

USER MANUAL

Sauter

HM1 Weighing Indicator

User's Manual

Introduction

1.1 Safety precautions



WARNING!

- ▲ Do not use X* 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. Main Specifications

Sensitivity:	1.5~3.0mV /V
Non-Linearity:	≤0.01%F.S
System Voltage:	DC:5V
Division:	1/2/5
Remote Display connection:	Serial output
Sampling Speed:	20 times/sec. (Selectable)
External Resolution:	Up to 1/15,000
Internal Calibration:	1/300,000~1/600,000

2. Power Source

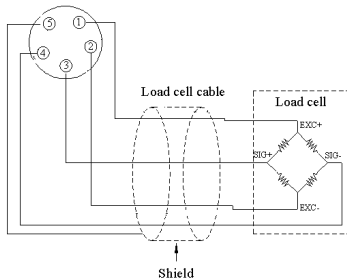
Input: AC 120~240V

Output: DC 10V/600mA

3. Power Consumption

Main System	: Approximately 18mA
Main System with Backlight	: Approximately 32mA
Main System with Backlight and RS232	: Approximately 48mA
Battery Duration: No backlight last about 160 hrs and with backlight last about 120 hrs.	

4. Indicator and load cell connectors



PIN 1: E+ (EXC+)	PIN 2: E- (EXC-)
PIN 3: S+ (SIG+)	PIN 4: S- (SIG-)
PIN 5: Ground (SHIELD)	

5. Key Function and Operation

OFF: To turn off the scale press and hold the **OFF** key and the weight window will show "OFF" for 2 seconds then the scale will turn off automatically

UNIT/ESC : To select weighing units. In setup mode it works as escape key (ESC).

ON/ZERO/▶ **ON**: To turn on the scale.

ZERO: To reset the scale to zero. The platter is empty of any objects

▶: In setup mode it works to move digit to the right

TARE/◀ **TARE**: To tare off container weight. Place the container onto the scale and press the tare key to subtract the weight of the container. (Full scale tare)

◀: In setup mode it works to move digit to the right

MR/MC/▲:

MR: Accumulation Recall. Press this key to recall number of accumulations first and then will show total accumulation

MC: Accumulation Clear. Press and hold this key for two seconds to erase accumulated value and the accumulation indicator will go off.

▲: In setup mode it works to increase or circulate through numbers

【M+/PRINT/↵】 M+: Press this key when a weighing has occurred and it will be accumulated.

PRINT: When a weighing has occurred and RS232 has been set as manual (keyboard) output(232 3 and 232 6), press this key to output data to computer or printer.

↵ Enter key. In setup mode it works to confirm setup

6. Basic Function Operation and Setup

(1) Display Internal Value and Battery Voltage

Press and hold the **【M+/PRINT】** key and then press the **【ON/ZERO】** key to show **UF-1**. Press the **【M+/PRINT】** key to show the internal value. Press the **【M+/PRINT/】** again to show the battery voltage (ex: if displayed **BAT 6.5** means the battery voltage is 6.5V). Press the **【M+/PRINT】** key twice to return back to weighing mode.

(2) Set HI/LO Checkweighing

Press and hold the **【M+/PRINT】** key and then press the **【ON/ZERO】** key to show **UF-1**. Press the **【ON/ZERO】** key to move to **UF-2**. Press the **【M+/PRINT】** key and the scale will show **OOOOL** to set LO (low) limit and the left “0” will start to flashing. Use the **【MC/MR】** key to change numbers and use **【ON/ZERO】** key or

【TARE】 key to move the flashing digit to the right or to the left. Continue by press the **【M+/PRINT】** key and the scale will show **OOO0OH** to set HI (high) limit and the left “0” will start to flashing. Use the **【MC/MR】** key to change numbers and use

【ON/ZERO】 key or **【TARE】** key to move the flashing digit to the right or to the left. Press the **【M+/PRINT】** key and the scale will show **b OOO** to set buzzer, LCD and

relay output conditions. Use the 【MC/MR】 key to change numbers and use

【ON/ZERO】key or 【TARE】key to move the flashing digit to the right or to the left.

(See remark 1 for conditions)

(3) Auto-Power Off

Press and hold the 【M+/PRINT】 key and then press the 【ON/ZERO】 key to show UF-1. Press the 【ON/ZERO】 key twice to move to UF-3. Press the 【M+/PRINT】 key and the scale will show Aoff 00(factory default) Use the 【MC/MR】key to change numbers and use 【ON/ZERO】 key or 【TARE】 key to move the flashing digit to the right or to the left (ex: Aoff 02 = auto-off in two minutes). The scale starts to countdown when the weight is smaller than 9 divisions.

(4) Backlight

Press and hold the 【M+/PRINT】 key and then press the 【ON/ZERO】 key to show UF-1. Press the【ON/ZERO】key three times to move to UF-4. Press the【M+/PRINT】 key and the scale will show Lit A(factory default). Use the 【MC/MR】 key to select between Lit A (auto-backlight), Lit ON (backlight always on) and Lit OFF (backlight off)

(5) Hold and Animal Weighing

Press and hold the 【M+/PRINT】 key and then press the 【ON/ZERO】 key to show UF-1. Press the【ON/ZERO】key four times to move to UF-5. Press the【M+/PRINT】 key and the scale will show Hold 0(factory default). Use the【MC/MR】key to select between Hold 0 -- Hold 4.

