
# *Futura Advanced Continuity Tester (FACT)*

User's manual version 3.3,
Firmware version FACT_512 M: D.4, Slave 2.3
FACT Editor Version 5.2

By

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## 1: IMPORTANT NOTES:

**1.1: Packing**: Preserve the packing sent along with the tester which is specially designed for protection of the tester during transportation. In case tester is to be sent back to Futura, use the same packing.

**1.2: Safety notes:**

### Safety Notes! Please read before putting the system into operation!

This system has been checked for safe and correct functioning before being shipped. In order to keep this safety, the user has to pay attention to the corresponding notes and advice of the operating manual.

# Before connecting test samples to the instrument, check for strictly separation of the sample from power!

Any connection of the test sample to power can be dangerous for the operator and can damage electronics.

# Before connecting test samples to the instrument, check for static charges of the test sample, fixtures and operator which are to be eliminated. Otherwise the test electronics can be damaged.

# Any external continuity meter like buzzer, bulb or multimeter should be strictly avoided. Use of these will damage the test electronic.

# While changing the board; removal and fitting of D type connectors on the back side of the tester or Centronics connector on the board should be done with utmost care. These connectors are polarised and hence should not be inserted in wrong direction. There is a tendency to push the connector hard in the tester even if polarization is incorrect. Pushing might damage the connectors on I/O cards or on the board of the tester.

# **Check proper earthing at the power supply input of the Cable Harness Tester.**

***Warranty void if equipment is opened by unauthorized person.***

**FACT :** Is an easy to use tester with self explanatory menus displayed. Following are details of keys and menus.

## Power on the 'FACT':

FACT is provided with Power supply and main's cord. Three pin connector receptacle is must for powering. Input range of power supply is variable from 100 to 240VAC (50/60 HZ).

At power on the "FACT", following activities being done.

A) Self test is carried out

B) Initial display i.e. firmware version, tester serial number etc. is displayed as below.

| | |
|---|---|
| **FUTURA** | |
| FACT | VER xxx |
| SR. No. | xxxxxxxx |
| TEST POINTS | xxxx |

C) Above display is preceded by next one which is control gateway for functional operations.

| | |
|---|---|
| **MENU: MAIN** | **PN xxx** |
| >TEST | SELECT |
| BRD_CHK | ANALYSE |
| SETUP | COUNT |

**" >"** symbol can be used as **cursor** to select menu items.

For menu navigation, four keys have been provided.

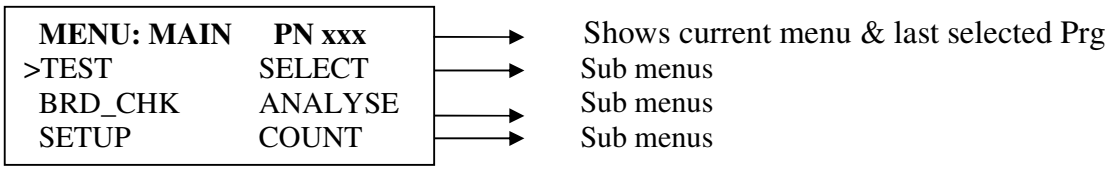
- Diagonal, **Up** and **Down** arrow buttons are used to move the cursor.
- **Grey** square button is to enter or select particular menu or function.
- **Red** square button is used to escape from existing menu or to go back.

## FACT Keyboard & Menu Flow:

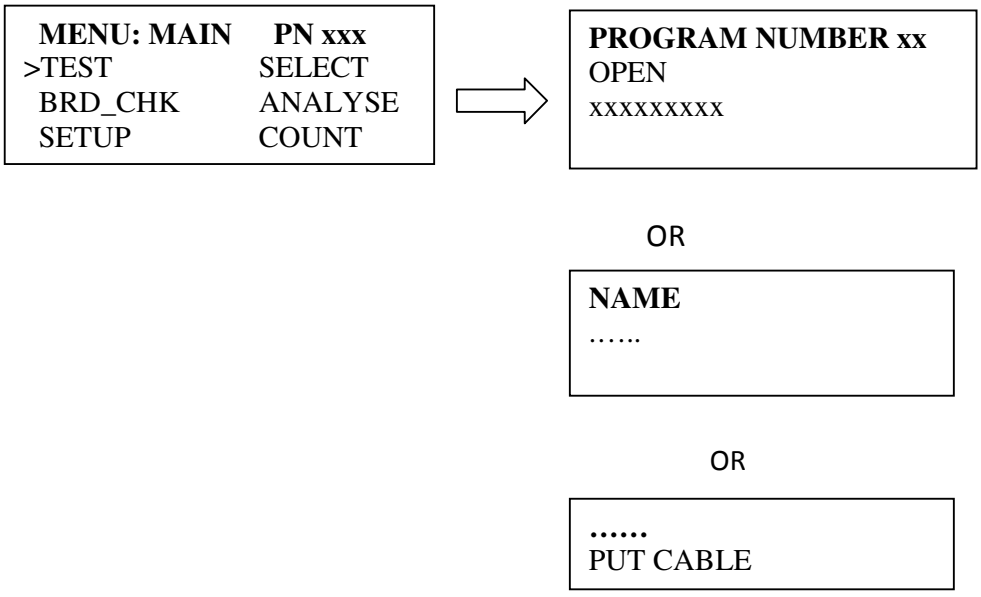
### Main Menu:

This is the main menu displayed at Power on when program stops execution and display becomes idle.

