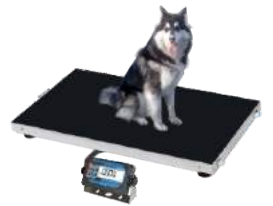


VETERINARY SCALE **AP**
User Manual



v.201811



HiWEIGH
Weighing system & solution

An ISO9001 registered company
@No.335 Haishen, Xingxin Road, Huinan Town, Pudong District, Shanghai 201301, China
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Value Each Gram

Before Use

Safety precautions



WARNING!

⚠ Do not use X2 and X2SS weighing terminal in hazardous area! Do not use it within areas classified as hazardous division 1/2 or zone 0/1/2/21/22 because of combustible or explosive atmospheres.



▲ Never immerse it in corrosive chemical liquid.

▲ Static sensitive device, it must be handled only by qualified technicians. Improper handling may damage the circuit card and the device, which is not covered by the warranty.



DANGER!

Electric shock hazard!

▲ Make sure the indicator is grounded well.

▲ Always unplug AC cable before performing any service work on the indicator! And wait for at least 30 seconds before any operation on the indicator.



Disposal

In conformance with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE), this device may not be disposed of in domestic waste. This also applies to countries outside the EU as per their specific regulations.

Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

If you have any questions, please contact the responsible authority or the distributor from which you purchased this indicator.

Should this indicator be passed on to other parties (for private or professional use), the content of this regulation must also be related.

The indicator has a rechargeable internal battery. The battery contains heavy metals. Please observe the local regulations on the disposal of environmentally hazardous materials.

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1. INTRODUCTION

- | | |
|---|--|
| • Max. A/D sampling speed: | 120 times / second. |
| • Display resolution: | from 1/3000 up to 1/30000 |
| • Maximum A/D converting: | 24bit |
| • Sensitivity: | 0.6mv/V - 3mV/V |
| • Excitation voltage: | DC 5V; up to 4 load cells 350 Ω, 8 load cells 700 Ω. |
| • Weight unit: | Kg/Lb/Oz/Gr/Ton |
| • Communication interface: | Optional RS232 |
| • Rate continuous ASCII data output: | 1200 / 2400 / 4800 / 9600 Baud. |
| • External power supply: | 100-240V AC - 9V500mA |
| • Operating temperature: | -10°C-40°C |
| • Storage temperature: | -25°C-55°C. |
| • Relative humidity: | ≤ 80 % non-condensing. |
| • Display: | 23mm digits with backlight |
| • Rechargeable battery and operating life | |
| 6V1.2Ah | 40hrs |
| • Housing material: | |
| X2 | ABS |
| X2SS | SUS304 |
| • Dimensions: | |
| X2 | 220mm(L) x 130mm(H) x 55 mm(W) |
| X2SS | 188mm (L) x 120mm (H) x 50mm (W) |
| • Approximated weight: | |
| X2 | 1.8Kg/1.6Kg |
| X2SS | 2.5Kg/2.2Kg |

2. KEYBOARD FUNCTIONS



Switch on / Zero/Tare / Move right (parameter setting)

【ON/T】 in the manual



Accumulation review/ Remove accumulation / Move left

【MR/MC】 in the manual



Net/Gross weighing / Increasing digits

【N/G】 in the manual



Accumulating / Printing / Enter



Unit Exchange / Exit the programming mode



Switch off

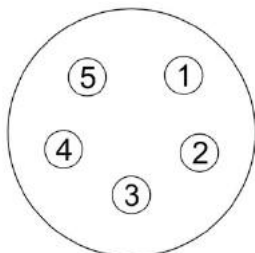
【M+】 in the manual

【UNIT/ESC】 in the manual

【OFF】 in the manual

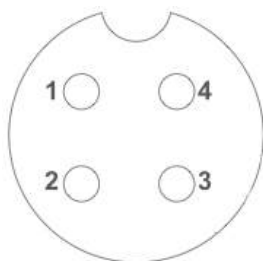
3. TECHNICAL DESCRIPTION

3.1 Connection of the load cell to indicator



INDICATOR		LOAD CELL
+E (1)	-----	+Excitation
-E (2)	-----	-Excitation
+S (3)	-----	+Signal
-S (4)	-----	-Signal
GND (5)	-----	(GND) shield

