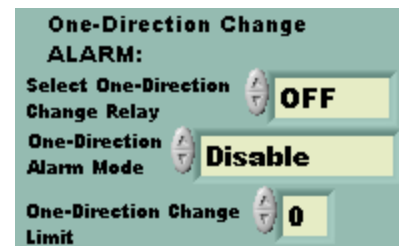
34. If an alarm is desired for a High Tap position or a Low Tap position, change the appropriate Alarm Mode from "Disable" to either "Latch-On" or "Auto Reset". In "Latch-On" mode, the alarm will remain active even after the provoking condition clears. In "Auto-Reset" mode, the alarm will turn off when the provoking condition clears.

HIGH / LOW TAP ALARM:

Select High Tap Relay — **OFF**
High Tap Alarm Mode — **Disable**
High Tap Number — **0**
Select Low Tap Relay — **OFF**
Low Tap Alarm Mode — **Disable**
Low Tap Number — **0**
Select Draghand Counter Type — **FIRST**

35. If a relay contact closure is desired when the alarm is active, change the appropriate Relay setting from "OFF" to "HIGH" or "LOW", to select which relay will close when the alarm is active. If the Relay setting is left "OFF", the display will indicate when the alarm is active, but no relay will close.

36. Set the High Tap Limit and Low Tap Limits by clicking the up/down scroll buttons or type them directly into the fields.

37. Select the Draghand Counter Type – FIRST or LAST. This will determine whether the counter will record the number of days since the earliest (FIRST) visit to the highest and lowest taps or the most recent (LAST) visit to those taps.
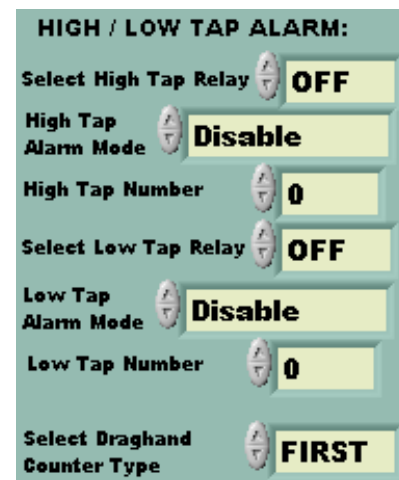
38. If an alarm is desired for the number of tap changes Up-To and Down-To each tap, select which relay the alarm will close: "HIGH" or "LOW" (or "OFF" if a display of the active alarm is desired, but no relay closure). To disable the alarm completely, leave the setting "DIS".

39. Set the Up-To / Down-To Count Limit by clicking the up/down scroll buttons or type it directly into the field.

40. If desired, type a reference date in the "MM" "DD" "YY" fields. The Month and Day fields must have <u>leading zeros</u> for numbers "01 through 09"!!

41. When all settings are entered, click the large white (Run) arrow in the upper left of the window. Do not click on the circular arrows (Continuous Run). The display on the 1250-LTC should read "SetUP" and the progress bar should change from black to green while the program settings are downloaded into the 1250-LTC's memory.

42. When the programming is done, the 1250-LTC's display will return to the Run Mode, showing the present position as it has been programmed to do. The Acknowledgement Relay may close and open several times (if enabled) as it counts off the number of taps between the previous position and the present position.