- First line displays default current menu appeared and last program selected. If no program is selected then program number 01 is appeared by default.
- Rest all three lines displays various sub menus under upper menu.
  **(* this scheme is repeated for various menus and sub menus thought the program flow)**



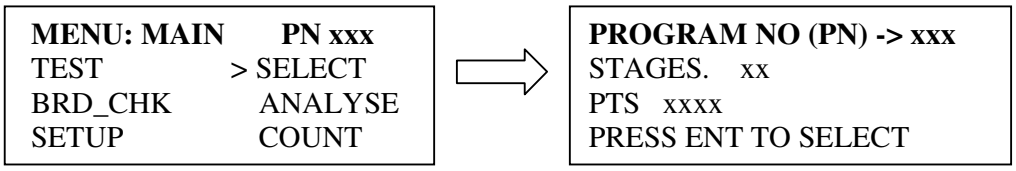

**MAIN > TEST : (AUTHO: OPERATOR +)**




**MAIN > SELECT: (AUTHO: OPERATOR +)**

- Select menu is provided to select a program.
- Total program location capacity user configurable, depending on label data size and no. of I/O cards.

- Selected program remains selected through execution and after power off also; unless override by new one.
- After selecting the program, all the settings and data with respect to program location are retrieved.




***Display Meanings:***

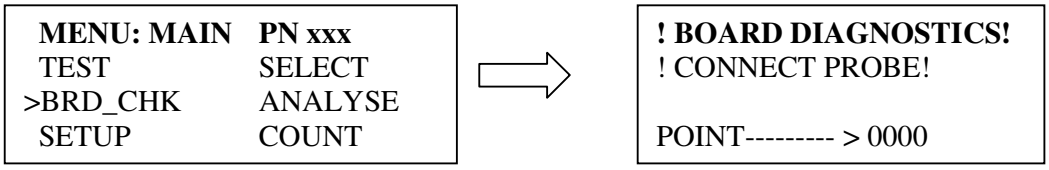
1st line: Currently Selected Program number or name.
2nd line: No. of stages present at location.
3rd line: Total number of points present.
4th line: Action for selection.

***Key Board Action:***

**△▽ : Enter scroll single digit**
**ENT: Select the digit and proceed**
**ESC: Return to main menu**

**MAIN > BRD_CHK: (AUTHO: OPERATOR +)**

- FACT now is in board check mode.
- User should connect the probe at BRD CHK terminal and physically connect other terminal at fixture points.
- Point at which probe is connected is displayed.




***Display Meanings:***

1st line: Indicative information.
2nd line: Indicative information.
3rd line: Indicative information.
4th line: Displays point read during board check.

***Key Board Action:***

△▽ **: No action**
**ENTER: No action**
**ESC : Return to main menu**

**MAIN: ANALYSE: (AUTHO: SUPERVISOR +)**

- This menu is provided for analyzing settings, data, and current configuration
- Various sub menus can be accessed

| **MENU: MAIN** | **PN xxx** |
|---|---|
| TEST | SELECT |
| BRD_CHK | > ANALYSE |
| SETUP | COUNT |

⇨

| **MENU: ANALYSE** | **PN xxx** |
|---|---|
| >DSP_HRN | GEN-SETT |
| CBL-SETT | CMP FLG |
| COUNT | BRDCHK |

***Display Meanings:***

1st line: Shows current menu & last selected Program
2nd line: Sub menus.
3rd line: Sub menus.
4th line: Sub menus.

***Key Board Action:***

△▽ **: Navigate through A menu**
**ENTER: Selected the menu**
**ESC : Back to main menu**

**MAIN > SETUP: (AUTHO: SUPERVISOR +)**

- This is the most important menu in FACT.
- To access set-up menu soft key i.e. configured key (USB) is necessary.
- Setup menu has various authority levels.
- Editing in stored data, Storing and overriding new data ,changes in settings, Authority assignments, and all other controlled activities can be done through Set up menu.

| **MENU: MAIN** | **PN xxx** |
|---|---|
| TEST | SELECT |
| BRD_CHK | ANALYSE |
| > SETUP | COUNT |

⇨

| **MENU: SETUP** | **PN xxx** |
|---|---|
| FCT-DATA | OTH-DATA |
| GEN-SETT | PRG-SETT |
| DIAGNO | FCTRY-SET |

***Display Meanings:***

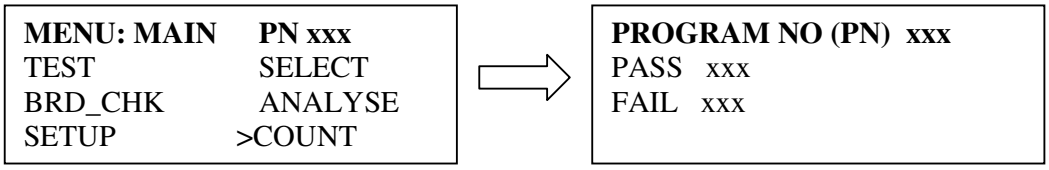
1st line: Shows current menu
2nd line: Sub menus.
3rd line: Sub menus.
4th line: Sub menus.

***Key Board Action:***

△▽ **: Navigate through Set up menu**
**ENTER: Selected the menu**
**ESC : Back to main menu**

**MAIN: COUNT (AUTHO: OPERATOR +)**

- This function tells current status of pass and fails counts.
- Selected program location is shown
- User can analyze count status.




