G2e

Multi-Function Scale

Operation Manual (Full Version)

PLEASE READ THIS MANUAL VERY CAREFULLY
BEFORE OPERATING THIS INSTRUMENT

Specifications subject to change without prior notice

V107 January 2021

Content

1. Reminders

1.1 Metrological Legislation

Because of metrological legislation, some metrological parameter settings are limited to be done by authorized personnel only. Do not attempt to change any parameters under internal function number F60 ~ F99. Contact your dealer for installation and technical assistance.

1.2 Seal & Serial Number

This instrument is legal for trade only when it is sealed (and/or stamped) and bearing a serial number. Do not attempt to break the seal (or stamp) or serial number affixed to this instrument. No warranty service will be provided if the seal (or stamp) or data plate affixed to this instrument is damaged or removed. Always contact your dealer for after sales service.

1.3 Warm Up Time

a. Allow warm up period of not less than 60 seconds before calibration and usage. The higher the setup resolution of the scale, the longer the warm up period is required. In most cases, 120 seconds is a safe warm up period for all applications. This warm up period is needed to energy all components to reach a stable status.
b. The internal count value is deemed stable when the internal AD count varies less than 3 counts within 2 seconds.
c. To read the internal AD count value, enter internal function F1. The internal AD count value of a not yet fully energized PCB will go up continuously.

1.4 Placing the Instrument

In order to obtain an accurate weighing result, this instrument must be placed on a strong and level surface. Avoid using this instrument in any environment where excessive wind flow, vibration and extreme temperature change exist.

1.5 Cautions

a. The instrument is not an explosion proof device.
b. The instrument is not a water proof device.
c. Do not open the instrument, no user serviceable parts inside. Always contact your dealer for service.
d. Do not place this instrument in where shock, excessive vibration or extremes of temperature (before or after installation) exist.

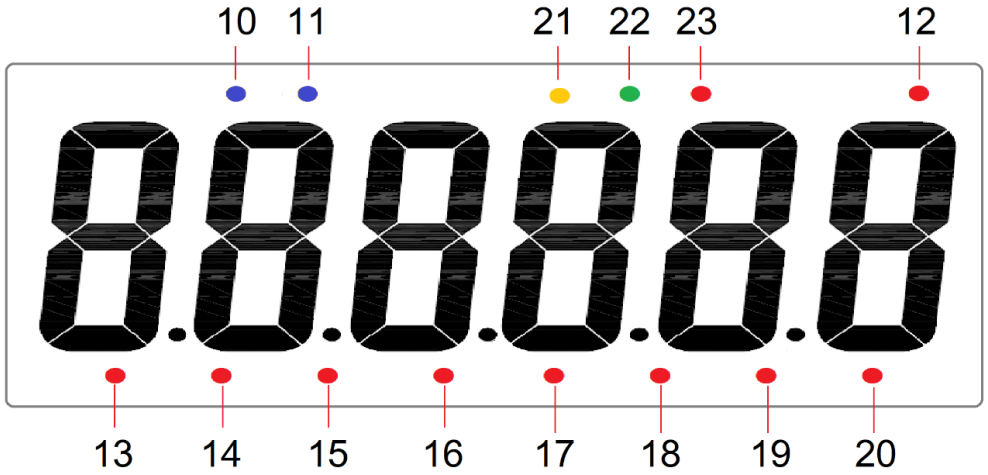
1.6 Support & Service

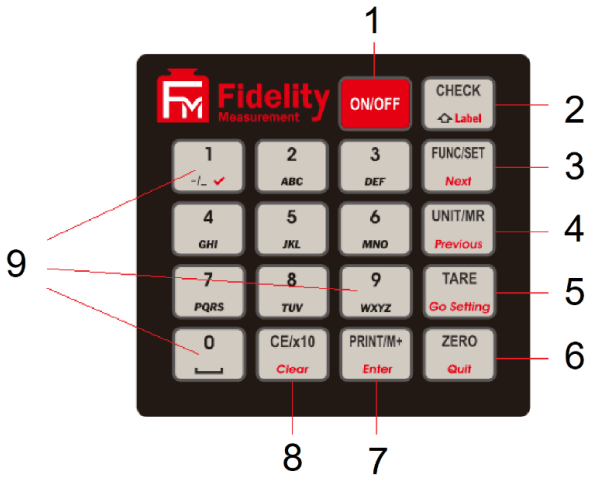
Always contact your dealer for product information, after sales service and questions when in doubt.

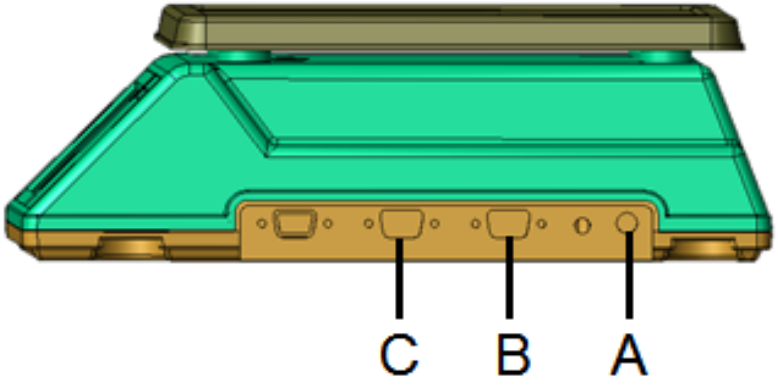
2. Specifications

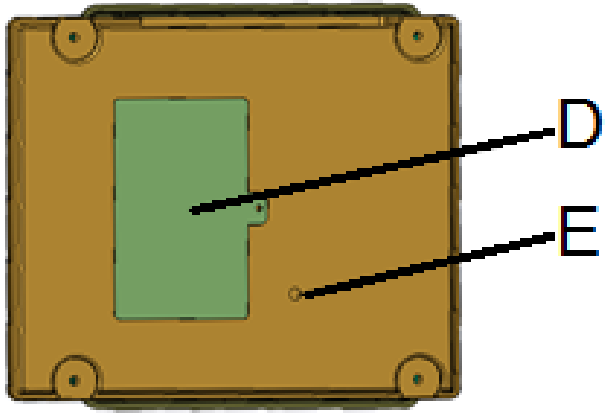
Model	Capacity	Readability	n_{max}
G2e-3000W	3000g	1g	3,000
G2e-30KW	30kg	10g	3,000
G2e-15KB	15kg	1g	15,000
G2e-3000L	3000g	0.1g	30,000
G2e-30KL	30kg	1g	30,000
G2e-10KH	10kg	0.1g	100,000
G2e-20KX	20kg	0.1g	200,000
Weight Units	kg / g / lb		
Display & Brightness	• 6 x 20mm LED Numeric Digits • 5 x Adjustable Brightness Level		
A/D Converter	24 bit Low-Noise Delta to Sigma (Δ-Σ)		
Max. Tare Range	-Max or -Max_1 (Subtractive Tare)		
Power Source	• Built-in Rechargeable Battery = 6V, 4AH. • External Power Adaptor = DC 12V, 1A		
Platter	210 x 250mm ABS Platter with Stainless Steel Insert		
Accessories	Built-in Rechargeable Battery, Universal Power Adaptor, Dust Cover		
Packing	Individually Packed: - • Dimensions = 32 x 30 x 18cm. Net / Gross = 3.40 / 3.90kg 4 Units in Shipping Carton: - • Dimensions = 94 x 35 x 36cm. Net / Gross = 13.60/ 18.0kg		
Operation Environment	• -10 ~ 40°C for $n_{max} \leq 6000$: • 0 ~ 40°C for $n_{max} \geq 6001$ Non-condensed. R.H.≦ 85%		
In the interest of improvement, specifications may change prior to notice			

3. Keys, Display & Connection Points









No.	Description	Description	
		Key Function during Normal Operation	**Key Function during Internal Function Setting**
1	**[ON/OFF]**	Power instrument on or off.	Quit without saving and power off.
2	**[Check]**	Starting inputting Lo and Hi limit under current checking condition.	Quick access to label settings.
3	**[FUNC/SET]**	• Short Press = FUNC: - to shift between weighing, piece count, auto tare memory and animal weighing1 mode. • Long Press = SET a. to prompt/introduce an operation parameter/value during piece count, action-tare-accumulation and animal weighing mode. b. when in weighing mode: - to access internal function setting mode (F1~F31)	Go to next parameter or next internal function number.
4	**[MR/UNIT]**	• Short Press = MR: - to recall total stored transactions. • Long Press = UNIT: - to shift among various weight units (if weight unit conversation is enabled).	Go to previous parameter or previous internal function number.
5	**[TARE]**	To tare off the weight of a container.	Go to internal function setting during power on countdown process.
6	**[ZERO]**	Set weight displayed to zero when unloaded.	Quit without saving.
7	**[PRINT/M+]**	Send print data out and/or accumulate current values to memory.	Enter, save and return.

[1] Depends on F11 setting.

8	**[CE/x10]**	Clear value entered during setting process, or Trigger the extended display mode.	Clear.
9	**[0] ~ [9]**	Numeric keys.	• Numeric, letters and symbol keys. • Press **[0]** to go to F1. • Press **[1]** to go to F10. • Press **[2]** to go to F10. • Press **[3]** to go to F30.
10	**W_1 Indicator** [2]	(When under dual weighing range/interval mode) Visible when this instrument is operating at the 1st weighing range (W1).	
11	**W_2 Indicator**	(When under dual weighing range/interval mode) Visible when this instrument is operating at the 2nd weighing range (W2).	
12	**Charge Status Indicator**	Red color: Recharging battery; Green color: Charging completed.	
13	**Zero Indicator**	Visible when instrument is at zero status.	
14	**Net Indicator**	Visible when net result is being displayed.	
15	**Weight (kg) / Stable Indicator**	• Visible when weight unit is = kg. • Flashing = Weight unstable. • Lit on = Weight stable.	
16	**Weight (g) / Stable Indicator**	• Visible when weight unit is = g. • Flashing = Weight unstable. • Lit on = Weight stable.	
17	**Weight (lb) / Stable Indicator**	• Visible when weight unit is = lb. • Flashing = Weight unstable. • Lit on = Weight stable.	
18	**Count Function Indicator**	• Visible when instrument is in Piece Count mode. • Count Function Indicator only = Value being displayed is number of pieces. • Count Function Indicator + any Weight Indicator = Value being displayed is unit piece weight.	

[2] Not visible when single range is selected.

19	**M+ Indicator**	Visible when memory contains of accumulated data.
20	**Lo Battery Indicator**	• Flashing: - Battery level is low. Apply power adaptor to recharge battery as soon as possible. • Lit on: - Battery level is at extreme low. Apply power adaptor to recharge battery immediately otherwise instrument will power off automatically shortly.
21	**Lo Indicator**	Visible when check result is = Lo.
22	**OK Indicator**	Visible when check result is = OK.
23	**Hi Indicator**	Visible when check result is = Hi.
A	**DC Jack Input**	External power adaptor (DC12V) is plugged in here.
B	**Comport 1**	Serial comport 1
C	**Comport 2**	Serial Comport 2
D	**Battery Compartment**	Open to access the rechargeable battery.
E	**Under Pan Weighing Access Hole**	Access hole for under pan weighing hook, thread size = M4 x 0.7.

4. Power Adaptor, Built-In Batteries and Recharging

4.1 Power Adaptor

Always use the power adaptor supplied with this instrument to avoid un-recoverable damages to this instrument.

4.2 Before Plugging in Power Adaptor to Electricity Grid

Double if the input voltage marked on adaptor data matches with the electricity grid. If not, do not plug in and contact your dealer immediately.

5. Internal Function Settings

5.1 About Internal Function Table

To enable this instrument to meet and to give the best performance under various application requirements and demands, a set of internal functions are built-in.

Most internal function comes with various parameters to meet various application demands and preference.

These internal functions are classified into 2 categories: -

- User accessible functions (F1 ~ F31 of below table), do not request any password to access.
- Other internal functions are not for access to end users and may need password to access. Do not attempt to access or alter any parameters without authorization to avoid system malfunction.

5.2 How to Enter & Select Internal Function[3]

1. In weighing function, press and hold **[FUNC/SET]** until instrument displays F1 and is now in internal function mode.
2. Release **[FUNC/SET]**.
3. Press **[FUNC/SET]** and **[MR/UNIT]** to access the preferred internal function number.
4. Quick access to a function number: -
   - Press **[1]** to go to F10.
   - Press **[2]** to go to F20.
   - Press **[3]** to go to F30.
   - Press **[0]** to go to F1.

5.3 Key Function during Internal Function Setting & Operation Mode

Refer to paragraph **3** for details.

[3] To fulfil the metrology law of certain countries, accessing to internal function by **[FUNC/SET]** may be disabled. Contact your dealer for details.

5.4 Internal Function Table

Refer to the below tables for internal function number, parameter and setting notes.

No.	Description	Parameters / Note Default = **					
F1	Internal Analogue to Digital (AD) Value	Press **[PRINT/M+]** to set offset value to zero when unloaded. Then add load on the platform to observe the span value of load applied. • When ADC is more than 1 million, Zero Indicator will appear. Actual ADC is = 1 million plus the ADC value being displayed. • When ADC is more than 2 million, Net Indicator will appear. Actual ADC is = 2 million plus the ADC value being displayed. • When ADC is more than 3 million, kg Indicator will appear. Actual ADC is = 3 million plus the ADC value being displayed. Press **[ZERO]** to quit to F1.					
F2	All Segment & Battery Voltage Check	All display segments and indicators will be lit on. Check any segments or indicators are missing. To check battery voltage, press **[Check]**.					
F3	Capacity, Division & Default Weight Unit	Display basic metrology characteristics (capacity, division, and weight unit). Value displayed = Max + 1e					
F4	Date Format & Date	DD/MM/YY		**** YY/MM/DD**		MM/DD/YY	
	• Press **[PRINT/M+]** to check current date format. • To check/change date value, press **Print/M+]** again then enter date value and then press **Print/M+]** to confirm.						
F5	Time	HH/MM/SS					
	To change time, press **[PRINT/M+]**, then enter a new value and press **[PRINT/M+]**.						
F6	System Initialization (Set F7~F32) to Default)	**** NO**			YES		
	If YES is selected, press **[1]** when "**SURE?**" is displayed. Indicator shows Done when initialization is completed.						
F7	Auto Power Off Time (Minute)	OFF	1	3	**** 5**	10	20
	Auto power off function will be disabled when an energized power adaptor is plugged in.						
F8	Brightness	1	2	3	**** 4**	5	
	1 = dimmest; 5 = brightest Press **[FUNC/SET]** or **[MR/UNIT]** to change setting and then press **[PRINT/M+].**						

<table>
<tr><td>F9</td><td>Weight Unit Enable / Disable</td><td colspan="3">kg
(** On/Off)</td><td colspan="3">g
(On/** Off)</td><td colspan="3">lb
(On/** Off)</td></tr>
<tr><td>F10</td><td>Filter & Conversion Speed</td><td>1</td><td>2</td><td>3</td><td>4</td><td>** 5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr>
<tr><td></td><td colspan="10">Press [FUNC/SET] or [MR/UNIT] to select: -
• 1 (strongest filter) for bad working environment where vibration, wind flow… etc. affect stable reading,
• 5 for normal environment,
• 9 (least filter) for very good working environment where wind and vibration have no effect to stable reading.

Then press [ZERO] to quit or [PRINT/M+] to save and continue conversion speed setting.