3.2 Connection of RS232 to PC or Printer



INDICATOR		PC/PRINTER
1	-----	TX
2	-----	SC
3	-----	GND
4	-----	SC

4. STANDARD OPERATIONS

Make sure the equipment connected correctly and parameters set well, and also the scale has already been calibrated correctly.

Configuration and Calibration - Refer to 6. TECHNICAL OPERATIONS

!Do not modify it by yourself; consult our distributor or your local authorized metrology worker, wrong operation may cause the problem or wrong performance of the scale.

4.1 Switch on and switch off

Press 【ON/T】 to turn on the indicator

Press 【OFF】 for 2 seconds to turn off the indicator

4.2 Zero/Tare

4.2.1 If the display is not 0 after power on, press 【ON/T】 to zero the scale (<2%F.S.)

4.2.2 Weighing with the container, put the container on the scale (>2%F.S.) and press 【ON/T】 to make a tare and get subtract of the weight of the container.

4.2.3 Remove the tare: remove the container and press 【ON/T】 to clear the tare value and zero the scale.

4.3 Net/Gross Weighing

With the container on the scale (tare operation made), press **【G/N】** to display the gross weight or net weight

4.5 Accumulating

Put the first commodity on the scale and after the weight stable, press **【M+】** to accumulate the weight, it will display the accumulating time - -0001- and the accumulated weight for 2 seconds, remove the first commodity and put the second commodity on the scale, press **【M+】** to accumulate it, it will display -0002- and the total accumulated weight for 2 seconds....

Note: Each weighing can be accumulated once time

4.6 Accumulating Recall and Clear

Press **【MR/MC】** to display the total accumulated times and the accumulated weight, it will display the total times and total weight for 2 seconds, during the display of the total accumulated weight, press **【MR/MC】** again to clear the accumulated values.

4.7 Units Exchange

Press **【UNIT/ESC】** to exchange the weight units
Units set - Refer to 5. TECHNICAL OPERATIONS

5. FURTHER OPERATIONS

Press **【M+】** key and **【ON/T】** at the same time, it will display **UF - 1**, press **【ON/T】** or **【MR/MC】** to shift it from **UF - 1** to **UF - 9**, press **【M+】** to enter and configure it.

5.1 Internal A/D Value and Battery Volume

UF - 1

Press **【M+】** to view the internal A/D value of the scale

Press **【M+】** again to display the voltage of the battery.

Press **【M+】** again to change for next set or press **【UNIT/ESC】** to quit and back to normal weighing mode

5.2 Hi/Lo/Ok Checkweigh Function

UF - 2 Press **【ON/T】 【MR/MC】 【N/G】** to move and change the digits.

Press **【M+】** to set the Lo value (the lower limitation) - **000.00L**

Press **【M+】** to set the Hi value (the top limitation) - **000.00h**

Press **【M+】** to change the working mode of buzzer of Hi/Lo/Ok - **o 000**

Remark

<u>o</u>	<u>o o o</u>
<u>o</u>	<u>A B C</u>

A=0 Stable but no need to buzz

A=1 Stable to buzz

B no function, keep it as default and no change

C=0 Buzzer off

C=1 It beeps when the weight is ok (Lo<weight<Hi)

C=1 It beeps when the weight is out of limitation (Lo>weight or weight>Hi)

5.3 Auto Power Off

UF - 3 Press **【ON/T】 【MR/MC】 【N/G】** to move and change the digits.

Press **【M+】** to enter the set of automatic off function- **AoFF 00**

00 Auto off deactivated

01-99 Auto off activated in 01-99 minutes, you can change it from 01 minute to 99 minutes

5.4 Backlight

UF - 4 Press **【N/G】** to change the digits.