43. There may be active alarms showing on the display as a result of new program settings or remaining from the pre-programmed state. Use the "**Maintenance Tool**" tab (see page 6) to clear active alarms and reset erroneous LTC data causing alarms.
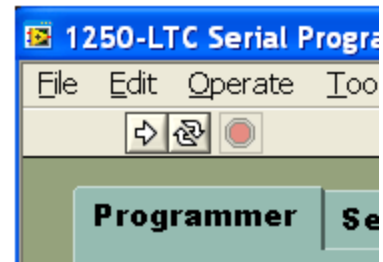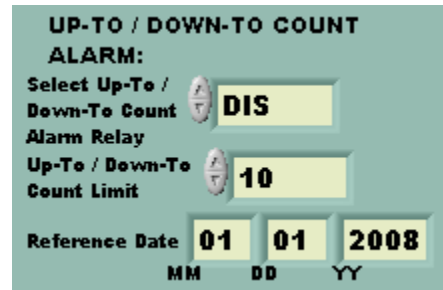
Settings Display:
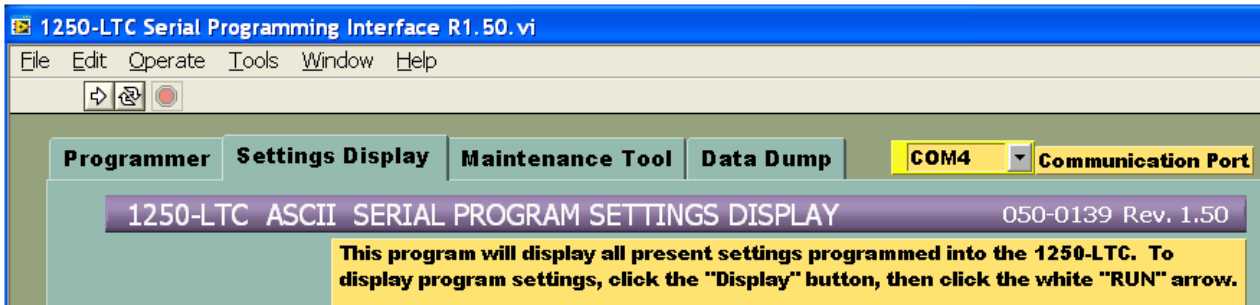
1. To display all program settings in the 1250-LTC's memory, select the "**Display Settings**" tab.

2. If desired, while settings are being displayed, they can also be saved to a text file which can be used by terminal emulator programs such as HyperTerminal to batch program other 1250-LTC's with the same settings. To do this, click on the   "**Save to File**" button.

3. Click on the large white (Run) arrow in the upper left of the window. Do not click on the circular arrows (Continuous Run).
4. If "Save to File" has been selected, you will be prompted to "Select a data file to write". You can browse to an existing text file or create a new one. The file extension must be "**.txt**".
5. The 1250-LTC will transmit its program settings to the computer (this will take 10 to 20 seconds). When completed, the settings will be displayed in the large gray "**1250-LTC Settings**" window. This text will be saved to the chosen text file, if "Save to File" has been selected.
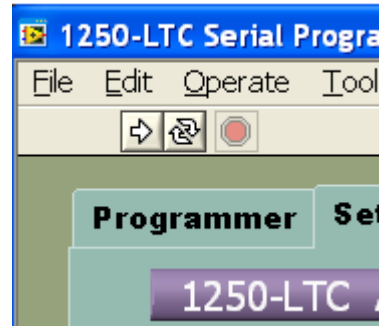
Maintenance Tool:
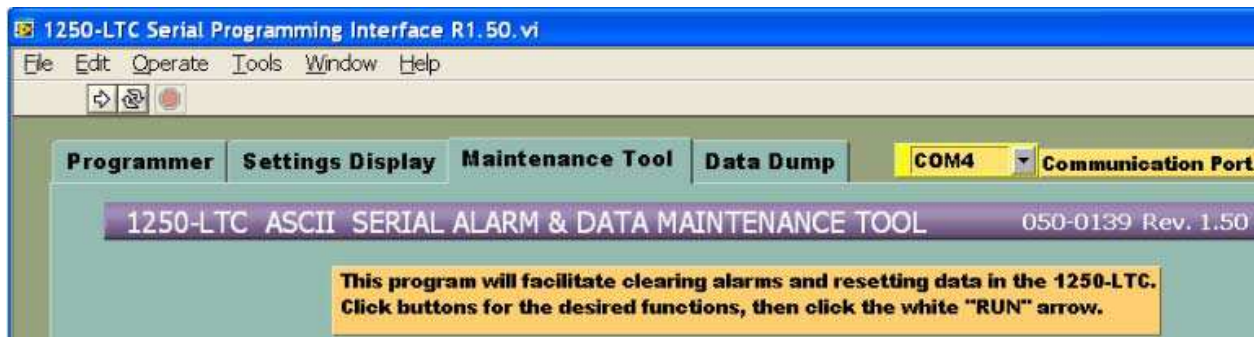
1. To clear alarms or reset logged data, select the "**Maintenance Tool**" tab.
2. Alarm or Data maintenance can be done one item at a time or all at once.
3. No action will be taken until the white (Run) arrow in the upper left of the window is clicked to run the program.

