



ACCESSORIES FOR BALANCES **T110**
User Manual



v.201811

Value Each Gram

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1.1 Disclaimer

All trademarks mentioned in this manual belong to the holder of them.

We had collated this manual very carefully, but cannot guarantee that the contents of this manual is correct without any shortcomings, so we are not liable for losses which may be caused to users due to the manual. Meanwhile, there will be continuous upgrade of the products as well as the manual so we have the rights to modify the manual without any notice.

None of the electronic products can achieve absolute reliability so we do not suggest the customers to apply this in such a way which may harm their lives and properties

2.1 Safety Warning



- The power-adopter of the printer is incompatible with other equipment. Please don't connect it with other equipment's to avoid any possible damage. Meanwhile, please don't use other power-adopter to supply the printer.
- Please make sure that the voltage of power-adopter is suitable for current circumstance before applying it.
- Connect the printer to balance when power is off.
- T-1xx printer is designed for in-door application, and is not allowed to be used in dangerous circumstance.
- The printer is unsuitable for occasion with water; appropriate protection should be taken in occasion with powder.

3.1 Product Introduction

The T-1XX series balance printer, with a streamlined appearance and an outstanding cost-efficiency, completely meets the quality requirements of the chemical and pharmaceutical industries and GLP, GMP standard certifications.

From the most basic printing needs to the variety of applications, the T-1XX series balance printer provides users with a flexible choice.

3.2 Features

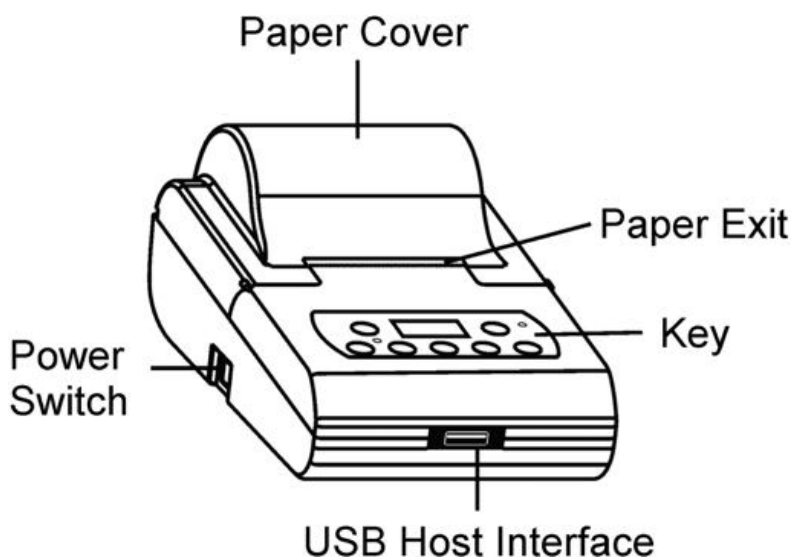
- High-speed dot printing; printed pages are suitable for long-term preservation.
- 128x64 OLED display.
- Built in clock: the printer is able to print out time & date, even be connected to a balance without clock.
- Direct mode: print the original output of balance without any additional information, is suitable for printing balance calibration report.
- Weighing mode: print sample weight, with or without tare, gross and net weight (automatically calculated). This function is independent with balance, and is enabled on most of the balances.
- Statistical mode: statistical report can be built based on a maximum 300 samples, which outputs mean value, standard deviation, deviation coefficient, summation, maximum value, minimize value and difference, etc. The calculation is based on 64 bit double data, without visible error.
- Sum mode: give the sum result of multiple samples quickly.
- Mean mode: give the mean value of multiple samples quickly.
- Formulation mode: output the weight of each gradient in the formulation, and print the sum weight of all the gradients, with tare and gross weight.
- Editable title and tail: except direct mode, title and tail can be added to weighing data under all the other modes. The title includes: manufacturer information, instrument type, series number, sample name/batch number, data/time, swift number; tail includes: ending time, data, signature, etc. Each item in title and tail can be opened separately.
- Sample name and batch number can be inputted and printed.
- Data export: all data from balance can be exported to U-Disk in excel or Tt file.
- Print curve: the curve of multiple samples can be plotted and printed.

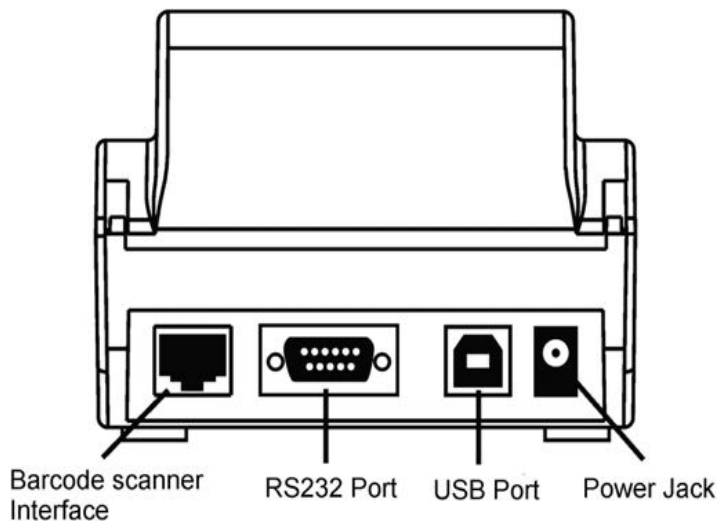
3.3 Main feature comparison of different printer Series

| Features | T-100 | T-110 | T-120 |
|----------------------------|--------------------------|--------------------------|--------------------------|
| 128x64 OLED | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Date& Time (real clock) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Direct mode | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Weighing mode | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Statistical mode | | <input type="checkbox"/> | <input type="checkbox"/> |
| Sum mode | | <input type="checkbox"/> | <input type="checkbox"/> |
| Mean mode | | <input type="checkbox"/> | <input type="checkbox"/> |
| Formulation mode | | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample name input | | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample batch number input | | <input type="checkbox"/> | <input type="checkbox"/> |
| Batch number auto-increase | | <input type="checkbox"/> | <input type="checkbox"/> |
| Data Export(use U-Disk) | | | <input type="checkbox"/> |
| Data curve print | | | <input type="checkbox"/> |
| Periodic printing | | | <input type="checkbox"/> |

Note: Function may be added, modified or deleted by manufacturer considering the update of products. Therefore, the function list is applied for reference only.