Press **【M+】** to enter the set of backlight function- **Lit A**

A Automatic

ON Backlight On

OFF Backlight Off

5.5 Hold Function (Animal Weighing)

UF - 5 Press **【N/G】** to change the digits.

Press **【M+】** to enter the set of backlight function- **hoLd 0**

0 Deactivated

1 Animal weighing (refer to below remark)

2 Peak hold (press any key to exit except for **【M+】** key)

3 Stable hold (press any key to exit except for **【M+】** key)

4 Stable hold (exit automatically when the weight is removed)

Remark

When choose hold = 1, it need to set the following two parameters

1. **Pct xxx** the number is from 001-100, the bigger number means the more accurate weight, but the weighing time is longer, the smaller number means fast weighing (shorter stabilizing time) but not so accurate result, it can be chosen depends on the weighing condition of the scale.
2. **TinE x** the number it can repeat during the range of hold, it can choose 1/2/4/8/16/32/64

5.6 RS232 Interface (Optional)

UF - 6 Press **【N/G】** to change the digits.

Press **【M+】** to enter the set of RS232 format- **232 0**

Format 1		Format 2	
232 1	Stable Output	232 4	Stable Output
232 2	Stream Output	232 5	Stream Output
232 3	Keyboard (M+ Key) Output	232 6	Keyboard (M+ Key) Output
Format 3		Format 4	
232 7	Accumulated Output	232 9	Accumulated Output
232 8	Auto-Accumulation Output	232 10	Auto-Accumulation Output

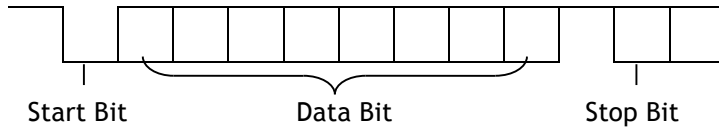
Format 1 2 3 4

Communication Protocol

UART signal of EIA-RS232 C

Data Format:

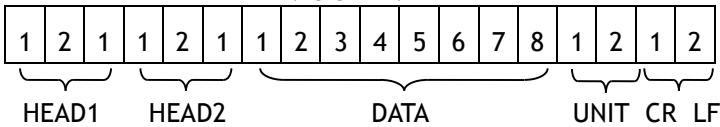
1. Baud Rate : 2400 / 4800 / 9600/19200/38400 BPS
2. Data Bit : 8 BITS
3. Parity Bit : None
4. Stop Bit : 1 BIT



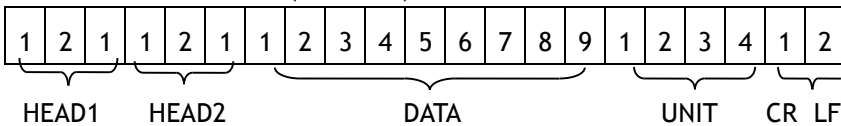
Format 1 (232 1 ~ 3) :

HEAD1 (2 BYTES)	HEAD2 (2 BYTES)
OL - Overload	
ST - Stable	NT - Net Weight
US - Unstable	GS - Gross Weight

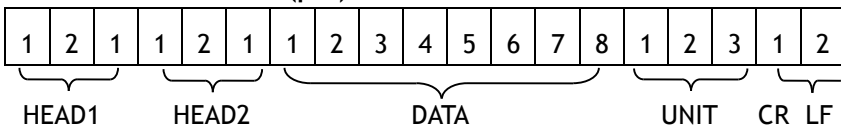
Fixed 18 BYTES ASCII (kg g t lb)



Fixed 21 BYTES ASCII (tl.T lboz)

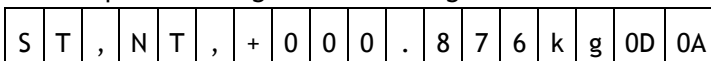


Fixed 19 BYTES ASCII (pcs)

