

PC SCALE





390.0 mm/15.4 inch



Contents

| 1. Chapter 1 Conventional 1 1.1 Scale part-100C specifications 1 1.2 Touch POS Specification 2 1.3 Indicator light definition 3 1.4 Keyboard definition 4 1.5 Combination shortcuts 5 | 2 2 |
|--|---|
| 2. Chapter 2 Spare parts | ; |
| 3. Chapter 3 Basic operation 7 3.1 Power on & off operation 7 3.2 Zero operation 8 3.3 Tare operation 8 3.4 Counting and weighing operation 11 3.5 Weight unit switch 12 3.6 Enter customer function 13 3.7 Customer function SPEC definition 14 3.8 Enter system function 14 3.9 System function definition 2 | , , , , , , , , , , , , , , , , , , , |
| 4. Chapter 4 System function settings 2 4.1 Full scale calibration 2 4.2 Full scale rate correction 3 4.3 Internal code check/display 3 4.4 Reset 3 4.5 Factory default 3 4.6 Prompt information list 3 | 27 27 30 33 35 36 37 |
| 5. Chapter 5 Serial port (RS232) and USB interface 3 5.1 POS serial protocol used in China 3 5.2 Common standard POS serial port protocol 4 | 38 38 18 |

OPERATIONAL WARNING

Please follow the instructions below to operate the product to ensure product and personal safety.



Before installation it is important to check whether the power supply indicated by the brand name matches to ensure the normal operation of the machine.



Keep your fingers dry when inserting or removing the power Plug to avoid electric shock

Metal objects or

liquids can cause

fire or rust in the

scale. Keep an

appropriate distance



Sharing sockets with other high-power devices can cause large fluctuations. Make sure that one scale uses a matching power outlet.



Do not scratch or modify the power cord, bend excessively or place heavy objects on top to avoid fire or short circuit.



machine or fire. If the scale falls, please turn off the switch and power Plug immediately, suspend use, and contact the service personnel in time to avoid fire or electric

shock

Do not insert metal or flammable objects

at the interface to

avoid damage to the



When the scale emits smoke or strange smell, please stop using it immediately, turn off the switch and power supply, and contact the service personnel in time.



Immediately turn off the switch and Plug when metal fragments or liquids enter the interior. suspend use and contact service personnel to avoid fire or electric shock.



Make sure that the scale and extension cable are properly grounded, as this can cause external metal parts to be electrostatically charged to prevent fire or electric shock.



То a v o i d disconnection of the power cord or peeling of the cord when unPlugging the power cord, do not pull on the cord.



Do not remove, repair or modify the scale body, highvoltage, high-heat parts or internal edges to ensure personal safety.

1.1 Scale part–100C specifications

| Specification type | Values | |
|---|---|--|
| Maximum range | 3kg; 6kg; 15kg; 30kg; 30lb; 60lb; | |
| | 3/6kg; 6/15kg; 15/30lb; 30/60lb | |
| Internal fractional value | Up to 60,000 | |
| Display resolution | Range 1000~20000 | |
| | 1000; 1250; 1500; 2000; 2500; | |
| | 3000; 4000; 5000; 6000; 7500; | |
| | 10000; 12500; 20000 | |
| Nonlinear error | <0.008% FS (display only) | |
| Maximum counting range | 0~60000Pcs | |
| Operating temperature | 0~40°C | |
| Use relative humidity | 15%~85%RH (No condensing) | |
| • Monitor | 6-digit LCD, 14 indicators | |
| Operation buttons | [REZERO] [TARE] [UNIT/←] [PCS/↑] | |
| Unit of weight | 5 of them, g/kg/lb/oz/pcs | |
| Status Indicator | 6 of them are ZERO/STABLE/NET | |
| | S1/S2/S3 | |
| Decimal symbol | "." or "," | |
| Interface | Two standard RS232 interfaces. This interface can be connected to external data terminal | |
| | equipment. (Data 600 ~ 57600 bit/s baud, 8bit Data, 1bit Stop, No parity bit) | |

| Specification type | Values |
|--------------------|--|
| • OS | Windows 7 / 64 / SP1 |
| • RAM | 4GB/DDR3L/1600MHz |
| • Monitor | Intel HD Graphics 4600/256MB |
| • Touch | 15.5 inches/16:9/1920x1080/capacitive screen |
| Second Monitor | 10.1 inches/16:9/1280x800/capacitive screen |
| • Ports | DC IN 2xUSB3.0 2xUSB2.0 |
| | |
| | Intel 4th Generation Core/i3-4100M/2 50GHz |
| Printer speed | 80 mm/s |

| [ZERO] The weight zero indicator lights when the weight is "0". [STA] When the weight value is stable, the indicator light is on. [NET] When the displayed value is net weight, the indicator light is on. [S1] When the counting mode is in the sample quantity setting, the indicator light is on. [S2] When the electronic scale is in the process of setting and calibration, the indicator light is on. [S3] When the weight is locked (HOLD), the indicator lights up. [g] When the weight unit of the displayed value is |
|---|
| when the weight is "0". •[STA] When the weight value is stable, the indicator light is on. •[NET] When the displayed value is net weight, the indicator light is on. •[S1] When the counting mode is in the sample quantity setting, the indicator light is on. •[S2] When the electronic scale is in the process of setting and calibration, the indicator light is on. •[S3] When the weight is locked (HOLD), the indicator lights up. •[g] When the weight unit of the displayed value is |
| •[STA] When the weight value is stable, the indicator light is on. •[NET] When the displayed value is net weight, the indicator light is on. •[S1] When the counting mode is in the sample quantity setting, the indicator light is on. •[S2] When the electronic scale is in the process of setting and calibration, the indicator light is on. •[S3] When the weight is locked (HOLD), the indicator Ights up. •[g] When the weight unit of the displayed value is |
| the indicator light is on. [NET] When the displayed value is net weight, the indicator light is on. [S1] When the counting mode is in the sample quantity setting, the indicator light is on. [S2] When the electronic scale is in the process of setting and calibration, the indicator light is on. [S3] When the weight is locked (HOLD), the indicator lights up. [g] When the weight unit of the displayed value is |
| •[NET] When the displayed value is net weight, the indicator light is on. •[S1] When the counting mode is in the sample quantity setting, the indicator light is on. •[S2] When the electronic scale is in the process of setting and calibration, the indicator light is on. •[S3] When the weight is locked (HOLD), the indicator Ights up. •[g] When the weight unit of the displayed value is |
| weight, the indicator light is on. •[S1] When the counting mode is in the sample quantity setting, the indicator light is on. •[S2] When the electronic scale is in the process of setting and calibration, the indicator light is on. •[S3] When the weight is locked (HOLD), the indicator Iights up. •[g] When the weight unit of the displayed value is |
| [S1] When the counting mode is in the sample quantity setting, the indicator light is on. [S2] When the electronic scale is in the process of setting and calibration, the indicator light is on. [S3] When the weight is locked (HOLD), the indicator lights up. [g] When the weight unit of the displayed value is "q" (gram), the indicator light is on. |
| quantity setting, the indicator light is on. •[S2] When the electronic scale is in the process of setting and calibration, the indicator light is on. •[S3] When the weight is locked (HOLD), the indicator lights up. •[g] When the weight unit of the displayed value is "g" (gram), the indicator light is on. |
| [S2] When the electronic scale is in the process of setting and calibration, the indicator light is on. [S3] When the weight is locked (HOLD), the indicator lights up. [g] When the weight unit of the displayed value is "g" (gram), the indicator light is on. |
| setting and calibration, the indicator light is on. [S3] When the weight is locked (HOLD), the indicator lights up. [g] When the weight unit of the displayed value is "g" (gram), the indicator light is on. |
| [S3] When the weight is locked (HOLD), the indicator lights up. [g] When the weight unit of the displayed value is "g" (gram), the indicator light is on. |
| lights up. [g] When the weight unit of the displayed value is "q" (gram), the indicator light is on. |
| • [g] When the weight unit of the displayed value is "g" (gram), the indicator light is on. |
| "g" (gram), the indicator light is on. |
| |
| •[kg] When the weight unit of the displayed value is |
| "kg" (kilogram), the indicator light is on. |
| •[Ib] When the weight unit of the displayed value is |
| "lb" (pounds), the indicator light is on. |
| • [oz] When the weight unit of the displayed value is |
| "oz" (ounce), the indicator light is on. |
| • [PCS] When entering the counting mode, the indicator |
| light is on. |

