

NT-500 SERIES



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1. Introduction

Thank you for purchasing the CAS NT-500 Series weighing indicator. We have designed this equipment with many advanced features, high quality construction, and user-friendly menu driven programming. We are confident that you will find the CAS NT-500 Series will meet all of your most demanding needs. CAS indicator is shaped firmly and delicately designed to coincide with the special requirements of several industrial fields and includes many functions and various external interfaces. Also, it contains help display functions to be used easily.

Before using NT-500 Series, It is recommended to read this manual carefully and to apply the functionprecautions :

Precautions

Observe the following safety precautions :







Our Dealers : CAS feels that each of its valued customers should get the best service available. Whether it's the initial installation of our product, maintenance/repair work, or simply answering questions about our products, CAS Corporation and all of its Authorized Dealers are highly trained to assist

you with any need regarding CAS products.

2. Features & Main Functions

1) Features

High quality, high accuracy Appropriate for weight and measurement system Easy operation and various options Sub display of 12 digits(VFD) – Only NT-505A RFI/EMI screened Watchdog circuitry (System restoration) Weight back up (Weight memory at sudden power failure)

2) Main Functions

Saving of date, time and calculated data at sudden power failure Digital filter function Adjustable A/D conversion speed (10~50 times/sec) Various printer connection (serial, parallel) Serial interface (RS-232C, RS-422/RS-485) PC communication (PC command mode) Set-point can save up to 50 batch operations Users can set the max. weight and a division freely External input 4 relay. (Refer to SET mode-F44) External output 4 relay. (Refer to SET mode-F44) External output 4 relay (zero, high, low, final) – **Except NT-501A** Print date and time by built-in clock Independent zero calibration Display the high limit and the low limit at the VFD screen – **Only NT-505A** Saving of measured weighing times Self hardware test

3. Technical Specification

Analog Part & A/D Conversion

| Load Cell Excitation Voltage | DC 9V, 8 x 350Ω load cells |
|------------------------------|--|
| Zero Adjustment Range | $0.05 \mathrm{mV} \sim 20 \mathrm{mV}$ |
| Input Sensitivity | 1.2µV/D (H-44,OIML) 0.6µV/D (Non H-44,OIML) |
| System Linearity | Within 0.01% of F.S. |
| A/D Internal Resolution | 1/200,000 |
| A/D External Resolution | 5,000 dd (H-44,OIML) 10,000 dd (Non H-44, OIML) |
| A/D Conversion Speed | Maximum 50 times/sec |

Digital Part

| Span Calibration | Full Digital Calibration : SPAC™ (Single automatic span calibration) |
|------------------------------|---|
| Display | VFD (7 digit) : 6.0(W) x 13.0(H) mm |
| Sub Display (NT-505A) | VFD (12 digit) : 3.3(W) x 8.0(H) mm |
| Division | ×1, ×2, ×5 |
| Display Below Zero | Minus |
| Tare Subtraction | Full capacity |

| "ST"(Stable) | ▼ LAMP | Weight is stable |
|--------------|--------|---|
| "HIGH" | ▼ LAMP | Displays on/off status of high limit relay – Except NT-501A |
| "LOW" | ▼ LAMP | Displays on/off status of low limit relay – Except NT-501A |
| "HOLD" | ▼ LAMP | Hold function is activated |
| "NET" | ▼ LAMP | ON(net weight), OFF(gross weight) |
| "TARE" | ▼ LAMP | Tare is activated |
| "ZERO" | ▼ LAMP | Current weight is "0" kg |



General Specification

| Power | AC 110V/220V, 50/60 Hz |
|-------------------|--------------------------|
| Product Size | 195(W) x 189(D) x 96 (H) |
| Temperature Range | -10°C ~40°C |
| Product Weight | Approx. 2.5 kg |
| Fuse Capacity | T250mAL250V |
| Power Consumption | Approx. 10W |

Options

| Option 1 | RS-422/RS-485 serial interface |
|----------|--|
| Option 2 | BCD output |
| Option 3 | Analog output(I-out : 0~24mA, V-out : 0~10V) |

4. Measure of Appearance



.5

5. Front Panel

NT-501A



NT-502A



NT-505A

| | | | kg | 1 2 3 ZERO G/N TARE 4 5 6 HIGH LOW FALL |
|-----|-----------------------------|-------------------------------|----|---|
| Max | HIGH LOW HO | LD NET TARE ZEF | | 7 8 9 PRT HOLD PTARE |
| | , 0, 0, 0, 0, 0, 0, HIGH | '0, '0, '0, '0, '0, '0 LOW | | |



1) Weight display - Display lamp (▼)

STABLE lamp : lights up when the weight is stable. HIGH lamp : lights up when the high limit relay is activated. LOW lamp : lights up when the low limit relay is activated. HOLD lamp : lights up when you press HOLD key. NET lamp : lights up when the display shows net weight. TARE lamp : lights up when tare weight is stored. ZERO lamp : lights up when current weight is 0 kg.

2) Sub display (NT-505A)

HIGH : It shows the high limit. LOW : It shows the low limit.

3) Keyboard



NT-501A



■ 1 ZERO Key

Used to remove small variations in the indicator's zero. (user can set the zero range within $\pm 2\%$ or $\pm 10\%$ of the maximum capacity, see F10 at page 29). Used to release tare.

Used to go to the "TEST" mode.

| ■ 2 _{G/N} Key | | | |
|---------------------------|--|---|--|
| Toggles the disp | lay between gross | s weight weight. and net weight. | |
| If tare weight is a | saved, tare plus it | em's weight is gross | |
| weight and only | item's weight is r | net weight. Used to go to the "SET" mode. | |
| | | | |
| 3 1/ 0.0 | /-: | -) | |
| ■ TARE Key (VV | eigned tare ent | ry) | |
| Used to weigh a | n item by using th | ne container. | |
| When this key is | s pressed, the scal | e stores current weight as the tare weight. | |
| If you prove 1 | | condition tare weight is released | |
| II you press | j key in unioad c | ondition, tale weight is released. | |
| Used to enter the | e "CAL" mode. | | |
| | | | |
| 4 Kon (E) | | | |
| | cept NT-50TA) | | |
| Used to see the hig | gh limit on the disp | lay, or change the high limit. | |
| | | | |
| 5 | | | |
| ■ Low Key (E> | cept NT-501A) | | |
| Used to see the low | w limit on the displ | av. or change the low limit. | |
| | ······································ | | |
| | | | |
| ■ ⁶ Key (E) | cept NT-501A) | | |
| Ē | | | |
| By pressing the | key and then | $\frac{4}{\text{High}}$ or $\frac{5}{100}$ key, high fall limit or low fall limit is shown on | |
| the display | | | |
| | | | |
| | | | |
| | | | |
| Manual Print Key | Designated printi | ng form is printed | |
| Set print format in | SET mode. (See F | F31 at page 32) | |
| F | | · · · · · · · · · · · · · · · · · · · | |
| | | | |
| | Key | | |
| | - | | |
| Key | Model | Description | |
| 8 | NT-501A | Used to weigh live animals or an unstable items. | |
| R | | (Used as HULD key) | |
| START | N1-502A | F13-0: Used as START key in packer mode. | |
| | | | |

| | NT-505A | F13 - 1 : Used to weigh live animals or an unstable item. |
|--|---------|---|
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■ 9 P.TARE Or 9 P.TARE Key

| Key | Model | Description |
|----------------|--------------------|---|
| 9 P. TARE | NT-501A | Manual tare entry. If the tare weight is previously known press this key, and enter the tare weight by using the numeric keys, and then press SET key register it. (Used as MANUAL TARE key). |
| STOP E TARE | NT-502A NT-505A | F13 - 0 : Used as STOP key in packer mode. F13 - 1 : Manual tare entry. If the tare weight is previously known press this key, and enter the tare weight by using the numeric keys, and then press SET key register it. (Used as MANUAL TARE key). |

■ 0 ID Key

Use (1) : Press "ID" key and type the ID code by pressing the numeric keys and then the ID code is registered. Range of the ID code is 0 to 50.