4. **On-Tap Data Reset** If this button is clicked, all logged On-Tap data will be reset to zero degrees when the program is run.

5. **Pass-Thru-Neutral Timer Reset** If this button is clicked, the Pass-Thru-Neutral Timer will be reset to zero days when the program is run.

6. **Up-To / Down-To Data Reset** If this button is clicked, all logged Up-To / Down-To counters will be reset to zero when the program is run.

Alarm Maintenance:
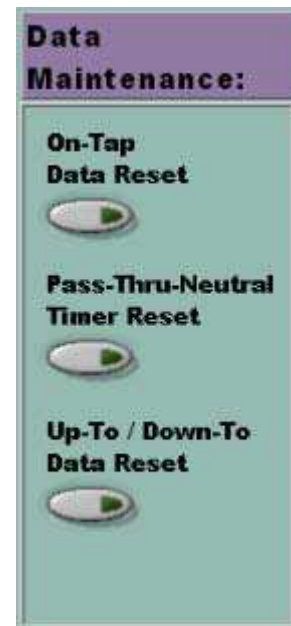
7. **One Direction Alarm Clear** If this button is clicked, an active One Direction Alarm will be cleared when the program is run. (Note: If the next LTC tap change is in the SAME direction as the last tap change, the alarm will re-activate.)

8. **On-Tap Alarm Clear** If this button is clicked, an active On-Tap Alarm will be cleared when the program is run. (Note: The On-Tap Alarm will re-activate the next time the LTC position stops beyond the On-Tap Limit.)

9. **Up-To / Down-To Alarm Clear** If this button is clicked, an active Up-To / Down Alarm will be cleared when the program is run. (Note: The   On-Tap Alarm will re-activate the next time the LTC moves to a tap with an Up-To or Down-To count that is equal to or higher than the alarm limit.)

One Direction Alarm Clear

On-Tap Alarm Clear

Up-To / Down-To Alarm Clear

10. **Low Tap Alarm Clear** If this button is clicked, an active Low Tap Alarm will be cleared when the program is run. (Note: The Low Tap Alarm will re-activate the next time the LTC moves to a tap that is equal to or lower than the Low Tap Limit.)

11. **High Tap Alarm Clear** If this button is clicked, an active High Tap Alarm will be cleared when the program is run. (Note: The High Tap Alarm will re-activate the next time the LTC moves to a tap that is equal to or higher than the High Tap Limit.)

12. **"FA 25" Alarm Clear** If this button is clicked, an active "FA 25" Alarm (loss of Synchro signal) will be cleared when the program is run. (Note: The "FA 25" Alarm will re-activate the next time the Synchro signal is lost.)

13. **"FA 27" Alarm Clear** If this button is clicked, an active "FA 27" Alarm (Synchro signal is unstable) will be cleared when the program is run. (Note: The   "FA 27" Alarm will re-activate the next time the Synchro signal is unstable.)

Low-Tap Alarm Clear

High-Tap Alarm Clear

"FA 25" Alarm Clear

"FA 27" Alarm Clear

14. Once the desired maintenance actions have been chosen, run the program. Click on the large white (Run) arrow in the upper left of the window. Do not click on the circular arrows (Continuous Run). The 1250-LTC will display "SEtuP" momentarily while maintenance commands are sent, then return to the normal run mode. The serial commands sent will appear in the gray window at the lower left of the screen.

1250-LTC Serial Progr
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Programmer | S

15. **Net Tap Changes** This software can display (and optionally log) the Net Tap Changes from the last time the software was run. A date "Since" can be entered for future reference. This date will be stored in the log file that is initially created and subsequently re-used on the computer.

16. Initial setup: Before these functions can be used, this program must be run with both buttons clicked on. One will turn red, the other will turn blue. A valid reference date must also be entered. This will establish a point of reference for future calculations. Click on the large white (Run) arrow in the upper left of the window. The program will prompt you to name a new log file or browse to an existing log file in the C:\Temp folder.   A unique log file must be created and re-used for each specific 1250-LTC.