4 parameters are available. Press [FUNC/SET] or [MR/UNIT] to select AD conversion speed: -
• ** 15 times per second.
• 30 times per second. Recommended maximum resolution = 15,000 division
• 60 times per second. Recommended maximum resolution = 7,500 division
• 120 times per second. Recommended maximum resolution = 3,000 division

Note: - After AD conversion speed is changed, instrument will automatic restart.</td></tr>
<tr><td>F11</td><td>Auxiliary Function</td><td colspan="9">• Cnt (Counting) On / ** Off
• AtM (Action Tare Memory) On / ** Off
• Ani (Animal) On / ** Off
• PCd (Quick Access to Customer & Product Code Setting) On / ** Off
• OP (Operator code Input through keyboard during operation) On/** Off</td></tr>
<tr><td>F12</td><td>Auto Tare Function</td><td colspan="3">** OFF</td><td colspan="3">ON</td><td colspan="3">Contin</td></tr>
<tr><td></td><td colspan="10">Notes: -
• Off = Auto Tare Function disable.
• On = Only the first table weight applied will be tare off. Minimum tare load ≥ 2d.
• Contin = All stable weight applied will be tare off. Minimum tare load ≥ 10d.
• If Contin is set, select also d.t. (delay time, 0.0 ~ 9.9 second. Default = 0.5 second). Delay time is the time duration from when a stable weight is detected until it is automatically tare off.
• Enter the preferred d.t. value through numeric keys and then press [PRINT/M+] to save.</td></tr>
<tr><td>F13</td><td>Repetitive Tare Function</td><td colspan="5">OFF</td><td colspan="5">** ON</td></tr>
<tr><td></td><td colspan="10">If F12 is set = Contin, Repetitive Tare setting “Off” will be surpassed.</td></tr>
</table>

<table>
<tr><td>F14</td><td>Buzzer</td><td colspan="3">Kb (keypad buzzer)
(**On/Off)</td><td colspan="3">St (System buzzer)
(**On/Off)</td></tr>
<tr><td>F15</td><td>Check Result Buzzer & Action on Negative Value</td><td>OFF</td><td>** IN</td><td>OUT</td><td>Hi</td><td>Lo</td></tr>
<tr><td></td><td colspan="6">Setting procedures: -
1. Set Check Result Buzzer then press [PRINT/M+].
2. Set Action on Negative Value.

Check Result Buzzer
• oFF = Check Buzzer disabled,
• IN = Check Buzzer activates when reading is within range.
• ouT = Check Buzzer activates when reading is out of range.
• Hi = Check Buzzer activates when reading more than Hi limit.
• Lo = Check Buzzer activates when reading lower than Lo limit.

Action on Negative Value
• Off = Check Mode Disable when Value is less than zero.
• ** On = Absolute value, all negative values will be deemed and checked as positive ones.</td></tr>
<tr><td>F16</td><td>Set Comport 1</td><td>Off</td><td>Auto 1</td><td>Auto 2</td><td>Auto 3</td><td>Manual</td><td>** PC</td><td>Scanner</td></tr>
<tr><td></td><td colspan="8">Refer to F17 for details.</td></tr>
<tr><td>F17</td><td>Set Comport 2</td><td>Off</td><td>Auto 1</td><td>Auto 2</td><td>Auto 3</td><td>Manual</td><td>PC</td><td>**CMD</td></tr>
<tr><td></td><td colspan="8">• Off = No data output.
• Auto 1 = auto print when weight is stable.
• Auto 2 = the highest stable weight value (of a weighing process) will be automatically printed when all loads are removed (and gross weight returns to zero or minus).
• Auto 3 = the last stable weight value (of a weighing process) will be automatically printed when all loads are removed (and gross weight returns to zero or minus).
• Manual = Manual output to printer or computer.
• PC = Continuous / Interval output.
• CMD = Command / information request mode and APP mode.
• Scaner = Serial scanner.

Notes: -</td></tr>
</table>

	• Refer to operation manual for detailed setup information. • Restart instrument (by power off then power on again) after F16 and/or F17 setting is changed under normal operation status.			
F18	Machine ID and Group Number	Machine ID	Group Number	
	• Id = Machine ID number (0000~9999). Press [CE/x10] to skip or clear machine ID. • Gp = Group number (00~99). Press [CE/x10] to skip or clear machine group.			
F19	Manual Customer & Product Code Setting	H Code	M Code	L Code
	• Customer & Product code by keyboard accept both numeric numbers and alphabets. Maximum length = 18 digits. • Enter code starting from H code, then M code and finally L Code. Press **[PRINT/M+]** to confirm and end editing after last digit has been input. • Customer & Product code does not support print format 1 (Lab 1). • If a customer/product code has been entered, this code will be included in print format 2, 3, 4 and 5 (Lab 2 ~ Lab 5) automatically.			
F20	Keyboard Lock	**** OFF** (Disable)	ON (Enable)	
	When keyboard lock is = **ON**, only **[ZERO]**, **[TARE]** & **[On/Off]** key will be accessible during operation status.			
F21	Lab 2 Weight Function Output Print Format	**** STD**	CUSTOM	
F22	Lab 2 Counting Function Output Print Format	**** STD**	CUSTOM	
F23	Reserved.			
F24	Lab 2 Animal Functions Output Print Format	**** STD**	CUSTOM	
F25	Check Mode	Mode 0	**** Mode 1**	
	• Mode 0 = Static Check Mode (only stable weight results are checked). If selected, enter also the delay time interval. Delay time interval is the time value (in second) from the moment a stable result is detected and before the corresponding check result signal/output is triggered. • Mode 1 = Standard/Dynamic Check Mode (real time check result is given disregarding weight results are stable or not). If Mode 1 is used for dynamic application, set also F26.			
F26	Near Zero Weight Value	**** 000000**		

	Near Zero value is useful for dynamic weight check applications to bypass unnecessary LO alarm during uploading and unloading process. **Notes: -** • Value entered valid only when Check function is activated. • Near zero weight value can be any value between 20d and LO limit. • Any near zero value which less than 20d will be ignored. Instrument will deem 20d as minimum near zero weight value. • The HI LO comparison remains non-activated when weight reading is less than the near zero value entered here.		
F27	Reserved.		
F28	Ask for Operator Number when Power on	Yes	**** No**
	• Yes: - Instrument will ask for operator number during countdown process when power on. Enter 4-digit operator number or press [CE/x10] to skip operator number when being asked. • No: - Instrument will not ask for operation number.		
F29	Read Calibration and parameter set counts. • O (Parameter set count): - shows total times that the parameters of F80~F88 have been altered. • C (Calibration count): - shows total times of calibration.		
F30	Allow Letters and Symbols for Customer & Product Code Manual Entry	On	**** Off**
F31	Auto Power Saving	Off	**** On**

5.5 Setting Comport 1 & Comport 2

There are 2 built-in comports on this instrument: -

- Comport 1 is set through internal function F16. It is assigned as DTE and has a male connector.
- Comport 2 is set through internal function F17. It is assigned as DCE and has a female connector.

Comport Pin Assignment Table

Comport 1 (male)	Comport 2 (female)
2 = RXD	2 = TXD
3 = TXD	3 = RXD
5 = GND	5 = GND
9 = DC 5V Output	Nil

Following the below procedures to setup comports.

a. Go to F16 or F17.
   - F16 is used to set Comport 1.
   - F17 is used to set Comport 2.

b. Press **[FUNC/SET]** or **[MR/UNIT]** to shift among parameters Off, PC, Scanner (Comport 1 only), CMD (Comport 2 only), Auto1, Auto 2, Auto 3 and Manual. **Notes: -**
   - Off = Comport disable. Select this when a particular comport is not used.
   - PC & CMD is data string related modes.
   - Auto 1, Auto 2, Auto 3 and Manual are print related modes.
   - All working modes (except Off, LP50, TSC and Sbarco) of Comport 1 accept scanner data input during operation.
   - All working modes (except Off, LP50, TSC and Sbarco) of Comport 2 accept and responses to System Parameter Inquiry and also System Parameter Setting commands during operation.
   - When both ports are set to data string related modes, **[PRINT/M+]** key is used as M+ (memory accumulation) and can only be activated when value is stable and ≥ 20d.
   - If both comports are set to print related mode (e.g. comport 1 is set to Auto 1, comport 2 is set to Auto 2) and at the same time Auto memory accumulation is selected by both modes, then Auto memory accumulation serves only comport 1.

c. Select the preferred output type parameters then press **[PRINT/M+]** to save.

d. At this point: -
   - If PC is selected, refer to **5.5.1** for setting details.
   - If CMD is selected, refer to **5.5.2** for setting details.
   - If Manual is selected, refer to **5.5.3** for setting details.
   - If Auto 1~3 is selected, refer to **5.5.4** for setting details.
   - If Scanner is selected, refer to **5.5.5** for setting details.

5.5.1 When comport is set as PC

1. Instrument displays baud rate. 9 parameters (1200~256000) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
2. Instrument displays Parity. 3 parameters (None, odd, even) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
3. Instrument displays Data length. 2 parameters (7, 8) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
4. Instrument displays output protocol type. 9 predefined parameters (Prot 1~9) and one custom protocol

are available (refer to **Appendix B1** and **B2** for details) Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.

5. Instrument displays time interval (in second) between each output. 10 parameters (0, 0.5, 1.0, 1.5, 10, 30, 60, 90, 120, and 300) are available. 0 = continuous output. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
6. At this point, PC setup is completed.

5.5.2 When comport is set as CMD

1. Instrument displays baud rate. 9 parameters (1200~256000) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
2. Instrument displays Parity. 3 parameters (None, odd, even) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
3. Instrument displays Data length. 2 parameters (7, 8) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
4. At this point, CMD setup is completed.

5.5.3 When comport is set as Manual

1. Instrument displays baud rate. 9 parameters (1200~256000) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
2. Instrument displays Parity. 3 parameters (None, odd, even) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
3. Instrument displays Data length. 2 parameters (7, 8) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
4. Instrument displays Auto Accumulation. 2 parameters (on, off) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
   - On = when pressing **[PRINT/M+]** during normal operation, the instrument does print and M+ at the same time,
   - Off = when pressing **[PRINT/M+]** during normal operation, the instrument does print only.
5. Instrument displays Check Control. 2 parameters (on, off) are available. By default, print data will only be transmitted under all auto print modes. Press **[PRINT/M+]** to save.
   - On = (When check function is in effect) Only OK value (value which is within Lo and Hi Limits) will be transmitted.
   - Off = (When check function is in effect) Check requirement is disable.
6. Instrument displays Stability control. 2 parameters (Yes, no) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
   - Yes = **[PRINT/M+]** (during normal operation) will only function when the weight is stable.
   - No = **[PRINT/M+]** (during normal operation) will always function disregarding the stable condition of the weight when **[PRINT/M+]** is pressed.
7. Instrument displays minimum output weight. 21 parameters (0d~20d) are available. Instrument will not generate any output if the actual weight is less than the minimum output weight selected here. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
8. Instrument displays print format. 8 parameters (Lab 1, Lab 2, Lab 3, Lab 4, Lab 5, LP-50, TSC and Sbarco). Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.

- Lab 1 = Output in Landscape direction. If Lab 1 is selected, refer to **5.5.3.1** for other settings.
- Lab 2 = Output in Portrait Direction. If Lab 2 is selected, refer to **5.5.3.2** for other settings.
- Lab 3 = Database output mode.

- Lab 4 = Journal output format with gross and net weight of each individual transaction. This format supports weighing, piece count and ATM mode only. Refer to **5.5.3.3** for other settings.
- Lab 5 = Journal output format with time and net weight of each individual transaction. This format supports weighing, piece count and ATM mode only. Refer to **5.5.3.3** for other settings.
- LP-50 = Output to LP-50 label printer. Refer to **5.5.3.4** for other settings.
- TSC = Output to TSC label printer. Refer to **5.5.3.4** for other settings.
- Sbarco = Output to Sbarco label printer. Refer to **5.5.3.4** for other settings.

5.5.3.1 Other settings if Lab 1 is selected

1. Instrument displays Line number. Line number is the number of lines in between which the report heading is repeated. Line number should be from 00~99. 00 means no header output. Input the desired line number then press **[PRINT/M+]** to save.
2. At this point, Lab 1 setup is completed.

5.5.3.2 Other settings if Lab 2 is selected

1. Instrument displays number of copy to generate each time. 8 parameters (1~8) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+] t**o save.
2. At this point, Lab 2 setup is completed.

5.5.3.3 Other settings if Lab 4 / Lab 5 is selected

1. Instrument displays current statistic data output[4] (Sd) setting (On / Off). When Sd is set to On, the below statistical results will also be transmitted.
   - Max = Maximum Value
   - Min = Minimum Value
   - Diff = Differentiation (Max – Min)
   - X = Mean (Average)
   - Sd = Standard Deviation. Formula used: $S = \sqrt{\frac{\Sigma(X - \overline{X})^2}{N}}$
   - Srel = Relative Standard Deviation
2. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+] t**o save.
3. At this point, Lab 4 / Lab 5 setup is completed.

5.5.3.4 Other settings if LP-50 / TSC / Sbarco is selected

1. Instrument displays number of copy to generate each time. 8 parameters (1~8) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
2. Instrument displays label file number (FL1 01 ~ FL1 99) to print in label format group 1. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred label file number appears then press **[PRINT/M+]** to save.
3. Instrument displays label file number (FL2 01 ~ FL2 99) to print in label format group 2. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred label file number appears then press **[PRINT/M+]** to save.
4. At this point, LP-50 / TSC / Sbarco setup is completed.

[4] Statistic data output calculates weight data only extra statistic data will be output if Sd is set to On.

5.5.4 When comport is set as Auto (Auto 1~3)

1. Instrument displays baud rate. 9 parameters (1200~256000) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
2. Instrument displays Parity. 3 parameters (None, odd, even) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
3. Instrument displays Data length. 2 parameters (7, 8) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
4. Instrument displays Auto Accumulation. 2 parameters (on, off) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
   - On = Auto memory accumulation enable. Instrument will accumulate the printed value to memory.
   - Off = Auto memory accumulation disable.
5. Instrument displays Check Control. 2 parameters (on, off) are available. By default, print data will only be transmitted under all auto print modes. Press **[PRINT/M+]** to save.
   - On = (When check function is in effect) Only OK value (value which is within Lo and Hi Limits) will be transmitted.
   - Off = (When check function is in effect) Check requirement is disable.
6. Instrument displays Stability control. 2 parameters (Yes, no) are available. ***By default, only stable value will be transmitted under all auto print modes***. Press **[PRINT/M+]** to save.
7. Instrument displays minimum output weight. 21 parameters (0d~20d) are available. ***By default, only stable value which is ≥20d under all auto print modes***. Press **[PRINT/M+]** to save.
8. Instrument displays print format. 8 parameters (Lab 1, Lab 2, Lab 3, Lab 4, Lab 5, LP-50, TSC and Sbarco). Instrument will not generate any output if the actual weight is less than the parameter weight selected. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
   - Lab 1 = Output in Landscape direction. If Lab 1 is selected, refer to **5.5.3.1** for other settings.
   - Lab 2 = Output in Portrait Direction. If Lab 2 is selected, refer to **5.5.3.2** for other settings.
   - Lab 3 = Database output mode.
   - Lab 4 = Journal output format with gross and net weight of each individual transaction. This format supports weighing, piece count and ATM mode only. If Lab 4 is selected, refer to **5.5.3.3** for other settings.
   - Lab 5 = Journal output format with time and net weight of each individual transaction. This format supports weighing, piece count and ATM mode only. If Lab 5 is selected, refer to **5.5.3.3** for other settings.
   - LP-50/TSC/Sbarco = Output to LP-50 / TSC / Sbarco label printer. If LP-50/TSC/Sbarco is selected, refer to **5.5.3.4** for other settings.
9. At this point, Auto (Auto 1~3) setup is completed.