3.4 Appearance





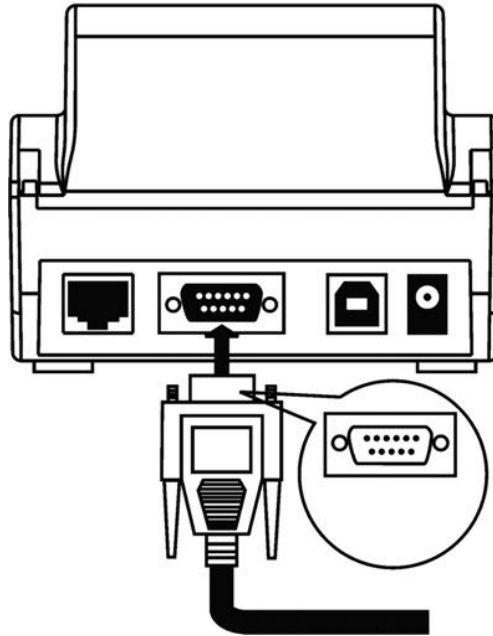
Note: Only T-120 printer has USB host interface and Barcode scanner interface.

3.5 Characteristic

- Printing method: 8 pins shuttle impact dot matrix.
- Copy ability: 1 (Original) + 1.
- Paper: maximum ex-radius 50mm, inradius 12.5mm, 53~64g/m², normal paper (non-heat sensitive), width 57mm.
- Ink ribbon: ERC-22 or ERC-09.
- Character: ASC II for English, First and second level of character for Chinese.
- Interface: RS232C.
- Power supply: DC 12-22V/1500mA.
- Power dissipation: 8W while printing.
- Battery charging time: 5.2h (SANYO eneloop 2000mAh battery).
- Circumstance: temperature 0~50°C, humidity 10~80%.

4.1 Connecting Balance to Printer

1. Disconnect the power supply before connecting the printer to the balance with the data cable. The cable has a unique direction, please connect them correctly. Please refer to the figure below.



2. Plug in the AC adapter socket then connect the other end to the printer power jack.
3. Turn on the balance and the printer. If connected to Sartorius balance, the printer power can be controlled by the balance, when the power switch of printer is on.
4. Please turn off the printer after use it, or move the power adopter before a long-term absence. Frequent switch on/off is not necessary considering the low-power design of the printer. The printer would be turn off when balance is off if it's a Sartorius balances

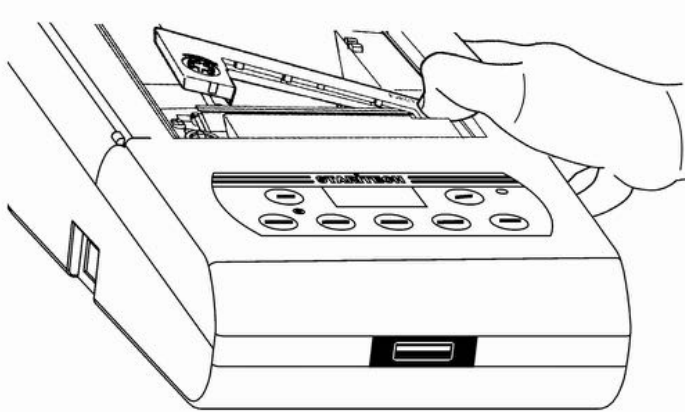
4.2 Installing Ink Ribbon Cartridge

Place the printer facing towards you, first, put the Ink ribbon cartridge on the gear shaft on the left side of the mechanism, uplift the right side slightly, if the left side of the Ink ribbon cartridge does not reach the bottom, press the knob of the ink ribbon cartridge and rotate it slowly towards the direction shown by the arrow. Once the left side reaches the bottom then press the right side hard to reach the bottom too. Check if the Ink ribbon cartridge is installed correctly. Rotate the knob if the ribbon is bent or outside of the Ink ribbon cartridge, press the LF key to flatten and tighten the ribbon and to feed the paper into the ink ribbon cassette. Place the front cover back then the

installation is completed.

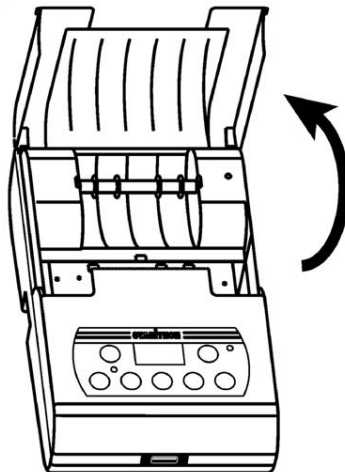
Note: the installed ribbon should be in the front of paper; otherwise the printer wouldn't be able to print. To avoid this problem, we suggest you to install the Ink ribbon cartridge first before installing the printing paper.

Replace ink ribbon cartridge when the print becomes unclear and faint. Open paper cover then take out the ink ribbon cartridge by pressing at the right end marked with "Push" as shown in the figure below. Then insert the new cartridge from straight above.

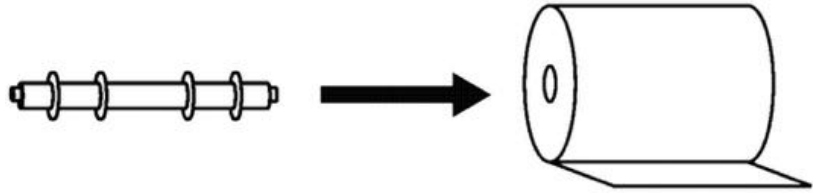


4.3 Installing Printer Paper

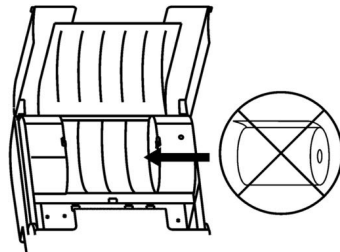
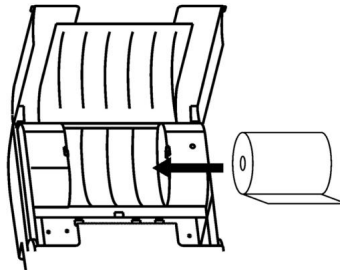
1. Lift the paper cover.