Use (2): Clear set-point by pressing this key for 2 seconds.

■ CLR Key Use (1): Used to clear erroneous entries. Use (2): Used to enter decimal point.

■ ^{SET} Key

Used to save current condition and exit in Calibration, Test, Set mode.

■ 0 ~ 9 Key

Numeric Keys. Used to enter setting value, tare, ID code, etc.



6. Rear Panel



■ PRINTER : Parallel interface port

- INPUT : External input (Refer to SET mode-F44) OUTPUT : External output (ZERO, HIGH, LOW, FINAL) Except NT-501A ■ SERIAL : RS-232C/422
- FUSE : 250mA 250V fuse.
 LOAD CELL : Port for connecting 4-wires, 6-wires load cell.
- OPTION : BCD output, Analog output (0-24mA or 0-10V)
 POWER : Power ON/OFF



7. Installation & Connection

1) Load cell connection

Connect load cell connector to load cell port which is in the backside of the indicator. * Connecting method



| PIN | COLOR |
|------------|--------|
| 1 (EXC+) | RED |
| 2 (SEN+) | BROWN |
| 3 (EXC) | WHITE |
| 4 (SEN) | BLACK |
| 5 (SIG+) | GREEN |
| 6 (SIG) | BLUE |
| 7 (SHIELD) | SHIELD |
| | |

Note 1. In case of 4 wires load cell, connect EX+ with SEN+, and connect EX- with SEN-. Note 2. Wire color can be different depending on the load cell's manufacturer or it's model.

* Load cell output to Resolution

| 9V impression to loadcell Max. load cell output | Recommended resolution |
|--|------------------------|
| 2.4 mV | 1/2,000 (Max.) |
| 4.8 mV | 1/4,000 (Max.) |
| 6.0 mV | 1/5,000 (Max.) |



2) External input/output port connection

If you are away from indicator and you want to press key, please connect the indicator with remote key via rear panel.

| Multi Connector | RELAY | |
|-----------------|---|----------------------|
| 1 | ZERO RELAY | |
| 2 | LOW RELAY | |
| 3 | HIGH RELAY | (Except NT-501A) |
| 4 | FINAL RELAY | (, |
| COM | RELAY OUTPUT COM | |
| 1 | ZERO/TARE RELEASE/GROSS KEY | |
| 2 | TARE/PRINT/NET KEY | |
| 3 | GROSS/PRINT/HOLD/START KEY | Refer to F44 at page |
| 4 | GROSS/NET,GROSS/HOLD RELEASE /STOP KEY | 38. |
| COM | KEY INPUT COM | |

3) AC Power

Adjusted to 220V 50/60Hz at factory. (110V/220V jump wire is in the inner part of the indicator)

4) Internal load cell output switch

If the load cell output is too high, turn ON the Dip Switch 1 If the load cell output is too low or negative, turn ON the Dip Switch 2 (Load cell output switch is in the inner part of indicator)

8. Serial Communication (RS-232C)

1) RS232C connection

1 How to Connect PC

Connect the serial port on the rear panel of the indicator to serial port of PC as follows.





2 How to Connect Sub Display (CD-Series)



ST(Stable) NT(NET weight)

OL(Overload)

* Weight Data (8 byte) a. 13.5kg : '', '', '', '', '', '3', '', '5' b. 135kg : '', '', '', '', '1', '3', '5', '' c. -135kg : '-', '', '', '', '1', '3', '5', ''

3) Command mode (F22-3 command mode)

| Command | Function | Response |
|-------------------|--|---|
| dd RW CR LF | Reads the weight | If dd RW CR LF is received, the indicator will send the 22byte. |
| dd MZ CR LF | Same as ZERO key | If dd MZ CR LF is received, the display shows ZERO and dd MZ CR LF will be sent to PC. |
| dd MT CR LF | Same as TARE key | If dd MT CR LF is received, tare is activated so ZERO, TARE lamp is on and dd MT CR LF will be sent to PC. |
| dd HI 00000 CR LF | Enter high limit value (Except NT-501A) | Change the high limit value to 00000 (no decimal point) and dd HI 00000 CR LF will be sent to PC. |
| dd LO 00000 CR LF | Enter low limit value (Except NT-501A) | Change the lower limit value to 00000 (no decimal point) and dd LO 00000 CR LF will be sent to PC. |
| dd HE 00000 CR LF | Enter high fall value (Except NT-501A) | Change the high fall value to 00000 (no decimal points) and dd HE 00000 CR LF will be sent to PC. |
| dd LE 00000 CR LF | Enter high fall value (Except NT-501A) | Change the low fall value to 00000 (no decimal point) and dd LE 00000 CR LF will be sent to PC. |
| dd PN 00 CR LF | Enter ID(00~50) | Change the ID and dd PN 00 CR LF will be sent to PC. |
| dd OP CR LF | Use as START key (Except NT-501A) | If dd OP CR LF is received, the indicator will start in packer mode and dd OP CR LF will be sent to PC. (You have to set F40 to Packer mode) |
| dd EM CR LF | Use as STOP key (Except NT-501A) | If dd EM CR LF is received, the indicator will stop in packer mode and dd EM CR LF will be sent to PC. (You have to set F40 to Packer mode) |

user dd : Device number

When himsel
 00000 : High limit value / low limit value/ high fall value/ high fall value (If the setting value is "00345", ASCII CODE is 0×30(hex), 0×30(hex), 0×33(hex), 0×34(hex), 0×35(hex))

* If the command is not accepted for any reason, I CR LF will be sent to PC.

* If an invalid character is received, ? CR LF will be sent to PC.

9. Test Mode

1) How to enter test mode

Turn on the power while pressing the $\begin{bmatrix} 1 \\ ZERO \end{bmatrix}$ key.

2) Available keys

 \sim 9 key : used for changing preset value.

SET key : used for moving to initial test menu.

3) Test menu (TEST 1~9)

TEST 1 : Key test TEST 2 : VF Display test TEST 3 : Load cell test and A/D conversion test TEST 4 : Serial interface test TEST 5 : Printer test TEST 6 : SRAM test TEST 7 : External input/output test TEST 8 : BCD output test TEST 9 : Analog output test

TEST 1

| FUNCTION : Key test | | | | |
|---|---------------|----------------|---|--|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION | |
| SET: Menu selection mode Other keys: Perform test | 1 1 | tESt KEY | Press any key to test then the display shows its number and code. | |



<Key list>

| KEY | NO | CODE | KEY | NO | CODE | KEY | NO | CODE |
|-------------|----|------|---------------------------------|----|------|-----|----|------|
| 1 ZERO | 1 | 1 | 6 6 FALL | 6 | 6 | 0 | 0 | 12 |
| 2 G/N | 2 | 0 | 7 PRT | 7 | 9 | SET | 70 | 99 |
| 3 TARE | 3 | 2 | 8 HOLD START HOLD | 8 | 8 | | | |
| 4 4 HIGH | 4 | 5 | 9 P.TARE 9 STOP P.TARE | 9 | 10 | | | |
| 5 5 Low | 5 | 4 | CLR | 11 | 13 | | | |

TEST 2

| FUNCTION : VF Display test | | | | |
|----------------------------------|----------------|---|----------------------|--|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION | |
| SET : Menu selection | 8.8.8.8.8.8.8. | tESt2 VFd | TEST 2 is porformed | |
| mode Other keys: Perform test | * * * * * * * | 888888888888888888888888888888888888888 | TEST 2 is performed. | |

TEST 3

| FUNCTION : Load cell test and A/D conversion test | | | |
|---|------|--------------|---|
| KEY VF DISPLAY SUB DISPLAY DESCRIPTIO | | | |
| SET: Menu selection mode | 5500 | tESt3 AnALoG | The display shows digital value of current weight. This value means converted digital value. |

Note 1. Check whether the digital value is changing whenever you load or unload the weight on the platter. If the digital value is fixed or zero is displayed, please check the connection of loadcell.

