Value Each Gram A professional weighing products manufacturer and supplier

HiWEIGH
Weighing system & solution

Weight Indicator X1M.X3(A)M.X5M

User Manual

v.201802

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1 Introduction

1.1 Safety precautions

WARNING!

▲ Do not use X*M Series indicators in hazardous area or in dusty environments.

▲ Never flood the Indicator, immerse it in liquid or pour liquids on it.

▲ Do not expose indicator to either direct sun light or any heat sources.

▲ Do not open the indicator!
The warranty is void if this stipulation is ignored. The indicator may only be opened by authorized persons.

DANGER!

Electric shock hazard!
▲ Always unplug AC adapter before performing any work on the indicator

Hazard of electric shock if the power cable is damaged!
▲ Check the power cable for damage regularly. Unplug the power cord immediately if the power cable is damaged.

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.

1.2 Descriptions

The purpose of this manual is to help the user get to know the indicator's various weighing modes, keys' functions and display indications.

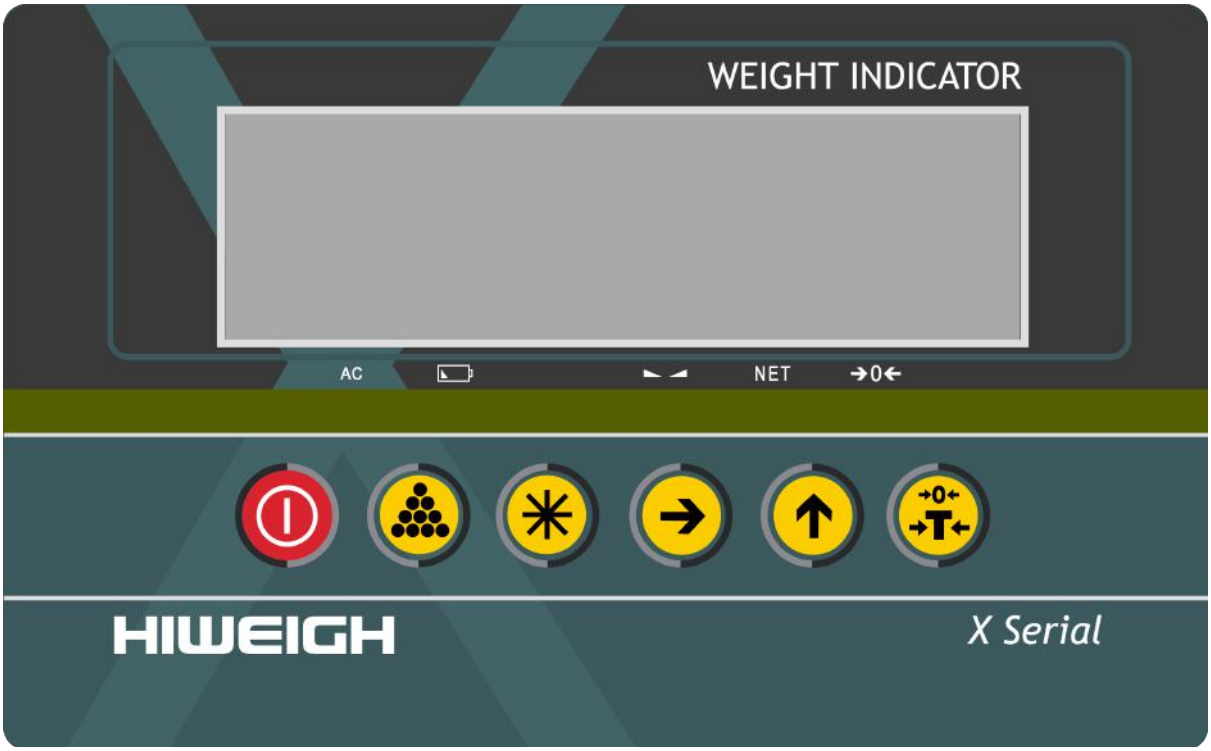
In addition to having all the characteristics of a high precision scale, the indicator has weight unit in kg, gross and net weighing, manual and automatic weight accumulation with serial output, counting functions and 4 set points. The indicator is applicable in either industrial settings or legal for trade applications. It provides the frequently needed ability to transmit and print the data through its serial ports.