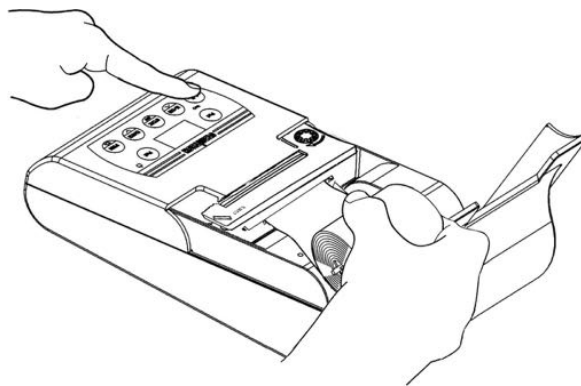
2. Insert the printer paper shaft into the center of the paper roll as shown in the figure below:

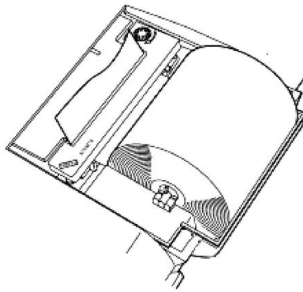


3. Put the paper shaft correctly into the paper slot. The front end of the paper must be at the bottom and facing towards you. Please refer to the figure below:




4. Press the  key to feed the paper into the ink ribbon cassette as shown in the figure below.





The old paper roll should be removed before installing the new paper roll. The paper

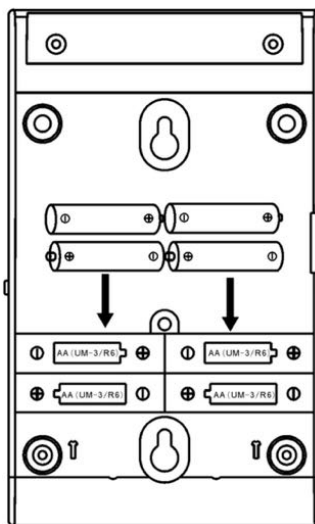
left can be removed by pressing  key, if it is short enough or been cut to short enough.

Note: Damaged paper or ribbon is not allowed for use, nor is un-appointed paper, ribbon, power-supply, connecting cable, etc, to avoid possible damage of the printer.

4.4 Installation of the Rechargeable Batteries

Disconnect the AC adapter, turn off the switch, remove the battery cover then insert the batteries in correct directions.

Insert 4 pieces of the AA size rechargeable batteries then put the cover back and tighten with the screws. The figure below is for your reference.



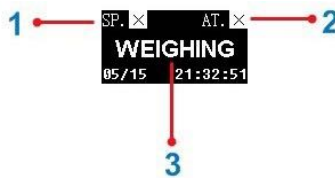
Note:

- The batteries are not required when the printer is fed with the AC adapter supply.
- Make sure that the poles match the + and - signs.
- Recommended to use 2000mAh Ni-MH batteries.

5.1 Introduction



Operation Interface



Display Interface

1 : Sample name/batch number output

SP. X: Disable printing sample name/batch number.

SP. ON: Enable printing sample name/batch number.

2 : Automatic tare

AT. X: Disable auto-tare, default state after printer is on.

AT. ON: Enable auto-tare: command 'tare' sent to balance automatically each time a weighing data is received.

3 : Current mode

| | |
|------------|--|
| DIRECT: | Direct mode WEIGHING: Weighing mode WEIGHINGS: Multi Weighing mode |
| STAT.MODE: | Statistical mode |
| SUM MODE: | Sum mode |
| MEAN MODE: | Meanmode |
| FMLT MODE: | Formulation mode |

5.2 Indicator light



| | |
|-------------------|--------------------------------|
| Continuous light: | Charging the batteries Off: |
| (fast): | Charging done Flashing (slow): |
| | Power saving mode Flashing |
| | Battery low |

5.3 Keys



: Usually it is for inserting the sample name/batch number. Hold this key for longer than 2 seconds, the

printer would switch between **SP. X** and **SP. ON**. In inputting

state, pressing this key would change the cursor position to the left side.



: Under WEIGHING or FORMULATION mode, press this key to print current weighing data as tare weight. Hold this key for longer than 2 seconds to switch between **AT. X** and **AT. ON**. In inputting state, pressing this key would change the cursor position to the right side.



: Press the key once to feed the printer by one line;

press the key and hold to continuously feed until released. In parameter setting interface, press the key to go back to previous menu or cancel current parameter



modification. : Press this key to switch between WEIGHING and DIRECT mode. Press the key and hold for about 2 seconds then the numbering of the samples will start from the beginning (0000000001) again. In parameter setting interface, press this key to go back to previous menu item or increase parameter settings (quick increase achieved by holding this key).



: Press this key to select a mode among STAT., SUM, MEAN, FMLT mode. Then this key can be used to print the calculation results and back to previous mode. In the setting mode, press this key to confirm modification/selection, or enter setting interface of some item.



: Print current time & date. Press this key and hold for longer than 2 seconds to set the time & date. In the setting mode, press this key to go to next menu item or decrease parameter settings (quick decrease achieved by holding this key).



: Press this key to request weighing data from the balance, equal to key 'Print' on balance. There might be a little delay before actual printing since the balance usually sends weighing data after it is stable. Press this key and hold for about 2

seconds to enter the setting mode. In inputting state, press this key to switch between uppercase and lowercase letters.

5.4 Select Interface Language

Turn on the printer, when the figure below appears on the display then press the



key. When the first figure appears on the display , press



or



to choose language then press



to confirm.


5.5 Select Printing Language

For setting language in printed report, please refer to <Parameter Settings>.







5.6 Date and Time Setting

When the printer is used at first time or after 14 days without power supply, it is required to reset the time and date.

Note: while setting time & date, the password will be required if this password is set.

1. Press the  key and hold for at least 2 seconds then the display will show as in the figure below:


```
Date & Time
2013--07--06
00:06:40
Press LF return
```

2. Press the  key to change the cursor position. Press the  key or the  key to decrease or increase the value. Press the  key to confirm and set the next parameter.
3. After setting is complete, press the  key to confirm, and press the  key to return to the previous step.