1.4 Keyboard definition

| Buttons | Values |
|-----------------|---|
| •[REZERO] | Zero key |
| | It is the operation confirmation and data saving |
| | button in the setting mode, and the zero setting |
| | operation button in the weighing mode. |
| •[TARE] | Tare function key |
| | It is used for tare operation in weighing mode, |
| | and is used for operation exit button in setting |
| | or calibration mode. |
| •[UNIT/P.E/←] | Unit conversion key |
| | In weighing mode, it is used for unit conversion |
| | or counting sampling confirmation button (only |
| | allowed in counting modeValid under conditions). |
| | In the setting mode, it is used to select the |
| | digital position. |
| •[UP/P.S/↑] | Multi-function key |
| | In the weighing mode, it is used to switch between |
| | net weight/gross weight display, or enter the counting |
| | mode operation mode key (only valid under the |
| | conditions allowed by the counting mode). The function |
| | of this function key is determined by the setting value |
| | of SPEC 03, Bit1,0. In the setting mode, it is used to |
| | modify the value of the set digit (flashing digit). |

1.5 Combination shortcuts

| Mode | Combination key operation |
|---|---|
| Enter user function | [REZERO] + [←][←][←] |
| Enter system function | [REZERO] + [←][TARE][←] |
| • Enter the system internal code | [REZERO] + [TARE][TARE][←] |
| Enter system full calibration | $[REZERO] + [\leftarrow][TARE][TARE]$ |
| Enter calibration | [REZERO] + [TARE][←][←] |
| Calibration on | [REZERO] + [←][TARE][↑] |
| Restore factory spec | [REZERO] + [↑][↑][←] |

Note:

(1) When performing quick operations, you need to hold down the [REZERO] key for a long time while pressing other keys;

(2) Before restoring the factory SPEC settings, you need to open the calibration switch at the bottom of the scale body

2 Spare parts



3.1 Power on & off operation

Boot up: Press the switch button to start the PC scale.



Shut down:

 Click the start button at the bottom left of the main screen and find "shut down" to turn off the PC scale.
 Press the switch button again to turn off the PC scale.

7 Chapter 3

3.2 Zero operation

• Make sure that the scale is in a stable state and put a heavy object, the weight must be less than the set allowable zero setting range, such as 0.500kg



 Click [REZERO] and remove the heavy object, which shows –0.500kg



Click [REZERO] again to reset to zero

Note:

 If the placed weight exceeds the zero setting range, press the [REZERO] key, and the tare operation will be completed.
 The zero setting range can be selected by setting SPEC 04 BIT 3, BIT2.



3.3 Tare operation

• Make sure that the scale is in a stable state and put on heavy objects. The weight must be less than the set allowable peeling range, such as 2.500kg



 Click [TARE] and remove the heavy object, which is displayed as -2.500kg



• Click [TARE] again to resume zero setting

Note:

 If the placed weight exceeds the allowable zero setting range, the tare operation will be performed after pressing the tare key.
 The peeling range can be modified by SPEC 04 BIT 0 to select the allowed peeling range of 50%FS or 100%FS



3.4 Counting and weighing operation

 lick [↑] key to enter the setting, [←] key becomes the shift key, will increase "0" from right to left; [↑] key becomes the increment key, increase "1" from right to left



• After the operation, click [REZERO] to save and enter the next item; click [TARE] to exit without saving.

Make sure the scale is in a stable state, press and hold [REZERO], and click [\leftarrow][\leftarrow][\leftarrow] to enter the customer function, scroll down to spec03, and modify it to "1010".



 Click [↑] to enter the counting operation. By default, 10 pieces are displayed, and 10 pieces of goods need to be placed on the weighing pan for counting.



• Place the corresponding number of items on the weighing pan.

To increase the number of counts, press [PCS], which can support up to 1000 items; Confirm the quantity and click [UNIT], check the total weight and click [UNIT] again; Exit counting mode and click [TARE].

If there are items on the weighing pan that need to be set to zero, click [REZERO] after entering the counting mode.



11

Chapter 3

3.5 Weight unit switch

Make sure that the scale is in a stable state.
 Put a heavy object on the weighing pan, such as 0.545kg



 Click the [←] key, it is displayed as 1.202lb; click the [←] key again, it is displayed as 19.22oz; the third click the [←] key, it is displayed as 545g; the fourth time it is restored to 0.545kg



• After removing the heavy objects, click [REZERO] to resume zero setting



Note:

To enable this switching function, SPEC03 bit.2 must be set to 0



Press and hold the [REZERO] button, and click the [
 ←] button three times to enter the spec setting



 lick [↑] key to enter the setting, [←] key becomes the shift key, will increase "0" from right to left; [↑] key becomes the increment key, increase "1" from right to left



 After the operation, click [REZERO] to save and enter the next item; click [TARE] to exit without saving





3.7 Customer function SPEC definition

• SPEC No.00

| [BIT 3/BIT 2] Backlight auto | o-off time setting |
|------------------------------|--------------------|
| 00:10 seconds | 01:20 seconds |
| 10:30 seconds | 11:Do not close |

[BIT 1] Allow automatic entry into power saving mode

0:Allow

1:Forbid

[BIT 0] Automatic shutdown time setting (after 3 minutes of no operation)

10:30 seconds

Note:

(1) Press and hold [\leftarrow] for 5 seconds to adjust the backlight brightness, "0" means no backlight, and "9" means maximum backlight;

(2) When the backlight brightness is set to "0", the backlight will not automatically turn on;

(3) 60 seconds to enter power saving mode

*The default is 1100, the backlight does not turn off automatically; allow to enter the power saving mode; no automatic shutdown

• SPEC No.01

[BIT 3] Backlight function settings 0:Allow 1:Forbid [BIT 2/BIT 1/BIT 0] RS-232 baud rate setting 000: Port closed 001: 1200 010: 2400 011: 4800

| 100: 9600 | 101:19200 | 110:38400 | 111: 57600 |
|--------------------------|-----------|-----------|-------------|
| 100: 9600 | 101:19200 | 110:36400 | 111: 57600 |
| wThe shafe of the factor | | £ | م مالم من م |

*The default is 0100, the backlight function is turned on; the baud rate of RS-232 is 9600



• SPEC No.02

[BIT 3/BIT 2] RS-232/USB communication mode setting

00:General command response method

01: Simple command (A) response method

10: POS/ECR communication method

11:Continuousweightdataoutputmethod

[BIT 1] Allow RS–232 port data output when the weight is unstable

0:Allow

1:Forbid

[BIT 0] RS-232 port data output format setting

0:Standard

1:Special

*The default is 1000, the RS-232/USB communication mode is set to POS/ ECR communication mode; the RS-232 port data output is allowed when the weight is unstable; the standard RS-232 port data format is output

• SPEC No.03

| [BIT 3] Allow "comma" as decimal point | | |
|--|--|--|
| 0:Allow 1:Forbid | | |
| [BIT 2] Weight unit conversion (kg/LB) [UNIT / \leftarrow] | | |
| 0:Allow 1:Forbid | | |
| [BIT 1/BIT 0] [TARE/ \uparrow] key function setting (in weighing mode) after the clock) | | |
| 00:Weight display lock(HOLD) | | |
| 01: Gross weight/ net weight switch | | |
| 10: Function key for counting mode | | |

11: Tare operation key only



*The default is 1011, it is forbidden to use a comma as the decimal point; it is allowed to use the $[\leftarrow]$ key to switch the weight unit; $[\uparrow]$ key is only the tare operation key in the weighing mode