***Display Meanings:***

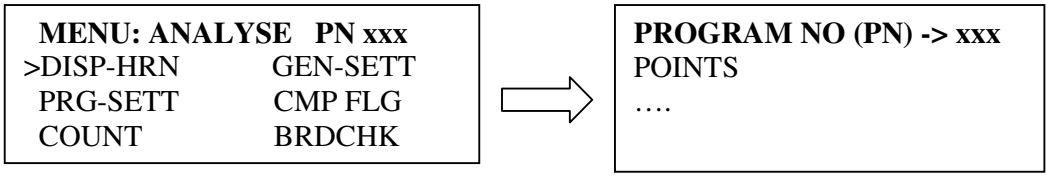
1st line : Currently selected program.
2nd line: Indicative information
3rd line: Indicative information.
4th line: Blank.

***Key Board Action:***

△▽ **: No Action**
**ENTER: No Actions**
**ESC : Back to main menu**

**MAIN > ANALYSE > DISP HRN: (AUTHO: SUPERVISOR +)**

- Sub menu of Analyze.
- This menu displaces harness data which is stored into the memory.
- After display tester comes back to Analyze menu.
- Harness data for selected program location is displayed.
- If any diodes configured then diode data is displayed.




***Display Meanings:***

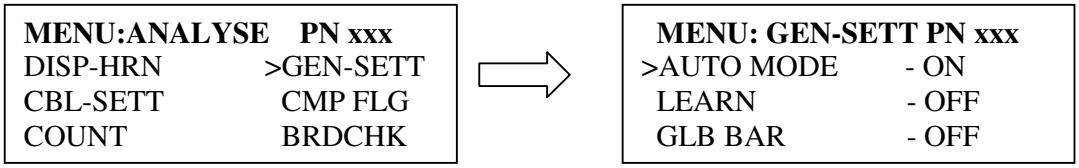
1st line: Currently selected program.
2nd line: Points.
3rd line: Actual points.
4th line: Actual points.

***Key Board Action:***

△▽ **: No action**
**ENTER: No action**
**ESC : Back to Analyze menu**

**MAIN>ANALYSE> GEN-SETT: (AUTHO: (MANAGER + ) IS COMPULSORY)**

- Status of the various general settings can be viewed through this menu.




***Display Meanings:***

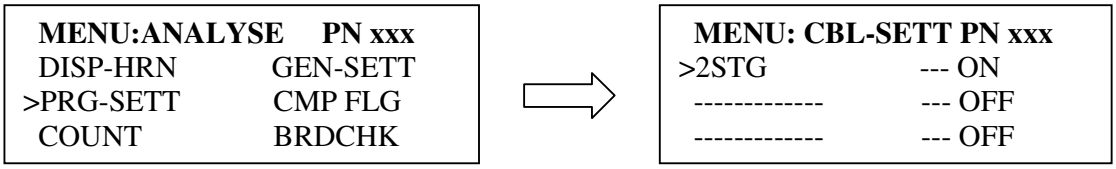
1st line: Shows current menu & last selected Program.
2nd line: General Setting.
3rd line: General Settings.
4th line: General Settings.

***Key Board Action:***

△▽ **: Navigate through setting.**
**ENTER: No action.**
**ESC : Back to Analyze menu.**

**ANALYSE > PRG-SETT: (AUTHO: SUPERVISOR +)**

- Status of the various program specific settings can be viewed through this menu.




***Display Meanings:***

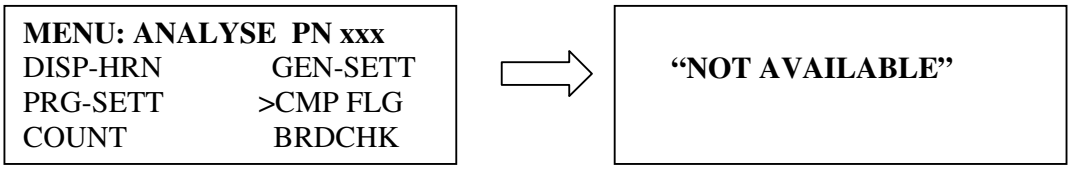
1st line: Currently selected program.
2nd line: Program Settings
3rd line: Program Settings.
4th line: Program Settings.

***Key Board Action:***

△▽ **: Navigate through settings.**
**ENTER: No action.**
**ESC : Back to Analyse menu.**

**MAIN > ANALYSE > CMP FLG: (AUTHO: SUPERVISOR +)**

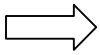
- This feature is not available in this version so control returns back to ANALYSE MENU.



**MAIN > ANALYSE >COUNT: (AUTHO: SUPERVISOR +)**

- This menu provides Pass and Fail count status for selected program number.

| | |
|---|---|
| **MENU:ANALYSE PN xxx** | |
| DISP-HRN | GEN-SETT |
| PRG-SETT | CMP FLG |
| >COUNT | BRDCHK |



| |
|---|
| **PROGRAM NO (PN) xxx** |
| PASS xxx |
| FAIL xxx |

1st line: Shows current menu & last selected Program.
2nd line: Pass count.
3rd line: Fail Count.
4th line: Blank.

***Key Board Action:***

△▽ **: Navigate through setting**
**ENTER: No action**
**ESC : Back to Analyze menu**

**MAIN >ANALYSE > BRDCHK: (AUTHO: SUPERVISOR +)**

- FACT now is in board check mode
- User should connect the probe at BRD CHK terminal and physically connect at fixture point
- Point at which probe is connected is displayed.

| | |
|---|---|
| **MENU:MAIN** | **PN xxx** |
| TEST | SELECT |
| >BRDCHK | ANALYSE |
| SETUP | COUNT |

| |
|---|
| **! BOARD DIAGNOSTICS !** |
| ! CONNECT PROBE ! |
| |
| POINT ……. 0000 |

***Display Meanings:***

1st line: Indicative information
2nd line: Indicative information
3rd line: Indicative information
4th line: Displays point read during board check.