5.7 Select Operation Mode

1. DIRECT Mode

Under this mode, the data from balance would be printed directly, without any information

added. This mode is always used for printing balance calibration data. Press key  to enter

DIRECT mode.

2. WEIGHING Mode

Single weighing data or tare, gross and auto-calculated net weight can be printed under this mode. Head and tail information would be printed besides weighing data, the former includes: manufacturer information, instrument type, serial number, sample name/batch number, data/time, swift number; the tail includes: end time/date, signature. Each item in head and tail can be open or close separately. Examples of reports under WEIGHING mode are given below:



Only print single weighing data

```
-----  
Shimadzu Corporation  
Model          AUW120D  
S/N            D896301234  
ID             1234  
Date           07-07-2013  
Time           11:00:41  
Sample No.     00000000136  
-----  
Sample   +   10.004 mg  
-----  
End Time           11:00:41  
  
Signature:  
-----
```




Print tare, gross and net weight

```
-----  
Shimadzu Corporation  
Model          AUW120D  
S/N            D896301234  
ID             1234  
Date           07-07-2013  
Time           11:01:12  
Sample No.     00000000137  
-----  
Tare      +   10.005 mg  
Gross    +   10.006 mg  
Net       0.001 mg  
-----  
End Time           11:01:12  
  
Signature:  
-----
```

a. Print single weighing data:

- Press key  to switch to WEIGHING mode if currently it isn't.
- Put container on the weighing tray of balance.
- Press key 'Tare' on balance to eliminate tare weight.
- Put sample in weighing tray, and press key 'Print' on balance or key  on printer, when the weighing data on balance screen is stable.

b. Print tare, gross and net weight:

- Press key  to switch to weighing mode if currently it isn't.
- Put container on the weighing tray of balance.
- Press key 'Tare' on balance to eliminate tare weight.
- Print tare weight by pressing key  .
- Put sample in weighing tray, and press key 'Print' on balance or key  on printer, when the weighing data on balance screen is stable. The printer will print gross weight and automatically calculate and print net weight.







3. Statistical Mode (STAT. Mode)

The printer is able to give out statistical report based on up to 300 data samples, including: average value, standard deviation, deviation coefficient, summation, maximum value, minimum value and difference. User can decide which statistical outputs are needed and set corresponding parameters. The calculation is based on 64 bit double data, with no visual error. The output format is as follows,

<Format for statistical>

| | |
|----------------------|--------------|
| User-defined Title | |
| Shimadzu corporation | |
| Model | AUW220D |
| S/N | D4459xxxx |
| ID | xxxx |
| Sample | Nacl |
| Lot No. | AZ1302001 |
| Date | 10-18-2010 |
| Start Time | 15:25 |
| -----<STAT>----- | |
| No.0001 | 12.18522g |
| No.0002 | 12.18522g |
| No.0003 | 12.18521g |
| No.0004 | 12.18522g |
| No.0005 | 12.18523g |
| -----<RESULT>----- | |
| N= | 5 |
| T= | 60.92610g |
| MAX= | 12.18523g |
| MIN= | 12.18521g |
| RNG= | 0.00002g |
| MEAN= | 12.18522g |
| SD= | 0.000007g |
| CV= | 0.000057446g |
| ----- | |
| Date | 10-18-2010 |
| End Time | 15:32 |
| <Signature> | |

Operation steps:

- Press key , when selection list appears, press key  or  to select 'Statistic Mode', and press key  to confirm the selection.
- Put the first sample on balance, press key 'Print' on balance or key  on printer when weighing data is stable. The printer will print sample weight, and add it into statistical queue.
- Press key 'Print' each time weighing a sample the same as last step.
- When all the samples are weighted, press key  to calculate statistical results and back to previous mode.

4. SUM Mode

Quickly print the summation of several samples. Only summation value is printed under this mode, with the same format and operation as STAT. mode

5. MEAN Mode

Quickly print the mean value of several samples. Only mean value is printed

under this mode, with the same format and operation as STAT. mode.







6. Formulation Mode (FMLT.)


Print the weight of every component in a formulation and the whole weight of formulation, with gross, tare weight. The print format is as follows:

<Format for formulation>

| | |
|-------------------------|------------|
| User-defined Title | |
| Shimadzu corporation | |
| Model | AUW220D |
| S/N | D4459xxxxx |
| ID | xxxx |
| Sample | Nacl |
| Lot No. | AZ1302001 |
| Date | 10-18-2010 |
| Start time | 15:25 |
| -----<FORMULATION>----- | |
| Tare weight | 52.00021g |
| CMP001= | 0.65112g |
| CMP002= | 0.85623g |
| CMP003= | 0.78331g |
| CMP004= | 0.85194g |
| CMP005= | 1.65811g |
| Net weight= | 4.80071g |
| Gross weight= | 56.80092g |
| ----- | |
| Date | 10-18-2010 |
| End time | 15:27 |
| ----- | |
| <Signature> | |


Operation steps:

- Press key , when the selection list appears, press key  or  to select 'Formulation Mode', and press key  to confirm the selection.
- Press key 'Tare' on balance to clear.
- Put container on the weighing tray of balance, and print tare weight by pressing key , then the balance would exclude tare weight automatically. If tare weight is not needed, just skip this step.
- Put the first sample on balance, press key 'Print' on balance or key  on printer when weighing display is stable. The printer will print sample weight, and automatically exclude tare weight.
- Press key 'Print' each time weighing a sample the same as last step.

- When all the samples are weighted, press key  to calculate results and back to previous mode.

Note:

1. The printer will enter mode 'DIRECT' or 'WEIGHING', depends on the mode printer was under last time before power off. Selecting other mode can be

accomplished by pressing key .

2. When mode 'STAT. MODE', 'SUM MODE', 'MEAN MODE', 'FMLT MODE' is completed, the printer will back to mode 'DIRECT' or 'WEIGHING' automatically, depends on the previous mode.
3. Printer tare weight must be operated first, otherwise would be invalid. There is only one tare weight for one report.
4. The print mode of balance usually includes 'Output immediately' and 'Output after stable'. If the user requires automatic stable data every time, please set the balance to 'Output after stable when press key print' mode refer to the manual of balance.

5.8 Data Export

The data and reports in printer can be exported to U-Disk in .Tt or .csv file. Tt file can be opened using Tt reader or word, while .csv file can be opened directly in EXCEL. These files can be stored for user's future calculation and analysis.