• SPEC No.20

[BIT 3/BIT 2] RS-232 SPECIAL DATA MODE SELECT

00: Special format 1: Data format protocol 1

01: Special format 2: Data format protocol 2

10: Special format 3: TOLEDOMODE protocol

11: Special format 4: DIGI MODE protocol

[BIT 1/BIT 0] RS-232 SERIES DATA BIT AND PARITY VALUES

| 00: 8 data bits, NO Parity | 01: 7 data bits, Even Parity |
|-----------------------------|------------------------------|
| 10: 7 data bits, Odd Parity | 11: 7 data bits, Mark Parity |

*The default is 0000, the special data format protocol 1; RS–232 communication protocol uses 8 data bits, no check

• SPEC No.21

[BIT 3] Data (serial port) output weight unit selection

0: Synchronize with the displayed weight unit

1: Use the original set weight unit

[BIT 2/BIT 1/BIT 0] POS/ECR communication protocol selection (can be switched by pressing [Tare key] when turning on)

000: POS/ECR TYPE-0 Most P.O.S, ECRs and Some TEC P.O.S System

001: POS/ECR TYPE-1 NOT USE

010: POS/ECR TYPE-2 SHARP ER-Axxx, ER-A450T, New SANYO ECRs

011: POS/ECR TYPE-3 NOT USE

100: POS/ECR TYPE-4 CRS, NCR2170 and Many other ECRs, Most P.O.S

101: POS/ECR TYPE-5 NCI General, SAMSUNG SPS-300, ER-900, Most P.O.S

110: POS/ECR TYPE-6 SAMSUNG ER- 670, ER-5100, SPS- 520, Most P.O.S

111: POS/ECR TYPE-7 DELTA cash register protocol

Note:

1. SPEC21 command "D, CR, LF" response mode

2. For the PROTOCOL (interface protocol) of POS/ECR TYPE-0 ~ 7 in SPEC21, please refer to the following description of this article (POS/ECR INTERFACE) 9600 Baud rate, 7 Data bit, Even Parity, 1 Stop bit

(TYPE-6: 9600 Baud rate, 8 Data bit, None Parity, 1 Stop bit) 3. Set the unused setting bits to "0"

4. RS232C interface data format, stop bit is 1 bit, data bit 7 or 8 bits are optional. (SPEC 01,02 = SELECT .)

5. After the USB port is connected, the machine will automatically detect the data input by the USB port. If there is data input, the data communication of the USB port will be turned on

*The default BIT 3 is 1, use the original set weight unit No default BIT 2/BIT 1/BIT 0, POS/ECR communication protocol selection (can be switched by pressing [Tare key] when turning on) • Use the tool to click the (SPAN SW) button at the bottom of the screen to make the calibration switch on.



 Press and hold the [REZERO] key for a while, and click [←][TARE][←] to enter the spec setting.



 After clicking the [↑] key to enter the setting, the [←] key becomes a shift key and will increase "0" from right to left; the [↑] key becomes an incremental key and increases "1" from right to left.



Chapter 3

 The second method of opening calibration: Click [REZERO] + [TARE] \leftarrow] \leftarrow] to check the status of the calibration switch.

Click [REZERO] + [\leftarrow][TARE][\uparrow] to turn on the calibration switch.

Click [REZERO] + [\leftarrow][TARE][\leftarrow] to enter the system function setting.





SPEC No.04 [BIT 3/BIT 2] Reset range selection 00: ± 2% FS 01: ± 4% FS 10: ± 10% FS 11: Unlimited [BIT 1] NO PRESET TARE OP. 0:Forbid 1:Allow **(BIT 0) TARE RANGE** 0:<50% FS 1: <100% FS *The default is 0100, the reset range is ±4%FS; preset tare weight is prohibited; tare range <50% FS SPEC No.05 [BIT 3] Auto clear conduction 0: When the net weight is greater than 5d 1: When the net weight is greater than 5d and the gross weight is greater than 21d [BIT 2/BIT 1] SYSTEM ON START ZERO RANGE 00: + 2% FS 01: + 4% FS 10: + 10% FS 11: Unlimited

[BIT 0] AUTO CLEAR TARE

0:Allow

1:Forbid

*The default is 1101, then the automatic clearing conditions are when the net weight is greater than 5d and the gross weight is greater than 21d; the initial zero point is allowed to be within \pm 10% FS; automatic tare weight removal is prohibited



[BIT 3/BIT 2] Negative weight display

00: When the net weight is less than negative 2D, "UF." is displayed

01: When gross weight is less than negative 2D, "UF." is displayed

10: There is no load weight prompt display, showing the load value

11: Invalid setting

[BIT 1] Manual TARE CLEAR

0:Allow

1:Forbid

[BIT 0] When the calibration permission switch is closed, the weight inner code display is allowed

0:Allow

1:Forbid

*The default is 1001, there is no negative weight prompt display, showing the weight value; manual tare weight clearing is allowed; weight inner code display is prohibited when the calibration switch is allowed to be closed

• SPEC No.07

(BIT 3) After the weight unit is converted, the weight unit symbol flashes to allow setting

| 0.44 | |
|---------|----------|
| 0:Allow | 1:Forbid |

[BIT 2] Do not use

[BIT 1] Allow counting operation

0:Allow

1:Forbid

[BIT 0] Exceeding the zero point area at startup allows the use of the original zero position

0:Allow 1:Forbid

*The default is 0001, the weight unit symbol is allowed to flash after the weight unit is converted; counting operation is allowed; the original zero is forbidden to be used when the area exceeds the zero point when starting



| SPEC No.08 | | | |
|--|---|--------------|---------------------|
| [BIT 3/BIT 2] Benchmark (when calibrated) weight unit (g/kg/lb) | | | |
| 00: g | 01: kg | 10: lb | 11: OUNCE |
| (BIT 1) WHEN | [BIT 1] WHEN WEIGHT IS NOT ZERO, NO PRESE TARE OP. | | |
| 0:Allow | | 1:Forbid | |
| [BIT 0] Not S | table Hold | | |
| 0:Allow | | 1:Forbid | |
| *The default is 1101, then the base (when calibration) weight unit is OUNCE; when the weight is not zero, zero setting is allowed; when the weight is unstable, locking is prohibited • SPEC No.09 【BIT 3】 Dual rang weight check by | | | |
| 0:Only the net we | 0:Only the net weight is dual range 1:Both are dual range display | | |
| [BIT 2] Dual range automatic conversion (fixed range)Multi interval (only for fix mode1) | | | |
| 0:Single range | | 1:Dual range | |
| [BIT 1/BIT 0] Fix full capacity select mode(Only when SPEC 10, bit0="1") | | | |
| 00: 6000 | 01: 15000 | 10: 3000 | 11: Invalid setting |
| *The default is 1010, both are dual range display; dual range is automatically converted to single range; fixed range is 3000 | | | |

| • SPEC No.10 | | | | |
|--|--|--|--|--|
| [BIT 3] NO Tare Accumula | ation | | | |
| 0:Forbid | 1: Allow | | | |
| [BIT 2] No Tare Subtraction | [BIT 2] No Tare Subtraction | | | |
| 0:Forbid | 1: Allow | | | |
| [BIT 1] Reset after peeling | | | | |
| 0: Allow | 1: Forbid | | | |
| [BIT 0] System mode select | | | | |
| 0: Free weight full value setting | 1: Fixed weight full value setting | | | |
| *The default is 1100, which allows tion; allows tare weight decrease of operation after tare removal; range by free weight full value | tare weight increase opera- operation; allows zero reset a setting mode selection is set | | | |
| • SPEC No.11 | | | | |

| [BIT 3] Do not use | |
|-----------------------------------|------------------------------------|
| [BIT 2/BIT 1/BIT 0] Decimal p | oint position on of scale |
| 000: No decimal point | 001: One decimal (00000.0) |
| 010:Two decimal places(0000.00) | 011: Three decimal places(000.000) |
| 100: Four decimal places(00.0000) | 101: Five decimal places(0.00000) |
| | |