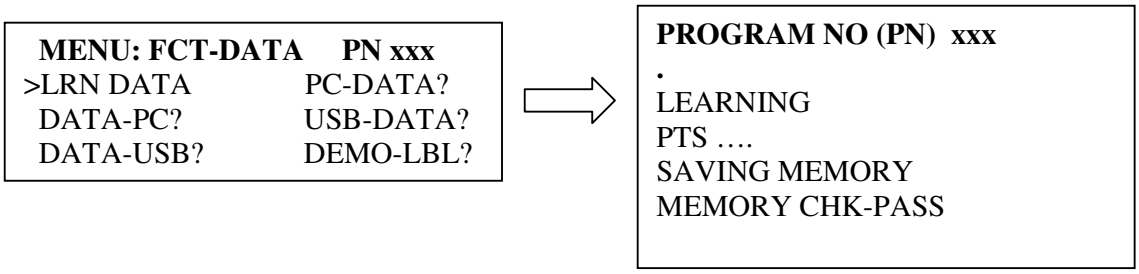
***Key Board Action:***

△▽ **: No action**
**ENTER: No action**

**ESC : Return to main menu**

**MAIN > SET UP > FCT-DATA > DATA: (AUTHO: SUPERVISOR +)**

- This menu will learn the harness present on the board.
- This option will only available for HRN DATA.
- For any other menu it is unavailable.
- If the harness is not mounted then old data will be retained.
- This option is not available for LBL data menu.




***Display Meanings:***

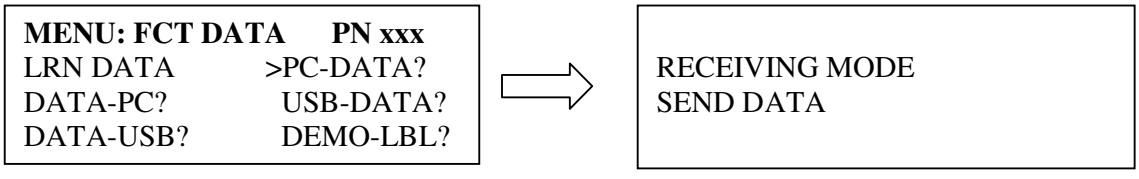
1st line: Selected Program
2nd line: Indicative information.
3rd line: Indicative information.
4th line: Indicative information.

***Key Board Action:***

△▽ : Navigate through menu
ENTER : Select a function
ESC : Return to setup menu

**MAIN > SET UP > FCT-DATA > PC- DATA: (AUTHO: SUPERVISOR +)**

- Tester is in wail state for data from PC
- Use only Futura's FACT editor software for interfacing with tester.
- Data can be transferred through PC via serial port.
- After valid data reception control will reach towards parent menu.




***Display Meanings:***

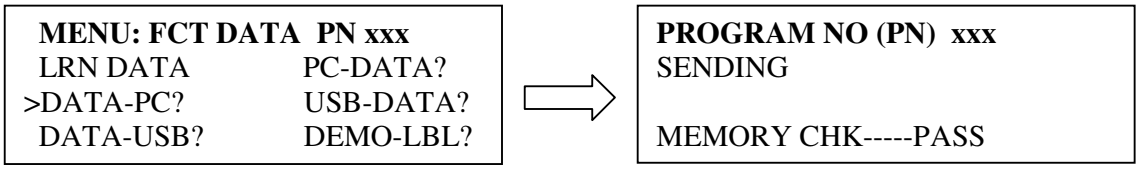
1st line: Blank.
2nd line: Indicative information.
3rd line: Indicative information.
4th line: Blank.

***Key Board Action:***

△▽ **: No action**
**ENTER : No action**
**ESC : Back to parent menu**

**MAIN > SET UP > FCT-DATA > DATA-PC: (AUTHO: SUPERVISOR +)**

- Data is sent on serial port to PC which can be gathered by FACT editor.
- FACT editor only can be interfaced for serial reception.
- After execution control reaches to parent menu.



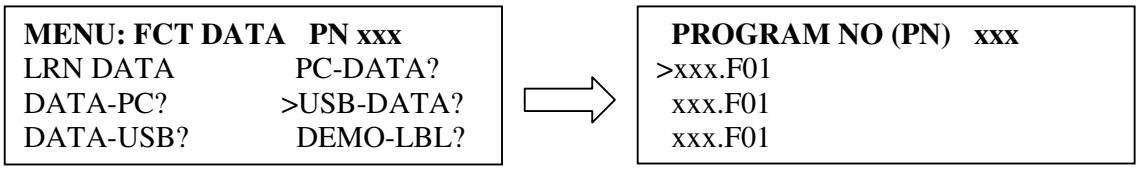

1st line: Shows current selected program
2nd line: Indicative information.
3rd line: Blank.
4th line: Indicative information.

***Key Board Action:***

△▽ **: No action**
**ENTER : No action**
**ESC : No action**

**MAIN > SET UP > FCT-DATA > USB-DATA: (AUTHO: SUPERVISOR +)**

- Before entering into menu, USB pen drive requires .f01 files.
- After selection, file will be saved to corresponding location and control returns back.