Please set up the following configurations before using the data export function:

1. Select 'U-Disk file format' in 'Normal set' menu according to needs. It is recommended that data can be saved in Tt file for storage, or saved as csv file for statistical analysis.
2. Set 'Printout at USB Disk' in 'Normal set' menu. If the printer is not expected to print when connecting to U-Disk, select 'OFF'.
3. Set 'Data Format in Stat. Report' in 'PrintOut' menu. This item is set to decide the data output format under 'STAT. mode', 'Mean mode' and 'Sum mode', as follows,

| | | |
|---------------------------|-------------------|-----|
| Without time and comma: | No.001 | 3 g |
| Without time, with comma: | No.001, | 3 g |
| With time, without comma: | No.001 14:59:59 | 3 g |
| With time and comma: | No.001, 14:59:59, | 3g |

When the U-Disk file format is selected to be .csv, the printer is forced to use format with comma separator, as required by csv format. The separator is used to distinguish data in excel that weighing data would be numerical and in the same vector. This way, data can be calculated and analyzed conveniently in excel.

Operation steps:

1. Connect U-Disk to printer: there would be indicating voice and the 'FN' light would be on if the printer is working well.
2. In 'Weighing mode', a complete data report (just weight or with tare, gross and net) will be automatically

exported in the root of U-Disk the moment it is created. The printer will give a long

'beep' to indicate the completion of exporting process. Meanwhile, in 'STAT. mode', 'Mean mode', 'Sum mode' and 'Formulation mode', the report will be saved in U-Disk after the mode is completed. During this time, the 'FN' light flashes to indicate that the writing process is not finished yet.

3. A separate file is created for each record. Please repeat previous steps if more records are needed, otherwise just pull out the U-Disk.

Note:

1. Data exporting process is not finished when the 'FN' light keeps flashing. For example, tare has been printed but gross and net have not been printed, or the statistical calculation is not finished. Please do not pull out U-Disk if the 'FN' light is flashing, otherwise incomplete files would be created and records might get lost.


2. The record files are named by current time; previous file would be replaced automatically if there is a new file with same name.

3. Please transfer data in U-Disk to PCs regularly to avoid the possibility that too much files in U-Disk might affect operation speed. Format the U-Disk if it is not working well, such as writing slowly or appearing error.

4. It is recommended to use a high quality USB extension line to avoid possible damage in interface, if U-Disk is frequently used.

5.9 Parameter Settings



Press and hold the  key for at least 2 seconds, the setting menu will appear on the display as follows:

```

MAIN MENU
1. PrintOut
2. Normal set
3. Interface set
    
```

Please refer to the key function description for operation.

Parameter settings of 'PrintOut'

| Item | Factory setting | Setting options | Note |
|------------------------------|-----------------|-----------------|------------------------------|
| Print date and time at start | OFF | ON/OFF | |
| Print label at starts | OFF | ON/OFF | Label can be set by software |
| Print label in report header | OFF | ON/OFF | |
| Print MFGR in report header | ON | ON/OFF | |

| | | | |
|-------------------------------|----|--------|---|
| Print model in report header | ON | ON/OFF | For devices that can't be identified automatically, the model can be input manually |
| Print SN in REP. header | ON | ON/OFF | For devices that can't be identified automatically, the SN can be input manually |
| Print ID in REP. header | ON | ON/OFF | ID can be input manually |
| Print date in report header | ON | ON/OFF | |
| Print time in report header | ON | ON/OFF | |
| Print number in report header | ON | ON/OFF | Number add 1 after automatically printing a report |
| Print sample in report header | ON | ON/OFF | The sample name/batch number output function should be enabled (SP.ON). |

| | | | |
|----------------------------------|----|--------|---|
| Print Lot No. in report header | ON | ON/OFF | The sample name/batch number output function should be enabled (SP.ON). |
| Print date in report tail | ON | ON/OFF | |
| Print time in report tail | ON | ON/OFF | |
| Print signature in REP. tail | ON | ON/OFF | |
| Print number in SATA. report | ON | ON/OFF | |
| Print mean value in SATA. report | ON | ON/OFF | |
| Print standard deviation | ON | ON/OFF | |
| Print coefficient variation | ON | ON/OFF | |

| | | | |
|----------------------------------|-----|--------|----------------------------|
| Print mean deviation in STAT. | OFF | ON/OFF | |
| Print mean deviation coefficient | OFF | ON/OFF | |
| Print sum value in STAT report | ON | ON/OFF | |
| Print minimum in STAT. report | ON | ON/OFF | |
| Print minimum deviations | OFF | ON/OFF | |
| Print maximum in STAT. report | ON | ON/OFF | |
| Print maximum deviations | OFF | ON/OFF | |
| Print difference in STAT. report | ON | ON/OFF | |
| Gross weight in formulation | ON | ON/OFF | |
| Batch Auto INCR | OFF | ON/OFF | Batch number auto-increase |

| | | | |
|------------------------------|---------|------------|--|
| Maximum number of statistics | 300 | 2-300 | Print results immediately if the weighing times is larger than this number |
| Printout Langua. | English | English/中文 | Printing language |
| Auto-Zero after tare printed | OFF | ON/OFF | |
| Data Format in Stat. Report | | | |

*√ : ON, × : OFF.

*Balance manufacturer information is inserted in printer.

Parameters setting of 'Normal set'

| Item | Factory setting | Setting options | Note |
|----------------|-----------------|-----------------|---------------------------|
| Language | English | English / 中文 | Select interface language |
| Key press beep | ON | ON/OFF | |


| | | | |
|-------------------|-----------|-----------------------|---|
| Screen save time | 5 minutes | (1~120)minutes | |
| Screen brightness | 100 level | (0~255)level | Too high screen brightness may reduce the life |
| Password | 888888 | 6 digits (0~9) | Access to setting time & date |
| Device ID | | 16 characters at most | |
| Device Model | | 16 characters at most | Only valid for devices that can't be identified automatically |
| Device SN | | 16 characters at most | Only valid for devices that can't be identified automatically |

| | | | |
|--------------------|-------------|---|--|
| Date & Time format | mm-dd-yy yy | dd-mm-yyyy y yyyy-mm-dd d mm-dd-yyy y dd-mm-yyyy y | Date format: mm: month dd: data yyyy: year |
| Hold run mode | ON | ON/OFF | OFF: back to Weighing mode ON: keep in previous mode |
| Printout at U-Disk | OFF | ON/OFF | ON: print out when recording to U-Disk OFF: don't print out |
| U-Disk file format | CSV | TT/CSV | |