5.5.5 When Comport 1 is set as Scanner

1. Instrument displays baud rate. 9 parameters (1200~256000) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then **[PRINT/M+]** to save.
2. Instrument displays Parity. 3 parameters (None, odd, even) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
3. Instrument displays Data length. 2 parameters (7, 8) are available. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears then press **[PRINT/M+]** to save.
4. At this point, scanner setup is completed.

6. Basic Operations

6.1 Power On, Inputting Operator Number & Power Off

- To power on press and hold **[On/Off]** for 0.5 second.
- To power off press and hold **[On/Off]**.

After powered on, instrument will display: -

1. Software number.
2. Software revision.
3. All display segments.
4. Calibration count value.
5. Parameter set count value.
6. Battery voltage.
7. Capacity & division set (in the format of Max plus 1 division).
8. At this point, depends on internal function number F28 setting, instrument may ask for operator number input. If this is the case: -
   - Input 4-digit operator number, or
   - Press **[CE/x10]** then **[PRINT/M+]** to skip operator number when oP appears.
9. At this point, instrument is in weighing mode and is ready for operation.

6.2 Warm Up Time & set Weight to Zero when Unloaded

It is important to allow the instrument enough warm up time. This is especially important when this instrument is running at high resolution (e.g. 6000d or higher) application. Refer to **1.3** for details.

If zero result is not obtained when unloaded, press **[ZERO]** to set weight displayed to zero.

6.3 Keyboard Lock

When keyboard lock is enabled, only **[On/Off]**, **[ZERO] and [TARE]** key can function. Refer to F20 on **5.4** for keyboard lock settings.

6.4 Tare Modes

Tare function is used to cancel the weight of a box or a container in order to get the net weight result. Various tare modes are available. Refer to below paragraphs for details.

6.4.1 Manual tare[5]

1. Remove all loads from platform.
2. Make sure that the **Zero Indicator** is on. If not, press **[ZERO]**.
3. Place container on platform.
4. Press **[TARE]**.
5. Weight displayed will become zero and **Net Indicator** appears to indicator tare is in effect and weight being displayed is net weight.
6. To cancel tare effect, remove all loads from platform and press **[TARE]**.
7. **Net Indicator** disappears.

[5] Maximum tare (subtractive) = -Max for single range mode and dual weighing range/interval mode.

6.4.2 Auto tare (F12) [6]

3 parameters are available: - Off, Auto and Contin

a. Off: - Auto tare disable.
b. Auto: - instrument will assume the first stable weight (≥ 20d or 20d1) applied is a container and will then tare off the weight of it automatically. When container is removed and gross weight result is zero, tare effect will be cancelled automatically.
c. Contin (continuous auto tare): - all stable weight (≥ 20d or 20d1) applied will be tare off automatically. When all loads are removed and gross weight result is zero, tare effect will be cancelled automatically.

Notes: -

- If Contin is set, select also d.t. (delay time, 0.0 ~ 9.9 second. Default = 0.5 second).
- Delay time is the time duration from when a stable weight is detected until it is automatically tare off.
- Enter the preferred d.t. value through numeric keys and then press **[PRINT/M+]** to save.

6.4.3 Repetitive tare (F13)[7]

When F13 is set to OFF, this instrument does not permit multiple tare operation. Tare effect can only be cancelled when container is removed and gross weight is zero.

When F13 is set to ON, this instrument will permit multiple tare operation provided that **both** of the below requirements are met: -

a. The tare operation does not permit a reduction of the value of the tare, and
b. The tare effect can only be cancelled when there is no load on the platform.

6.4.4 Preset tare (F63)[8][9]

Preset tare allows a pre-determined tare weight value can be entered via numeric keys.

During weighing mode and when weight is zero, press **[0]**, then enter the pre-determined tare weight value through numeric keys then press **[PRINT/M+]** to enter.

After the pre-determined tare value has been entered: -

- Instrument displays the preset tare value entered.
- Net indicator appears to indicate the value being displays is net weight.

To cancel preset tare effect: -

- Remove all loads from platform then press **[TARE]**, or
- Enter a zero preset tare value then press **[PRINT/M+]**.

Notes: -

a. The pre-determined tare weight entered will be rounded to the nearest division of the instrument. This does not affect the accuracy of the subsequent weighing and operation.
b. Manual tare is possible when Repetitive Tare (F13) is set to ON.

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[6] Set F12 = ON to enable Auto Tare Function.

[7] Set F13 = ON to enable Repeated Tare Function.

[8] Set F63 = ON to enable Preset Tare Function. Some countries may not consider preset tare function as a legal for trade function. Contact your dealer for more information.

[9] Set also F12 to Off.

6.5 Select the Preferred Function Mode[10]

This instrument supports the below function modes. Abbreviation of each function mode is bracketed.

- Weighing (Weigh).
- Piece Count (Count).
- Action-Tare-Memory (AtM).
- Animal Weighing (Ani).
- Quick access to Customer & Product Code Setting (PCd).

Press **[FUNC/SET]** until the abbreviation of the desired function mode appears then press **[PRINT/M+]** to enter.

The working mode employed before powering off will be employed again automatically when re-powered on.

6.6 Weight Units[11]

This instrument supports kg, g and lb. To shift among various weight units, press and hold **[MR/UNIT]** to shift among various weight units.

6.6.1 Weight unit gram (g)

Disregarding to the setting of **F9**, weight unit gram (g) is available only when 3 or 4 decimal places (0.000 or 0.0000) is selected in F81. Contact your dealer for more information about this.

6.6.2 Select the preferred weight unit[12]

The desired weight units should be enabled in F9.

6.7 Memory Accumulation

There are 2 types of memory accumulation: -

a. Automatic accumulation mode, and
b. Manual Accumulation mode.

Maximum accumulation limit is = 8 digits (e.g. 99999999) plus decimal (if any). **Err 28** appears when maximum accumulation limit is exceeded.

6.7.1 Automatic Accumulation[13]

Automatically accumulation is activated when Auto Accumulation is set to **On** in Auto 1, Auto 2, Auto 3 or Manual mode is selected in F16 and/or F17.

Under the automatic accumulation mode, corresponding results will be accumulated automatically.

6.7.2 Manual Accumulation[14]

Manual Accumulation is activated when scanner, PC or CMD mode is selected for **both** F16 and/or F17.
Under the Manual Accumulation mode, press **[PRINT/M+]** to accumulate the current value to memory.

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[10] Depends on F11 setting.

[11] Depends on F9 setting.

[12] Changing weight unit during operation will clear all accumulate weight data from memory.

[13] Refer to **5.5.3 & 5.5.4** for setting details.

[14] Refer to **5.5.3 & 5.5.4** for setting details.

6.7.3 When data is accumulated to memory[15] [16] [17]

1. When a result is accumulated to memory, this instrument displays "**n____x**". **M+ Indicator** appears to indicate that memory contains stored data. "x" means the total number of transactions accumulated to memory.
2. This instrument returns to normal display status after 2 seconds.

6.7.4 Memory recall and clearance

Accumulation data will be stored in memory and will not be erased by normal power off (by pressing the **[On/Off]** key) process. But changing weight unit or to another working mode will automatically erase accumulation data stored.

Follow below procedures to recall and clear accumulation data.

1. Press **[MR/UNIT]** to recall total accumulated weight.
2. Instrument flashes between "A____Y" (Y means the number of transactions accumulated) and total accumulated result.
3. At this point: -
   - Press **[ZERO]** to quit, or
   - Press **[CE/x10]** to clear memory. After **[CE/x10]** is pressed, instrument display Clear and M+ Indicator disappears to indicate all no data is stored in memory.

6.8 Extended Display Mode[18]

When F68 is set to OIML or NTEP, by pressing **[CE/x10],** the weighing resolution will be temporary (for 5 seconds) changed to 10 times finer. Display keeps flashing when instrument is displaying the extended result.

6.9. Auto Power Off, Display Brightness

6.9.1 When powered by external power adaptor

Both auto power off function and auto power saving function will be automatically disabled.

6.9.2 When instrument is powered by rechargeable battery

When F31 is set to on, indications brightness will turn to minimum when weight remains stable / unchanged for 30 second.

6.10 Customer & Product Code

This instrument supports customer & product code. Once entered, these will be printed and output through the assigned comport. Maximum data Length as below: -

- Customer Code = 18 digit.
- Product Code = 18 digit.

Refer to markings on the numeric keys of instrument keyboard for number, letters and symbols assigned to each key.

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[15] Memory Accumulation Function accumulated weight results only.

[16] When F16 and F17 is set to mode Auto1~3, unstable result or result which is less than 20d (or $20d_1$ for dual weighing range/interval mode) will not be accumulated to memory.

[17] All data stored will be erased when weight unit or working mode is changed.

[18] When F68 = OIML or NTEP.

Cursor location of current entry is indicated by flashing. Default setting for letter entry is upper case, to change to lower case letter, press **[Check]**. When inputting upper case letters, OK Indicator will appear.

6.10.1 Enter a customer & product code manually[19]

1. Go to customer/product code setting manual by either one of the below method.
   - If Quick Manual Code Entry function (PCd) in F11 is set to on: -
     - Press **[FUNC/SET]** until C.P. Code appears then press **[PRINT/M+]**.
     - Press **[FUNC/SET]** **or [MR/UNIT]** until the desired mode appears (select C Code to enter customer code or select P Code to enter product code), then press **[PRINT/M+]** to confirm.
   - If Quick Manual Code Entry function (PCd) in F11 is set to Off: -
     - Go to F19, then press **[PRINT/M+]**.
     - Press **[FUNC/SET]** or **[MR/UNIT]** until the desired mode appears (C Code for customer code, P Code for product code), then press **[PRINT/M+]** to confirm.
2. Instrument displays H code followed by the 1st 6 digits. Enter the first 6 digits of the code here, then press **[PRINT/M+]** to confirm.
3. Instrument displays M code followed by the 2nd 6 digits. Enter the 7th ~ 12th digits of the code here, then press **[PRINT/M+]** to confirm.
4. Instrument displays L code followed by the 3rd 6 digits. Enter the last 6 digits of the code here, then press **[PRINT/M+]** to confirm.
5. Instrument displays **PLu=?**. At this point: -
   - Press the preferred PLU position (numeric key 0 ~ 9), then press **[PRINT/M+]** to save to that PLU position or
   - Press **[PRINT/M+]** to utilize the code immediately but without saving to PLU, or
   - Press **[ZERO]** to quit.
6. To go to other internal function, press **[MR/UNIT]** or **[FUNC/SET]** or press **[ZERO]** to quite to operation status.

6.10.2 Enter a customer & product code by scanner[20]

Default scanner input target is product code. To change scanner input target, scan either one of the below barcodes, then scan a customer or product barcode.

[19] If a customer/product code is less than 18 digits, press **[Print/M+]** to skip all blank digits displayed until instrument return to F19.

[20] Maximum = 18 digits.

6.10.3 Clear a customer & product code entered

To clear a customer/product code entered, press **[CE/x10]** for procedures **2**, **3** and **4** on paragraph **6.10.1**.

6.10.4 Print a customer & product code entered[21]

Once a customer/product code is entered, it will be printed automatically through the assigned comport. No other setting is required.

6.11 Quick Access PLU

10 each quick access PLUs are available for each of the below: -

a. Weight limits for each of the weight unit (g, kg and lb).
b. Quantity limit for Piece Count Mode.
c. Preset Tare value for each of the weight unit (g, kg and lb).
d. Customer Code.
e. Product Code.

6.11.1 Weight limits PLUs

6.11.1.1 Save weight limits to PLU

Follow the below steps to save Lo and Hi Limit for weight value.

1. Select desired operation mode and weight unit, then press **[Check]**.
2. Instrument displays Low followed by a 6-digital value. Enter the Lo weight limit through numeric keys then press **[PRINT/M+]**.
3. Instrument displays HIGH followed by a 6-digital value. Enter the Hi weight limit through numeric keys then press and hold **[Check]** for 2 seconds.
4. Instrument displays **Save =?**. At this point: -
   - Press the preferred PLU position (numeric key 0 ~ 9), then press **[PRINT/M+]** to save to that PLU position and utilize these limits immediately, or
   - Press **[PRINT/M+]** to utilize these limits immediately but without saving to PLU, or
   - Press **[ZERO]** to quit.

6.11.1.2 Recall weight limits from PLU

Follow the below steps to recall Lo and Hi limits.

1. Select desired operation mode and weight unit, then press and hold **[Check]** for 2 seconds.
2. Instrument displays **CHK =?**. Press PLU position (numeric key 0 ~ 9) then press **[PRINT/M+]** to recall the Lo & Hi limits stored in that position.
3. Instrument displays Lo and Hi limits and these values are now effective.

6.11.1.3 Clear weight limits from PLU

Refer to **6.11.1.1**. Enter zero value for both Lo and Hi limits in step number 2 and 3. Then press the preferred PLU position to clear.

6.11.2 Quantity limits PLUs

6.11.2.1 Save quantity limits to PLU

Follow the below steps to save Lo and Hi limits for quantity.

1. Go to piece count mode under desired weight unit, then press **[Check]**.
2. Instrument displays Low followed by a 6-digital value. Enter the Lo quantity limit through numeric keys then press **[PRINT/M+]**.

[21] Print format LAB 1 does not support customer/product code.

3. Instrument displays HIGH followed by a 6-digital value. Enter the Hi quantity limit through numeric keys then press and hold **[Check]** for 2 seconds.
4. Instrument displays **Save =?**. At this point: -
   - Press the preferred PLU position (numeric key 0 ~ 9), then press **[PRINT/M+]** to save to that PLU position and utilize these limits immediately, or
   - Press **[PRINT/M+]** to utilize these limits immediately but without saving to PLU, or
   - Press **[ZERO]** to quit.

6.11.2.2 Recall quantity limits from PLU

Follow the below steps to recall Lo and Hi limits.

1. Go to piece count mode under desired weight unit, then press and hold **[Check]** for 2 seconds.
2. Instrument displays **CHK =?**. Press PLU position (numeric key 0 ~ 9) then press **[PRINT/M+]** to recall the Lo & Hi limits stored in that position.
3. Instrument displays Lo and Hi limits and these values are now effective.

6.11.2.3 Clear quantity limits from PLU

Refer to **6.11.2.1**. Enter zero value for both Lo and Hi limits in step number **2** and **3**. Then press the preferred PLU position to clear.

6.11.3 Preset Tare PLUs

6.11.3.1 Save preset tare to PLU

Follow the below steps to save preset tare value.

1. Select desired operation mode and weight unit.
2. Enter preset tare value through numeric keys then press and hold **[TARE]** for 2 seconds.
3. Instrument displays **Save =?**. At this point: -
   - Press the preferred PLU position (numeric key 0 ~ 9), then press **[PRINT/M+]** to save to that PLU position, or
   - Press **[PRINT/M+]** to utilize this preset tare immediately but without saving to PLU, or
   - Press **[ZERO]** to quit.

6.11.3.2 Recall preset tare from PLU

Follow the below steps to recall preset tare value.