***Display Meanings:***

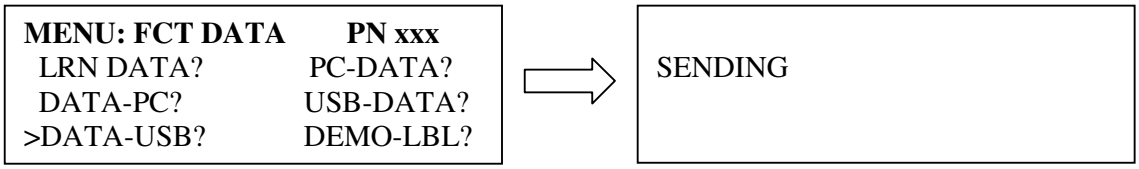
| |
|---|
| 1st line: Shows current selected program<br>2nd line: File Name.<br>3rd line: File Name.<br>4th line: File Name. |

***Key Board Action:***

△▽ **: Navigate through files**
**ENTER : Select & save a file**
**ESC : Return to parent menu**

**MAIN > SET UP > FCT-DATA > DATA-USB: (AUTHO: SUPERVISOR +)**

- File stored in the current program location will be saved in the pen drive.
- File name and extension will define what kind of file it is.
- Example: 12FCT.F01
  12→ Current selected location.
  .FO1→ Usb file format for harness data.




***Display Meanings:***

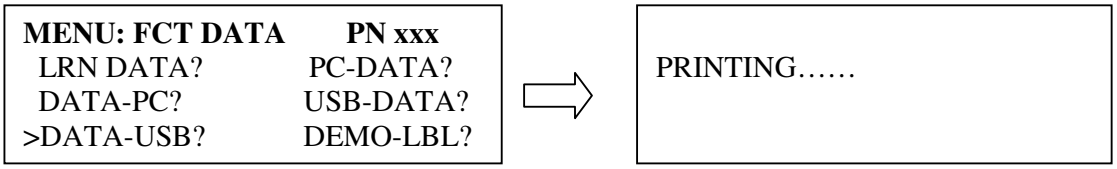
| |
|---|
| 1st line: Blank.<br>2nd line: Indicative information<br>3rd line: Blank.<br>4th line: Blank. |

***Key Board Action:***

△▽ : Navigation
ENTER : Send selected file to USB & control returns to parent menu.
ESC : Back to HRN data menu

**MAIN > SET UP > FCT-DATA > DEMO - LBL: (AUTHO: SUPERVISOR +)**

- User can take demo label print for reference.
- Serial number in demo print always remains steady.




***Display Meanings:***

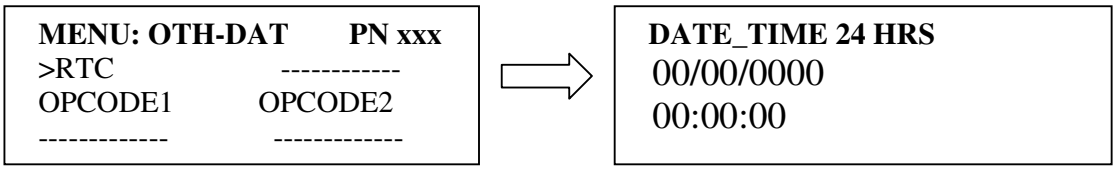
1st line: Blank.
2nd line: Indicative information.
3rd line: Blank.
4th line: Blank.

***Key Board Action:***

△▽ **: Navigate through setting**
**ENTER : Allowed action is performed.**
**ESC : Back to set up menu.**

**MAIN> SET-UP > OTH-DATA: (AUTHO: SUPERVISOR +)**

- Various other settings can be changed through this menu.
- Date and time can be configured through RTC menu.
- Operator codes can be set through OPCODE menu.
- Two operator codes are allowed to scan.

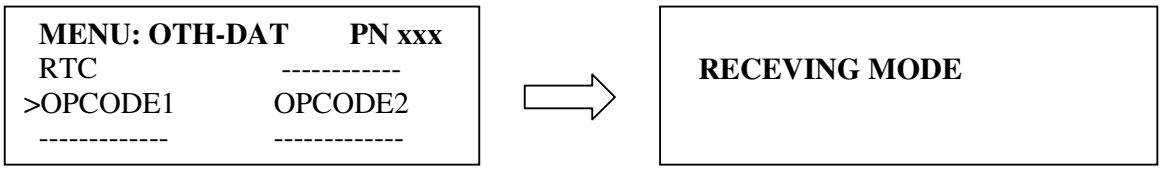



***Display Meanings:***

1st line: Shows current menu & last selected Program.
2nd line: Program Setting. Allowed action?
3rd line: Program Settings. Allowed action?
4th line: Program Settings. Allowed action?

***Key Board Action:***

△▽ **: Navigate through setting**
**ENTER: Select the menu**
**ESC : Back to set up menu.**




***Display Meanings:***

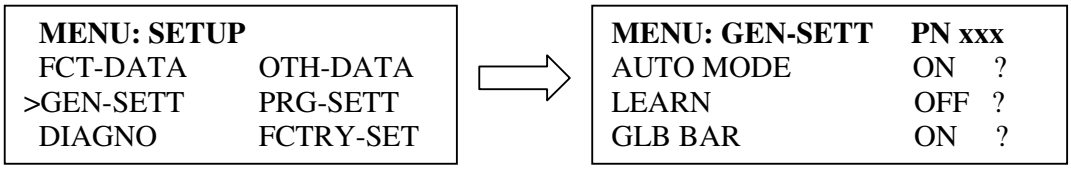
1st line: Blank
2nd line: Indicative information.
3rd line: Blank
4th line: Blank

***Key Board Action:***

△▽ **: Navigate through setting**
**ENTER: Select the menu**
**ESC : Back to set up menu.**

**MAIN > SET-UP > GEN-SETT: (AUTHO: (MANAGER + ) IS COMPULSORY)**

- Various general settings can be changed through this menu.