Communication parameters settings (Interface set)

Warning: wrong setting may lead to fail of printer. Please do not change parameters below if not necessary.

| Item | Factory setting | Setting options | Note |
|-----------|----------------------------------|---|--|
| Auto baud | ON | ON/OFF | Communication parameters auto-set. Note: only available for METTLER balance |
| Baud | Depends on the balance connected | 110,300,600,1200, 2400,4800, 14400, 9600,19200,38400, 57600, 115200 | Must be set according to baud rate of balance, please modify carefully. |
| Data bits | Depends on the balance | 7bits/8bits | Must be set according to balance. |

| | | | |
|------------------|------------------------|----------------------------------|--|
| Parity | Depends on the balance | None/ODD /EVEN | Must be set according to balance.. |
| Stop bits | Depends on the balance | 1STOP/2STOP | Must be set according to balance. |
| Handshake | Depends on the balance | None, DTR/CTS, DTR/DSR, Xon/Xoff | Must be set according to balance. |
| Terminate char | Depends on the balance | CR+LF,CR,LF,XON | Must be set according to balance. |
| Enable HEX mode | OFF | ON/OFF | ON: Print all the data in HEX, often used for debugging. This item is usually set to OFF. |
| Enable Demo mode | OFF | ON/OFF | ON: When disconnected with balance, printer will receive a simulative weighing data each time the key  is pressed, used for function demonstration or debugging, |

| | | | |
|-----------------|--|--|---|
| | | | This item is usually set to OFF |
| Factory default | | | All settings will be recovered to factory default value |

6

6.1 Installing the software on PC

The software is mainly for:

1. Setting the label text which will be printed when printer starts.
2. Setting the label text which will be printed in reports.
3. Setting the sample name.

If you need the functions above you can obtain the software from the distributors or contact with us.

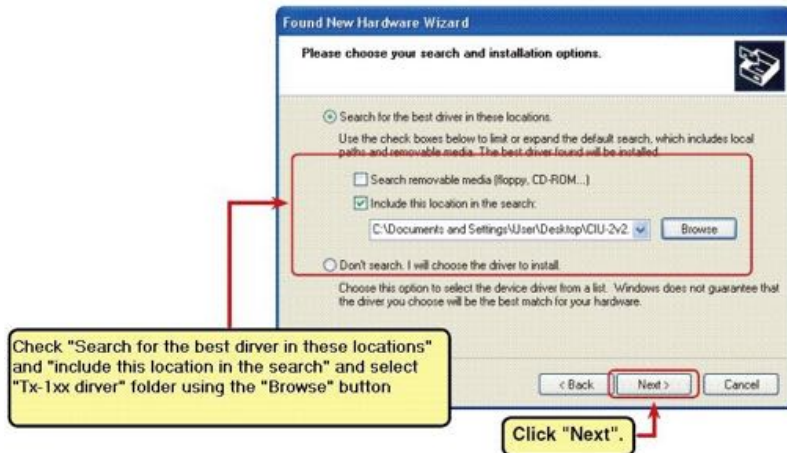
6.2 Driver Installation

1. Connect the printer USB port to computer with USB cable.(Warning: do not connect the power adaptor with the printer)
2. The "Found new hardware wizard" windows will be displayed on computer screen, choose "Install from a list or location (Advanced)" then click "Next".



Please refer to the figure below:

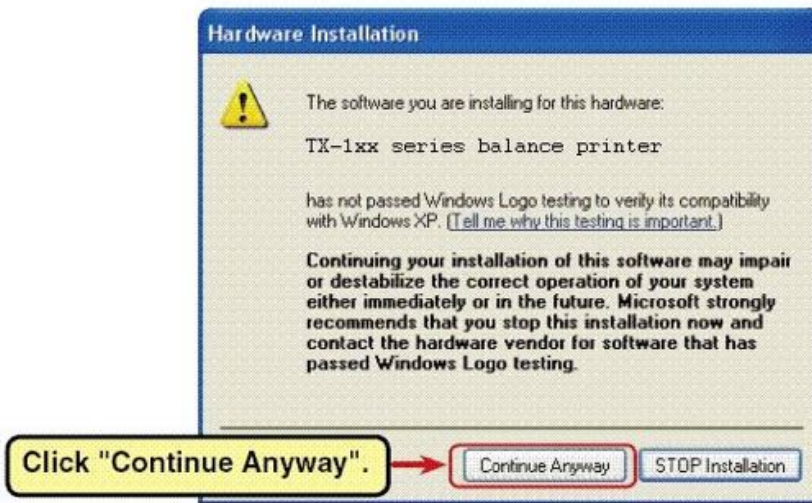
3. Check "Search for the best drive these locations" and "Include this location in the search" and select the "T-1XX driver folder" using the "Brower" button and then click the "Next". Pease refer to the figure below:



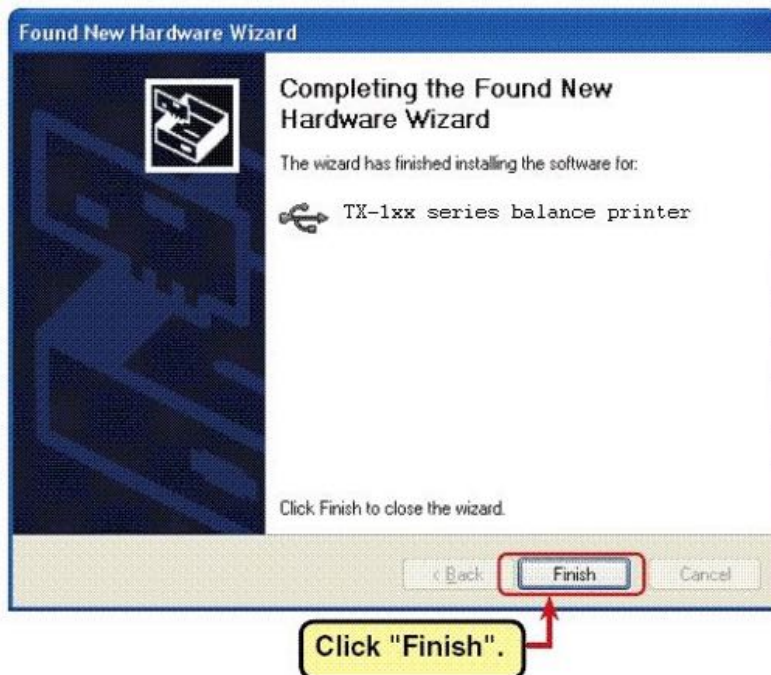
4. Installation of T-1XX printer drive will begin. Thefigure as shown below will be displayed on the computer screen:



5. During the installation, a XP compatibility warning will be displayed, click "Continue Anyway". Please see the figure below for your reference.