1. Select desired operation mode and weight unit, then press and hold **[TARE]** for 2 seconds.
2. Instrument displays **PT =?**. Press PLU position (numeric key 0 ~ 9) then press **[PRINT/M+]** to recall the preset tare value stored in that position.
3. Preset tare value stored is now effective.

6.11.3.3 Clear preset tare from PLU

Refer to **6.11.3.1**. Enter zero value in step number **2**. Then press the preferred PLU position to clear.

6.11.4 Customer / product code PLUs

6.11.4.1 Save customer/product code to PLU

Refer to **6.10.1** for procedures to save a customer/product code to PLU.

6.11.4.2 Recall a customer / product code from PLU

Follow the below steps to recall a customer/product code from PLU.

1. Select desired operation mode and weight unit, then press and hold the PLU position (numeric key 0 ~ 9) then press **[PRINT/M+]** to recall the product or customer code stored in that position.

2. Press **[FUNC/SET]** or **[MR/UNIT]** until the desired mode appears (select C Code for customer code or select P Code for product code), then press **[PRINT/M+]** to confirm.
3. Code stored is now effective.

6.11.4.3 Clear customer / product code from PLU

Refer to **6.10.1** and enter blank value for all H, M and L codes in step numbers **2**, **3** and **4**. Then press the preferred PLU position to clear.

7. Weighing Mode

1. Refer to **6.6** on how to select the desired weight unit.
2. If zero weight cannot be obtained when unloaded, press **[ZERO]**. After **[ZERO]** is pressed, the **Zero Indicator** will appear[22].
3. Always place an object onto platform gently. Excessive force / shock applied to platform may cause un-recoverable damage to the weight sensor inside platform.
4. The weight of the object is displayed automatically.
5. It is a good practice to remove all loads from platform after weighing. It will prolong the life of the weight sensor.

8. Piece Count Mode

a. Refer to **6.6** on how to select the desired weight unit.
b. If a container is used, place it onto the platform and press **[TARE]**.
c. Apply samples with the known quantity (sample size) on platform.
d. Press and hold **[FUNC/SET]** unit numeric digits flashing then input the sample quantity through numeric keys then press **[PRINT/M+]**.
e. This instrument will calculate, store the average piece weight and confirm with 2 beeps. The quantity is then displayed.
f. Add to or remove from the platform, the corresponding quantity will be displayed automatically.
g. To count different articles, repeat procedures listed above.

8.1 Auto Unit Piece Weight Enhancement Function

In order to obtain the best counting result and minimize sampling error, this instrument is equipped with Auto Unit Piece Weight Enhancement Function.

This function will automatically be employed when Unit piece weight is determined by actual sample method.

Auto Unit Piece Weight Enhancement Function is built-in the Piece Count mode. This function starts automatically when all of the below are met: -

a. Unit piece weight is determined by actual sampling method.
b. The quantity **added** to platter is more than 5 pieces but less than current quantity on scale.
c. The total quantity on scale is less than 10000 pieces.

[22] Maximum weight value can be zero depends on F65 setting. Contact your dealer for detail.

When all the above requirements are met, a new unit piece weight will be calculated and stored in memory and confirmed by a "beep" sound.

8.2 Shift among Quantity, Average Piece Weight and Weight Info

1. Repeat press and hold **[MR/UNIT]** to shift among quantity, average piece weight and weight info.
2. Quantity display format = numeric numbers & PCS (e.g1000 PCS). Average piece weight display format = numeric numbers & weight unit &/PCS (e.g. 499.960g/PCS).
3. Weight display format (when Piece Count Function is in effect) = numeric numbers & weight unit.

8.3 Recall the Average Piece Weight before Powered Off

Press **[FUNC/SET]**, then **[MR/UNIT]** to recall the last average piece weight before instrument was powered off.

9. Action-Tare-Memory (ATM)

9.1 Description of ATM Mode

It means action, then tare, then memory: -

- Action = load or remove weight from weighing platform.
- Tare = the above weight added on or removed from will be tare off automatically.
- Memory = the above weight will be added to or deducted (in case of removal) from accumulated memory.

9.2 Basic ATM Settings

a. Refer to **6.6** on how to select the desired weight unit.
b. Enter ATM mode.
c. Press and hold **[FUNC/SET]** to select Auto Accumulation target. Then press **[FUNC/SET]** to shift between one of the below parameters, then press **[PRINT/M+]** to confirm.
   - Gross = Gross weight will be accumulated.
   - Net = Net weight will be accumulated.
d. Instrument prompts for delay time (second). Delay time is the time interval (00 ~ 99 seconds): -
   - Between a valid stable weight result is obtained and before it is tare off and accumulated to memory.
   - Display time of total accumulated weight result (after all loadings are removed) and before it is clear from print out memory.
e. Enter delay time through numeric keys then press **[PRINT/M+]** to enter.
f. At this point, ATM mode is ready for use.

9.3 Start using ATM[23]

a. Apply container on platform. Instrument will tare off the weight of the container.
b. Apply or removed load on or from platform. The weight result is displayed for the time interval set forth by above point 2. Then instrument will accumulate the weight result in memory then clear it from the display. **Notes: -**
   - Both positive and negative weight will be accumulated to memory.
   - Positive weight will be added to the accumulated memory.
   - Negative weight will be deducted from the accumulated memory.
c. Apply/remove another load on/from platform. The weight result is displayed for the time interval set forth

[23] Weight changed less than 10d will not be processed.

by above point 2. Then instrument will accumulate the weight result in memory and clear it from the display.

d. Repeat point 3 until all weighing sequence is completed.
e. To recall current total accumulated weight, press **[MR/UNIT]**.
f. At this point: -
   - Press **[ZERO]** to quit, or
   - Press **[PRINT/M+]** to print the current accumulated weight.
g. When all loads are removed from weighing platform. Total accumulated weight value will then be erased automatically.

9.3.1 Weight check control for ATM

When weight Check Control is in effect, only weights within LO and HI limit will be tare off and accumulated.

10. Animal Weighing Mode[24]

10.1 Description of Animal Weighing Mode

Animal weighing mode is used to weigh live animals.

10.2 Basic Animal Weighing Settings

a. Refer to **6.6** on how to select the desired weight unit.
b. Enter Animal Weighing mode.
c. Press and hold **[FUNC/SET]** to select filter. Then press **[FUNC/SET]** to shift between one of the below 5 parameters, then press **[PRINT/M+]** to confirm.
   - FLt 1 = Fast (Weight value is based on least number sampling data, accuracy will be lowest).
   - …..
   - FLt 3 = Normal (Displayed average weight is calculated based on the last 8 internal readings).
   - …..
   - FLt 5 = Slow (Weight value is based on the most number of sampling data, accuracy will be highest).
d. Instrument displays weight release variation value.
e. Press **[FUNC/SET] or [MR/UNIT]** key to select the preferred weight release variation value. 10 parameters are available from Off to 20): -
   - rE oFF = auto release disabled.
   - rE 2 = auto release when weight varies ≥2% of rate capacity or W1 for dual weighing range/interval mode).
   - …….
   - rE 20 = auto release when weight varies ≥20% of rate capacity (or W1 for dual weighing range/interval mode).
f. Press **[PRINT/M+]** to save.
g. Instrument is now ready for animal weighing application.

[24] Animal Weighing function will not operate when weight is less than 20d (or $20d_1$ for dual weighing range/interval).

10.3 Start using Animal Weighing

a. Get an animal on platform.
b. This instrument will calculate the weight of an animal. The result obtained will be flashing.
c. In case more animals have to be weight in the same transaction, then get other animals on platform. An updated weight will be calculated and displayed[25] as above step **b**.
d. To update the weight reading manually, press **[CE/x10]**.

11. Static Check Function[26] [27] [28] [29] [30]

This function is used to compare current weight result with the preset LO and HI Limit. The comparison results (LO, OK, HI) will then be displayed by one of the Lo/OK/Hi indicators with or without buzzer[31]. Targets of Check mode are: -

- Weighing mode = weight value.
- Piece Count mode = piece value.
- Auto Tare Accumulation mode = weight value.

11.1 Set LO& HI Limit

Follow the below steps to set LO and HI Limit.

a. During desired operation mode, press **[Check]**.
b. Instrument displays Low followed by a 6-digital value. Enter the LO limit through numeric keys or press **[CE/x10]** to set LO limit to zero then press **[PRINT/M+]** to save.
c. Instrument displays HIGH followed by a 6-digital value. Enter the HI limit through numeric keys or press **[CE/x10]** to set LO limit to zero then press **[PRINT/M+]** to save.
d. Check Mode is now enabled. The check result is shown by one of the check result indicators[32].

11.2 Hints for Entering LO and HI Limits

a. For normal comparison, set both LO and HI Limit.
b. To check only if result is lower than or equal to LO (result ≤ LO), set HI Limit = 0.
c. To check only if result is higher than or equal to HI (result ≥ HI), set LO Limit = 0.
d. To check if result is equal to a specified value, set both HI Limit and LO Limit = the specified value.

11.3 To Cancel Check Function

To cancel check function, press **[CE/x10]** on point **b** and **c** of **11.1**.

---

[25] Provide that extra weight added/removed fulfills the weight release variation value listed on point 5 of **11.2.**

[26] Check mode will not operate when weight is less than 20d (or $20d_1$ for dual weighing range/interval mode).

[27] Set also F15 for desired Check buzzer output and action on negative value

[28] When F25 = Mode 1, set also F26 (Near Zero weight value).

[29] Check mode does not support animal weighing mode.

[30] Set F26 to zero.

[31] Set F15 for preferred buzzer output configuration.

[32] Yellow = Lo; Green = OK; Red = Hi.

12. PC / Data Output Protocols & Formats

12.1 PC Output Protocols

This instrument supports: -

- 9 predefined PC Output Protocols. Refer to **Appendix A** for details.
- 1 customized Output Format. Refer to **Appendix B** for details.

12.2 Data & Print Formats

12.2.1 Predefined output formats

5 predefined output formats (Lab1 ~ Lab 5). Refer to below Appendixes for details.

- Lab 1 Output Format. Refer to **Appendix C** for details.
- Lab 2 Standard Output Format. Refer to **Appendix D** for details.
- Lab 3 Output Format. Refer to **Appendix F** for details.
- Lab 4 Output Format. Refer to **Appendix G** for details.
- Lab 5 Output Format. Refer to **Appendix H** for details.

12.2.2 Lab 2 customized output format

This instrument supports customized Lab 2 output format. Refer to **Appendix E** for details.

13. Barcode Scanner

This instrument support serial barcode scanner. Barcode scanner should be connected to comport 1. Refer to paragraph **5.5** for settings.

The barcode scanner can then be used to simulate operation key inputs, customer code, product code and operator number.

13.1 Operation Key Inputs

To simulate **[ZERO]**, [**TARE]** and **[PRINT/M+]** key input, simply scan the corresponding barcodes below.

13.1 Inputting Customer & Product Code and Operator Number.

To change scanner input target, scan either one of the below barcodes, then scan a customer, product or operator number barcode.

14. Label Printing

This instrument supports the below label printer models: -

- LP50 by Datecs (www.datecs.bg/en)
- TDP247, TDP345, TTP247, TTP345 by TSC (www.tscprinters.com)
- All models with serial communication by Sbarco (http://www.Sbarcotech.com)

Notes: -

- Set all preferred operation parameters and label printer model according to paragraph **8**.
- Refer to **Appendix I** for TSC printer installation, setup procedures and detail on how to create and upload label to TSC printer by Bartender Label software.
- Refer to **Appendix J** for Sbarco Printer Installation, setup procedures and detail on how to create and upload label to Sbarco printer by BarDrawer software.
- Refer to **Appendix K** for detail on label programming and illustration samples.

14.1 Label Format Groups & Label File Names

2 label format groups are available: - -

- FL1 (label file group 1), and
- FL2 (label file group 2).

14.1.1 FL1 (Label Format Group 1)

FL1 (format group 1) is used to print the data of current and individual transaction. 100 printout selections (00 ~ 99) are available in format group 1.

In order to trigger the preferred label to be printed, label files stored in printer for this format group 1 must have a file name of AA01, AA02, AA03…. AA99.

- **FL1 00**: - Select this to disable current transaction label printing.
- **FL1 01**: - Select this to print label file AA01 stored in printer.
- **FL1 02**: - Select this to print label file AA02 stored in printer.
- ….
- **FL1 98**: - Select this to print label file AA98 stored in printer.
- **FL1 99**: - Select this to print label file AA99 stored in printer.

14.1.2 FL2 (Label Format Group 2)

FL2 (format group 2) is used to print the totalized (MR) data.

100 printout selections (00 ~ 99) are available in format group 2. In order to trigger the preferred label to be printed, label files stored in printer for this format group 1 must have a file name of BB01, BB02, BB03…. BB99.

- **FL2 00**: - Select this to disable totalized (MR) data label printing.
- **FL2 01**: - Select this to print label file BB01 stored in printer.
- **FL2 02**: - Select this to print label file BB02 stored in printer.
- ….
- **FL2 98**: - Select this to print label file BB98 stored in printer.
- **FL2 99**: - Select this to print label file BB99 stored in printer.

14.2 Quick Access to Label Settings

If label printer is selected, follow the below procedures to access quick label settings during operation.

1. At Weighing Mode, press and hold **[FUNC/SET]**.
2. Instrument displays F1. Press **[Check]**,
3. Instrument displays number of copy (1 ~ 8) to generate each time. Press **[FUNC/SET]** or **[MR/UNIT]** until the preferred parameter appears and press **[Print/M+]** to save.
4. Instrument displays label file number (FL1 00 ~ FL1 99) to print in label format group 1. Enter the preferred file number through numeric and press **[Print/M+]** to confirm.
5. Instrument displays label file number (FL2 00 ~ FL2 99) to print in label format group 2. Enter the preferred file number through numeric and press **[Print/M+]** to confirm.
6. At this point, label settings are completed.

14.3 Repetitive Printout

This instrument supports repetitive printout under Manual print mode. Press **[Print/M+]** for additional printout copies.

Conditions and criteria as below: -

a. When Auto Accumulation is set to On: Repetitive print is only possible when the actual weight on scale is equal to the weight value of the 1st printout.
b. When Auto Accumulation is set to Off: Repetitive print is possible if minimum output weight set is matched and when **[Print/M+]** is pressed.
c. Weight value of repetitive printout will not change the total accumulation result. Only the weight value of the 1st printout will be accumulated to memory.

15. Commands

Commands can be sent to this instrument from computer through any standard communication program. Comport 2 should be set to CMD in F17.

The following command types are available: -

a. Keyboard commands are used to simulate key entries on keyboard. Refer to **Appendix L** for details.
b. Operation result reading commands are used to read current and accumulated operation results. Refer to **Appendix M** for details.
c. System parameter & operation entry setting commands are used to send system parameters and operation entries to this instrument. Refer to **Appendix N** for details.
d. System parameter reading commands are used to read system parameters. Refer to **Appendix O** for details.

16. PC Software

PC software (Rathohan 19 End User Program) is built to work with this instrument. This software enables users to preform: -

- Real Time Operation Status Monitoring
- Operation Parameters Setting
- Real Time Process Monitoring
- Individual and Totalized Record Storage
- Database File Output

Click / visit the below link to down this software and operation manual of it.

www.fi-measurement.com/resource/driversnsoftwares

Before using this software, read carefully the Software License Agreement of using this software. Do not use it if you do not agree with all terms and conditions listed on the License Agreement. It is assumed that by using this software, user agrees with all content of the License Agreement.