***Display Meanings:***

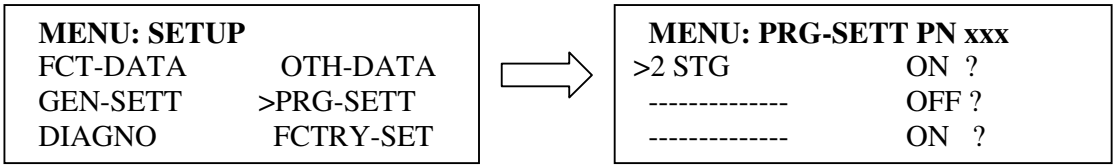
| | |
|---|---|
| 1st line: Shows current menu & last selected Program. | |
| 2nd line: General Setting. | Allowed action? |
| 3rd line: General Settings. | Allowed action? |
| 4th line: General Settings. | Allowed action? |

***Key Board Action:***

△▽ **: Navigate through setting**
**ENTER : Allowed action is configured.**
**ESC : Back to set up menu.**

**MAIN > SET-UP > PRG-SETT: (AUTHO: SUPERVISOR +)**

- Various general settings can be changed through this menu.




***Display Meanings:***

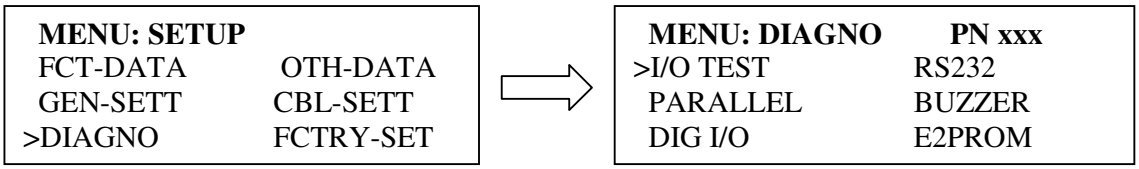
| | |
|---|---|
| 1st line: Shows current menu & last selected Program. | |
| 2nd line: Program Setting. | Allowed action? |
| 3rd line: Program Settings. | Allowed action? |
| 4th line: Program Settings. | Allowed action? |

***Key Board Action:***

△▽ **: Navigate through setting**
**ENTER: Select the menu**
**ESC : Back to set up menu.**

**MAIN >SET-UP> DIAGNO: (AUTHO: SUPERVISOR +)**

- Diagnostic menu is used to diagnose various peripherals of tester.
- IO cards, serial port, Parallel port, Buzzer, Digital I/O box can be diagnosed.




***Display Meanings:***

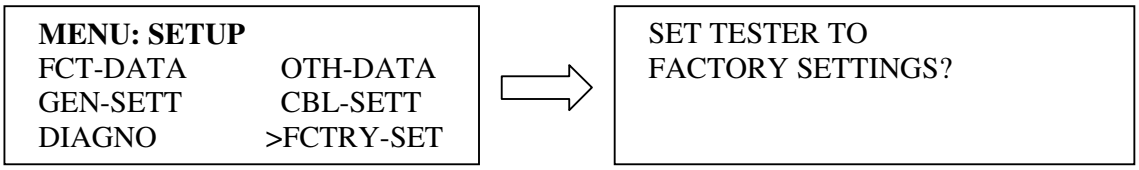
1st line: Shows current menu & last selected Program.
2nd line: Sub Menu.
3rd line: Sub Menu.
4th line: Sub Menu.

***Key Board Action:***

△▽ **: Navigate through setting**
**ENTER : Select the menu**
**ESC : Back to set up menu.**

**MAIN >SET-UP> FCTRY-SET: (AUTHO: SUPERVISOR +)**

- Tester is set to factory settings i.e. default settings.
- All general settings, counters, volume, tone, relay on time etc are set to default.
- Tester restarts after factory settings.




***Display Meanings:***

1st line: Indicative information.
2nd line: Indicative information.
3rd line: Blank
4th line: Blank

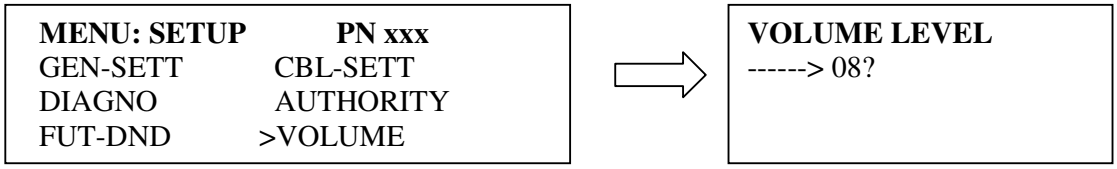
***Key Board Action:***

△▽ **: No action**
**ENTER : Allowed action is executed.**
**ESC : Back to set up menu.**

**MAIN > SET UP > FUT-DND: :(AUTHO: FUTURA DND)**

- **This menu is restricted to Futura only.**

**MAIN > SET UP> VOLUME: (AUTHO: SUPERVISOR +)**




***Display Meanings:***

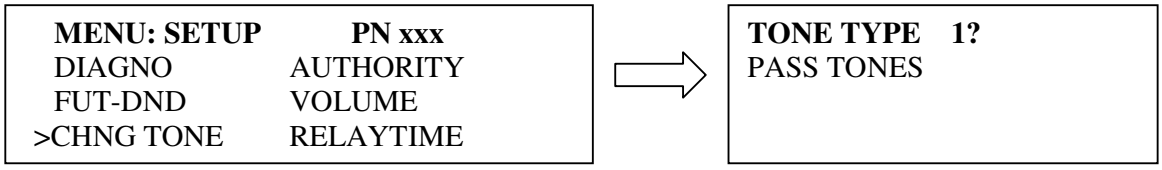
1st line: Shows current menu & last selected Program.
2nd line: Sub Menu.
3rd line: Sub Menu.
4th line: Blank.