Hold 0:Hold function off

Hold 1:Animal Weighing (See remark 2 for setup)

Hold 2:Peak Hold (Press any key to exit, except print key)

Hold 3:Stable Hold (Press any key to exit, except print key)

Hold 4:Stable Hold (Exit hold mode automatically when the weight has returned back to zero

(6) RS-232 (Optional)

Press and hold the 【M+/PRINT】 key and then press the 【ON/ZERO】 key to show UF-1. Press the【ON/ZERO】key five times to move to UF-6. Press the【M+/PRINT】

key and the scale will show 232 0(factory default). Use the 【MC/MR】 key to select between 232 0 ~ 232 10

Format 1		Format 2	
<u>232 1</u>	Stable Output	<u>232 4</u>	Stable Output
<u>232 2</u>	Stream Output	<u>232 5</u>	Stream Output
<u>232 3</u>	Keyboard (Print Key) Output	<u>232 6</u>	Keyboard (Print Key) Output
Format 3		Format 4	
<u>232 7</u>	Accumulate Output	<u>232 9</u>	Accumulate Output
<u>232 8</u>	Auto-Accumulation Output	<u>232 10</u>	Auto-Accumulation Output

(7) Weighing Speed

Press and hold the **【M+/PRINT】** key and then press the **【ON/ZERO】** key to show **UF-1**. Press the **【ON/ZERO】** key six times to move to **UF-7**. Press the **【M+/PRINT】** key and the scale will show **SPEED 3** (factory default). Use the **【MC/MR】** key to select between **SPEED 1** Standard, **SPEED 2** Fast and **SPEED 3** Slow.

Remark: Faster the speed, poorer the stability. Slower the speed, better the stability.

(8) Display condition at zero

Press and hold the **【M+/PRINT】** key and then press the **【ON/ZERO】** key to show **UF-1**. Press the **【ON/ZERO】** key seven times to move to **UF-8**. Press the **【M+/PRINT】** key and the scale will show **ZP 1** (factory default). Use the **【MC/MR】** key to select between **ZP 0** ~ **ZP 5**
(ex: **ZP 1** = One division not to display at zero)

(9) Gravitation (G value)

Press and hold the **【M+/PRINT】** key and then press the **【ON/ZERO】** key to show **UF-1**. Press the **【ON/ZERO】** key eight times to move to **UF-9**. Press the **【M+/PRINT】** key and the scale will show **9.79423** (Manufacturer local G value). Press the **【M+/PRINT】** key again and the left number will start to flash. Use the **【MC/MR】** key to change the numbers and use **【ON/ZERO】** key or **【TARE】** key to move the flashing digit to the right or to the left.

7. External Calibrations

(1) Zero and Weight as one Calibration

Press and hold the **【M+/PRINT】** key and then press the **【TARE】** and use **【ON/ZERO】** key or **【TARE】** key to move the flashing digit to the right or to the left. After desired weight has been entered, place the equivalent calibration weight (mass) onto the scale then press the **【M+/PRINT】** key to complete the calibration.

(2) Zero Calibration

Press and hold the **【M+/PRINT】** key and then press the **【TARE】** key to show **ECF-1**. Press the **【ON/ZERO】** key to move to **ECF-2**. Make sure that the platter is empty and press the **【M+/PRINT】** key to complete the Zero Calibration.

(3) Weight Calibration

Press and hold the **【M+/PRINT】** key and then press the **【TARE】** key to show **ECF-1**. Press the **【ON/ZERO】** key twice to move to **ECF-3**. Press the **【M+/PRINT】** key and the display will show the weight from the last calibration. Use the **【MC/MR】** key to change the numbers and use **【ON/ZERO】** key or **【TARE】** key to move the flashing digit to the right or to the left. After desired weight has been entered, place the equivalent calibration weight (mass) onto the scale then press the **【M+/PRINT】** key to complete the calibration

8. Simple Counting

- (1) Press the **【UNIT】** key until the scale shows **PCS**.
- (2) Press the **【MR/MC】** key and **C 10** will be displayed. Continue pressing this key to select desired sample size (ex. **C 10** = sample size 10 pieces)

(3)Place objects to be sampled and press the 【M+/PRINT】 key to complete the sampling

Remark: Simple counting function has to be switched on before it can be functional.

Remark 1 0 0 0

A B C

A ---Buzzer Conditions: 0 = Stable not required to buzz

1 = Stable required to buzz

B ---LCD display and Relay Output: 0 = Stable not required to output

1 = Stable required to output

C ---Buzzer beeps at: 0 = Buzzer off

1 = Over low limit and under high limit

2 = Under low limit and over high limit

Remark 2

HOLD 1 : Activate animal weighing function, use 【M+/PRINT】 to start animal weighing

PCt XXX : Set maximum movement range from 001 ~ 100% (Higher range provides more accurate weighing, but weighing time takes longer)

Time XX : Set 1, 2, 4, 8, 16, 32, 64 times within the hold range