Please carefully follow the instructions to configure the indicator. By taking actions not indicated this manual, one could cause the indicator to not work properly.

2 Specifications

Accuracy class	• III
Maximum number of verification scale intervals	• nind = 3000
Load cell excitation voltage	• Uexc = 5 V
Minimum input voltage	• Umin = 0.5 mV
Minimum input voltage per verification scale interval	• Δumin = 1 μV
Minimum/maximum load cell impedance	• 87 Ω to 1000 Ω
Fraction of mpe	• pind = 0.5
Cable connection	• 6 wires
Maximum value of cable length per wire cross section	• (L/A)max = 150 m/mm2
Maximum number of load cells	• 4 x 350 Ω load cells • 8 x 700 Ω load cells
Display	• 6-digit 25.4mm LCD • High Resolution (×10) display • Weight unit in kg
Weighing Modes	• Gross and net weight weighing • Manual and automatic weight accumulation • Set point function
Serial interface	• RS232 interface with continuous data output or command protocol • Baud rate 1200, 2400, 4800, 9600 • Optional RS485 interface
External AC adapter	• 100-240VAC 50/60Hz
Rechargeable internal battery	• X3AM: 6V/2.8AH • X3M: 6V/2.8AH • X5M: 6V/2.8AH • X1M: 6V/4AH
Full charge battery operation	• X3AM: 20 hours • X3M: 20 hours • X5M: 20 hours • X1M: 30 hours
Full charge battery recharge time	• 12 hours
Operating temperature	• –10 °C to +40 °C
Storage temperature	• –25 °C to +55 °C
Relative humidity	• 10% to 85% non-condensing
Housing	• X3AM: plastic • X3M: stainless steel • X5M: stainless steel • X1M: plastic
Dimensions	• X3AM: 275 x 160 x 120 mm • X3M: 275 x 160 x 120 mm • X5M: 275 x 160 x 80 mm • X1M: 255 x 170 x 130 mm
Weight	• X3AM: 1.3 kg • X3M: 1.6 kg • X5M: 1.6 kg • X1M: 1.5 kg

3 Front Panel



3.1 LCD Symbols

Symbols	Meaning
888888	6-digit display
kg	Weight unit in kilogram
X10	Weight displayed to X10 resolution
~	AC adapter is connected
	Low battery warning 10% of full charge
SET	Configuration mode
CAL	Calibration mode
LO	set point A ≤ weight < set point B
OK	set point B ≤ weight < set point C
HI	set point C ≤ weight < set point D

3.2 Status Indicators

Status	Meaning
AUTO	Automatic accumulation
◣ ◢	Weight is stable
→**T**←	A weight is tare and display net weight
→**0**←	-1/4 e < weight < 1/4 e

3.3 Keypad

Keys	Operation
【 ⏻ 】	Switch the indicator on or off
【 ⁂ 】	Manual weight accumulation

【 * 】	Proceed to next step
【 → 】	Move flashing digit that can be changed to the next digit on the right
【 ↑ 】	Display weight to X10 resolution
【→0/T←】	Zero display or enter a tare value

3.4 LCD Error Code

Code	Meaning
〖 OUEr 〗	Weight > FS + 9d
〖–OUEr 〗	Weight < -2% FS
〖 Error 〗	Calibration error
〖 OFF 〗	Low battery warning to recharge the battery

4 Basic functions

4.1 Switching on

Press 【⏻】for 2 seconds to switch on the indicator. The indicator displays the software version and performs self-tests while displaying self-test patterns.

4.2 Switching off

Press 【⏻】 for 2 seconds to switch off the indicator.

4.3 Weight unit

The weight unit is kg.

4.4 Enter a number

1. Press【→】to move the flashing digit that can be changed to the right by 1 digit.
2. Press【↑】to increment the flashing digit by 1.
3. Repeat the above 2 steps until the desired value is set.