***Key Board Action:***

△ **: Volume increase**
▽ **: Volume decrease**
**ENTER : Select volume & back to set up menu**
**ESC : Back to setup menu**

**MAIN > SET UP > CHNG TONE: (AUTHO: SUPERVISOR +)**

- Any tone combination can be set.



***Display Meanings:***

| |
|---|
| 1st line: Tone Type<br>2nd line: Pass or fail tone.<br>3rd line:<br>4th line: |

***Key Board Action:***

△▽ **: Navigate through tone menu**
**ENTER : Select tone & back to set up menu**
**ESC : Back to setup menu**

**MAIN >SET UP > RELAY TIME: (AUTHO: SUPERVISOR +)**

- FACT tester is given with 2 relay drivers
- Relay on time can be configured through this menu

| | |
|---|---|
| **MENU: SETUP PN xxx**<br>DIAGNO AUTHORITY<br>FUT-DND VOLUME<br>CHNG TONE > RELAYTIME | **RELAY ON TIME**<br>-----> 2? |

***Display Meanings:***

| |
|---|
| 1st line: Indicative information<br>2nd line: On time display.<br>3rd line:<br>4th line: |

***Key Board Action:***

△▽ : Navigation through relay on time
ENTER : Select the real time & go back to set up menu
ESC : Return to setup menu

**MAIN> SET UP> CLR CNTS: (AUTHO: SUPERVISOR +)**

- Various counters can be cleared through this menu
- Relay on time can be configured through this menu

| | |
|---|---|
| **MENU: SETUP PN xxx**<br>FUT-DND VOLUME<br>CHNG TONE RELAYTIME<br>>CLR CNTS CONFIGURE | **PROGRAM NO (PN) xxx**<br>PASS CNT CLEAR?<br>FAIL CNT CLEAR?<br>SR. NO. CLEAR? |

***Display Meanings:***

| |
|---|
| 1st line: Selected program<br>2nd line: Count Allowed action<br>3rd line: Count Allowed action<br>4th line: Count Allowed action |

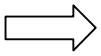
***Key Board Action:***

△▽ **: Navigation through menu**
**ENTER: Clear desired count & go back to set up menu**
**ESC : Return to setup menu**

**MAIN >SET UP > CONFIGURE: (AUTHO: (MANAGER +) IS COMPULSORY)**

- Tester can be set at four different memory schemes.
- Combinations:
  1k label --- max test points 512, 128 locations available.
  2k label --- max test points 512, 096 locations available.
  4k label --- max test points 512, 064 locations available.
  8k label --- max test points 512, 032 locations available.
- Tester restarts after configuration.

| |
|---|
| **MENU: SETUP PN xxx**<br>FUT-DND VOLUME<br>CHNG TONE RELAYTIME<br>CLR CNTS >CONFIGURE |



| |
|---|
| **LABEL DATA SIZE**<br>-----> 1K ? |

***Display Meanings:***

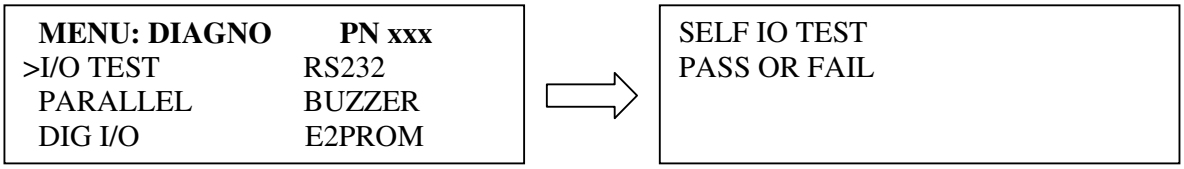
| |
|---|
| 1st line: Indicative information<br>2nd line: Indicative information<br>3rd line: Blank<br>4th line: Blank |

***Key Board Action:***

△▽ : Navigation through various combinations.
ENTER : Select combination.
ESC : Return to setup menu

**MAIN >SET UP > DIAGNO > IO TEST: (AUTHO: SUPERVISOR +)**

- Self test of all IO cards is carried out.
- On pass or fail respective buzzer sounds.




***Display Meanings:***

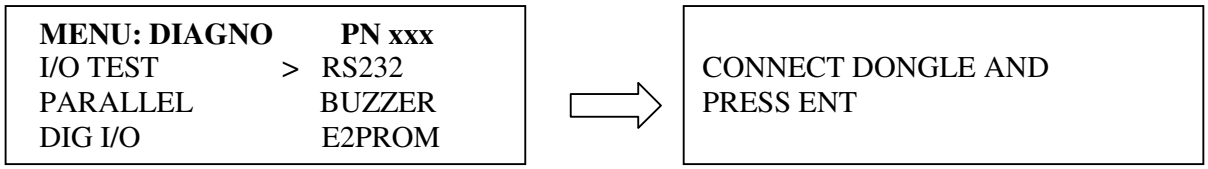
1st line: Indicative Information
2nd line: Indicative Information
3rd line: Blank
4th line: Blank.

***Key Board Action:***

△▽ **: Navigate through setting**
**ENTER: Select the menu**
**ESC : Back to diagno up menu.**

**MAIN >SET UP > DIAGNO > RS 232: (AUTHO: SUPERVISOR +)**

- Rs232 functionality test is carried out.
- After connecting of RS232 dongle test is carried and result is shown.