6. When “Completing the Found new hardware wizard” appears, click “Finish” to complete the installation. Please refer to the figure below:



Note: please don't use 'Auto-search' for installing this software. The T-1xx supplement software is ready after the driver installation. Please refer to the introduction document for detailed operation method.








7


7.1 Print sample name

Press the  key then it will be displayed as below in the display screen:

```
【 Sample Name 】
Input SampleName
Input SampleCode
```

Input the sample name:

Under this option you can input the characters directly Press the  key or the  key to change cursor position, the  key or the  key to change the character, press the  key to cancel, press the  key to switch between uppercase and lowercase letters, press the  key to confirm the modification and print the sample name.

Tips: If the “print sample” item under “Printout” in main menu is enabled, the sample name will be printed out only when the  key is pressed.


Input sample code:

By inputting sample code, the sample name will be printed out accordingly. Please refer to related section above for how to input the sample code. Sample name and code can be edited with the “T-1XX Label & Sample name Editor” software.

The printer will save the input content and status even after the printer reboots.

```
Please input:
 000000
Sample:
H2O
```

7.2 Print Lot number

Press the  key then the display screen will show:

```
Lot No. :
7
Press N, DATE, FNx
SET OKLF Cancel
```

Please refer to related section above for how to input. The printer will save the input content even after the printer reboots.

7.3 Lot Number Auto-Increment

If the “Batch auto INCR” item and the “Print Lot No.” item under “Printout” in main menu are enabled, the Lot number will be increased automatically.

Note:

1. The last character of the Lot number must be one of numbers from (0-9).
2. The Lot number will restore to previous setting after the printer reboots.

8

8.1 Firmware Update

Firmware is updated only when it is necessary or new features are obtained.

1. Connect the printer’s USB port to computer with USB cable. (Warning: do not connect the power adaptor with the printer)
2. Open the firmware package folders, double click

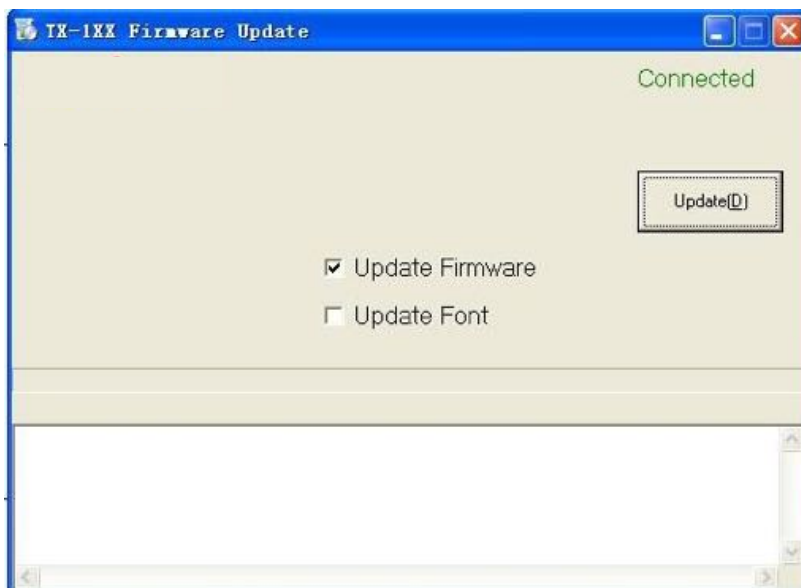


the following “exe” file

then click the “Update” button and wait for completion. Please refer to the figure below:

Note: when the connection is wrong or disconnected, the dialog box will show “Equipment Unconnected”, the “Update” button is not available in that case.

8.2 Data Interface

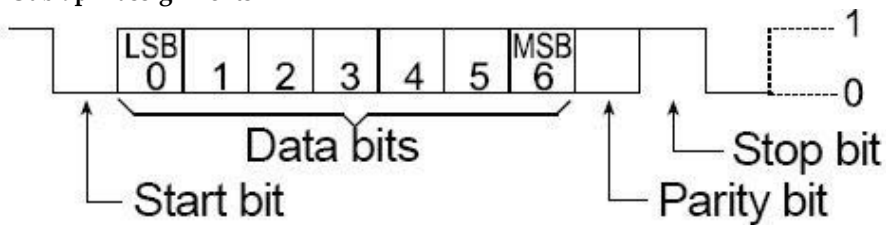


Features:

- EIA RS-232C / TTL(jumper setting internal, default:RS-232C)
- D-Sub 9pin, male
- Asynchronous, bi-directional, half duplex
- Baud rate: 110, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
- Parity: None, Odd, Even
- Data bits: 7bit, 8bit
- Stop bits: 1stop, 2stop
- Handshake: None, DTR/CTS, DTR/DSR, XON/XOFF

Data frame format example (7bit, 1stop, odd or even parity):

D-Sub 9pin assignments



| Pin No. | Signal | Direction | Description |
|---------|--------|-----------|---|
| 1 | NC | | No connection |
| 2 | RXD | Input | Receive data |
| 3 | TD | Output | Transmit data |
| 4 | DTR | Output | Data terminal ready |
| 5 | SG | | Signal ground |
| 6 | DSR | Input | Data set ready |
| 7 | RTS | Output | Request to send(Connect to pin4 internal) |
| 8 | CTS | Input | Clear to send |
| 9 | NC | | No connection |

Note: The pin7 (RTS) is connected to pin4 (DTR) internally.

Handshake protocol:

None: Printer and balance can transmit data any time.