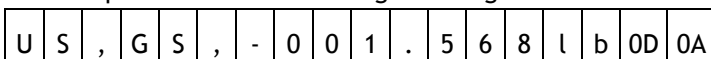


Output examples :

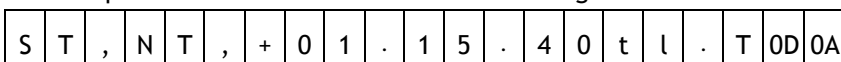
1. Example +0.876 kg Stable net weight :



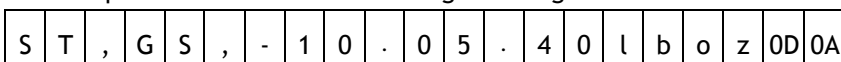
2. Example -1.568 lb unstable gross weight :



3. Example + 1.15.40 Taiwan Jin Stable net weight :



4. Example -20. 5.40 lb oz unstable gross weight :



5. Example +1000 pcs stable net weight :

S	T	,	N	T	,	+	0	0	0	1	0	0	0	p	c	s	0D	0A
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----

Format 2 (232 4 - 6) :

Fixed 12 BYTES ASCII (kg g t lb)

1	2	3	4	5	6	7	8	1	2	1	2
DATA								UNIT		CR LF	

Fixed 15 BYTES ASCII (tl.T lboz)

1	2	3	4	5	6	7	8	9	1	2	3	4	1	2
DATA									UNIT				CR LF	

Fixed 13 BYTES ASCII (pcs)

1	2	3	4	5	6	7	8	1	2	3	1	2
DATA								UNIT			CR LF	

Output examples :

1. Example +0.876 kg stable net weight :

+	0	0	0	.	8	7	6	k	g	0D	0A
---	---	---	---	---	---	---	---	---	---	----	----

2. Example -1.568 lb unstable gross weight :

-	0	0	1	.	5	6	8	l	b	0D	0A
---	---	---	---	---	---	---	---	---	---	----	----

3. Example + 1.15.40 Taiwan Jin Stable net weight :

+	0	1	.	1	5	.	4	0	t	l	.	T	0D	0A
---	---	---	---	---	---	---	---	---	---	---	---	---	----	----

4. Example -20. 5.40 lb oz unstable gross weight :

-	1	0	.	0	5	.	4	0	l	b	o	z	0D	0A
---	---	---	---	---	---	---	---	---	---	---	---	---	----	----

5. Example +1000 pcs stable net weight :

+	0	0	0	1	0	0	0	p	c	s	0D	0A
---	---	---	---	---	---	---	---	---	---	---	----	----

※ Factory default : 232 0 - RS232 OFF

Format 3 (232 7-8) :

Printing Output

S/N	WT/Kg	S/N	WT/pcs
0001	85.5	0001	15
0002	75.2	0002	20
-----		-----	
0002	160.7	0002	35

Format 4 (232 9-10) :

Printing Output

TICKET No. 0005

G 5.2Kg

T 1.2Kg

N 4.0Kg

TOTAL NUMBER

OF TICKETS 0005

TOTAL

NET 4.0

TICKET No.0005

G 5pcs

T 0pcs

N 5pcs

TOTAL NUMBER

OF TICKETS 0005

TOTAL

NET 5

5.7 Weighing Speed

UF - 7 Press **【N/G】** to change the digits.

Press **【M+】** to enter the set of weighing speed - **SPEEd 3**

1 Standard speed (normal speed)

2 Fast response

3 Slow response

** the faster response, the more time for stability, the more slow speed, the shorter time for stability*

5.8 Zero Track

UF - 8 Press **【N/G】** to change the digits.