4.5 Select a parameter value

Press【↑】to scroll to the next available value.

4.6 Zero

1. The display can be zeroed only when the weight is less than 2% of FS.
2. Unload the platform.
3. Press 【→0/T←】 for 2 seconds to set the zero point and zero the display.
4. The zero status →0← is turned on.

4.7 Tare

4.7.1 Acquire tare

1. Tare can be set only after the display has been zeroed. Check to make sure zero status →0← is turned on.
2. Place the empty container on the platform.
3. Wait until the weight is stable when the stable status ◣◢ is displayed.
4. Press 【→0/T←】 to set tare and zero the display.
5. The tare status →T← is turned on.
6. The indicator switches to in net weight mode.

4.7.2 Digital tare

1. Press【→】to set digital tare and the 1st on the right is flashing.
2. Press【→】to move the flashing digit to desired digit.
3. Press【↑】to increment the flashing digit to the desired value.
4. Repeat step 2 and 3 until the digital tare is entered.
5. Press【→0/T←】to set the digital tare.
6. The tare status →T← is turned on.
7. The indicator switches to in net weight mode.

4.7.3 Remove tare

1. Check that the tare status →T← is displayed.
2. Press【→0/T←】to remove tare and switch to gross weight mode.

4.8 Simple weighing

1. Place sample on the platform.
2. Wait until the weight is stable when the stable status ◣◢ is displayed.
3. Read the weight of the sample

4.9 Low battery warning

When the battery capacity is less than 10% of full charge, the low battery warning  indicator is displayed. After another 2 hours of operation, the indictor will display 〖 OFF 〗and power down. Connect the AC adapter to recharge the battery immediately.

5 Applications

5.1 Accumulation mode

There are 3 accumulation modes AUt = 0 to 2. The factory default AUt is 0.

Step	Operation	Display	Description
1	Press【 * 】	〖n 12〗	Display number of accumulations

2	Press【 * 】	〖AUt 0〗	The factory default AUt = 0
3	Press【→】	〖AUt 0〗	Zero AUt and the digit is flashing
4	Press【↑】 Press【↑】	〖AUt 1〗 〖AUt 2〗	Set AUt = 1 Set AUt = 2. Repeat pressing【↑】to select the desired mode
5	Press【 * 】	〖 0〗	Return to weighing mode

5.1.1 AUt = 0 Manual accumulation

1. Place sample on the platform.
2. Wait until the weight is stable when the stable status ◣◢ is displayed.
3. Press 【⁂】 to manually accumulate the weight and transmitted to RS232 port.
4. The number of accumulation 〖n XXXX〗 is displayed.
5. Unload the sample so that the next sample can be accumulated.

5.1.2 AUt = 1 Automatic accumulation when weight is added

1. The auto status 〖AUTO〗 is displayed.
2. Add sample on the platform.
3. When the sample weight is stable, the stable status ◣◢ is displayed.
4. The weight is automatic accumulate the weight and transmitted to RS232 port.
5. The number of accumulation 〖n XXXX〗 is displayed.
6. Unload the sample so that the next sample can be accumulated.

5.1.3 AUt = 2 Automatic accumulation when weight is removed

1. The auto status 〖AUTO〗 is displayed.
2. Add sample on the platform.
3. Wait until the weight of the samples is stable when the stable status ◣◢ is displayed.
4. Unload the sample so that the next sample can be accumulated.
5. The weight of the sample is automatically accumulated and transmitted to RS232 port.
6. The number of accumulation 〖n XXXX〗 is displayed.