*The default is 0011, the weight display decimal places are three decimal places (000.000)

[BIT 3] CALIBRATION MODE

0: Weight calibration mode 1: Full correction mode

[BIT 2/BIT 1/BIT 0] Weight minimum division value

| 000: 1 | 001: 2 | 010: 5 | 011: 10 |
|---------|---------|----------|---------------|
| 100: 20 | 101: 50 | 110: 100 | 111: Not used |

*The default is 0001, then the full-scale calibration method is the heavy calibration mode; the minimum weight division value is 2

• SPEC No.13

[BIT 3/BIT 2/BIT 1/BIT 0] Resolution selection

| 0000: 1000d | 0001: 1250d | 0010: 1500d | 0011: 2000d |
|--------------|--------------|--------------|--------------|
| 0100: 2500d | 0101: 3000d | 0110: 4000d | 0111: 5000d |
| 1000: 6000d | 1001: 7500d | 1010: 10000d | 1011: 12500d |
| 1100: 15000d | 1101: 20000d | OTHERS | Not used |

*The default is 0101, the resolution is 3000d

SPEC No.14

[BIT 3/BIT 2/BIT 1/BIT 0] Allow overload to display the number of divisions

| 0000: 0d | 0001: 1d | 0010: 2d | 0011: 3d |
|-----------|-----------|-----------|-----------|
| 0100: 4d | 0101: 5d | 0110: 6d | 0111: 7d |
| 1000: 8d | 1001: 9d | 1010: 10d | 1011: 11d |
| 1100: 12d | 1101: 13d | 1110:14d | 1111:15d |

*The default is 1001, the number of divisions allowed for overload display is 9d

• SPEC No.15

[BIT 3/BIT 2/BIT 1/BIT 0] Do not use

*The default is 0000

• SPEC No.16

[BIT 3/BIT 2/BIT 1/BIT 0] Do not use

*The default is 1111

• SPEC No.17

[BIT 3/BIT 2/BIT 1] Do not use

[BIT 0] Display measured internal values

0: Allow

1: Forbid

*The default is 1111, which allows displaying the measured internal value

• SPEC No.18

[BIT 3/BIT 2/BIT 1] Do not use

[BIT 0] Display items for measuring voltage

0: Display battery voltage

1: Displays the percentage of battery power remaining

*The default is 0000, the battery voltage is displayed in the project clock for measuring voltage

SPEC No.19

[BIT 3/BIT 2/BIT 1/BIT 0] Do not use

*The default is 0000

Note:

1. Set the unused setting bits to "0"

2. FS is full weighing value

3. The system function is used to define the setting of measurement specifications. The user cannot change it by himself, and it must be set by a professional technician. • Use the tool to click the (SPAN SW) button at the bottom of the screen to make the calibration switch on.



 The second method of opening calibration: Click [REZERO] + [TARE][←][←] to check the status of the calibration switch. Click [REZERO] + [←][TARE][↑] to turn on the calibration switch.



• Modify BIT 3 of SPEC 12 to "0".



• Click [REZERO] button to save.



 Turn on the calibration switch again. Long press [REZERO], click [←] [↑] [↑] to enter the cali– bration, display the maximum weight of calibration.



 Take the maximum weighing 15kg and the calibrated weight 5kg as an example.
 Click [←] to move the modified position. After moving to the first position, click [↑] to modify the value until the value is "0", and click [REZERO] to enter the next item.



• Click [REZERO] to enter the next item.



• Put a 5kg weight on the weighing pan and click [REZERO] to complete the calibration.



• Remove the weight to complete the calibration and return to the weighing interface.

Note:

1. The DSW–100 instrument system can be fully calibrated with a standard weight greater than 10% of the full weight

24 2. The calibration switch (SPAN SW) must be on



• Use the tool to click the (SPAN SW) button at the bottom of the screen to make the calibration switch on.



 The second method of opening calibration: Click [REZERO] + [TARE][←][←] to check the status of the calibration switch. Click [REZERO] + [←][TARE][↑] to turn on the calibration switch.



• Modify BIT 3 of SPEC 12 to "1".



• Click [REZERO] button to save.



• Put a heavy object on the weighing platform, such as 10.005, the weight has deviation.



• Turn on the calibration switch again. Long press [REZERO], click [TARE][TARE][←] to enter the calibration, display the previous calibration Scaling parameters, such as 37.500.



• Click [←] to shift, click [↑] to increase, modify to the calculated scale parameter.



 Remove the heavy object, and press [REZERO] to enter the zero confirmation and wait, click [REZE– RO] again to enter the zero confirmation.



• Put on the weight, and display the actual weight value of the modified weight.



• Remove heavy objects and return to weighing mode.



• Use the tool to click the (SPAN SW) button at the bottom of the screen to make the calibration switch on.



 The second method of opening calibration: Click [REZERO] + [TARE][←][←] to check the status of the calibration switch. Click [REZERO] + [←][TARE][↑] to turn on the calibration switch.



• Modify BIT0 in SPEC 05 to "1".



• Click [REZERO] button to save.





• Longpress[REZERO]key,click[↑][↑][←]toenterthe internal code check.



• Click [1] button to display [A/D] internal code.



• Click [TARE] key to return to weighing mode.



• Use the tool to click the (SPAN SW) button at the bottom of the screen to make the calibration switch on.



 The second method of opening calibration: Click [REZERO] + [TARE][←][←] to check the status of the calibration switch. Click [REZERO] + [←][TARE][↑] to turn on the calibration switch.



• Long press [REZERO] key and click [↑] [↑] [←] Restore factory settings.

Note:

Restoring factory settings does not include restoring the modified values of BIT 3/ Spec 10 BIT 0/ Spec 09/ Spec 11/ Spec 12/ Spec 13



4.5 Factory default

| Coding | Defaults | Coding | Defaults |
|----------|----------|----------|----------|
| • SPEC00 | 1100 | • SPEC04 | 0100 |
| • SPEC01 | 0100 | • SPEC05 | 1101 |
| • SPEC02 | 0100 | • SPEC06 | 1001 |
| • SPEC03 | 1011 | • SPEC07 | 1010 |
| • SPEC20 | 1100 | • SPEC08 | 0111 |
| • SPEC21 | 0000 | • SPEC09 | 1010 |
| | | • SPEC10 | 1100 |
| | | • SPEC11 | 0011 |
| | | • SPEC12 | 0001 |
| | | • SPEC13 | 0101 |
| | | • SPEC14 | 1001 |
| | | • SPEC15 | 0000 |
| | | • SPEC16 | 1111 |
| | | • SPEC17 | 1111 |
| | | • SPEC18 | 0000 |
| | | • SPEC19 | 0000 |



4.6 Prompt information list

| Prompt information | Display |
|---|---------|
| • Weight overload | OF |
| Gross or net weight is negative | UF. |
| • When the [REZERO] button is pressed | 888888 |
| • System zero error | 0 — E r |
| • System zero exceeds the allowable range | zr Err |
| • Calibration switch is in "on" state | S On |
| | |
| • Calibration switch is in "off" state | SUFF |

5.1.1. RS232C interface protocol: the baud rate is set through SPEC01, bit2~0 (1200~57600). The stop bit is 1 bit and the data bit is 8 bits.

5.1.2. The RS232C interface can be used through the settings of SPEC 02, 20, and 21.

5.1.3. RS232C interface commonly used digital scale communication protocol. Provide continuous weight data output format.

SPEC is set at the factory as: baud rate=9600bit/s, data=8, STOP=1, no parity bit.

SPEC 01=X100, Baud=9600bit/s

SPEC 02=1100, continuous weight data output

SPEC 20=XX00, Data=8bit, Stop=1bit, no parity

SPEC 21=0XXX. The output data is synchronized with the display data (when there is weight unit conversion)

SPEC 21=1XXX. The output data is not synchronized with the display data (only the output calibration is the set weight unit)

5.1.4. Digital weighing protocol, continuous weight data output (standard) format: (according to the factory setting)

Standard format of serial data output:

SPEC SETUP: SPEC 01=0100, SPEC 02 = 1100, SPEC 20 = 0000, SPEC 21 = 0000.