17. Built-in Batteries & Recharging

17.1 Before First Time Use

To ensure the best battery performance, recharge the built-in battery for at least 8 hours before first time use.

17.2 Battery Operation Time

Depends on the battery operation condition, a new and fully charged rechargeable battery can provide[33] 50~80 operation hours. The following setting helps increasing battery service time: -

- F8 Brightness: - the brighter the setting, the shorter the battery service time.
- F31 Auto Power Saving: - always set this to On. This will help save power especially when the instrument is unattended.

17.3 Battery Lo

When **Lo. Bat message** appears, it means battery level is at extremely low level. Recharge battery immediately.

To protect the built-in rechargeable battery, this instrument will power off automatically when battery is at extremely low level. If this is the case, do not attempt to power this instrument on. Recharge this instrument immediately. Fail to do so may cause unrecoverable damages to the built-in rechargeable battery.

33 When connect to one 350 ohm load cell.

17.4 Battery Charging Status

Battery charging status is shown on the dual color **Charge Status Indicator**: -

- Red: - Recharging in process,
- Green: - Charging completed.

17.5 CR1220 Real Time Clock Backup Battery

A CR1220 battery is installed to back up the real time clock of the system and other application parameters. Replace this battery with new one every 12 months for best performance. Contact your dealer for details and supports.

18. Daily Care & Maintenance

a. Clean the instrument with a soft, damp cloth. If necessary, use a mild detergent in water.
b. Do not use any harsh, abrasive material, acetone, volatile solvent, thinner or alcohol for cleaning.
c. Verify the accuracy of this instrument periodically. Re-calibrate if necessary. In some countries, calibration requires authorized/qualified agent. Contact your dealer for more information.
d. Store this instrument in a dry and clean place,
e. Recharge battery before and every 4 months during long time storage.

19. Error Codes

Error Code No.	Description
Err 1	Time value error
Err 2	Date value error
Err 3	Exceed manual zero
Err 4	Offset out of range / unstable during power on (5 minutes for OIML and NTEP mode)
Err 5	Zero calibration detects offset (deadload) is too high or low. Check load cell capacity and condition.
Err 6	Tare operation error
Err 7	Logic error. HI limit set is lower than LO limit (and HI is not = 0)
Err 8	Logic error. LO limit is higher than HI limit (and HI is not = 0)
Err 13	Exceed maximum power on (5 minutes for OIML and NTEP mode)
Err 19	Capacity or division setting error (Division set is higher than 10000d)
Err 22	Manual Zero and Tare stability error
Err 23	Capacity setting error, Capacity 1 > Capacity 2
Err 24	Division setting error, e1 > e2
Err 25	Span gain is too low
Err 26	Not able to obtain stable status for longer than 10 sec
Err 27	• Theoretical calculated value per e of Cal 2 varies more than 1% as of Cal 1. Properly a load cell problem. • Mass value of Cal 2 is less than 150% of Cal 1.
Err 28	Maximum accumulation limit is exceeded.
Err 29	Standard deviation data exceed memory size (300 transactions).
--oL--	Overload (Gross weight is more than Max plus 9d)
HALT	Major system error detected. Power off instrument and remove power adaptor immediately. Then check load cell connection and system power status.
UndEr	Negative Weight values exceeds display range
Reboot	Important parameters have been changed. Power off and then power on instrument again to reboot.
------	Negative Tare value exceeds display range

Appendix A: - Pre-Defined PC Output Protocols

A.1 Data Abbreviation Table

Data Code	Description
,	Comma
+,-	• Polarity Sign • Positive = space. Negative = minus (-)
P	• Polarity Sign • Positive = 0. Negative = minus (-)
G/N	Gross/Net • NT = Net weight • GS = Gross weight
NET	Net Weight
S	Status Code • ST for Stable • US for unstable
R	Revered 7 digits weight value including location of decimal point. If there is no decimal point, then the last character = space.
SP	Space
SWA	Status Word A
SWB	Status Word B
U	Weight Unit • kg = kilogram • lb = pound • g(space) = gram
W	7 digits weight value including location of decimal point. If there is no decimal point, then the first character = space.

A.2 Output Formats Tables

Protocol 1 Output Format

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Data	S	S	,	G/N		+,-	W	W	W	W	W	W	W	,	U	U	CR	LF

Protocol 2 Output Format

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Data	STX	SWA	SWB	SP	Field 1 (Net Weight)						Field 2 (Tare Weight)						CR

Protocol 3 Output Format

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Data	SOH	STX	SP	+,-	W	W	W	W	W	W	W	SP	U	U	SP	SP	SP	SP	CR	LF

Protocol 4 Output Format

Position	1	2	3	4	5	6	7	8	9
Data	=	R	R	R	R	R	R	R	P

Protocol 5 Output Format

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Data	S	S	,	G/N		,	+,-	W	W	W	W	W	W	W	U	U	CR	LF

Protocol 6 Output Format

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Data	N	E	T	SP	+,-	W	W	W	W	W	W	W	U	U	CR	LF

Protocol 7 Output Format

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Data	SOH	STX	SP	+,-	W	W	W	W	W	W	W	SP	U	U	SP	SP	SP	CR	LF

Protocol 8 Output Format

Position	1	2	3	4	5	6	7	8	9	10
Data	STX	+,-	W	W	W	W	W	W	W	ETX

Protocol 9 Output Format

Position	1	2	3	4	5	6	7	8	9	10	11	12
Data	STX	+,-	SP		W	W	W	W	W	U	U	ETX

Appendix B: - Customized PC Output Protocol

This instrument supports customized PC output protocol. Under this mode: -

- 2 data separation types
- 7 control codes, and
- 22 different transaction data

are available from instrument.

B.1 Customized PC Output Protocol Setting Procedures

1. At Weighing mode, go to F16 or F17 depends on the comport # to be set. Press **[Print/M+]**.
2. Select PC, then set baud rate, parity and data length.
3. Select Custom in Protocol page. Press **[Print/M+]**.
4. Instrument displays one of the data separators.
5. Press **[Unit]** to shift between data separator Comma (comma) and SemiCo (semi colon) and press **[Print/M+]**.

   Notes: -
   - Data separator is a symbol inserted between transaction data and is usually used by computer program to separate various data.
   - No data separator is inserted between in front or after control commands.
   - Separator in front and after a control code (C1 ~ C6) will not be surpassed. For example: - STXdata,data,dataETX
   - Exception of above is when control codes are in between 2 data. For example: - data,CR LF data
6. Instrument displays item number, then followed by the content page.

   Note: - Item number means the output sequence, e.g. Item 1 = the first content to output, Item 3 = the third content to output.
7. Press **[Unit]** or **[MR]** until the preferred content appears and press **[Print/M+]**. Refer to **Customized PC Output Content Table** for details.
8. Repeat step **6** and **7** to include other transaction data or control.
9. To complete and save a customized output, select **End** and press **[Print/M+]**.
10. Then select output time interval. Refer to paragraphs **5.5.1** for details.
11. Press **[Print/M+]** to save.

B.2 Customized PC Output Content Table

Symbol	Explanations	Nature	No. of Digit	Remarks
CoMMA	Comma	Data Separator	1	Select either one
SemiCo	Semi Colon		1	
Cr LF	HEX Code 0D 0A	Control Code	2	
Cr	HEX code 0D		1	
LF	HEX code 0A		1	
SOH	HEX code 01		1	
STX	Hex code 02		1	
ETX	Hex code 03		1	
Status	Weigh Status	Transaction Data	2	• ST = Stable • US = Unstable • OL = Overload
nT-GS	Net/Gross Sign		2	NT = Net / GS = Gross
Date	Date of Output		10	
Time	Time of Output		8	
Net	Net Weight		8	Numeric value only, without weight unit
Tare	Tare Weight		8	
Gross	Gross Weight		8	
Unit	Weight Unit		2	• kg = Kilogram • (space)g =gram • lb = pound
H ref	Hi Limit		8	8-digital including decimal (if any)
L ref	Lo Limit		8	8-digital including decimal (if any)
Ck res	Comparison Result		2	Lo/Ok/Hi / Grade Result for grading
id	Machine ID		4	0000 ~ 9999, Blank = None
Group	Machine Group Number		2	00 ~ 99, Blank = None
Op Code	Operator Number		4	0000 ~ 9999, **** = None

P Code	Product Code		1 ~ 18	Blank = not entered
C Code	Customer Code		1~ 18	Blank = not entered
Trans	No. of accumulated transaction		8	Blank = none
ACC	Total Accumulated Weight		8	Blank = none
unit.Wt	Unit weight		8	8-digital including decimal (if any) in terms of gram
Count	Number of piece		8	8-digital
t.Count	Total Accumulated Pieces		8	8-digital
Animal	Weight Hold (Animal Weighing)		8	8-digital including decimal
End	End of Input	Control Code	None	

Appendix C: - Lab 1 Output Formats

No header will be generated when line number is set = 00. See below tables for print format illustrations and explanations.

C.1 Weighing, ATM & Animal Mode Illustration

Date	Time	Seq	Net	Tare	Gross	Total	Ref.	R
4/23/2020	14:14:55	1 W	5.000kg	0.000kg	5.000kg	5.000kg		L
4/23/2020	14:14:58	2 W	9.999kg	0.000kg	9.999kg	14.999kg		L
4/23/2020	14:15:00	3 W	14.993kg	0.000kg	14.993kg	29.992kg		A
4/23/2020	14:15:03	4 W	19.997kg	0.000kg	19.997kg	49.989kg		H

C.2 Piece Count Mode Illustration

Date	Time	Seq	Net	Tare	Gross	Total	Ref.	R
4/23/2020	14:17:01	1 C	100 P	0.000kg	5.002kg	5.002kg	50.005g	L
4/23/2020	14:17:04	2 C	200 P	0.000kg	10.000kg	15.002kg	50.005g	L
4/23/2020	14:17:06	3 C	300 P	0.000kg	14.994kg	29.996kg	50.005g	L
4/23/2020	14:17:09	4 C	400 P	0.000kg	19.998kg	49.994kg	50.005g	L

Explanations: -

- Date = Date of Output
- Time = Time of Output
  Seq = Accumulate Sequence No & Working Mode Type
  - W = Weighing, C = Piece count
- Net = Net Weight
- Tare = Tare Weight
- Gross = Gross Weight
- Total = Total Accumulated Weight
- Ref. = Unit weight
- Result = Check Result: -
  - A = Within Lo & Hi limit
  - L = Lower than Lo limit
  - H = Higher than Hi Limit

Appendix D: - Lab 2 Standard Output Format

See below tables for print format illustrations and explanations.

D.1. Weighing & ATM Mode Illustration

Time	21:39:17	*Time of Output*
Date	2020-03-28	*Date of Output*
Seq	1	*Accumulate Sequence No.*
Name	Customer Code	*Customer Code (if entered)*
Pcode	Product Code	*Product Code (if entered)*
Net	3.006kg	*Net Weight*
Tare	0.000kg	*Tare Weight*
Gross	3.006kg	*Gross Weight*
Total	3.006kg	*Total Accumulated Net Weight*
High	3.500kg	*Hi Limit (if entered)*
Low	2.500kg	*Lo Limit (If entered)*
Accept		*Check Result*

D.2 Piece Count Mode Illustration

Time	21:40:48	*Time of Output*
Date	2020-03-28	*Date of Output*
Seq	2	*Accumulate Sequence No.*
Name	Customer Code	*Customer Code (if entered)*
Pcode	Product Code	*Product Code (if entered)*
Net	5.000kg	*Net Weight*
Count	100pcs	*Count Value*
Total	20.000kg	*Tare Weight*
Total	400pcs	*Total Accumulated Count Value*
High	2500pcs	*Hi Limit (if entered)*
Low	1500pcs	*Lo Limit (If entered)*
Accept		*Check Result*

D.3 Animal Weighing Mode Illustration

Time	21:43:12	*Time of Output*
Date	2020-03-28	*Date of Output*
Seq	1	*Accumulate Sequence No.*
Name	Customer Code	*Customer Code (if entered)*
Pcode	Product Code	*Product Code (if entered)*
Hold.W	2.998kg	*Weight Held*
Total	2.998kg	*Total Accumulated Weight*

Appendix E: - Customizing Lab 2 Print Format

19 variants + 2 commands (**Cr LF and End**) are available for custom print output. Refer to the below **Print output format variants table** for more detail.

E.1 Print Output Format Variants Table

Variant	Description	Output Sample
End	End of Input	Not Visible
Cr LF	Hex Code 0D 0A	Not Visible
dAtE	Date of Output	Date 2020-03-25
time	Time of Output	Time 17:24:04
nEt	Net Weight	Net 15.000kg
tArE	Tare Weight	Tare 0.000kg
GroSS	Gross Weight	Gross 15.000kg
unit.wt	Unit weight	@WT 49.9997g
Count	Number of piece	QTY 400pcs
H rEF	Hi Limit	High 6.000kg
L rEF	Lo Limit	Low 2.000kg
Ani	Weight Hold (Animal Weighing)	Hold.W 0.000kg
Ch rES	Comparison Result	Result Above
trAnS	No. of accumulated transaction	Seq 2
ACC	Total Accumulated Weight	Total_WT 20.000kg
	Total Accumulated Count (**Note A**)	Total_QTY 2000pcs
SiGn	Signature Line	_____
P Code	Product Code	Pcode G2e
Id	Machine ID	Mac 11
GrouP	Machine Group Number	MacGp 22
oPCodE	Operator Number	Opr 8888
C CodE	Customer Code	Name FM

Note A: This line is generated when all the below conditions are met: -

a. Instrument is in Piece Count Mode, and

b. ACC is selected.

E.2 To Edit Custom Lab 2 Print Output Format

Follow the below steps to create customized printout.

1. Depends on the working modes: -
   - Go to F21 to edit custom output for Weighing and ATM mode. Maximum 30 variants can be entered.
   - Go to F22 to edit custom output for Piece Count mode. Maximum 30 variants can be entered.
   - Go to F24 to edit custom output for Animal Weighing mode. Maximum 12 variants can be entered.
2. Press **[Print/M+]**, then **[FUNC/SET]** until **Custom** appears.
3. Press **[Print/M+]**,
4. This instrument displays **Line 1** and the last variant or command (refer to paragraph **Appendix E** for details) stored,
5. Press **[Print/M+]** to confirm or select other variant or command by pressing **[FUNC/SET]** or **[MR/UNIT]**. Press **[Print/M+]** to confirm and save,
6. This instrument displays **Line 2** and the last variant or command stored,
7. Repeat steps **4** and **5** for other lines,
8. To finish editing, select **End** and press **[Print/M+]** to confirm,
9. This instrument returns to and displays the current internal function number.

At this point, customized Lab2 output format editing is completed.

Appendix F: - Lab 3 Output Format

See below tables for print format illustrations and explanations.

Function & Output	Weighing	Count	ATM Mode	Animal
Data 1	Operator Number			
Data 2	Accumulate Sequence No			
Data 3	0	1	2	3
Data 4	Machine ID			
Data 5	Machine Group			
Data 6	Date of Output			
Data 7	Time of Output			
Data 8	Customer Code			
Data 9	Product Code			
Data 10	Gross Weight			
Data 11	Tare Weight			
Data 12	Net Weight			
Data 13	Lo Limit (if entered)	Total Accumulated Net Weight	Lo Limit (if entered)	Total Accumulated Net Weight
Data 14	Hi Limit (if entered)	Weight Unit	Hi Limit (if entered)	Weight Unit
Data 15	Check Result	No. of Pieces	Check Result	CR (Hex code 0D)
Data 16	Total Accumulated Net Weight	Unit Weight	Total Accumulated Net Weight	LF (Hex Code 0A)
Data 17	Weight Unit	Weight Unit of unit Weight	Weight Unit	
Data 18	CR (Hex code 0D)	Lo Limit (if entered)	CR (Hex code 0D)	
Data 19	LF (Hex Code 0A)	Hi Limit (if entered)	LF (Hex Code 0A)	
Data 20		Check Result		
Data 21		Total Accumulated No. of Pieces		
Data 22		CR (Hex code 0D)		
Data 23		LF (Hex Code 0A)		

Note: - Semi colon is inserted between data.