***Display Meanings:***

1st line: Blank.
2nd line: Indicative Information
3rd line: Indicative Information
4th line: Blank.

***Key Board Action:***

△▽ **: NO Action**

**ENTER: Serial test and return to diagno menu.**
**ESC : Back to diagno menu.**

**MAIN >SET UP > DIAGNO > PARALLEL: (AUTHO: SUPERVISOR +)**

- Dot matrix printer with parallel port is required for this test.
- Tester prints "test print" ensures proper working of parallel port.

| | | |
|---|---|---|
| **MENU: DIAGNO** | **PN xxx** | |
| I/O TEST | RS232 | ⇨ CONNECT DOT MATRX |
| >PARALLEL | BUZZER | PRINTER AND |
| DIG I/O | E2PROM | PRESS ENT |

***Display Meanings:***

1st line: Indicative Information
2nd line: Indicative Information
3rd line: Indicative Information
4th line: Blank.

***Key Board Action:***

△▽ **: NO Action**
**ENTER : Performs parallel test.**
**ESC : Back to diagno menu.**

**MAIN >SET UP > DIAGNO > BUZZER: (AUTHO: SUPERVISOR +)**

- Buzzer sounds continuously in incrementing decrementing cyclic manner.
- Buzzer is tested.

| | | |
|---|---|---|
| **MENU: DIAGNO** | **PN xxx** | |
| I/O TEST | RS232 | ⇨ BUZZER TONE |
| PARALLEL | > BUZZER | |
| DIG I/O | E2PROM | |

***Display Meanings:***

| |
|---|
| 1st line: Blank<br>2nd line: Indicative Information<br>3rd line: Blank<br>4th line: Blank |

***Key Board Action:***

△▽ **: NO Action**
**ENTER : Performs buzzer test.**
**ESC : Back to diagno menu.**

## Factory settings:

**1. General settings**

| | |
|---|---|
| AUTO MOD | ON. |
| LEARN | ON. |
| GLB BAR | OFF. |
| GLB PRN | ON. |
| EXTRA PT | OFF. |
| ALL CKT | OFF. |
| RLYPASS1 | ON. |
| RLYPASS2 | ON. |
| TWO BAR | OFF. |
| TMOUT PRN | OFF. |
| AUTHORITY | OFF. |
| CMPR ONLY | OFF. |
| HACG | OFF. |
| SUP_VISOR | OFF. |
| OPERATOR | OFF. |
| HRN FAIL | OFF. |
| POKA-YOKE | OFF |
| FAIL-BIN | OFF |
| FIRST FAIL | OFF. |
| CLR-BIN | OFF |

2. Volume is set at level 5.
3. Relay on time is set at 1 second for both relay outputs.
4. All counters such as pass, fail, serial number etc are cleared.

## FACT Message Code and their meanings:

- Message 82: MSD (mass storage device) or pen drive in not connected or MSD is not detected.
- Message 83: MSD is not burned with appropriate authority.
- Message 84: MSD is not burned with login data base.
- Message 85: File in the USB format .f01 is not found in MSD.
- Message 86: Error occurred during file opening in MSD.
- Message 87: MSD is not properly burned with authority.
- Message 88: MSD is not properly burned with login data base.
- Message 89: FCT file is corrupted in MSD.
- Message 8A: Data format in file in MSD is incorrect.
- Message 8B: FACT internal communication error (revert back to Futura support).
- Message 8C: File cannot be created in MSD USB error.
- Message 8D: Invalid tone number selected.
- Message 8E: Manager Authority is not present.

## Version Change record

*FACT_512 M: D.1  S: 2.3:-*

- Diode testing facility is added.
- Factory settings are added.
- Tester is available with new memory scheme.

*FACT_512 M: D.1  S: 2.3  modification note:*

- Diode testing feature is added in this version.
- FACT editor with ver 5.2 and higher are only applicable for this version.
- User must use FACT editor ver 5.2 or higher for proper operation.
- Up to 50 diodes can be tested in each harness.
- Faults such as
- Diode open: Diode missing or open from inside.
- Diode short: Diode short from inside or wire assembled instead of diode.
- Can be found out.
- Diode data has to be configured from .fct file in diode tag given. (Refer demo.fct file given along with.)
- Two harness points in which diode exists, must be present in harness data in stage tag in .fct file.
- Refer demo.fct file for data configuration.

*FACT_512 M: D.4  S: 2.3  modification note:*

- Special poka-yoke testing mode is added for full proof operation.
- Fail bin sensor input is added.
- Stop at first fault settings added poka-yoke mode.

Packing list:

FACT Tester---------- 1 NO.

Power supply---------- 1 NO.

Mains cod----------  1 NO.

Relay and digital input unit----------  1 NO.

Relay and digital input interfacing cable (15 P M- 15 P M)-1 NO.

Standard modem cable (9 P M – 9 P F)-1 NO.

Futura 121 cable (9 P M- 9 P M) ----1 NO.

Futura Cross cable (9 P M-9 P M) ---1 NO.

FACT FRC cable (64 P FRC F- 64 P FRC F) ------- 1 NO for every IO card.

FUTURA INTERFACE PBT 0410 PCB----------1 NO for every IO card.

Board check probe---------- 1 NO.

Serial Dongle----------1 NO

Futura CD ---------- 1 NO.

This users manual----------1 NO.

Serial number----------

# *Futura Advanced Continuity Tester (FACT)*

User's manual version 3.2,
Firmware version FACT_512 M:D.4, Slave 2.3
FACT Editor Version 5.2