TEST 4

| FUNCTION : Serial interface test | | | | |
|---|-------------|--------------|---|--|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION | |
| SET: Menu selection mode Other keys: Perform test | 05 13 05 | tESt4 SErIAL | Waiting for transmission or reception. Transmit : 5, Receive: none Transmit: 5, Receive: 13 | |

Note 1. Before testing, you have to connect serial port of computer with serial port of indicator and run the communication program such as Hyper Terminal in PC.

Note 2. Send no.1 in PC keyboard and check if indicator receives no.1 Send no.1 in indicator keyboard and check if PC receives no.1

Note 3. Do this test after baud rate is specified in SET mode (See F20 at page 30).

TEST 5

| FUNCTION : Printer test | | | | |
|----------------------------------|------------|-------------|--------------------------|--|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION | |
| SET: Menu selection | Good | tESt5 Print | No error in printer. | |
| mode Other keys: Perform test | CH 05 | | Check printer connector. | |

Note 1. Previously specify the printer which will be used in the conversion mode.(F30) Note 2. "Good" message is displayed if the printer connection and specification is done'

correctly.

If not, "CH 05" message is displayed.

Note 3. Test format of printing is as follows.

Computer And System

CAS Corporation

http://www.cas.co.kr

TEL 82-2-2225-3500

FAX 82-2-475-4669

TEST OK

TEST 6

| FUNCTION : SRAM test | | | | |
|---|------------|-------------|--------------------------|--|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION | |
| SET: Menu selection mode Other keys: Perform test | Good | tESt6 rAM | SRAM is in normal state. | |

TEST 7

| FUNCTION : External input/output test | | | |
|---|---------------|----------------|--|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| $\begin{tabular}{lllllllllllllllllllllllllllllllllll$ | Ln1oUt3 | tESt7 rELAY | In1 : If you press 1 by using external key, and no.1 is entered. oUt3 : A state of external output It means output no. 3 is on. |

Note 1. In case of NT-501A, only external input is possible.

TEST 8

| FUNCTION : BCD output test | | | |
|---|------------|--------------|--|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| SET : Menu selection mode CLR : Toggles between on and off | oFF on | tESt8 bCdoUt | oFF : Turn off BCD output on : Turn on BCD output |

TEST 9

| FUNCTION : Analog output test(0-24 mA),(0-10V) | | | |
|--|------------|---------------|------------------------------------|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| SET Menu selection | HGH | tEStQ Adol It | HIGH : Output of maximum weight |
| mode | ZEro | | ZEro : Output of zero |

| | value | |
|---|--------------------------------------|--|
| CLR : Toggles between | Value | |
| high and zero | | |
| 10. Calibration Mode | | |
| | | |
| 1) How to enter calibration mo | ade | |
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| | the state CAL ONLY Comments | |
| D Remove the bolt on the rear panel and pl | it the switch to CAL ON as figure. | |
| * Adjusted to CAL ON at factory. | | |
| 2 Turn on the power while pressing the \mathbb{T} | 3 IRE | |
| 3) Calibrate the scale. | | |
| 4 Put the switch to CAL OFF and perform | the sealing. (See page 54) | |
| | | |
| | | |
| 2) Avallable keys | | |
| | | |
| key : used for moving to the next calit | pration menu. | |
| | | |
| \sim \sim key : used for changing preset | t value. | |
| | | |
| | | |
| 3) Calibration menu(CAL1~CA | AL7) | |
| | , | |
| CAL I : Maximum capacity set | | |
| CAL 2 : Minimum division Set | | |
| AL 5: Setting weight in Span Calibration | | |
| AL 4 : Zero calibration | | |
| ALS. Span calibration | norty | |
| AL 0. Check if the calibration is done pro | peny fter selecting national code | |
| AL / . Input weight constant callofation al | tter selecting national code | |
| | | |
| : | 27 | |
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CAL 1 (press '1' key to move to CAL 1)

| FUNCTION : Maximum Capacity Set (range : 1 ~ 99,999) | | | |
|---|-----------------------|----------------|---------------------|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| SET : save and go to next menu 0 ~ 9 : set value change CLR: exit : : | C = 5000 C = 20000 | CAL1 CAPA | 5000 kg 20000 kg |

Note 1. Maximum capacity means the maximum weight that the scale can measure.

CAL 2

| FUNCTION : Minimum Division Set (Range : 0.001 ~ 500) | | | |
|---|---|----------------|---------------------------------------|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| SET: save and go to next menu 0 ~ 9 : set value change CLR: input the point | d = 1 d = 0.2 d = 0.05 d = 0.001 | CAL2 dIVI | 1 kg 0.2 kg 0.05 kg 0.001 kg |

Note 1. The minimum division means the value of one division.

Note 2. External resolution is obtained by dividing the maximum capacity into the min. division.

Set the resolution to be within 1/10,000.

Note 3. When you press other keys except '1', '2', '5' and '0', you will hear error beep.

CAL 3

| FUNCTION : Setting Weight In Span CALIBRATION | | | | |
|---|---------------------|----------------|-------------------|--|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION | |
| SET: save and go to next menu 0 9 : set value change CLR: input the point | L = 5000 L = 500 | CAL3 SPAn | 5000 kg 500 kg | |

Note 1. The setting weight should be within the 10 % to 100 % of maximum weight.

Note 2. If the setting weight is under the 10% of the maximum capacity, the display shows error message, CH 12.

Note 3. If the setting weight is over the maximum capacity, the display shows error message, CH 12.

CAL 4

| FUNCTION : Zero Calibration | | | | |
|-----------------------------|-------------------|----------------|---|--|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION | |
| SET: zero calibration. | UnLOAd SUCCESS | CAL4 ZEro | Unload the tray and press SET under zero calibration. Zero calibration is completed. The program moves into Span calibration automatically. | |

Note 1. If Zero calibration is done without any error, SUCCESS message is displayed and program moves into CAL 5 automatically.

Note 2. If the zero value is too low/high check message ("CH 14") is displayed.

Note 3. Zero calibration can be done independently, Pressing "ZERO" key instead of "CLR key" will perform this function.

CAL 5

| FUNCTION : Span Calibration | | | |
|-----------------------------|-----------------|----------------|---|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| SET: span calibration | LOAd SUCCESS | CAL5 LoAd | Load the weight which was set in CAL 3 and press SET key. Under span calibration Span calibration is completed. Check whether the displayed weight is same with setting weight. |

Note 1. If Span calibration is done without any error, SUCCESS message is displayed. The weight of setting weight is displayed on VFD screen. Check the weight.

Note 2. If the span is low, Error message (CH 13) is displayed. In that case, Calibrate with Lower resolution. Please check the span value to be resolution × 20 in TEST 3.

CAL 6

| FUNCTION : Check if the calibration is done properly | | | |
|--|--------------------------|-------------|-------------|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| SET: save and go to next menu CLR: exit from the CAL mode | 5000kg ⊽⊽⊽▼⊽⊽⊽ | CAL6 VErIFY | 5000 kg |

Note 1. If the central lamp lights up as above VF Display, the bias is "0", and each lamp indicates the bias of -3, -2, -1, 0, 1, 2, 3 from the left lamp.