Appendix G: - Lab 4 Output Format

See below tables for print format illustrations and explanations.

Weighing Mode	Piece Count Mode	ATM Mode	Animal Weighing Mode	*Explanation*
Name FM	Name FM	Name FM	Name FM	*Customer Code (if entered)*
Pcode G2e	Pcode G2e	Pcode G2e	Pcode G2e	*Product Code (if entered)*
Opr 8888	Opr 8888	Opr 8888	Opr 8888	*Operator No (if entered)*
Mac 0011	Mac 0011	Mac 0011	Mac 0011	*Machine ID (if entered)*
MacGp 22	MacGp 22	MacGp 22	MacGp 22	*Machine Group No. (if entered)*
Date 2020-03-25	Date 2020-03-25	Date 2020-03-25	Date 2020-03-25	*Date of Output*
Time 16:13:40	Time 15:48:47	Time 16:11:22	Time 15:55:27	*Time of Output*
Seq Gross Net	Seq Pieces Net	Seq Gross Net	Seq Gross Net	
001 5.000 5.000 kg	001 100 5.000 kg	001 4.999 4.999 kg	001 5.000 5.000 kg	
002 10.000 10.000 kg	002 200 10.000 kg	002 10.000 5.000 kg	002 10.000 10.000 kg	*Accumulation No., Gross or No. of pieces & Net Weight*
003 15.000 15.000 kg	003 300 15.000 kg	003 15.000 5.000 kg	003 15.000 15.000 kg	
004 20.000 20.000 kg	004 400 19.998 kg	004 0.000 -15.000 kg	004 19.998 19.998 kg	
----------	----------	----------	----------	
004 50.000 kg	004 1000 49.998 kg	004 -0.001 kg	004 49.998 kg	*Total Accumulation No., No. of pieces and net weight*
Max 20.000 kg	Max 19.998 kg	Max 19.998 kg	Max 19.998 kg	*Maximum Value*
Min 5.000 kg	Min 5.000 kg	Min 5.000 kg	Min 5.000 kg	*Minimum Value*
Diff 15.000 kg	Diff 14.998 kg	Diff 14.998 kg	Diff 14.998 kg	*Differentiation (Max-Min)*
x 12.5000 kg	x 12.4995 kg	x -0.0003 kg	x 12.4995 kg	*Mean (Average) Value*
Sd 6.4550 kg	Sd 6.4542 kg	Sd 15.8109 kg	Sd 6.4542 kg	*Standard Deviation*
Srel 51.6400 %	Srel 51.6357 %	Srel -5270300 %	Srel 51.6357 %	*Relative Standard Deviation*
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Appendix H: - Lab 5 Output Format

See below tables for print format illustrations and explanations.

Weighing	Piece Count	ATM	Animal Weighing	*Explanation*
Name FM	Name FM	Name FM	Name FM	*Customer Code (if entered)*
Pcode G2e	Pcode G2e	Pcode G2e	Pcode G2e	*Product Code (if entered)*
Opr 8888	Opr 8888	Opr 8888	Opr 8888	*Operator No (if entered)*
Mac 0011	Mac 0011	Mac 0011	Mac 0011	*Machine ID (if entered)*
MacGp 22	MacGp 22	MacGp 22	MacGp 22	*Machine Group No. (if entered)*
Date 2020-03-25	Date 2020-03-25	Date 2020-03-25	Date 2020-03-25	*Date of Output*
Seq Time Net	Seq Time Pieces	Seq Time Net	Seq Time Net	
001 16:48:24 5.000 kg	001 16:49:12 100	001 16:50:15 5.000 kg	001 16:50:54 5.000 kg	
002 16:48:28 10.000 kg	002 16:49:15 200	002 16:50:18 5.000 kg	002 16:51:03 10.000 kg	
003 16:48:31 15.000 kg	003 16:49:19 300	003 16:50:20 5.000 kg	003 16:51:12 15.000 kg	*Accumulation No., Time of Output, Gross or No. of pieces & Net Weight*
004 16:48:36 19.990 kg	004 16:49:25 400	004 16:50:21 -15.000 kg	004 16:51:22 20.000 kg	
----------	----------	----------	----------	
004 Total: 49.990 kg	004 Total: 1000	004 Total: 0.000 kg	004 Total: 50.000 kg	*Total Accumulation No., No. of pieces and net weight*
Max 19.990 kg	Max 20.000 kg	Max 20.000 kg	Max 20.000 kg	*Maximum Value*
Min 5.000 kg	Min 5.000 kg	Min 5.000 kg	Min 5.000 kg	*Minimum Value*
Diff 14.990 kg	Diff 15.000 kg	Diff 15.000 kg	Diff 15.000 kg	*Differentiation (Max-Min)*
x 12.4975 kg	x 12.4998 kg	x 0.0000 kg	x 12.5000 kg	*Mean (Average) Value*
Sd 6.4511 kg	Sd 6.4551 kg	Sd 15.8112 kg	Sd 6.4550 kg	*Standard Deviation*
Srel 51.6191 %	Srel 51.6416 %	Srel 99483647 %	Srel 51.6400 %	*Relative Standard Deviation*
----------	----------	----------	----------	

Appendix I: - TSC Printer Installation, Setup & Label Upload Procedures

I.1 Get the below ready before Printer Installation

1. An appropriate cable to connect printer and computer. This cable usually comes with the printer. If not, contact your printer supplier.
2. Printer installation driver. This driver usually comes with the printer. If not, contact your printer supplier.
3. Diagnostic tool for printer. This tool usually comes with the printer. If not, contact your printer supplier or download it at: - https://www.fi-measurement.com/files/1/Drivers%20&%20Softwares/DiagTool_V163.zip
4. TCF file for the label printer. The suitable TCF file can be downloaded at: - www.fi-measurement.com/resource/driversnsoftwares

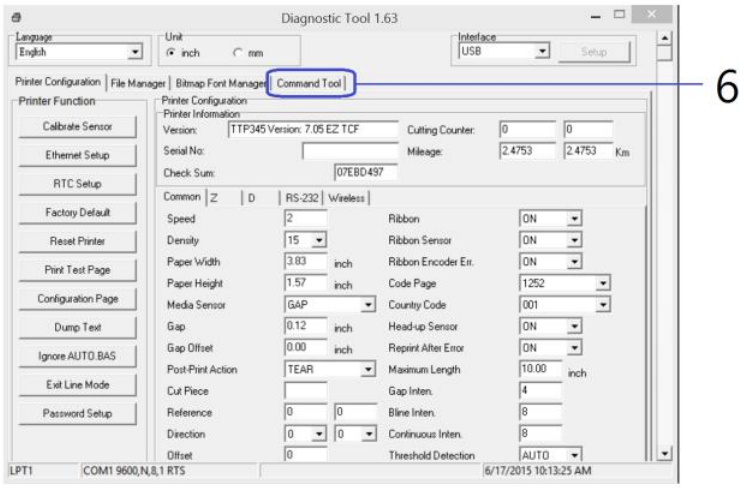
I.2 Printer Installation

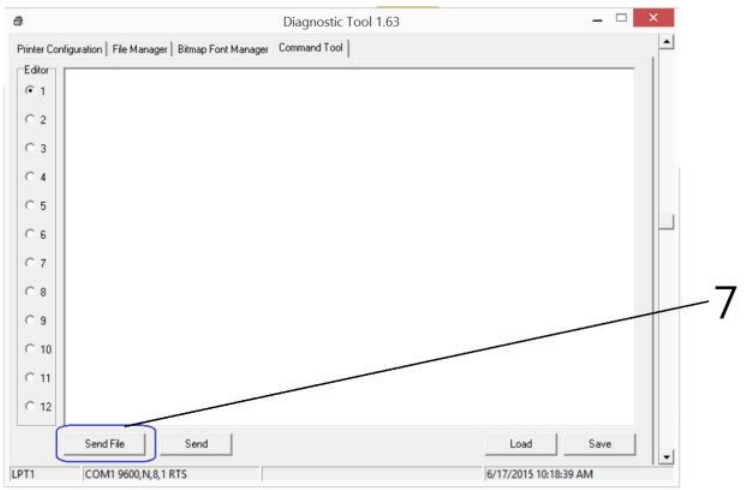
1. Turn off the printer, connect the appropriate cable, and then turn on the printer.
2. If the printer supports Plug-and-Play, and you have connected it using a USB or Parallel cable, then the Windows Add Hardware Wizard will detect the printer and display a dialog that allows you to install a driver. Click Cancel and do not install the driver using this wizard.
3. Run the Driver Wizard utility from the Installation Directory where the driver files are located.
4. Select Install Printer Drivers and complete the wizard.
5. The driver should now be installed.

I.3 Uploading TCF File to Printer

In order to allow proper operation between this instrument and TSC label printer, a TCF file must be uploaded to printer.

1. Connect printer with computer.
2. Power on printer.
3. Download the correct TCF file point 4 of **I.1**.
4. Unzip the download file and save in to computer.
5. Run Diagnostic tool for printer.
6. Click on Command Tool.
7. Click on Send file.
8. Double click on the TCF file and it will be uploaded to printer.





I.4 Create & Upload Label to TSC Printer

I.4.1 Selecting the Correct Edition for Bartender Software

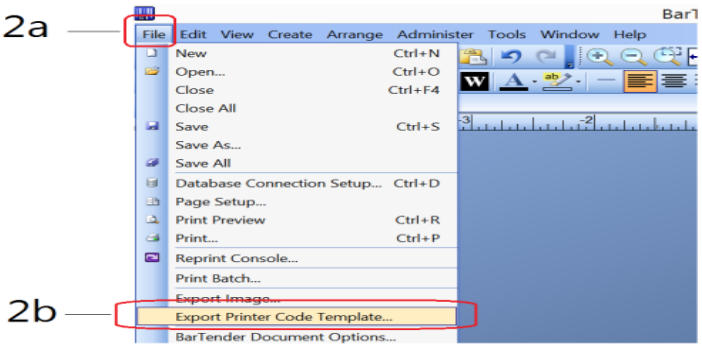
To enable label uploading from computer to TSC printer, it is necessary to run Bartender as Automation or Enterprise Automation edition. Procedures as below: -

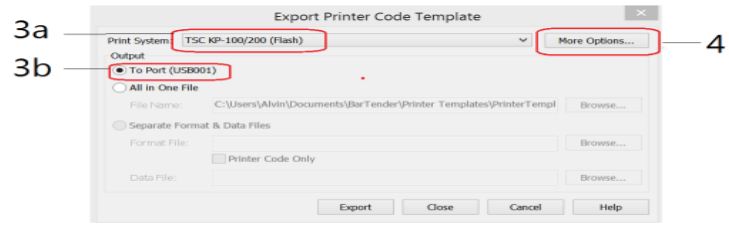
1. Install Bartender Software to computer. The Bartender software usually comes with the TSC printer. If not, please contact your printer supplier.
2. Run Bartender, then click on Help, then click on Edition Selection.
3. Select Enterprise Automation or Automation, then click OK.
4. At this point, correct Bartender edition is selected.

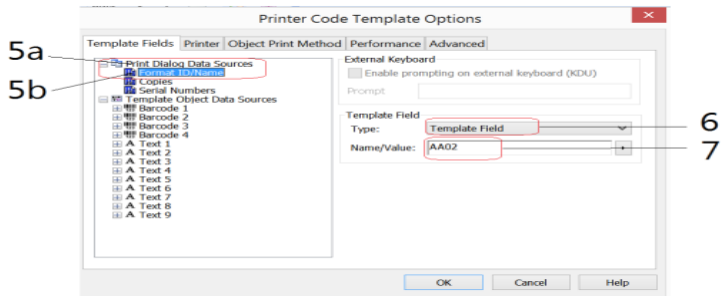
I.4.2 Adding Information from Instrument to Label & Uploading to a TSC Printer

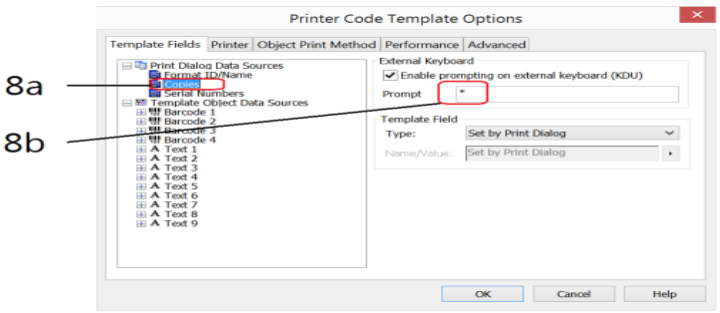
The below procedures are based on Bartender Label Software. If a different label creating software is used, contact your label software dealer for more details if in doubt.

1. Set the label printer as the default printer of your computer.
2. Create the foundation of a label by Bartender. All information to be obtained from instrument should be added afterward.
3. Once the label foundation has been completed; (a) click on File and (b) select Export Printer Code Template.
4. On Print System; (a) select TSC KP-100/200 (Flash) and (b) select to Port.
5. Click More Option.
6. Then (a) click Print Dialog Data Sources, then (b) click on Format ID/Name.
7. On Template Field, select Template Field for Type.
8. Enter the correct label file name on Name/Value. Refer to paragraph **14.1** for correct file name format. (a) Click Copies, check KDU and (b) input asterisk (*) on Prompt box.
9. Below procedures explain how to edit information to be obtained from instrument.
10. Click Template Object Data Sources and Select the object which information from instrument (for example net, gross, tare weight and product code) to be sent to printer and printed on label.

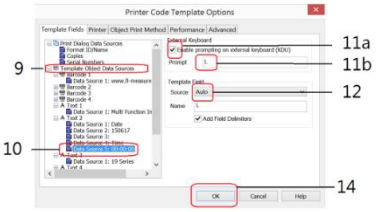


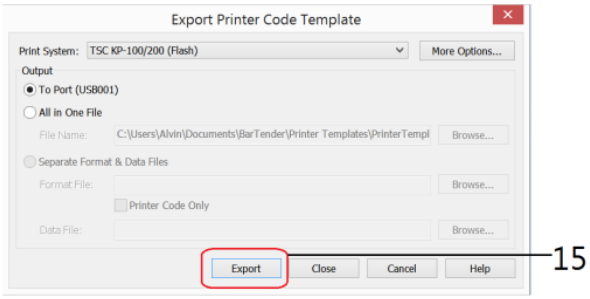






11. Double click on the preferred data source to which variant(s) has/have to add.
12. check the box below External Keyboard, then
13. enter the appropriate command on the Prompt Box (refer to paragraph **K.1** for command detail).
14. Select Auto on the Source box under Template Field.
15. Repeat point 11 to 12 for all other data sources.
16. Click OK.
17. Click Export. In case of Verification Messages appear, select one of method on the dialogue box to fix and click Continue.