DATA FORMAT. <u>06</u> <u>20</u> <u>67</u> <u>30</u> <u>0D</u> <u>47</u> <u>30</u> <u>30</u> <u>31</u> <u>2E</u> <u>30</u> <u>30</u> <u>30</u> <u>0D</u> (1) (2) (3) (4) (5) (6) (4) <u>54</u> <u>30</u> <u>31</u> <u>30</u> <u>2E</u> <u>30</u> <u>30</u> <u>30</u> <u>0D</u> <u>0A</u> (5) (6) (4) (7)

06H Boot byte, the first byte of the message output.
 20H 67H "_ g" weight unit, (6BH, 67H "kg", 6CH, 62H "lb", 6CH, 7AH "oz")

③ 30H/31H 30H = stable weight / 31H = unstable weight.

④ 0DH data segment separator.

(5) 47H "G" gross weight data field start byte, 4EH "N" net weight data field start byte, 54H "T" tare data field start byte (6) Weight data field

⑦0AH End of telegram.



5.1.5. Special format for serial continuous weight data output

5.1.5.1 Continuous data output, Special data type 1 SPEC SET: SPEC02 =11X1, SPEC20= 0000, SPEC21= XXXX DATA FORMAT. 3DH(=),3XH(MS-B),3XH,3XH,2EH("."),3XH,3XH,3XH(LSB),0DH "=" NET WEIGHT (XXX.XXX) CR

Note 1: All characters are printed in ASCII format."=" boot (3DH), with decimal point and ending CR(0DH), with the highest value before. When the value is "negative", the highest bit output is 2EH(" – ").The numeric field is a 7–byte (ASCII) character

Note 2: No weight unit symbol. When weight is converted, the value output is the value of the unit of weight set at the time of calibration.

For example: 1. The weight value of 2.56, The output data: 3DH, 30H, 30H, 30H, 32H, 2EH, 35H, 36H, 0DH 2. The weight value value is -2.56, The output data : 3DH, 2DH, 30H, 30H, 32H, 2EH, 35H, 36H, 0DH

| 5.1.5.2 Continuous data output, Special data type 2 | | |
|--|----|--|
| SPEC SET: SPEC02 =11X1, SPEC 20= 0100, SPEC 21= XXXX | | |
| DATA FORMAT. 3XH(MSB),3XH,3XH,3XH, | | |
| 2EH("."),3XH,3XH(LSB), 0DH | | |
| NET WEIGHT (XXX.XXX) | CR | |

Note 1: All characters are printed in ASCII code. Contains only the numerical symbol, the net weight value, and the ending character CR(0DH), with the higher value coming first. When the value is "negative", the highest bit output is 2EH(" – "). The numeric fields are 7–byte (ASCII) characters.

Note 2: No weight unit symbol. When weight is converted, the value output is the value of the unit of weight set at the time of calibration.

For example: 1. The weight value of 2.56, The output data: 30H, 30H, 30H, 32H, 2EH, 35H, 36H, 0DH

2. The weight value of -2.56, The output data: 2DH, 30H, 30H, 32H, 2EH, 35H, 36H, 0DH



5.1.5.3 Continuous data output, Special data type 3 (TOLEDO SCALES TYPE)

| SPEC SET: SPEC02 =11X1, SPEC 20= 1000, SPEC 21= XXXX | | | |
|--|-------------|------|------|
| STX | SW 1 | SW 2 | SW 3 |
| NET WEIGHT | TARE WEIGHT | CR | |

No decimal point command. Total has 17 digital ASCII code. [STX] WORD ASCII START FLAGE (02H) , [CR] WORD ASCII (0DH)

STATE WORD 1 BIT 0,1,2 BIT 0 BIT 1 BIT 2 DECIMAL POINT POSITION 1 0 0 XXXXX0 0 1 0 XXXXXX 1 1 0 XXXX, X 0 0 1 XXX. XX 1 0 1 XX. XXX BITS 3 BITS 4 DISPLAY SUBBSECTION 0 0 0 1 X1 1 0 X2 1 1 Χ5 ="1" BITS 5 ="1" BITS 6 ="0" BITS 7

STATE WORD ,[SW1]

STATE WORD , [SW2]

| | SW 2 STATE WORD 1 |
|------|------------------------------|
| BITS | FOUNCTION |
| 0 | GROSS ="0", NET ="1" |
| 1 | NEGTIVER ="1" positive="0" |
| 2 | OVER FULL ="1",NOMRA="0" |
| 3 | Stable="1",Not stable"0" |
| 4 | Weight Unit : g="00",kg="01" |
| 5 | lb="10", once="11" |
| 6 | "1" |
| 7 | "0" |

| SW 3 | STATE WORD 1 |
|------|--------------|
| BITS | FOUNCTION |
| 0 | ="0" |
| 1 | ="0" |
| 2 | ="0" |
| 3 | ="0" |
| 4 | ="1" |
| 5 | ="1" |
| 6 | ="1" |
| 7 | ="0" |

Ex1. The NET WEIGHT is -124.50kg The data format is 0x02,0x7c,0x59,0x70,0x30,0x31,0x32,0x34,0x35,0x30,0x30,0x31,

0x32,0x34,0x35,0x30,0x0d.

5.1.5.4 Continuous data output, Special data type 4 (TERAOKA SCALES TYPE)

DIGI RS232 Communication type.

SPEC SET: SPEC02 =11X1, SPEC 20= 1100, SPEC 21= XXXX FIX WORD NET WEIGHT TEXT (With decimal point) + RS CR + RS LF

The mode efficiency NET WEIGHT data length is 7 digital With
decimal point & with stable word .STABLE word 0x30 (30H)= STABLE , 0x31(31H) = UNSTABLERS_CR0x0D (0DH)RS_LF0x0A (0AH)

Note 1: The above setting value 'X' is the bit that does not affect this mode of operation, (0/1 is ok)

Note 2: No weight unit symbol. When weight is converted, the value output is the value of the unit of weight set at the time of calibration.

Ex1. The NET WEIGHT is -124.50kg (The negative weight display function spec06.bit3,2=10 has been set)

The data format is

0x30,0x2d,0x31,0x32,0x34,0x2e,0x35,0x30,0x0d,0x0a

Ex2. When NET WEIGHT is overload. (Weight Overload) The data format is 0x30,0x20,0x20,0x20,0x20,0x20,0x4F,0x46,0x0d,0x0a

Ex3. When NET WEIGHT is underload. (When the weight is less than –2 divisions, and the negative weight mask function has been set spec06.bit3,2=00,01)



5.1.6. Get weight data by command:

5.1.6.1. Get standard weight data command 1 (a simple command to get weight data using a single character) SPEC SETUP:

SPEC 01=X100. Baud=9600bit/s

SPEC 02=010X, data output in simple command mode

SPEC 20=XX00, Data=8bit, Stop=1bit, no parity

Input command: Use single character (byte) command: A(41H) or a(61H)

Output telegram: output 6 Byte (ASCII Code) weight data, no decimal point, high digits in front, plus and minus signs.

For example: weight = 1.235kg then: 30H,31H,32H,33H,35H

Note: 1. The above setting value 'X' is a bit that does not affect this working mode, (0/1 are both possible)

2. When using this command to obtain weight data, the output data format does not include the weight unit, and after the weight unit is converted.

The value output will not change, only the value of the weight unit set during calibration.

(It has nothing to do with the setting of SPEC02.0, SPEC20.3,2)

5.1.6.2. Get standard weight data command 2 (Use standard commands to get weight data)

SPEC SETUP: SPEC 01=X100, Baud=9600bit/s SPEC 02=000X, command mode data output SPEC 20=XX00, Data=8bit, Stop=1bit, no parity

Input command: 3–byte command: 02H,0DH,0AH Output message: Output 24 Byte (ASCII Code) weight data, including weight unit, stability indicator, decimal point, sign, high digit first.