Press **【M+】** to enter the set of weighing speed - **ZP 1**

1 = 1e

2 = 2e

3 = 3e

4 = 4e

5 = 5e

** Example: for 1e zero track (if e=20g), the scale will show 0 until it's more than 20g (1e).*

5.9 Gravity Adjusting

UF - 9 Press **【ON/T】 【MR/MC】 【N/G】** to move and change the digits

Press **【M+】** to enter the set of local gravity and change it accordingly- **9.79423**

6. TECHNICAL OPERATIONS

6.1 Display the version number

Keep pressing the **【M+】** key (not release) and turn on the indicator, after the finish of self-checking it will display the version number - **100911** , Release the **【M+】** key and the indicator will turn off automatically.

6.2. Configuration

Keep pressing the **【ON/T】** key (not release) and turn on the indicator, after the finish of self-checking it will display **P 0000** . Input the password - P 0020, and then press **【M+】** to enter the parameter setting mode

*Press **【ON/T】** key or **【MR/MC】** key to shift between functions LF-1 ~ LF-8.

*Press **【ON/T】 【MR/MC】 【N/G】** to move and change the digits

*Press **【UNIT/ESC】** to quit and the indicator will restart for normal weighing mode

6.2.1 Calibration

LF - 1

Press **【M+】** key to enter zero calibration **CALZ** .

Make sure nothing on the platform of the scale and press **【M+】** to finish zero calibration

Display the full capacity **0300.00**

**Full capacity weights recommended for calibration of the scale, or at least 60%F.S. to assure the accurate weighing, it's not allowed to do with 1%F.S weight or more than 100%F.S.weight.*

Change the display value to be the same as the test weight.

Press **【M+】** , the digits will twinkle

Place the test weights on the platform (example of 300Kg)

Press **【M+】** until the indicator recognize the weight correctly.

Finish of calibration.

6.2.2 Parameter Setting

LF - 2

Press **【M+】** key to enter parameter setting mode and it will display the internal A/D value (not fixed).

Press **【M+】** key to set the weight units **100001**

1 0 0 0 0 1
A B C D E F

A	1=Kg	2=T	3=g
B	1=lb	2=lb/oz	
C	1=TW Kg	2=HK kg	3=VISS
D	1=PCS off	2=PCS ON	
E	1=Multi interval	2=Multi range	
F	1=Calibration In Kg	2=Calibration in lb	

Press **【M+】** key to set the capacity of the scale **000300**

Press **【M+】** key to set the decimal point **dP 0.00**

*Press **【ON/T】** key or **【MR/MC】** key to shift it from 0.0 until 0.00000

Press **【M+】** key to set the division **div 01**

*Press **【N/G】** key to shift it between 01/02/05/10/20/50

6.2.3 Linearity Calibration

LF - 3

Press **【M+】** key to set the linearity calibration **W 0**

Press **【ON/T】** key to enter next step **W 1**

Put 1/3F.S. test weight and press **【ON/T】** to enter next step **W 2**

Put 2/3F.S. test weight and press **【ON/T】** to enter next step **W 3**

Put 100%F.S. test weight and press **【ON/T】** to enter next step **W 4**

Press **【M+】** key to exit and back to **LF - 3**

6.2.4 A/D Converting Speed

LF - 4

The same operation as 5.7 Weighing Speed

**It was blocked when UF-5 set of HOLD 1*

**1=15Hz 2=30Hz 3=7.5Hz*

6.2.5 Zero Track

LF - 5

The same operation as 5.8 Zero Track

**It was blocked when UF-5 set of HOLD 1*

6.2.6 Approval Version

LF - 6

It must always kept to be **nonE**

6.2.7 Gravity Adjusting

LF - 7

The same operation as 5.9 Gravity Adjusting

6.2.8 Initial Zero

LF - 8

Press **【M+】** key to set the initial zero function **SEtZ Y**

Y.....Reset of the zero point each time when the scale switch on

n.....Off the function of reset zero when switch on the scale

7. GUARANTEE

This scale has a warranty against all manufacture and material defects, for a period of a year starting with the delivery date. During this period, we will be in charge of the repairing of the scale. This warranty does not include the damages done by overload or wrong use. The warranty does not cover the delivery expenses necessary for the repair of the scale.

** The rechargeable battery is not within the range of guarantee period*



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