Appendix J: - Sbarco Printer Installation, Setup & Label Upload Procedures

J.1 Get the below ready before Printer Installation

1. An appropriate cable to connect printer and computer. This cable usually comes with the printer. If not, contact your printer supplier.
2. A serial cable to connect printer and this instrument. Pin #9 of this cable must be without any connection.
3. Download BarDrawer software at http://www.sbarcotech.com/cht/download.php?gid=1

J.2 BarDrawer Software & Printer Driver Installation

1. Turn off the printer, connect computer and printer by cable, and then turn on the printer.
2. Install BarDrawer software according to the wizard. After that BarDrawer software is installation is done.
3. Run BarDrawer software.
4. Click Install Driver under Tools (figure 1 below). Then install printer driver according to the wizard.
5. After printer driver installation, click Printer Utility under Tools (figure 2 below).
6. Click Load from Printer (figure 3 below).
7. Check FW version: -
   - If FW version = 3.0.05 (date = 2020/12/18) or newer, printer installation is done.
   - If FW version is lower than 3.0.05 (date = 2020/12/18), then FW update is necessary. Continue with below step for FW update.
8. Download the latest Sbarco Printer FW at https://www.fi-measurement.com/resource/driversnsoftwares
9. Open file located of the Sbarco printer FW downloaded.
10. Doble click on the FW file name to start Firmware Tool.
11. Click Program (figure 4 below) to start FW update.
12. Click OK after FW update is completed.

Figure 1

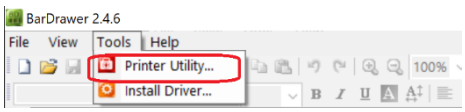


Figure 2

Figure 3

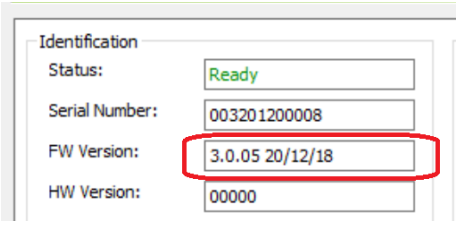


Figure 4

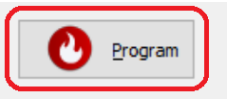
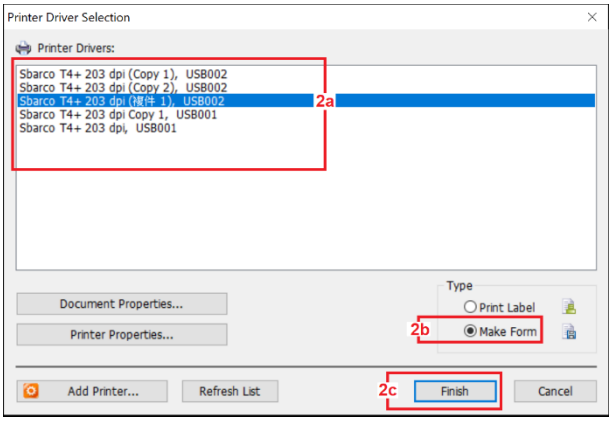


Figure 5

J.3 Create & Upload Label to Sbarco Printer



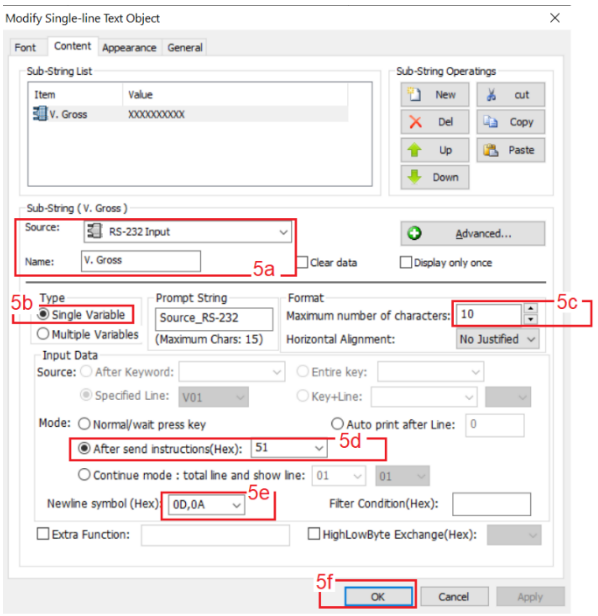
1. Run BarDrawer. Click File and then New.

2. On Printer Driver Selection page: -
   a. click on the preferred printer driver, then
   b. select Make Form under Type, then
   a click Finished.

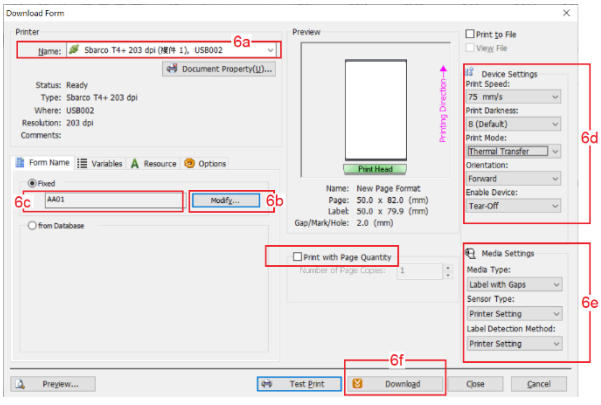
3. Double click in blank label area, then complete all settings on Page, Label Layout, Measuements and Orientation. Then click OK

4. Create all fixed content and variables on label.

5. To program variables, double click on the variable to program. On Content page: -
   a. On Sub-String section, select RS-232 Input for Source and give a proper name to the select variable (optional)
   b. On Type section, select Single Variable,
   c. On Format section, enter value of Maximum number of characters. Refer to **K.1** Suggested Length column for suggested value.
   d. On Input Data section, select After send instructions (Hex). Then enter the Prompt Command listed on **K.1**.
   e. Always select 0D,0A for Newline symbol (Hex) box.
   f. Click OK to save above settings for this variable.
   g. Repeat above a ~ f for all other variables.

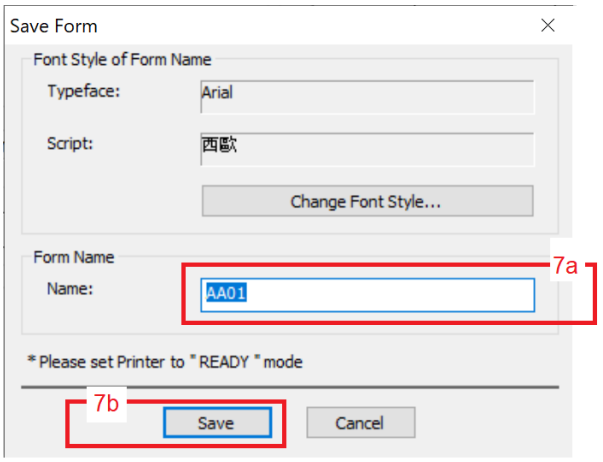


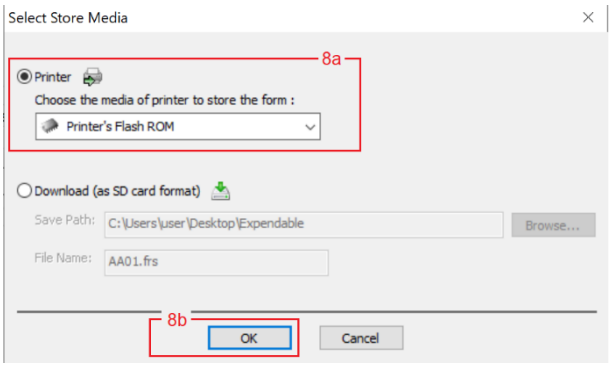
6. Once the label foundation has been completed, then click on File then click on Print. On Download Form page: -
   a. select name of Print to output,
   b. click Modify and then give proper name to the file (e.g. AA01… AA99 for individual transaction label and BB01…BB99 for totalized label).
   c. always leave Print with Page Quantity box unchecked.
   d. set all boxes under Device Settings,
   e. set of boxes under Media Settings
   f. Click Download.



7. On Save Form page: -
    a. make sure that the Form name is correct, then
    b. Click Save

8. On Select Store Media page: -
    a. select Printer, then
    b. select Printer's Flash ROM, then
    c. click OK





Appendix K: - Label Programming, Illustration & Samples

Prompt commands, information description, working mode and suggested length on label are listed on the below table.

K.1 Label Prompt Command Table

Prompt Command[34]		Description	Suggested Length
LP50 & TSC	Sbarco		
K	4B	Date	10
L	4C	Time	8
f	66	Operator Number	4
d	64	Machine ID	4
e	65	Machine Group Number	2
Z	5A	Customer Code	18
b	62	Product Code	18
S	53	LO limit[35]	11
R	52	HI limit[36]	11
T	54	Comparison Result	11
Q	51	Gross weight	10
qq	71	Gross weight without unit or decimal	6
P	50	Tare weight	10
pp	70	Tare weight without unit or decimal	6
O	4F	Net weight	10
oo	6F	Net weight without unit or decimal	6
M	4D	No. of accumulated transaction (8 digits with leading space)	8
mm	6D	No. of accumulated transaction (6 digits with leading zero)	6
N	4E	Total accumulated weight	11
nn	6E	Total accumulated weight without unit or decimal	6
U	55	Number of piece	11
V	56	Average piece weight	10
c	63	Total accumulated pieces	11
Y	59	Weight hold	11
yy	79	Weight hold without unit or decimal	6

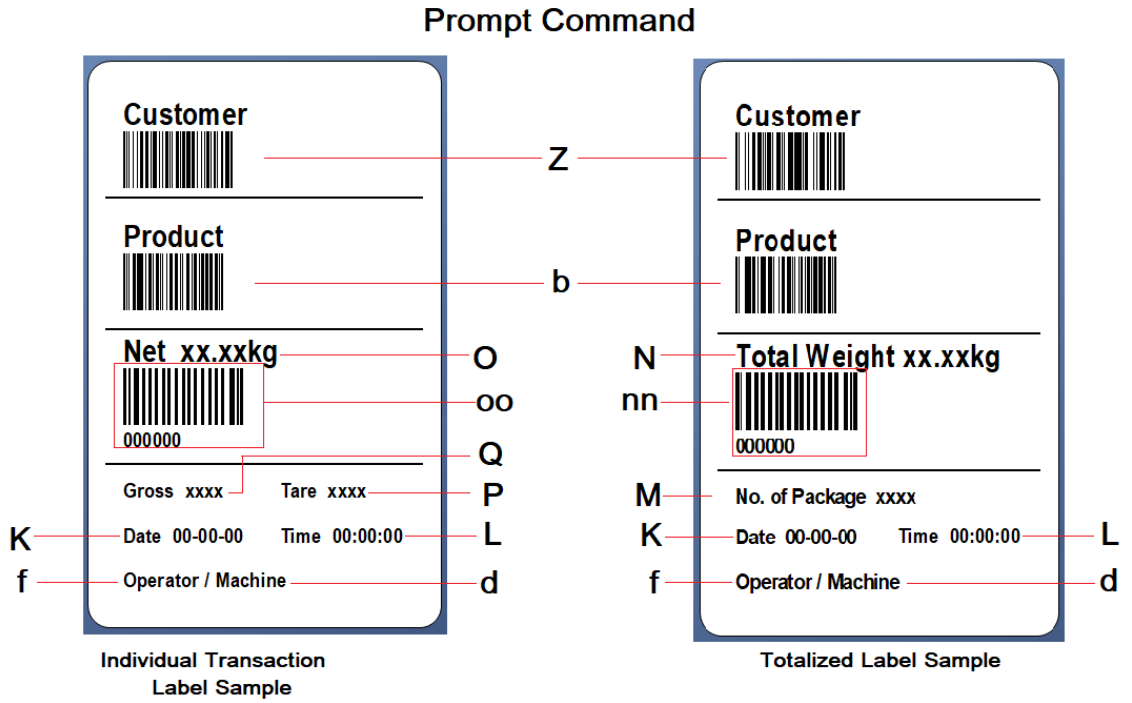
34 Prompt commands are case sensitive.

35 Each working mode has its own Lo Limit format (weight for weighing mode& auto tare accumulation; pieces for piece count mode). If Hi Limit has to be printed, set Hi Limit value under the preferred working mode.

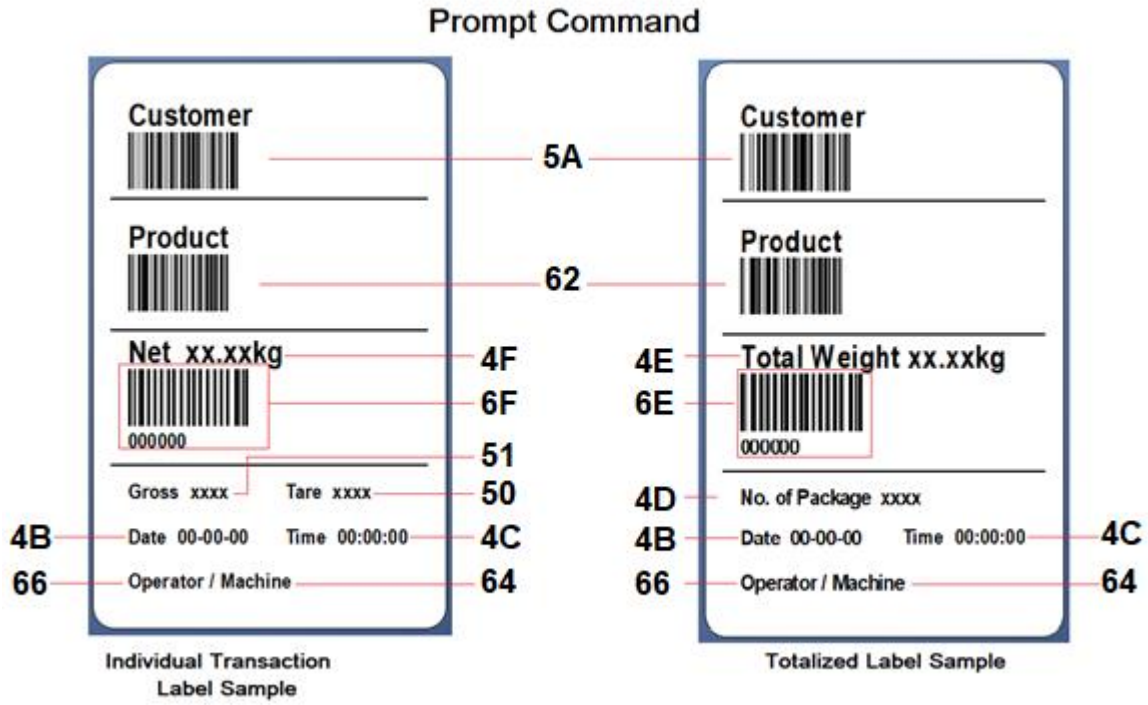
36 Each working mode has its own Hi Limit format (weight for weighing & auto tare accumulation mode; pieces for piece count mode). If Hi Limit has to be printed, set Hi Limit value under the preferred working mode.