Note 2. Confirm if the displayed weight is equal to the setting weight you entered in CAL3,

and press the CLR key 2 times to go to weighing mode.

| FUNCTION : Input weight constant calibration after selecting national code | | | |
|--|---------------|-------------|--------------------|
| KEY | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| 0 ~ 9 : enter password CLR & SET : finish the CAL mode | PASS | CAL7 FACtor | Type the password. |

Note 1. National code is n = 0 Standard, n = 1 Tailand, n = 2 Turkey Note 2. Users do not have to use this menu, since it is used for calibration test without a weight.

Note 3. If you press the SET key two times, the display shows "CAL END" and then you can go to weighing mode.

11. Set Mode

1) How to enter set mode

Turn on the power while pressing the $\begin{bmatrix} 2 \\ G/N \end{bmatrix}$ key.

In weighing mode, press the $\begin{bmatrix} 2 \\ \alpha/N \end{bmatrix}$ key for 3 seconds to move to this mode.

2) Available keys

 $0_{D} \sim 9$ key : used for changing preset value.

SET key : used to save changed setting value and go to menu selection mode.

CLR key: used to go to menu selection mode without saving. * used to toggle between on and off in SET 07,11,33

3) Set menu (F01~F65)

| General setting | |
|-------------------------------------|---|
| F01 Date | Year, month, day |
| F02 Time | Hour, minute, second |
| F03 Display conversion speed | 10 ~ 50 times/sec. |
| F04 Digital filter | 1 ~ 50 digit average |
| F05 Stable condition | 00~99 |
| F06 Automatic zero condition | 00~99 |
| F07 Weight backup | OFF/ON |
| F08 Hold type | 0/1 (average hold / peak hold / sampling hold) |
| F09 Average hold time | 0.1 ~ 9.9 (0.1sec ~ 9.9sec) |
| F10 Operation range of Zero key | 0/1(±2%/±10%) |
| F11 Conditions of ZERO and TARE key | OFF / ON (stable/unstable) |
| F12 Load cell type | 0 / 1 (compression or tension/ compression and tension) |
| F13 8/9 key set | 0 / 1 (start, stop / hold, manual tare) |



| Serial interface | |
|-------------------------|--------------------------------------|
| F20 Baud rate | 1200, 2400, 4800, 9600, 19200bps |
| F21 Parity bit | $0 \sim 2$ (non parity / even / odd) |
| F22 Transmission method | 0~5 |
| F23 Device number | 00~99 |
| F24 Data format | 0 ~ 2 (22 byte / 10 byte / 18 byte) |

| Print | |
|---|------------------------|
| F30 Set printer | 0~4 |
| F31 Set pint format | 7 kinds of print form |
| F32 Set manual / automatic print | 0/1 (manual/automatic) |
| F33 Initialization of weighing number and accumulated data | OFF/ON |
| F34 Input user's print message | 0~71 character |
| F35 Line feed | 1 ~ 9 line feed |

| External input/output | | |
|--|-----------------------------|--|
| F40 Relay mode | 0~4 | |
| F41 Timer - start delay of finish signal | 0.0 ~ 9.9 (0.0sec ~ 9.9sec) | |
| F42 Timer - end delay of finish signal | 0.0 ~ 9.9 (0.0sec ~ 9.9sec) | |
| F43 Range of zero relay | 00 ~ 99 digit | |
| F44 External input | 0~6 | |

| Option | |
|--|--|
| F60 Option selection | $0 \sim 2$ (none / BCD output / Analog output) |
| F61 Output current at zero | 00000 ~ 24000 (00.000mA ~ 24.000mA) |
| F62 Output current at maximum capacity of the scale | 00000 ~ 24000 (00.000mA ~ 24.000mA) |
| F63 Analog output data | 0/1 (Net/Gross) |
| F64 Maximum output of Analog. | 0~99999 |
| F65 Logic of BCD output | 0 ~ 2 (22 byte / 10 byte / 18 byte) |

* Note : In case of NT-501A, F13, F40~F43 are not available.

1 General setting

F01

| FUNCTION : Change of year, month, day | | | |
|---------------------------------------|------------|-------------|---------------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value | 98.03.02 | F01 dAtE | March 2nd, 1998 |
| | 00. 12. 10 | | December 10th, 2000 |

Note 1. Modify the year, month and date by pressing the $\bigcirc \sim 9$ key.

F02

| FUNCTION : Time adjustment | | | |
|----------------------------|------------|--------------------------|------------------------------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value | 00.30.01 | F00 # 25 F | Twelve thirty and one second, A.M. |
| | 22.20.00 | | Exact time of ten twenty, P.M |

Note 1. Modify the time by pressing the $\bigcirc \sim 9$ key

F03

| FUNCTION : Display conversion speed | | | |
|-------------------------------------|------------|-------------|------------------------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value | 10 | | 10 times/sec. (low speed) |
| (10~50) | 20 | F03 SPEEd | 20 times/sec. (normal speed) |
| | 50 | | 50 times/sec. (high speed) |

F04

| FUNCTION : Digital filter (Speed control of weight display) | | | |
|---|------------|-------------|------------------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value | 1 | | 1 time average value |
| (1~50) | 20 | F04 FILtEr | 20 times average value |
| | 50 | | 50 times average value |

Note 1. You have to set display conversion speed in F03, before you set F04.

| FUNCTION : Stable condition of weight | | | |
|---------------------------------------|------------|-------------|--|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| | 23 | | Stable lamp is off even with the change of only two division for 3sec. |
| Set value (00~99) | 55 | F05 StAbLE | Stable lamp is on if the weight is changed within five division for 5 sec. |
| | 98 | | Stable lamp is on if the weight is changed within nine division for 8 sec. |

Note 1. The first number indicates division and the second number indicates second on the VF Display.

F06

| FUNCTION : Automatic zero condition | | | |
|-------------------------------------|------------|-------------|--|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Setvalue | 00 | | No compensation |
| (00~99) | 23 | F06 AZEro | Compensation for gradual change below 1 division for 3 sec. |
| | 99 | | Compensation for gradual change below 4.5 division for 9 sec. |

Note 1. To have division, divide the first number on the VF Display by 2. Note 2. The second number indicates a second on the VF Display.

F07

| FUNCTION : Weight backup | | | |
|--------------------------|------------|-------------|----------------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value (oFF~on) | oFF | | Weight backup is off |
| | on | FUT DACKUP | Weight backup is on |

Note 1. If weight backup is on, the scale saves previous weight when power failure is occurred.

Note 2. On and Off are alternately displayed by pressing the CLR key.

| F08 | | | |
|----------------------|------------|-------------|---------------|
| FUNCTION : Hold type | | | |
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value | 0 | F08 HoLd | Average Hold |
| (0, 1) | 1 | | Peak Hold |
| | 2 | | Sampling Hold |

Note 1. Average hold : Compute the average weight of oscillating weights. Peak hold : Compute the maximum weight among oscillating weights. Sampling hold : Compute the moment weight of oscillating weights.