XON/XOFF 1: Once <XOFF> is received, it prevents further transmission of data, the data will be stored in the transmit buffer2 until <XON> is received.

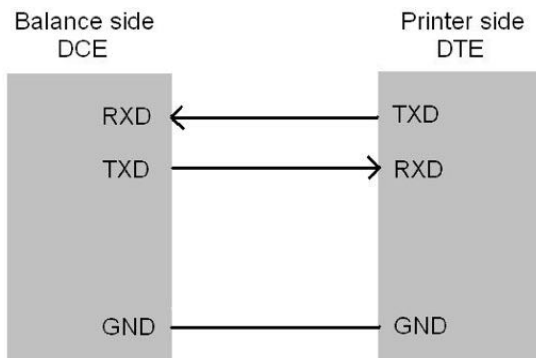
DTR/CTS: When the device (balance or printer) can receive data, set the DTR to logic low2, and vice versa; When the CTS is logic high2, it prevents further transmission of data, the data will be stored in the transmit buffer until CTS is logic low.

DTR/DSR3: When the device (balance or printer) can receive data, set the DTR to logic low, and vice versa; When the voltage of DSR(printer side) exceeds 2.5V, it prevents further transmission of data, the data will be stored in the transmit buffer until the voltage less than 1V.

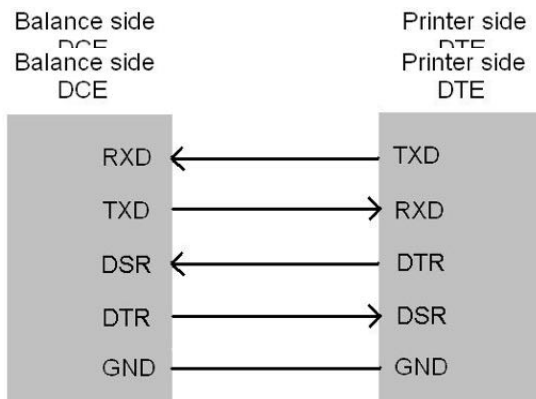
- Note:**
1. XON: 0x11(Hex), XOFF: 0x13(Hex)
 2. The transmit buffer size of the printer is 32 bytes.
 3. Logic low: 5~15V (RS-232C), 0~1V (TTL); logic high: -5~-15V (RS-232C), 3~5V (TTL);
 4. DTR/DSR can be used SHIMADZU T series balance which has the D-Sub9 port.

Connection:

Handshake = None, XON/XOFF:



Handshake = DTR/CTS



Handshake = DTR/DSR

9.1 Questions and Answers

Q: Why the printer cannot print?

A: Maybe the communication settings on the printer and balance do not match. The printer can only work when the communication settings exactly match, which contains hand-shake, data-bit, parity check and bode rate. For details please refer to the manual of balance and printer. If you are sure the setting of printer is not modified, then it is recommended that the balance can be recover to default settings.

Q: The printer cannot print the following information: the supplier, the model and serial number of the balance, the time and date when printing begins.


A: 1. Maybe the GLP/GMP PRINTOUT are not enabled, please refer to 'Parameter Settings'.

2. May be the balance did not support these features, please refer to the manual of balance.

Q: It sounds like the printer is working so does the line feed but no letters on the paper printed out, or the gray of character is not even.

A: The ink ribbon cartridge may be not installed correctly or it cannot be used anymore.



Q: The printer can print after pressing key , but with an obvious delay.

A: This should be considered as normal. The default setting of balance is usually 'Print after stable'; therefore the balance wouldn't output data until measured data is stable, even user already pressed key 'print'. Please refer to manual of balance for detail.

Q: Time and date information missing


A: If you the printer turned off for more than 13 days without power supply, then you have to reset the time and date again when it is turned on next time.

Q: Noise or vibration appears when printing

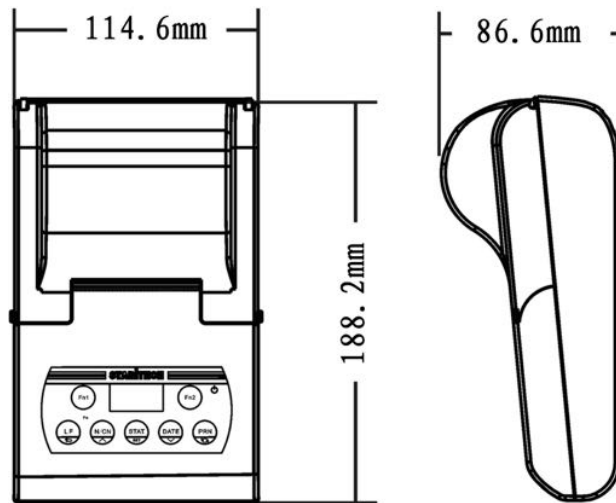
A: T-1xx printer is needle type printer, therefore creates noise and vibration. The printer can be placed on damping material if it influences the balance working.

9.2 Maintenance

1. While cleaning the printer, make sure any liquid does not inside the printer.
2. Keep the irritant liquid far away from printer.
3. Disconnect the power cable and the data cable before cleaning.
4. Please use soft dry cloth to wipe the printer after cleaning.

5. The power consumption is quite low so it can standby for a long time.
6. Keep it in a dry environment, if not used for a long time pack it into the factory packaging.
7. To avoid damage to the printer, we strongly suggest you to buy the ink ribbon cartridge from the original supplier.
8. If the paper is stuck, press the  key then cut the parts you don't need, DO NOT ever pull the paper.

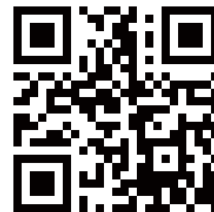
9.3 Physical Dimensions



10.

10.1 Parts List

| Item | Part No. | Remarks |
|----------------------|-----------------|---|
| AC adapter | T-AC001 | AC100-240V |
| Ink ribbon cartridge | T-AC002 | ERC-09 |
| Printer paper | T-AC003 | 57x50mm |
| Connection cable1 | T-CAB1 | DB9 female to DB9 male (Cable side) |
| Connection cable2 | T-CAB2 | DB9 female to DB25 male (Cable side) |
| Connection cable3 | T-CAB3 | DB9 female to DIN8-262 male (Cable side), Only for SHIMADZU Data IO port |



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User Manual T110