5.1.4 Query accumulated data

Step	Operation	Display	Description
1	Press【 * 】	〖n 1203〗	Display number of samples
2	Press【↑】	〖H 0〗	Display upper 4 digits of accumulated weight
3	Press【↑】	〖L 1085〗	Display lower 4 digits of accumulated weight
4	Press【↑】	〖 0.00〗	Return to weighing mode

5.1.5 Clear accumulation data

Step	Operation	Display	Description
1	Press【 * 】	〖n 1203〗	Display number of samples
2	Press【→0/T←】	〖 0.00〗	Clear accumulated data Return to weighing mode

5.2 Set point

There are 4 set points A, B, C and D and 3 status symbols **LO, OK** and **HI**. These symbols are displayed under the following conditions:

Symbols	Trigger condition
LO	set point A ≤ weight < set point B
OK	set point B ≤ weight < set point C
HI	set point C ≤ weight < set point D

5.2.1 Enter set points

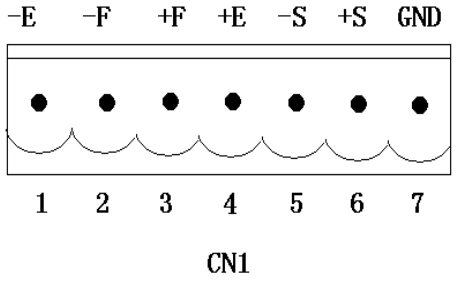
Step	Operation	Display	Description
1	Press【 ⏻ 】	〖 0.00〗	Switch off the indicator
2	Press and hold 【↑】 and then press 【 ⏻ 】	〖 0.00〗	Switch on the indicator to enable set point menu
3	Press【↑】	〖A000.00〗	Set point A
4	Enter a number	〖A 5.00〗	Use【→】and【↑】to enter set point A = 5.00
5	Press【＊】	〖b000.00〗	Set point B
6	Enter a number	〖b 15.00〗	Use【→】and【↑】to enter set point B = 15.00
7	Press【＊】	〖C000.00〗	Set point C
8	Enter a number	〖C 30.00〗	Use【→】and【↑】to enter set point C = 30.00
9	Press【＊】	〖d000.00〗	Set point D
10	Enter a number	〖d 35.00〗	Use【→】and【↑】to enter set point D = 35.00
11	Press【＊】	〖 0.00〗	Return to weighing mode

5.3 High resolution display mode

Press【 ↑ 】to display the weight in x10 resolution for 5 seconds. The last digit of the display will be blinking.

6 External interfaces

6.1 Load cell connector



CN1

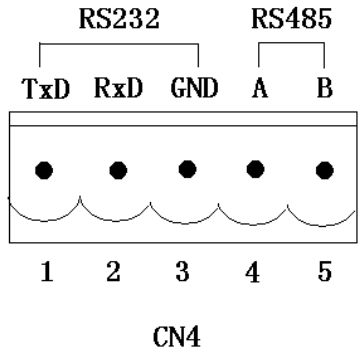
Pin No.	1	2	3	4	5	6	7
Label	–E	–F	+F	+E	–S	+S	GND
Description	-Excitation	-Sense	+Sense	+Excitation	-Signal	+Signal	Ground

6.2 RS232 serial interface

6.2.1 RS232 settings

Number of bits	Parity	Number of stop bit
8	No	1

6.2.2 RS232 / RS485 connector



Pin No.	1	2	3	4	5
Label	TxD	RxD	GND	A	B
Description	RS232 TxD	RS232 TxD	RS232 GND	RS485 A	RS485 B

6.2.3 Connecting to PC

X*M DB9 Pin No.	PC DB9 Pin No.
1 (TxD)	2 (RxD)
2 (RxD)	3 (TxD)
3 (GND)	5 (GND)

6.2.4 Connecting to a printer

X*M DB9 Pin No.	Printer DB25 Pin No.
1 (TxD)	2 (RxD)
3 (GND)	7 (GND)

6.3 RS232 continuous ASCII output

When the indicator address (Adr) is set to 00 or 90, the indicator continuously transmits the weight in RS232 ASCII data format.