F09

| FUNCTION : Average hold time | | | |
|------------------------------|------------|-------------|-------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value (01~99) | 01 | | 0.1 sec. |
| (01~99) | 99 | FU9 H-uiviE | 9.9 sec. |

F10

| FUNCTION : Digital filter (Speed control of weight display) | | | |
|---|------------|-------------|--|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value (0, 1) | 0 | F10 rAnGE | ±2 % : zero key is operated within ±2 % of maximum weight |
| | 1 | | $\pm 10\%$: zero key is operated within $\pm 10\%$ of maximum weight |

F11

| FUNCTION : Conditions of zero and tare key (stable/unstable) | | | |
|--|------------|-------------|--|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value (oFF~on) | oFF | F11 Zt-C | Zero, Tare key is operated when the scale is stable. |
| | on | | Always |

Note 1. On and Off are alternately displayed by pressing the CLR key.

| FUNCTION : Load cell type | | | |
|---------------------------|------------|-------------|-----------------------------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value | 0 | | Compression or tension load cell |
| (0, 1) | 1 | F 12 L-LYPE | Compression and tension load cell |

F13

| FUNCTION : A use of 8 and 9 key | | | |
|---------------------------------|------------|-------------|---------------------------------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value | 0 | | 8/9 key: START/STOP key |
| (0, 1) | 1 | F138-9KEy | 8 / 9 key : HOLD / MANUAL TARE key |

② Serial interface function

F20

| FUNCTION : Baud rate | | | |
|--|------------|-------------|-------------|
| VF DISPLAY 0 Set value (0~4) 2 3 4 | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| | 0 | | 1200bps |
| | 1 | F20 bAUd | 2400bps |
| | 2 | | 4800bps |
| | 3 | | 9600bps |
| | 4 | | 19200bps |

| FUNCTION : Display | | | |
|--------------------|------------|-------------|-------------------------------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value | 0 | F21 PArtty | Data bit 8, stop bit 1, none parity |
| (0~2) | 1 | | Data bit 7, stop bit 1, even parity |
| | 2 | | Data bit 7, stop bit 1, odd parity |



| FUNCTION : Data transmission | | | |
|------------------------------|------------|-------------|---|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| | 0 | | No data transmission |
| Set value $(0 \sim 4)$ | 1 | F22 SENd | Transmit data in a state of stable & unstable |
| | 2 | | Transmit data only in stable state |
| () | 3 | | Transmit data only in command mode |
| | 4 | | Transmit data if you press PRINT key(PRT) |
| | 5 | | Transmit data if you input Device ID |

Note 1. The default value is set to 0 at factory. Note 2. If F30 is set to 4, do not transmit weight data. Note 3. When F22 is set to 3,(Refer to 3) Command mode at page 16. Note 4. When F22 is set to 5. The device ID is the data demanding signal in seria Communication

EX>

| Device ID | Input Signal |
|-----------|--------------|
| 03 | 03 |
| 10 | 0A |

| FUNCTION : Device ID (Identification of each indicator) | | | |
|---|------------|-------------|---------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value (00 ~ 99) | 00 | | Device No. 00 |
| (00 00) | 05 | F23 UEVICE | Device No. 05 |

| FUNCTION : Serial data format | | | | | | |
|-------------------------------|------------|-------------|-----------------------|--|--|--|
| Set value | VF DISPLAY | SUB DISPLAY | DESCRIPTION | | | |
| | 0 | | 22 bytes - CAS format | | | |
| (0~2) | 1 | F24 S-ForM | 10 bytes - CAS format | | | |
| | 2 | | 18 bytes - AND format | | | |

③ Print function

F30

| FUNCTION : Printer | | | | | | |
|--------------------|------------|-------------|--|--|--|--|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION | | | |
| | 0 | | Printer is not used | | | |
| Set value (0~4) | 1 | F30 Print | EPSON printer | | | |
| | 2 | | MODEL : FS-7000D, 7040P parallel version | | | |
| | 3 | | EPSON printer (LQ-550H,LQ1550H etc) | | | |
| | 4 | | Serial printer | | | |

Note 1. The default value is set to 0 at factory. Note 2. If F30 is set to4 F22 is automatically chanted from 0.

| FUNCTION : Print Form | | | | | | | |
|-----------------------|------------|-------------|--|--|--|--|--|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION | | | | |
| | 0 | | 0 (date, time, serial No., ID No., net weight) | | | | |
| Caturalua | 1 | F31 P-Form | 1 (date, time, weigh No., net weight) | | | | |
| (0~5) | 2 | | 2 (date, time, gross, tare, net weight) | | | | |
| | 3 | | 3 (date, time, net weight) | | | | |
| | 4 | | 4 (date, time, ID No., net weight) | | | | |
| | 5 | | 5 (date, time, serial No., net weight) | | | | |



Note 1. Serial No. is available 1 to 999 and initialized to 1 after "GRAND TOTAL" printing Or power-off.

Note 2. Weigh No. is available 1 to 999 and is not initialized to 1 after power-off. If you want to initialize it, set F33 to ON in SET mode.

【Form 0】 Date, Time Serial No., ID No., Net weight [Form 1] Date, Time Weigh No., Net weight

| 2002. 1. 1 001. ID 11 | 12:30 50.0 ka |
|----------------------------|----------------------|
| 002, ID_12, 003, ID_19, | 100.0 kg 200.5 kg |

[Form 2] Date, Time Gross, Tare, Net weight

| 2002. 1. 1 | 12:30 |
|------------|-----------|
| Gross : | 1000.0 kg |
| Tare : | 0.0 kg |
| Net: | 1000.0 kg |
| INCL. | 1000.0 Kg |

【Form 4】 Date, Time ID No., Net weight

| 12:30 |
|----------|
| 50.0 kg |
| 100.0 kg |
| 200.5 kg |
| |

 2002. 1. 1
 12:30

 No.10
 50.0 kg

 No.11
 100.0 kg

 No.12
 200.5 kg

【Form 3】 Date, Time Time., Net weight

| 2002.1 | .1 | 12:30 |
|--------|------|----------|
| 10:10 | Net: | 50.0 kg |
| 11:00 | Net: | 100.0 kg |
| 12:30 | Net: | 200.5 kg |

[Form 5] Date, Time Serial No., Net weight

| 2002. 1. 1 | 12:30 |
|------------|-----------|
| 001, | 1000.0 kg |
| 2002. 1. 1 | 12:50 |
| 002, | 200.5 kg |

F32

| FUNCTION : Manual / Automatic print | | | | | | |
|-------------------------------------|------------|-------------|---|--|--|--|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION | | | |
| Set value. | 0 | | Manual print | | | |
| (0, 1) | 1 | F32 APrint | Automatic print | | | |
| | 2 | | Print after finishing1 batching - Only packer mode(Except NT 501A) | | | |

Note 1. Automatic print means that printing is performed without pressing the $\begin{bmatrix} 7 \\ PRT \end{bmatrix}$ key when the weight is in stable state.

Note 2. If you set F32 to 2, the indicator will print after 1 cycle of batching in packer mode.

F33

| FUNCTION : Initialization of measured weighing number | | | | | |
|---|------------|-------------|-------------------------------------|--|--|
| Set value (oFF, on) | VF DISPLAY | SUB DISPLAY | DESCRIPTION | | |
| | oFF | | Maintain current number | | |
| | on | F33INIUAL | Initialization (starting from No.1) | | |

Note 1. On and Off are alternately displayed by pressing the $\Box R$ key.

F34

| FUNCTION : Input user's print message | | | | | | |
|---|---|-------------|---|--|--|--|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION | | | |
| CLR key P12 Design data : increase coordinates Set blas coordinates P00 F34 ASCII This 32 Numeric P00 F34 ASCII This 32 :enter code P18 Set 255 This co messae This co | Designate 'A' (ASCII code 65) in 12 th data | | | | | |
| | P00 | F34 ASCI | Set blank to 0th character to print message. This 32th code is essential to head message | | | |
| | P18 | | Set 255 to 18th character. This code indicates the end of message to be printed | | | |

Note 1. You can add information such as company name and phone no. in printing format.