Message format: <u>06 20 67 30 0D 47 30 30 31 2E 30 30 30 0D</u> <u>54 30 31 30 2E 30 30 30 0D</u> <u>0A</u>

Note: 1. The above setting value 'X' is a bit that does not affect this working mode, (0/1 are both possible)

2. When using this command method to obtain weight data, the output data format includes the weight unit, and after the weight unit is converted, the numerical output will be based on the unit value of the displayed weight.



5.1.6.3. Standard command mode 3 communication protocol (using standard commands to send or get weight data)

SPEC SETUP: SPEC 01=X100, Baud=9600bit/s (settable baud rate)

SPEC 02=00X0, command mode data output

SPEC 20=XX00, Data=8bit, Stop=1bit, no parity

5.1.6.3.1 Communication command and data format (COMMU– NICATION COMMAND & DATA MODE)

| 1031 == 31 | | | | | | | |
|------------|--------------------------|-------------------------|--|--|--|--|--|
| Leader | Bureau number (1BYTE) | Command characteristics | | | | | |
| STX | *STN | *ID | | | | | |
| 02H | 8XXXXXXX b | | | | | | |
| valid data | Correction code (1BYTE)* | End of command | | | | | |
| TEXT | BCC | LF | | | | | |
| ASCII code | YYH | ΟΔΗ | | | | | |

Host == "Slave (DATA COMMUNICATION COMMAND)

Slave == "Master (DATA COMMUNICATION COMMAND)

| 1 | | |
|------------|--------------------------|-------------------------|
| Leader | Bureau number (IBYIE) | Command characteristics |
| ACK | *STN | *ID |
| 06H | 8XXXXXXX b | |
| valid data | Correction code (1BYTE)* | End of command |
| TEXT | BCC | LF |
| ASCII code | YYH | 0AH |

Note:

* BCC: Data communication check code (consisting of 1 byte ASCII code), its ASCII code starts from the ASCII code of the first character of the communication data, and is obtained by the vertical XOR of the ASCII code of the previous character of BCC The eight-bit binary number out. When the calculation result is 02H, 06H, 0AH or 15H, the check code should add "1". For example: when the calculation result is 0AH, the message check code is 0BH. It will be the same afterwards.

* STN: Slave station number, STN=80H in stand–alone mode.



5.1.6.3.2 Key emulation Communication command and data format

| STX | STN | "C" | KEY NO. | BCC | LF |
|-----|-----|-----|---------|-----|-----|
| 02H | 80H | 43H | KEY– NO | BCC | 0AH |

Key number (KEY NO) a.) [REZERO] 31H (BCC = XXH) b.) [TARE] 32H (BCC = XXH) c.) [LIFT] 33H (BCC = XXH) e.) [UP] 34H (BCC = XXH)

Note: 1. The above command has a total of 6 bytes (BYTE).

Note: 2. (BCC) The letter BCC is used to indicate the message verification, and the code uses 1 HEX code

The value means (XXH). The correction code is composed of the code of the first n characters undergoing vertical XOR.

If the calculation result is 02H, 06H, 0AH or 15H, the check code must be added "1".

For example: when the calculation result is 0AH, the message check code is 0BH. It will be the same afterwards.

| 5.1.6.3.3 Compound function command Simulation commun | i— |
|---|----|
| cation command and data format | |

| STX | STN | "F" | FUN NO. | BCC | LF |
|-----|-----|-----|---------|-----|-----|
| 02H | 80H | 46H | FUN- NO | BCC | 0AH |

Command number (KEY NO)

a.) 141 SETUP [FUN. 01] 30H (BCC = XXH)

b.) 142 SETUP [FUN. 02] 31H (BCC = XXH)

c.) System calibration [FUN. 03] 32H (BCC = XXH)

e.) Internal code display [FUN. 04] 33H (BCC = XXH)

f.) Calibration switch status detection display [FUN. 05] 34H (BCC = XXH)

Note: The above command has a total of 6 bytes (BYTE).

5.1.6.3.4 Obtaining display data request and local response command format (sent by the host computer, received by the local computer)

Display data request (sent by the host computer, received by the local computer)

| STX | STN | "D" | BCC | LF |
|-----|-----|-----|-----|-----|
| 02H | 80H | 44H | BCC | 0AH |

Note: The above command has a total of 5 bytes (BYTE).

The machine responds to the display data (sent by the machine, received by the upper machine)

| ACK | STN | D | TEXT | BCC | LF | |
|-----|-----|-----|-------------------|-----|-----|--|
| 06H | 80H | 44H | TEXT | BCC | 0AH | |
| | | | (8 BYTE) (1 BYTE) | | | |

Note: The above command has 13 bytes (BYTE) in total.

5.1.6.3.5 Obtain tare data request and local response command format

Tare data request (sent by the host computer, received by the local computer)

| STX | STN | "Т" | BCC | LF |
|-----|-----|-----|-----|-----|
| 02H | 80H | 54H | BCC | 0AH |

Note: The above command has 5 bytes (BYTE) in total.

The machine responds to the display data (sent by the machine, received by the upper machine)

| ACK | STN | Т | TEXT | BCC | LF |
|-----|-----|-----|----------|----------|-----|
| 06H | 80H | 54H | TEXT | BCC | 0AH |
| | | | (8 BYTE) | (1 BYTE) | |

Note: The above command has 13 bytes (BYTE) in total.

5.1.6.3.6 The machine responds and displays the leading and terminating characters of the data message

The message leader is represented by ACK, and its ASCII code is 06H, and the terminator is represented by LF, and its ASCII code is 0AH.

TEXT data segment

The data segment consists of two parts: (1) the indication status of the system, (2) the display data.

Indication status of the system:

System indicator light and working status indication data composition

The system status indicator (INDICATOR) is represented by a two-byte ASCII code:

The format represented by the first byte ASCII code:

| BIT 7 | BIT 6 | BIT 5 | BIT 4 | BIT 3 | BIT 2 | BIT 1 | BIT 0 |
|-------|--------|--------|--------|--------|--------|--------|--------|
| 1 | LAMP 1 | LAMP 2 | LAMP 3 | LAMP 4 | LAMP 5 | LAMP 6 | LAMP 7 |
| MSB | | | | | | LS | B |



The format represented by the second byte ASCII code:

| BIT 7 | BIT 6 | BIT 5 | BIT 4 | BIT 3 | BIT 2 | BIT 1 | BIT 0 |
|-------|--------|--------|---------|---------|---------|---------|---------|
| 1 | LAMP 8 | LAMP 9 | LAMP 10 | LAMP 11 | LAMP 12 | LAMP 13 | LAMP 14 |
| MSB | | | | LS | SB | | |

Among them: BIT 7 is a fixed "1". BIT 6 ~ BIT 0 respectively indicate the indicated state.

LAMP 1: Zero position indication (0: non-zero position, 1: zero position)

LAMP 2: stable (0: unstable force, 1: stable force)

LAMP 3: Overload sign (0" means within the allowable measuring range, 1: means exceeding the allowable measuring range)

LAMP 4: LAMP 5: LAMP 6: working status information

; 000 = Initialize self-check status

; 001 = Test waiting state

; 010= Dynamic data (peak value) collection operation status

; 011 = Detection point data setting status

; 100 = Function setting switch status detection status (R+TLL 284)

; 101= System function setting mode status (R+LLL, R+LTL 141,142)

; 110 = System internal code detection status (R+LLT 009)

; 111 = System force full calibration status (R+LTT CAL)

LAMP 7: The positive and negative signs of the actual force value. ("0" means the weight is a positive number, and "1" means the weight is a negative number.)

LAMP 8: The positive and negative signs of the extreme force value. ("0" means the force value is positive, and "1" means the force value is negative.)