17. After the initial setup: As often as desired, the Net & Total Tap Changes and their dates "Since" can be displayed. To do this, click the upper button, it will turn red. Next, click on the large white (Run) arrow in the upper left of the window to run the program. Browse to the correct log file for the specific 1250-LTC being polled.

18. Periodically, the Net Tap Change Counter can be zeroed. To do this, click the lower button, it will turn blue. A new Reference Date should be entered each time the counter is zeroed. Next, click on the large white (Run) arrow in the upper left of the window to run the program. Browse to the correct log file for the specific 1250-LTC being polled.

19. The log file is updated each time the Counter is zeroed. This text file can be used to create a spreadsheet or printed.

Data Dump:
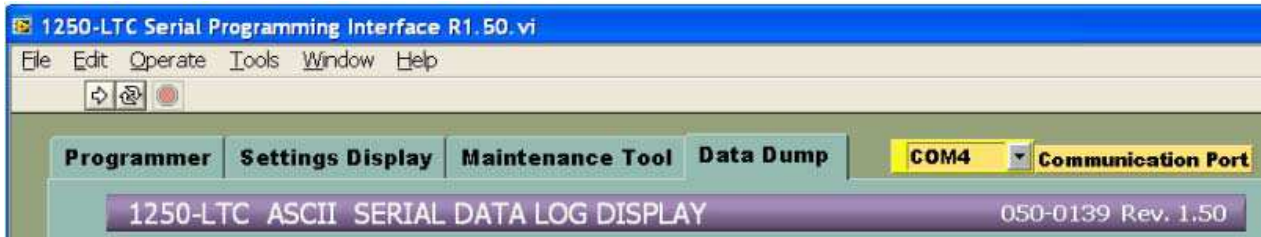
1. To display all LTC data logged in the 1250-LTC's memory, select the "**Data Dump**" tab.

2. To display the logged data Click the on the "**Dump**" button.

3. If desired, while LTC data is displayed, it can also be saved to a text file for use with spreadsheet programs, etc… To do this, click on the "**Save to File**" button. (Note: the "**Dump**" button must also be clicked.)

4. Click on the large white (Run) arrow in the upper left of the window. Do not click on the circular arrows (Continuous Run). As the computer receives each piece of data from the 1250-LTC, the information will be displayed in the gray window at the right of the screen

5. If "Save to File" has been selected, you will be prompted to "Select a data file to write". You can browse to an existing text file or create a new one. The file extension must be "**.txt**".

6. All logged LTC data will appear in the window at the right of the screen.

7. The present LTC status is indicated in the first section, including the Present LTC Position, Total Tap Changes since the reference date, the Low Draghand Position, and the High Draghand Position.

8. Active alarm information will be displayed.

9. Logged LTC movement statistics will be shown for each tap. Each active Tap Number is listed - including each neutral tap, with its maximum On-Tap Deviation, the number of changes Up-To and Down-To that tap, as shown:

```
dump
Site ID:
INCON 1250-LTC Firmware Revision 3.12
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Total Tap Changes  27292  Since 09-15-2008
Present Tap:    1
Low Draghand: -14   86.0  Days since First Visit
High Draghand: 15 125.0  Days since First Visit

ALARMS:
Status        Since activated - Days:  Limit: RefDate:
Active  On-Tap Deviation     54.0   4.00 09_15_2008
Clear  Instability  – ––
Clear  Synchro Signal Lost    0.00 ––
Active 1 Direction Change    1.49      8 –
Clear  Up Down Count  –  25000 09_15_2008
Clear  Total Tap Changes  – 100000 09-15-2008
Clear  Low Tap    – -8 –
Clear  High Tap    0.00  8 –
Clear  Pass Through Neutral  DIS ––

TAP STATISTICS:
Tap Max. Dev. Change Change
Num: Degrees: Up-To: Dn-To:
-16 +   0.0  0 0
-15 +   0.0  0 0
-14 -   2.1  0 7
-13 +   0.2  7 12
-12 -   0.1  12 27
-11 -   4.0  27 85
-10 +   3.9  85 157
- 9 +   0.1  157 272
- 8 +   0.3  272 571
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