Note 2. The range of coordinate is from 0 to 71. 0th code determines whether head message is printed or not.(032 : print, others : Do not print) Actually 1st data to 255 is printed.
Note 3. Designate as follows if you want to add company name "CAS" on print format. P00-032(ASCII code 32 : Data start), P01-067(ASCII code 67 : character C) P02-065(ASCII code 65 : character A),P03-083(ASCII CODE 83 :character S) P04-255(ASCII code 255: Data end)



Note 4. ASCII code table

| CHA | CODE | CHA | CODE | СНА | CODE | CHA | CODE | СНА | CODE | CHA | CODE |
|-------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| SPACE | 32 | 0 | 48 | 0 | 64 | Ρ | 80 | ` | 96 | р | 112 |
| ! | 33 | 1 | 49 | А | 65 | Q | 81 | а | 97 | q | 113 |
| " | 34 | 2 | 50 | В | 66 | R | 82 | b | 98 | r | 114 |
| # | 35 | 3 | 51 | С | 67 | S | 83 | С | 99 | s | 115 |
| \$ | 36 | 4 | 52 | D | 68 | Т | 84 | d | 100 | t | 116 |
| % | 37 | 5 | 53 | Е | 69 | U | 85 | е | 101 | u | 117 |
| & | 38 | 6 | 54 | F | 70 | V | 86 | f | 102 | v | 118 |
| • | 39 | 7 | 55 | G | 71 | W | 87 | g | 103 | w | 119 |
| (| 40 | 8 | 56 | Н | 72 | Х | 88 | h | 104 | х | 120 |
|) | 41 | 9 | 57 | Ι | 73 | Y | 89 | i | 105 | у | 121 |
| * | 42 | : | 58 | J | 74 | Z | 90 | j | 106 | z | 122 |
| + | 43 | ; | 59 | к | 75 | [| 91 | k | 107 | { | 123 |
| , | 44 | < | 60 | L | 76 | ١ | 92 | Ι | 108 | | 124 |
| - | 45 | = | 61 | М | 77 |] | 93 | m | 109 | } | 125 |
| | 46 | > | 62 | Ν | 78 | ^ | 94 | n | 110 | ~ | 126 |
| / | 47 | ? | 63 | 0 | 79 | - | 95 | ο | 111 | END | 255 |

| FUNCTION : Line feed of paper | | | |
|-------------------------------|------------|-------------|-------------|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION |
| Set value | 1 | F35 FEEd | 1 line feed |
| (1~9) | 5 | | 5 line feed |
| | 9 | | 9 line feed |

④ External input/output function

F40 (Except NT-501A)

| FUNCTION : Relay mode | | | | |
|--------------------------------|------------|-------------|-------------------------|--|
| | VF DISPLAY | SUB DISPLAY | DESCRIPTION | |
| 0 Set value (0~4) 2 3 | 0 | F40 rELAY | Limit Mode | |
| | 1 | | Checker Mode | |
| | 2 | | Limit Type Checker Mode | |
| | 3 | | Packer Mode | |
| | 4 | | Relay is not used | |

<Limit Mode>

| WEIGHT | | (LOW LIMIT) | (HIGH LIMIT) | |
|---------------|------|-------------|--------------|-----|
| RELAY | 0 kg | 50 kg | 100 kg | |
| ZERO | П | | | ON |
| (OUT RELAY 1) | | | | OFF |
| LOW | | | | ON |
| (OUT RELAY 2) | | | | OFF |
| HIGH | | | | ON |
| (OUT RELAY 3) | | | | OFF |
| FINAL | | | | ON |
| (OUT RELAY 4) | | | | OFF |

Note 1. When the scale is stable over the high limit, Final relay is **ON**. Note 2. When low fall limit and high fall limit are set,

Low limit relay is **ON** (Weight = Low limit - Low fall limit). High limit relay is **ON** (Weight = High limit - High fall limit). Note 3. Zero relay is **ON** depending on the set of F43 (see page 38.)

< Checker Mode >

| WEIGHT | | (LOW LIMIT) | (HIGH LIMIT) | | |
|---------------|------|-------------|--------------|---|-----|
| RELAY | 0 kg | 50 kg | 100 kg | | |
| ZERO | П | | | | ON |
| (OUT RELAY 1) | | | | | OFF |
| LOW | | | | | ON |
| (OUT RELAY 2) | | | | | OFF |
| HIGH | | | | | ON |
| (OUT RELAY 3) | | | | L | OFF |
| FINAL | | | | | ON |
| (OUT RELAY 4) | | | | | OFF |

Note 1. When the scale is stable, LOW, HIGH and FINAL relays are ON after passing the certain time of start delay and then Off after passing the certain time of end delay. Start delay time of finish relay is set in F41 and end delay time of finish relay is set in F42.

Note 2. Zero relay is **ON** depending on the set of F43 (see page 38.)

< Limit Type Checker Mode >

| WEIGHT | | (LOW LIMIT) | (HIGH LIMIT) | |
|---------------|------|-------------|--------------|-----|
| RELAY | 0 kg | 50 kg | 100 kg | |
| ZERO | n | | | ON |
| (OUT RELAY 1) | | | | OFF |
| LOW | | | | ON |
| (OUT RELAY 2) | | | | OFF |
| HIGH | | | | ON |
| (OUT RELAY 3) | | | | OFF |
| FINAL | | | | ON |
| (OUT RELAY 4) | | | | OFF |

Note 1. Zero relay is **ON** depending on the set of F43 (see page 38.)



F41 (Except NT-501A)

| FUNCTION : Start delay time of finish relay | | | |
|---|------------|------------|-------------------|
| | VF DISPLAY | SUB VFD | DESCRIPTION |
| Set value | 0.0 | F41 dELAY1 | No delay |
| (0.0~9.9) | 1.3 | | Delay for 1.3 sec |
| | 5.5 | | Delay for 5.5 sec |

F42 (Except NT-501A)

| FUNCTION : End delay time of finish relay | | | |
|---|------------|------------|-------------------|
| | VF DISPLAY | SUB VFD | DESCRIPTION |
| Set value | 0.0 | F42 dELAY2 | No delay |
| (0.0~9.9) | 1.3 | | Delay for 1.3 sec |
| | 5.5 | | Delay for 5.5 sec |

F43 (Except NT-501A)

| FUNCTION : Range of zero relay | | | |
|--------------------------------|------------|------------|--------------------------------|
| | VF DISPLAY | SUB VFD | DESCRIPTION |
| Set value (00 ~ 99) | 00 | F43 ZrELAY | Relay is ON at zero |
| | 30 | | Relay IS ON within 30 division |

F44

| FUNCTION : Range of zero relay | | | | | | |
|--------------------------------|---------|--------|----------------|-------------|------------|----------------|
| | VF | VF SUB | | DESCRI | PTION | |
| | DISPLAY | VFD | KEY INPUT 1 | KEY INPUT 2 | KEY INPUT3 | KEY INPUT 2 |
| | 0 | | ZERO | TARE | NET | GROSS |
| Cat | 1 | | ZERO | TARE | PRINT | GROSS/ NET |
| value | 2 | E44 | ZERO | TARE | HOLD | HOLD CANCEL |
| (0100) | 3 | SELECt | ZERO | TARE | START | STOP |
| | 4 | | ZERO | PRINT | START | STOP |
| | 5 | | TARE CANCEL | TARE | START | STOP |
| | 6 | | GROSS | NET | START | STOP |

Note 1. START & STOP keys are not possible for NT-501A.