LAMP 9: LAMP 10: LAMP 11:

Output data decimal point information. 000: no decimal point, 001: one decimal point, ..101: five decimal points.

LAMP 12: Tare operation mark. ("0" means no tare operation, "1" means tare operation (tare weight is not equal to "0".)

LAMP 13: The indication output data is the net weight mark: 0: the value without deducting the tare weight (gross weight), 1: the net weight.

LAMP 14: Marking operation permission flag, ("0" means operation is allowed, "1" means operation is not allowed) Display data composition:

The display data is represented by 6–byte ASCII code. The data is low–order first. If there is a decimal point, set "1" in BIT 7 of the corresponding ASCII code.

For example:

1. Show 123.456(The fourth digit has a decimal point) Then the ASCII code is 36H, 35H, 34H, **0B3H**, 32H, 31H 2. Display 123456

Then the ASCII code is 36H, 35H, 34H, 33H, 32H, 31H,



5.2 General standard POS serial port protocol: SCA-100 FOR POS/ECR INTERFACE & Protocol

5.2.1 POS/ECR Interface

SCA–100 POS/ECR Version can interface with most POS/ECRs by selecting TYPE 0 to TYPE 7. (TYPE 0, 2, 4, 5, 6, 7)

5.2.2 POS/ECR (Type Selection)

(1) POS/ ECR–Type TYPE selected in making sure the power has been turned off.Press and hold the tare key before turning on the power.

At this point, the electronic scale will display the currently selected POS/ECR type, which will be displayed on the monitor as "P.OS.T. 0".

Indicates that you have selected (POS/ ECR-type 0). You can press the tare key again to select another POS/ECR.

Press zero to save the Settings and return to weighing mode.

(2) If you want to change the POS/ECR type, press the [tare] key to change the POS/ECR type. In the process of power-on initialization, press and hold the "TARE" button until the indicator light of S1 lights up, and then release the button. After the initialization is over, it will enter the POS type selection. Press the "TARE" key once, and the value will increase by "1".

(3) To save the current POS/ECR type, press the [Zero] key. Save the modified POS/ECR type and return to weighing mode.

| DIS | SPLAY | MENU | Description / RS-232C Serial |
|-----|-------|--------------------|--|
| ʻt | 00' | POS/ECR -TYPE 0 | Most P.O.S, ECRs and Some TEC P.O.S System / 9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit |
| ʻt | 02' | POS/ECR -TYPE 2 | SHARP ER-Axxx, ER-A450T, New SANYO ECRs, Using RS-23 2 and others /9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit |
| 't | 04' | POS/ECR -TYPE 4 | CRS, NCR2170 and Many other ECRs,Most P.O.S Software / 9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit. |
| 't | 05' | POS/ECR -TYPE 5 | NCI General, SAMSUNG SPS–300, ER–900, Most P.O.S Software / 9600 Baud rate, 7 Data bit, Even Parity, 1Stop bit. |
| 't | 06' | POS/ECR -TYPE 6 | SAMSUNG ER–670, ER–5100, SPS–520, Most P.O.S Software / 9600 Baud rate, 8 Data bit, Non Parity, 1Stop bit. |
| 't | 07' | POS/ECR -TYPE 7 | DELTA cash register protocol Communication type/ 9600 Baud rate, 8 Data bit, Non Parity, 1Stop bit. |

Table 1

48 Chapter 5

5.2.3 TYPE-0 INTERFACE

Most P.O.S Systems, ECRs and some TEC P.O.S Systems.

1) PROTOCOL EXTERNAL DEVICE SCALE(Scale parts-100C) <FNQ> ----> Initiate communication <-----<ACK> : Acknowledge the request of weight data <DC2> ----> Request of weight data (Inauirv) <---- <STX> : start transmission <---- < ID > : Scale type identifier <----- <W5> : Weight data <----- <W4> : Weight data <----- <W3> : Weight data <----- <W2> : Weight data <----- <W1> : Weight data <----- <BCC> : Block Check Character <---- <FTX> : Transmission end

POS/ECR,PC D–SUB Connector Scale parts-100C (9-PIN SUB CONNECTOR)

i>Scale Type Identifies ID

| 2kg -> G (47H) | - |
|-----------------|-----------------|
| 5kg -> H (48H) | 5lb –> K (4BH) |
| 6kg -> C (43H) | - |
| 10kg -> I (49H) | 10lb -> L (4CH) |
| 15kg –> A (41H) | 15lb –> F (46H) |
| 20kg -> J (4AH) | 20lb -> M (4DH) |
| 25kg -> P (50H) | - |
| 30kg -> B (42H) | 30lb -> D (44H) |
| _ | 50lb -> N (4EH) |
| 60kg -> 0 (4FH) | 60lb -> E (45H) |

Data Byte: <STX><ID><W5><W4><W3><W2><W1><BC-C><ETX>

ii> Block Check Character

: <BCC> has all data bytes except <STX> and <ETX> through exclusive OR(XOR).

* Parity Bit: Even

Serial Communication 9600 Baud rate, 7 Data bit, Even iii> Parity, 1 Stop bit

*Response time: Tvp. 50ms, Max. 150ms

5.2.4 TYPE-2 INTERFACE

: Discontinual RS-232C Interface SHARP ER-AXXX, ER-A450T, New SANYO ECRs using RS-232, TOLEDO 3213 etc.

1) PROTOCOL POS/ECR SCALE(Scale parts-100C) Command <W> ----> <-----Response <STX> XXXXX <CR> : weight data (kg, lb, oz)

Error message : <STX><status byte><CR>

2) REMAKE

| W : | 57H (ASCII code) |
|-------|------------------|
| STX : | 02H (ASCII code) |
| CR: | ODH (ASCII code) |

3) STATUS BYTE

| PARITY BIT | ALWAYS==1 | | ZERO |
|------------|-----------|----------|--------|
| Bit 7 | Bit 6 | Bit 5 | Bit 4 |
| | MINUS | OVERLOAD | MOTION |
| Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| | | | |

Bit 4 =1Scale at Zero ,Bit 4 = 0Not at ZeroBit 2 =1Weight is Minus,Bit 2 = 0Weight is not MinusBit 1 =1Over Capacity,Bit 1 = 0Not Over CapacityBit 0 =1Scale in Motion,Bit 0 = 0Stable

4) Serial Communication 9600 Baud rate, 7 Data bit, Even Parity, 1 Stop bit

Weight: 12.34 lb Ex) POS/ECR SCALE (Scale parts-100C) W<57H> ____> <-----<02H><30H><31H><32H><33H><34H><0DH> : ASCII code STX 0 1 2 3 4 CR



5.2.5 TYPE-4 INTERFACE NCI ECR(NCR2170), SAMSUNG ER-5100,ER-5115, CRS .etc

| 1) PROT POS/EC | COCOL CR | SCALE (Scale parts-100C) | |
|-------------------|-------------|---------------------------------------|-----------|
| <w></w> | | > | |
| <cr></cr> | | > | |
| ====== | | | = Inquiry |
| | < | <lf> XX.XXX LB <cr></cr></lf> | |
| | < | <lf> S b1b2 <cr><etx></etx></cr></lf> | |
| ====== | | | lb CASE |
| | < | <lf> XX.XXX KG <cr></cr></lf> | |
| | < | <lf> S b1b2 <cr><etx></etx></cr></lf> | |
| ====== | | | kg CASE |

Weight unit ascii code table

| No | UNIT | Unit Character ASCII CODE | |
|----|------|---------------------------|---------------|
| 1 | LB | The Characters I and b | (0x6C) (0x62) |
| 2 | KG | The Characters k and g | (0x6B) (0x67) |
| 3 | g | The Characters " "and g | (0x20) (0x67) |
| 4 | OZ | The Characters o and z | (0x6F) (0x7A) |

(A) XX.XXX = Weight value (Decimal point: variable)