LCD display format

Digit position	X6	X5	X4	X3	X2	X1
Weight –1234.5	–	1	2	3	4.	5

Adr = 00 output format

Byte No.	1	2	3	4	5	6	7	8

Output format	=	X1	X2	X3	X4	X5	X6	S
HEX	3D	35	2E	34	33	32	31	2D
Weight –1234.5	=	5	.	4	3	2	1	–

Adr = 99 output format

Byte No.	1	2	3	4	5	6	7	8
Output format	=	S	X6	X5	X4	X3	X2	X1
HEX	3D	20	31	32	33	34	35	36
Weight 1234.5	=	‘ ‘	1	2	3	4	.	5

6.4 RS232 ASCII commands

When the indicator address (Adr) is set to 01 to 98, RS232 commands can be transmitted to the indicator configure, query and operate the indicator.

Command Characters	HEX characters and descriptions
STX	0x02 Start of text
A	0x41
D	0x44
E	0x45
N	0x4E
R	0x52
T	0x54
Z	0x5A
CR	0x0D
LR	0x0A
n	Adr + 0x80 Indicator address
SA	SA = 0100otsz (binary) o = 1 overload t = 1 tare s = 1 stable z = 1 zero
BCC	BCC = sum of command bytes excluding STX, BCC and CR If BCC = 0x02 then BCC is set to 0x03 If BCC = 0x0D then BCC is set to 0x0E

6.4.1 Zero command

Adr = 5, gross weight = 0.08kg, stable status ◣◢ is displayed

PC Command

Byte No	1	2	3	4	5	6	7
ASCII	STX	Z	E	R	n	BCC	CR
HEX	02	5A	45	52	85	D7	0D

Indicator response

Indicator zero display and displays zero status →**0**←. There is no RS232 response.

6.4.2 Tare command

Adr = 5, gross weight = 88.68kg, stable status ◣◢ is displayed

PC Command

Byte No	1	2	3	4	5	6	7
ASCII	STX	T	A	R	n	BCC	CR
HEX	02	54	41	52	85	6C	0D

Indicator response

Indicator sets tare to 88.68kg, zero display and displays tare status →T←. There is no RS232 response.

6.4.3 Remove tare

Adr = 5, net weight = 59.08kg, tare = 29.60kg, stable ◣◢ and tare →T← status are displayed

PC command

Byte No	1	2	3	4	5	6	7
ASCII	STX	T	A	R	n	BCC	CR
HEX	02	54	41	52	85	6C	0D

Indicator response

Indicator removes tare and tare status →T←, switch to gross weight mode and displays gross weight 88.68kg. There is no RS232 response.

6.4.4 Read net weight command

Adr = 5, net weight = 59.08kg, tare = 29.60kg, stable status ◣◢ and tare status →T← are displayed

PC command

Byte No	1	2	3	4	5	6	7
ASCII	STX	R	D	N	n	BCC	CR
HEX	02	52	44	4E	85	69	0D

Indicator response

Byte No.	1	2	3	4	5	6	7	8	9	10	11	12	13
ASCII	STX	n	N	X1	X2	X3	X4	X5	X6	SA	BCC	CR	LF
HEX	02	85	4E	38	30	2E	39	35	20	46	3D	0D	0A

6.4.5 Read tare command

Adr = 5, net weight = 59.08kg, tare = 29.60kg, stable status ◣◢ and tare status →T← are displayed

PC command

Byte No	1	2	3	4	5	6	7
ASCII	STX	R	D	T	n	BCC	CR
HEX	02	52	44	54	85	6F	0D

Indicator response

Byte No.	1	2	3	4	5	6	7	8	9	10	11	12	13
ASCII	STX	n	T	X1	X2	X3	X4	X5	X6	SA	BCC	CR	LF
HEX	02	85	54	30	36	2E	39	32	20	46	3E	0D	0A

6.5 Printer format

n = 3, gross = 88.69kg, tare = 29.41kg, net = 59.28kg

```
No:XXXX          No:   3
G:XXXXXXkg       G: 88.69kg
T:XXXXXXkg       T: 29.41kg
N:XXXXXXkg       N: 59.28kg
```

Accumulated weight

```
No:XXXX          No:   3
W:XXXXXXXkg      W:  118.09kg
```

7 Services

Services include a full range of technical on site services and workshop repair, preventative maintenance and calibration facilities.

NOTE: Battery is not under warranty

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