(5) External input/output function

F60

| FUNCTION : Relay mode | | | |
|-----------------------|---------|-------------|--|
| VF DISPLAY | SUB VFD | DESCRIPTION | |
| Set value (0 ~ 2) | 0 | F60 oPtion | No option |
| | 1 | | BCD OUT |
| | 2 | | Analog option (Vout : 0 - 10V), (lout : 0 - 24mA) |

F61

| FUNCTION : Relay mode | | | |
|--------------------------|------------|----------|-------------|
| | VF DISPLAY | SUB VFD | DESCRIPTION |
| Set value (0 ~ 24000) | 00000 | F61 ZEro | 0 mA |
| | 4000 | | 4.000 mA |
| | 4015 | | 4.015 mA |

F62

| FUNCTION : Output current at maximum capacity of the scale | | | |
|--|------------|----------|-------------|
| | VF DISPLAY | SUB VFD | DESCRIPTION |
| Set value | 00000 | F62 High | 0 mA |
| (0~24000) | 20000 | | 20.000 mA |
| | 21315 | | 21.315 mA |

F63

| FUNCTION : Analog output data | | | | | | |
|-------------------------------|------------|---------|-------------|--|--|--|
| | VF DISPLAY | SUB VFD | DESCRIPTION | | | |
| Set value (0 ~ 24000) | 0 | F62 m 0 | Net data | | | |
| (0 21000) | 1 | FOSTES | Gross data | | | |

| FUNCTION : Maximum output of analog | | | | | | |
|-------------------------------------|------------|------------|-------------------------------------|--|--|--|
| | VF DISPLAY | SUB VFD | DESCRIPTION | | | |
| Setvalue | 01000 | | Maximum output of Analog at 1000kg | | | |
| (0~24000) | 20000 | F64 A-CAPA | Maximum output of Analog at 20000kg | | | |
| | 21315 | | Maximum output of Analog at 21315kg | | | |

| FUNCTION : Logic of BCD output | | | | | | |
|--------------------------------|------------|----------|----------------|--|--|--|
| | VF DISPLAY | SUB VFD | DESCRIPTION | | | |
| Set value (0, 1) | 0 | | Positive Logic | | | |
| (-, -, | 1 | FOSLOGIC | Negative Logic | | | |

12. Weighing Mode

(1) Zero Compensation

| | VF Display and use key | Platform | Description |
|--------|--------------------------------|----------|--|
| Step 1 | ST HIGH LOW HOLD NET TIPE ZEPO | Empty | Small variations in the scale's zero |
| Step 2 | | | |
| Step 3 | ST NOH LOW HOLD NET THE ZERO | Empty | Remove small variations in the scale's zero. |

Note 1. Set zero range to $\pm 2\%$ or $\pm 10\%$ of maximum capacity in F10. (See page 30.) Note 2. Set the conditions of zero in F11. (See page 30.)

(2) Net/Gross weight.

| | VF Display and use key | Platform | Description |
|--------|---|-----------------------|---|
| Step 1 | Kg | Container And item | An item weight: 13.00 kg Tare weight : 5.00 kg Net weight is shown on the display. |
| Step 2 | Press the $\begin{bmatrix} 2 \\ g/N \end{bmatrix}$ key. | | |
| Step 3 | ST HIGH LOW HOLD NET THE ZERO | Container And item | Gross weight is shown on the display now. |
| Step 4 | Press the $\begin{bmatrix} 2 \\ g/N \end{bmatrix}$ key. | | |
| Step 5 | ST WIDH LOW HOLD NET TAME ZERO | Container And item | Net weight is on the display now. |

Note. NET lamp is on when net weight is shown on the display. NET lamp is off when gross weight is shown on the display.

Press $\begin{bmatrix} 3 \\ TARE \end{bmatrix}$ key when the platform is empty.

Tare should be greater than the zero range of F10 in SET mode.

(3) Change of digital filter.

| | VF Display and use key | Platform | Description |
|--------|--|----------|---|
| Step 1 | ST HIGH LOW HOLD NET THE ZERO | ltem | Weighing mode |
| Step 2 | Press the 2 G/N key for 3 seconds. | | You can go to SET mode |
| Step 3 | FDI-F55 ^{S Har} LOW HOLD NO 2000 SEL ñadl | ltem | SET mode |
| Step 4 | Press the $\begin{bmatrix} 0 \\ D \end{bmatrix}$, $\begin{bmatrix} 4 \\ -4 \end{bmatrix}$, or $\begin{bmatrix} 0 \\ 0 \end{bmatrix}$, $\begin{bmatrix} 4 \\ -4 \end{bmatrix}$, $\begin{bmatrix} 0 \\ -4 \end{bmatrix}$, $\begin{bmatrix} 4 \\ -4 \end{bmatrix}$, $\begin{bmatrix} -4 \\ -4 \end{bmatrix}$, | | SET Menu 4 |
| Step 5 | FD4 5 st HR LOW HOLD THE THRE ZERO FD4 FILLEER | | Current value of F04 is 5. "5" : 5 times average |
| Step 6 | Press the 9 Prate or Prope REAL REAL | | Change "5" to "9". "9" : 9 times average |
| Step 7 | st the LOW HOLE MET THE ZERO FAY FILLEF | | |
| Step 8 | Press the SET key two times. | | Save & Exit |
| Step 9 | st MGH LOW HOLD NET TARE ZERO | ltem | Return to Weighing mode |

(4) How to save ID code

| | VF Display and use key | Platform | Description |
|--------|--------------------------------|----------------------|--------------------------|
| Step 1 | ST HIGH LOW HOLD NET TAKE ZEFO | Empty | |
| Step 2 | ST MEH LOW KILD NET TARE ZERO | Put item ("iron") | |
| Step3 | Press the 0 key | | |
| Step 4 | ST HER LOW HOLD NET TAKE ZERO | | |
| Step 5 | | | ID code of "iron" |
| Step 6 | ST MGH LOW HOLD NET TABE ZERO | item ("iron") | |
| Step 7 | SET SET | | Save ID |
| Step 8 | st HAM LOW HOLD NET TIME ZEPO | item ("iron") | Go to the weighing mode. |

Note. The range of ID code is 0~50.

(5) How to enter high limit value (Except NT-501A)

| | VF Display and use key | Platform | Description |
|--------|---|----------|--|
| Step 1 | st HDH LOW HOLD NET YING 2000 4.0 4.0 | Empty | |
| Step2 | Press the HIGH key | | The display shows previous high limit value. |
| Step 3 | Press <u>1, 0</u> , 0 <u>CLR</u> and <u>0</u> keys. | | Enter high limit value(500.0kg) |
| Step 4 | Press the SET key | | Save |
| Step 5 | st HOF LOW HOLE THE ZERO S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Empty | High limit value is saved and sub display shows 500.0kg. |

Note. After typing 4 HIGH key and desired high limit value (e.g.,500.0kg), press the SET key To register 500.0 as the high limit value.

In case that a number with decimal point is input, use the CLR key. For instance, if 500.0kg is input as the high value, press the key in the order from

| | 4 _{HIGH} | , [| 5 LOW | , | 0 ID | , | 0 ID |), | CLR | , (| 0 ID | key to the | SET | key. |
|--|----------------------|-----|----------|---|---------|---|---------|----|-----|-----|---------|------------|-----|------|
|--|----------------------|-----|----------|---|---------|---|---------|----|-----|-----|---------|------------|-----|------|



| | VF Display and use key | Platform | Description | | | |
|--------|--|----------|--|--|--|--|
| Step 1 | st HPH LOW HOLD NET THE ZERO S 4440 440 | Empty | The sub display shows high limit value. (500.0kg) | | | |
| Step2 | FALL, 4 | | The display shows previous high_fall limit value. | | | |
| Step 3 | CLR, 2 LOW, CLR, 2 G/N | | Enter high_fall limit value(5.2kg) | | | |
| Step 4 | I SET | | | | | |
| Step 5 | st HR LOW HOLD HET THE 2000 S 4440 440 | Empty | High_fall limit value is saved. | | | |

(6) How to enter high fall limit value (Except NT-501A)

Note. After typing FALL,HIGH and desired high fall limit value (e.g.,5.2kg), press the SET Key to register 5.2 kg as the high fall limit value.