- (B) S = The Character S
- (C) b1b2 = Two status Characters

i> Status Bytes

| Bit No | B1 | B2 |
|--------|--------------------------------------|--|
| Bit7 | Parity Bit | Parity Bit |
| Bit6 | 0 | 0 |
| Bit5 | 1 (Always 1) | 1 (Always 1) |
| Bit4 | 1 (Always 1) | 1 (Always 1) |
| Bit3 | 0 | 0 |
| Bit2 | 0 | 0 |
| Bit1 | 1 = Scale at Zero 0 = Not at Zero | 1 = Over Capacity 0 = Not Over Capacity |
| Bit0 | 1 = Scale in Motion 0 = Stable | 1 = Under Capacity 0 = Not Under Capacity |

ii>Simplified Status Codes

| B1 | B2 | STATUS |
|-----------------|-----------------|----------------|
| ASCII Character | ASCII Character | Definition |
| (ASCII Code) | (ASCII Code) | |
| 0 (30H) | 0 (30H) | OK |
| 1 (31H) | 0 (30H) | Motion |
| 2 (32H) | 0 (30H) | Scale at Zero |
| 0 (30H) | 1 (31H) | Under capacity |
| 0 (30H) | 2 (32H) | Over capacity |

iii> Serial Communication 9600 Baud rate, 7 Data bit, Even Parity, 1 Stop bit

*Response time: Typ. 100ms, Max. 300ms

8.2.6 TYPE-5 INTERFACE

NCI GENERAL , SAMSUNG ER–5115, ER–5100 and Most P.O.S Software 1) PROTOCOL

| POS/EC | R SCAI | _E (Scale parts–100C) | |
|-----------|---|---------------------------------|-----------|
| <w></w> | > | | |
| <cr></cr> | > | | |
| ====== | | | = Inquiry |
| | < <lf></lf> | XX.XXX LB <cr></cr> | |
| | < <lf></lf> | S b1b2 <cr><etx></etx></cr> | |
| | ======================================= | =============================== | lb CASE |
| | < <lf></lf> | XX.XXX KG <cr></cr> | |
| | < <lf></lf> | S b1b2 <cr><etx></etx></cr> | |
| ====== | | | kg CASE |

Weight unit ascii code table

| No | UNIT | Unit Character ASCII CODE | |
|----|------|---------------------------|---------------|
| 1 | LB | The Characters I and b | (0x6C) (0x62) |
| 2 | KG | The Characters k and g | (0x6B) (0x67) |
| 3 | g | The Characters " "and g | (0x20) (0x67) |
| 4 | OZ | The Characters o and z | (0x6F) (0x7A) |

(A) XX.XXX = Weight value (Decimal point: variable)

(B) S = The Character S(0x53)

(C) b1b2 = Two status Characters

i>Status Bytes

| Bit No | B1 | B2 |
|--------|---------------------|------------------------|
| Bit7 | Parity Bit | Parity Bit |
| Bit6 | 0 | 0 |
| Bit5 | 1 (Always 1) | 1 (Always 1) |
| Bit4 | 1 (Always 1) | 1 (Always 1) |
| Bit3 | 0 | 0 |
| Bit2 | 0 | 0 |
| Bit1 | 1 = Scale at Zero | 1 = Over Capacity |
| | 0 = Not at Zero | 0 = Not Over Capacity |
| Bit0 | 1 = Scale in Motion | 1 = Under Capacity |
| | 0 = Stable | 0 = Not Under Capacity |

ii>Simplified Status Codes

| B1 | B2 | STATUS |
|-----------------|-----------------|----------------|
| ASCII Character | ASCII Character | Definition |
| (ASCII Code) | (ASCII Code) | |
| 0 (30H) | 0 (30H) | OK |
| 1 (31H) | 0 (30H) | Motion |
| 2 (32H) | 0 (30H) | Scale at Zero |
| 0 (30H) | 1 (31H) | Under capacity |
| 0 (30H) | 2 (32H) | Over capacity |

iii>Weight Data Decimal point (Type 4, 5)

| kg | Position | lb | Position | OZ | Position |
|------|----------|------|----------|--------|----------|
| 2kg | X.XXX | 5lb | X.XXX | 80oz | XX.XXX |
| 5kg | X.XXX | 10lb | XX.XXX | 160oz | XXX.X |
| 6kg | X.XXX | 12lb | XX.XXX | 200oz | XXX.X |
| 10kg | XX.XXX | 20lb | XX.XX | 400oz | XXX.X |
| 20kg | XX.XX | 50lb | XX.XX | 800oz | XXX.X |
| 30kg | XX.XX | 60lb | XX.XX | 1000oz | XXXX.X |

iv> Serial Communication 9600 Baud rate, 7 Data bit, Even Parity, 1 Stop bit

*Response time: Typ. 100ms, Max. 300ms

5.2.7 TYPE-6 INTERFACE

> SAMSUNG ECR (ER-670, ER-5100, SPS-520), Most P.O.S

- > 9600 baud rate
- > 8 Data bit
- > Non Parity
- > 1 stop bit

1> PROTOCOL

EXTERNAL DEVICE(ECR) SCALE(Scale parts-100C) <FNQ>

----> Initiate communication <----- <ACK> : Acknowledge the

request of weight data

<DC1> or <DC2> -----> DC1 : For Weight Data DC2 : For All Data (Scale parts-100C NOT USE) <---- Send Data Block

2> The Data Trains

1. "DC1"

SOH STX STA SIGN W5 W4 W3 W2 W1 W0 UN1 UN0 BCC FTX FOT

Command DATA BLOCK Command > Remark

- STA : A WEIGHING STATUS OF THE SCALE SCALE IS STABLE ->"S", NOT STABLE -> "U"
- SIGN : SIGN OF THE WEIGHT DATA ZERO AND POSITIVE WEIGHT -> " ". NEGATIVE WEIGHT -> "-" OVER LOAD -> "F"

- W5 THROUGH W0 -> WEIGHT DATA *BUT ALL "F" WHEN THE SCALE IS PUT ON OVER LOAD.

- UN1 THROUGH UN0 -> UNIT OF WEIGHT (Kg, g, lb, oz)
- BCC : BLOCK CHECK CHARACTER



Serial Communication 9600 Baud rate, 8 Data bit, None Parity, 1 Stop bit

*Response time: Typ. 50ms, Max. 150ms

5.2.8 TYPE-7 INTERFACE

> DELTA cash register protocol Communication type (only the original weight unit value output)
 [FIX WORD] NET WEIGHT TEXT (With decimal point) + RS CR + RS LF]

1> PROTOCOL

Cash Register Scales(Scale parts-100C)

D CR LF

<-----

SWWW.WWWCRLF

2> The Data Trains

D: 0x44 CR: 0x0D I F: 0x0A

S: Sign "+": 2BH ," -" : 2DH

WWW . WWW: 6 digits for WEIGHT .: 0x2E

This type efficiency NET WEIGHT data length is 7 digital With decimal point .

| S (FIX WORD) (Weight is minus | 0x2B (' value) | Weight is positive valve) / 0x2d |
|---------------------------------------|-------------------|--------------------------------------|
| D | 0x44 | |
| RS_CR | 0x0d | |
| RS_LF | Охоа | |
| 3) Serial Commu Parity, 1 Stop bit | nication | 9600 Baud rate, 8 Data bit, Non |
| Ex1. | When N | IET WEIGHT is 0.460kg. |
| The | e data for | mat is 0x2b, 0x30, 0x30, 0x30, 0x2e, |
| 0x34, 0x36, 0x30 |), 0x0d, (|)x0a |

Ex2. When NET WEIGHT is -0.460kg.

The data format is 0x2d, 0x30, 0x30, 0x30, 0x2e,

0x34, 0x36, 0x30, 0x0d, 0x0a



SHANGHAI DIGITAL BALANCE ELECTRONIC CO., LTD

•

Add:No. 788 Songxiu Road, Qingpu Indus– trial Park, Shanghai 201703 P. R. China

Tel: 0086-021-59757333

Fax: 0086-021-69758587

www.dbscale.com.cn