If you want to enter decimal point, press the CLR key. For instance, if 5.2kg is input as the high fall value, press the key in the order from

5 LOW 2 G/N $\begin{bmatrix} 6 \\ FALL \end{bmatrix} \text{ key to the } \begin{bmatrix} 4 \\ HIGH \end{bmatrix} \text{ key.}$ CLR

(7) How to clear ID data

| | VF Display and use key | Platform | Description |
|--------|---|--------------------|-----------------------------------|
| Step 1 | ST HER LOW KOLD NET THE ZERO | Empty (or item) | |
| Step2 | Press the D for 3 seconds. | | |
| Step 5 | LLEAR st MPH LOW HOLD NET TIME 2800 SELPa Int | Empty (or item) | All data of id (0~50) is cleared. |

Note. Even though there is an item on the platter, data clearing is performed.

(8) How to print subtotal.

Assume that the current ID code is 10.

| | VF Display and use key | Platform | Description |
|--------|---|----------|-----------------------|
| Step1 | Press the D key. | | |
| Step2 | Press the $\begin{bmatrix} 1 \\ _{ZERO} \end{bmatrix}$ and $\begin{bmatrix} 0 \\ _{D} \end{bmatrix}$ key. | | Enter ID code "10". |
| Step3 | Press the SET key. | | |
| Step 4 | Press the CLR and 7 key. | | Sub total is printed. |

Note. If printing is done, the total weight and count of this ID number is set to 0. The print form is as belows.

| SUB TOTAL | | |
|--------------------------------------|---|--|
| DATE TIME ID COUNT TOTAL | 2001.10.13 09:30 10 5 350.0kg | |

(9) How to print grand total

| | VF Display and use key | Platform | Description |
|--------|------------------------|----------|----------------------|
| Step 1 | SET , PRT | | Grand total printing |

Note. Grand total means the total weight of all ID cord. The print form is as belows.

| OVE | RA | LL-TOTAL |
|--------------------------------|----|-------------------------------------|
| DATE TIME COUNT TOTAL | : | 2001.10.13 16:30 5 750.0kg |



13. Options



Parallel BCD output is the interface that transmits the weight as BCD code. Inner circuit of input/output circuit is electronically disconnected by photo-coupler.

CONNECTION OF PIN

| PIN | SIGNAL | PIN | SIGNAL |
|-----|-------------------|-----|---------------------------------|
| 1 | Ground (GND) | 26 | High : Net, Low : Gross |
| 2 | 1×10° | 27 | N.C. |
| 3 | 2×10 ⁰ | 28 | N.C |
| 4 | 4×10 ⁰ | 29 | N.C |
| 5 | 8×10 ⁰ | 30 | N.C |
| 6 | 1×10 ¹ | 31 | N.C |
| 7 | 2×10 ¹ | 32 | N.C |
| 8 | 4×10 ¹ | 33 | N.C |
| 9 | 8×10 ¹ | 34 | N.C |
| 10 | 1×10 ² | 35 | N.C |
| 11 | 2×10 ² | 36 | N.C |
| 12 | 4×10 ² | 37 | External Vcc |
| 13 | 8×10 ² | 38 | N.C |
| 14 | 1×10 ³ | 39 | External Vcc |
| 15 | 2×10 ³ | 40 | N.C |
| 16 | 4×10 ³ | 41 | N.C |
| 17 | 8×10 ³ | 42 | High:+, Low:- |
| 18 | 1×10 ⁴ | 43 | Decimal point : 10 ¹ |
| 19 | 2×10 ⁴ | 44 | Decimal point: 10 ² |
| 20 | 4×10 ⁴ | 45 | Decimal point : 10 ³ |
| 21 | 8×10 ⁴ | 46 | Over Load |
| 22 | 1×10⁵ | 47 | N.C. |
| 23 | 2×10 ⁵ | 48 | N.C. |
| 24 | 4×10 ⁵ | 49 | Busy |
| 25 | 8×10⁵ | 50 | N.C. |

50 pin connector : CHAMP 57-40500(Amphenol) (Female)
 TTL Open-Collector Output
 SIGNAL LOGIC



BCD output circuit is Open Collector Type.

| OP - 3 Analog Output Interface (0~24mA) (0~10V) | | |
|---|--------|--|
| | OP - 3 | Analog Output Interface (0~24mA) (0~10V) |

(1) Current output

Specification

| Output Current | Max. 0~24 mA |
|-------------------------|--------------|
| Resolutions | Over 1/1000 |
| Temperature Coefficient | 0.01%/°C |
| Max. Load Impedance | 500Ω MAX. |

How to set switch



Model : NT-500
 0~24mA
 Fixing



You can set output current in F61 and F62 of Set mode. The setting range is 0.000 mA to 24.000 mA, by steps of 0.001 mA. - Max. capacity : 100 kg, Min. capacity : 0.05 kg

case ① F61 : 4000, F62 : 20000 case ② F61 : 20000, F62 : 4000



How to use current to voltage



If F61 is set to 4mA, F62 is set to 20mA in SET mode and resistor is 250 Ω , the output will be $1V \sim 5V$.

Note. You have to use high capacity of resistor. If you add resistor 500 Ω , W=I²R=(0.02)² x 500 = 0.2W

Therefore, you have to use $1\!/\!2W$ or more capacity and low temperature coefficient resistor.



(2) Voltage output

Specification

| Output voltage | 0 ~ 10V |
|-------------------------|-----------------------|
| Resolution | over 1/1000 |
| Temperature coefficient | 0 <mark>0</mark> /%/0 |

How to set switch



- ① Model : NT-500 ② 0~10V

③ Fixing selection

- $\blacksquare When the weight is 0, output voltage is 0V.$ When the weight is maximum capacity is the scale, output voltage is 10V.
- Setting of Set mode

 F60 : 2
 F61 : 0
 F62 : 0



14. Sealing Method



① Rear panel sealing



2 Load cell connector sealing



| (1) Weighing mode | |
|--|--|
| CH 01 | |
| Reason | |
| Internal RAM is erased. | |
| Troubleshooting | |
| Please call your CAS dealer. | |
| | |
| | |
| Reason Load call connection failure or error in A/D conversion part | |
| Load cell connection failure of error in A/D conversion part. | |
| Les roublesnooting | |
| Please call your CAS dealer. | |
| CH 03 | |
| Reason | |
| The zero range exceeds +10% of maximum canacity | |
| Troubleshooting | |
| Check that there is nothing on the platform. | |
| | |
| CH 04 | |
| Reason | |
| You pressed any key for long time or there is a problem in key part. | |
| Trouble-shooting | |
| If there is no problem in key part, call your CAS dealer. | |
| CH 05 | |
| Reason | |
| Failure of print connection | |
| Troubleshooting | |
| Check the connection between NT-505A & Printer. | |
| | |
| Over | |
| Reason | |
| The display weight is greater than the maximum capacity that you have set. | |
| Troubleshooting | |
| The weight of item is greater than the max. capacity on the platform. | |
| This may damage Load Cell. | |
| | |
| | |
| | |
| | |
| 65 | |

(2) CAL mode

CH 11

Reason

The resolution exceeds the 1/10,000.

```
Troubleshooting
```

Lower the resolution. Change the maximum capacity in CAL1 or change the division in CAL2 so that the resolution should be below 1/10,000.

CH 12

Reason

The weight for span calibration is lower than 10%, or greater than 100% of the maximum capacity of the scale.

Troubleshooting The weight for span calibration should be within 10%~100% of the maximum capacity of the scale in CAL3.

CH 13

Reason

Load cell output is too small or large at span calibration.

- Troubleshooting
 - Calibrate with lower resolution.

CH 14

- Reason
 - Load cell output is too small or large at zero calibration.

Troubleshooting

Check whether the platform is empty. Calibrate again after checking in A/D TEST mode.





MEMO





CAS BLDG., # 440-1, SUNGNAE DONG, GANGDONG GU, SEOUL, KOREA TEL_ 82 2 2225 3500 FAX_ 82 2 475 4668 www.globalcas.com

Specifications are subject to change for improvement without prior notice.

9007-502-0033-3 2008.09