K.2 Label programming Illustration: -

K.2.1 Label Illustration for LP50 & TSC



K.2.2 Label Illustration for Sbarco



K.3 Sample Labels

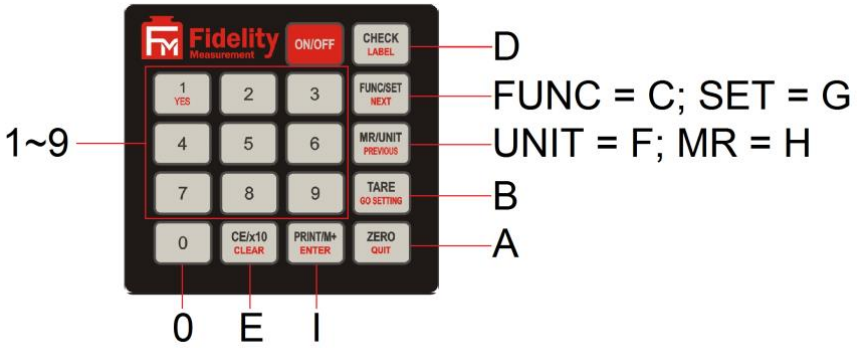
Label files of the above samples (size = 50 x 80mm) with prompt commands are available for download at: -
https://www.fi-measurement.com/resource/driversnsoftwares

Appendix L: - Keyboard Commands[37]

Keyboard commands can be sent to this instrument from computer through any standard communication program to simulate keyboard entries.

To enable keyboard commands, connect the external peripheral which generates keyboard commands to Comport 2 and set Comport 2 to CMD. Keyboard Command format as below: -

a. Hex code 0D (CR), then
b. Hex code 0A (LF) then
c. Letter shown on below illustration diagram, then
d. Space (Hex code 20).



[37] Keyboard commands are case sensitive.

Appendix M: - Operation Result Reading Commands

Operation Result commands are those commands which are used to request operation result and details from this instrument. These commands can be sent to this instrument from computer through any standard communication program. Command format as below: -

a. Hex code 0D (CR), then
b. Hex code 0A (LF), then
c. Command code listed on below command table, then
d. Space (Hex code 20).

Refer to below table for commands details.

Prompt Command[38]	Description
b	Product Code
c	Total accumulated pieces
d	Machine ID
e	Machine Group Number
f	Operator Number
g	Customer Code
J	Current status, weight and tare weight values
K	Date
L	Time
M	No. of accumulated transaction
N	Total accumulated weight
n	Total accumulated weight without unit or decimal
O	Net weight
o	Net weight without unit or decimal
P	Tare weight
p	Tare weight without unit or decimal
Q	Gross weight
q	Gross weight without unit or decimal
R	HI limit
S	LO limit
T	Comparison Result
U	Number of piece
V	Average piece weight
Y	Weight hold
y	Weight hold without unit or decimal
Z	Read internal count (AD) value

[38] Prompt commands are case sensitive.

Appendix N: - System Parameter & Operation Entry Setting Commands

System parameter setting commands are used to set system parameters. Command format as below: -

a. Hex code 0D (ASCII code $0D), then followed by
b. Hex code 0A (LF) (ASCII code $0A) then followed by
c. Command code listed on below table (all commands are case sensitive), then followed by
d. Hex code 20 (ASCII code $20)

System Parameter Setting Commands Table

Command Code	Description	Number & Description of Parameters to Send Command Format a. Hex code 0D (ASCII code $0D), then followed by b. Hex code 0A (ASCII code $0A) then followed by c. Command code listed on below table (all commands are case sensitive), then followed by d. Setting parameter. If more than one parameter, insert semi colon (;) between parameters. Then followed by e. Hex code 20 (ASCII code $20) Instrument returns OK after a correct command is received. **Note**: - Some of these setting commands are not legal for trade. User assumed to take all responsibilities of using these command when the instrument is used for trade application.
Sa	Calibration weight unit and application	• **d1** = calibration weight unit: - 0 = kg; 1 = lb. • **d2** = application: - 0 = none; 1 = OIML; 2= NTEP
Sb	Decimal format, decimal point of kg, g and lb	• **d1** = decimal format: - 0 = dot (fixed) • **d2** = kg: - 0 = no decimal; 1 = 1 decimal place…… 4 = 4 decimal place • **d3** = g: - 0 = no decimal; 1 = 1 decimal place…… 4 = 4 decimal place; n = not applicable • **d4** = lb: - 0 = no decimal; 1 = 1 decimal place…… 4 = 4 decimal place
Sc	Capacity1 of kg, g, lb	• **d1** = capacity in kg. Data length = 8 including decimal with leading zero • **d2** = capacity = g. Data length = 8 including decimal with leading zero • **d3** = capacity = lb. Data length = 8 including decimal with leading zero
Sd	Capacity 2 of kg, g, lb	• **d1** = mode: - 0 = Off; 1 = dual weighing range; 2 = dual interval • **d2** = capacity in kg. Data length = 8 including decimal with leading space (Hex code 20) • **d3** = capacity = g. Data length = 8 including decimal with leading space (Hex code 20) • **d4** = capacity = lb. Data length = 8 including decimal with leading space (Hex code 20)
Se	Division 1 of kg, g, lb	• **d1** = kg: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50 • **d2** = g: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50 • **d3** = lb: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50
Sf	Division 2 of kg, g, lb	• **d1** = kg: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50 • **d2** = g: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50

		• **d3** = lb: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50
Sg	Gravity Factor of Calibration Place and Operation Place	• **d1** = gravity factor of calibration place. Data length = 8 including decimal with leading zero. • **d2** = gravity of location of operation place. Data length = 8 including decimal with leading zero.
Sh	Linearity Compensation Function	0 = Off; 1 = On
Si	ad value of zero point (offset) value, weight value of LD1, ad value of LD1, weight value of LD2 and ad value of LD2	• **d1** = ad value of zero point. Data length = 8 including decimal with leading zero. • **d2** = weight value of LD1. Data length = 8 including decimal with leading zero. • **d3** = ad value of LD1. Data length = 8 (integers only) with leading zero. • **d4** = weight value of LD2. Data length = 8 including decimal with leading zero. • **d5** = ad value of LD2. Data length = 8 (integers only) with leading zero.
Sj	ad value of zero point (offset), span weight value, net span AD value	• **d1** = as value of zero point. Data length = 8 (integers only) with leading zero. • **d2** = span weight value. Data length =8 including decimal with leading zero. • **d3** = net span AD value. Data length = Data length = 8 (integers only) with leading zero
Sk	Weight unit enable/disable for kg, g and lb	• **d1** = kg: - 0 = Off; 1 = On • **d2** = g: - 0 = Off; 1 = On • **d3** = lb: - 0 = Off; 1 = On
Sl	Filter strength	0 = level 1; 1 = level 2; … ;7 = level 8; 8 = level 9
Sm	Initial Zero range, manual zero range, auto zero tracking speed	• **d1** = initial zero range: - 0 = Off, 1 = 1%, 2 = 2%; … 5 = 5%; 6 = 10%; 7 = 20% • **d2** = manual zero range: - 0 = 1%; 1 = 2%; 2 = 3%; 3 = 4%; 4 = 5%; 5 = 10%; 6 = 20%; 7 = 50%; 8 = 75%; 9 = 100% • **d3** = auto zero tracking speed: - 00 = Off; 01 = 0.25e; 02 = 0.50e; 03 = 10e; 04 = 1.5e; 05 = 2.0e; 06 = 2.5e; 07 = 3.0e; ….; 09 = 5e; 10 = 7.5e; 11 = 10e
Sn	Auto tare, repetitive tare and preset tare	• **d1** = auto tare: - 0 = Off; 1 = On; 2= Continuous • **d2** = repetitive tare: - 0 = Off; 1 = On • **d3** = Preset tare: - 0 = Off; 1 = On
So	Stability control of manual zero and manual tare	• **d1** = manual zero stability control: - 0 = No (disable); 1 = Yes (enable) • **d2** = manual tare stability control: - 0 = No (disable); 1 = Yes (enable)
Sp	Auto power off time, display brightness, auto power saving, keypad buzzer and system buzzer	• **d1** = auto power off time: - 0 = Off; 1 = 1 minute; 2 = 3 minute; 3 = 5 minute; 4 = 10 minute; 5 = 20 minute • **d2** = display brightness (01 ~ 04). 01 = lowest, 04 = brightness. • **d3** = auto power saving: - 00 = Off; 01 = On • **d4** = keypad buzzer: - 0 = Off; 1 = On • **d5** = system buzzer: - 0 = Off; 1 = On
Sq	Check result buzzer, near zero value, high	• **d1** = check result buzzer: - 0 = Off; 1 = In; 2 = Out; 3 = Hi, 4 = Lo

	limit for weighing, low limit for weighing, high limit for counting, low limit for counting	• **d2** = near zero value. Data length = 8 with leading zero • **d3** = Hi Limit for weighing. Integer only. Data length = 8 including decimal with leading zero. • **d4** = Lo Limit for weighing. Integer only. Data length = 8 including decimal with leading zero. • **d5:** = Hi Limit for counting. Integer only. Data length = 8 (integers only) with leading zero. • **d6**: = Lo Limit for counting. Integer only. Data length = 8 (integers only) with leading zero.
Sr	Comport 1 working mode, baud rate, output protocol, print stability control, transmission interval, auto accumulation, number of copy, check result control, print format, label format group 1 file number, label format group 2 file number, data length, parity, minimum output weight value	• **d1** = working mode: - 0 = Auto 1; 1 = Auto 2; 2 = Auto 3; 3 = Manual; 4 = PC; 5 = Scanner; 6 = Off • **d2** baud rate: - 0 = 1200; 1 = 2400; 3 = 4800; 3 = 9600; 4 = 19200; 5 = 38400; 6 = 57600; 7 = 115200; 8 = 256000 • **d3** = protocol: - 0 = Protocol 1; 1 = Protocol 2; …; 8 = Protocol 9 • **d4** = print stability control: - 0 = no (disable); 1 = Yes (enable) • **d5** = transmission interval: - 0 = int 0; 1 = int 0.5; 2 = int 1.0; 3 = int 1.5; ….; 9 = int 300. • **d6** = auto accumulation: - 0 = Off (disable); 1 = On (enable) • **d7** = number of copy: - 0 = 1 copy; … 7 = 8 Copy • **d8** = check result control: - 0 = no (disable); 1 = Yes (enable) • **d9** = print format: - 0 = Lab 1; 1 = Lab 2; 2 = Lab 3; 3= Lab 4; 4 = Lab 5; 5 = LP-50; 6 = TSC; 7 = Sbarco • **d10** =label format group 1 file number (00~99): - 00 = file AA00; 1 = file AA01; …98 = file AA98; 99 = file AA99 • **d11** = label format group 2 file number (00~99): - 00 = file BB00; 1 = file BB01; …98 = file BB98; 99 = file BB99 • **d12** = data length: - 0 = 7bit; 1 = 8bit • **d13** = parity: = 0 = none; 1 = 0dd; 2 = even • **d14** = minimum output weight value: - 0 = from 00d; 01 = from 01d; …; 20 = from 20d. Data length = 2 with leading zero
Ss	Comport 2 working mode, baud rate, output protocol, print stability control, transmission interval, auto accumulation, number of copy, check result control, print format, label format group 1 file number, label format group 2 file number, data length, parity, minimum output weight value	• **d1** = working mode: - 0 = Auto 1; 1 = Auto 2; 2 = Auto 3; 3 = Manual; 4 = PC; 5 = CMD; 6 = Off • **d2** baud rate: - 0 = 1200; 1 = 2400; 3 = 4800; 3 = 9600; 4 = 19200; 5 = 38400; 6 = 57600; 7 = 115200; 8 = 256000 • • **d3** = protocol: - 0 = Protocol 1; 1 = Protocol 2; …; 8 = Protocol 9 • **d4** = print stability control: - 0 = no (disable); 1 = Yes (enable) • **d5** = transmission interval: - 0 = int 0; 1 = int 0.5; 2 = int 1.0; 3 = int 1.5; ….; 9 = int 300. • **d6** = auto accumulation: - 0 = Off (disable); 1 = On (enable) • **d7** = number of copy: - 0 = 1 copy; … 7 = 8 Copy • **d8** = check result control: - 0 = no (disable); 1 = Yes (enable) • **d9** = print format: - 0 = Lab 1; 1 = Lab 2; 2 = Lab 3; 3= Lab 4; 4 = Lab 5; 5 = LP-50; 6 = TSC; 7 = Sbarco

		• **d10** =label format group 1 file number (00~99): - 00 = file AA00; 1 = file AA01; …98 = file AA98; 99 = file AA99 • **d11** = label format group 2 file number (00~99): - 00 = file BB00; 1 = file BB01; …98 = file BB98; 99 = file BB99 • **d12** = data length: - 0 = 7bit; 1 = 8bit • **d13** = parity: = 0 = none; 1 = 0dd; 2 = even • **d14**: minimum output weight value: - 0 = from 00d; 01 = from 01d; …; 20 = from 20d. Data length = 2 with zero
St	Preset Tare value of current unit	Data length = 8 including decimal with leading zero.
Sv	Function mode enable/disable status	• **d1** = Piece count: - 0 = Off; 1 = On • **d2** = ATM: - 0 = Off; 1 = On • **d3** = (reserved): - 0 = Off; 1 = On • **d4** = Animal Weighing: - 0 = Off; 1 = On
Sw	Machine ID & group number	• **d1** = 4-digit machine ID number. Input 4 asterisks (****) to clear machine ID • **d2** = 2-digit machine group number. Input 2 asterisks (**) to clear machine ID
Sx	Operator Number	4-digit machine operator number (numeric numbers only). Input 4 asterisks (****) to skip operator number
Sy	Time	24-hour format. Data length = 8. Format = HH:MM:SS
Sz	Date format, date value	• **d1** = Date format: - 0 = DDMMYY; 1 = YYMMDD; 2 = MMDDYY • **d2** = First 2 digits of d1 • **d3** = Middle 2 digits of d1 • **d4** = Last 2 digits of d1
SA	Customer Code	1~18 actual digit of Customer Code set. Blank = Nothing.
SB	Product Code	1~18 actual digit of Product Code set. Blank = Nothing.

Notes: -

a. Some commands are not legal for trade proposes. Users are assumed to take all responsibilities of using these commands when the instrument is used for trade application.
b. System parameter setting commands should always be sent when the instrument is in weighing mode.
c. After parameter(s) is/are changed, always execute save parameter command (EZ), then
d. Restart instrument to update all modifications made before operating the instrument.

Appendix O: - System Parameter Reading Commands[39]

System parameter inquiry commands are used to check system parameter settings. Command format as below: -

e. Hex code 0D (ASCII code $0D), then
f. Hex code 0A (LF) (ASCII code $0A) then
g. Command code listed on below table (all commands are case sensitive), then
h. Hex code 20 (ASCII code $20).

Command Code	**Description**	**Number & Description Responded Parameters** **Notes: -** a. If more than one parameter, semi colon separation is inserted between parameters. b. Response from instrument always end up with Hex code 0D 0A
Aa	Calibration weight unit and application	• **d1** = calibration weight unit: - 0 = kg; 1 = lb. • **d2** = application: - 0 = none; 1 = OIML; 2= NTEP
Ab	Decimal format, decimal point of kg, g and lb	• **d1** = decimal format: - 0 = dot (fixed) • **d2** = kg: - 0 = no decimal; 1 = 1 decimal place…… 4 = 4 decimal place • **d3** = g: - 0 = no decimal; 1 = 1 decimal place…… 4 = 4 decimal place; n = not applicable • **d4** = lb: - 0 = no decimal; 1 = 1 decimal place…… 4 = 4 decimal place
Ac	Capacity1 of kg, g, lb	• **d1** = capacity in kg. Data length = 8 including decimal with leading space (Hex code 20) • **d2** = capacity = g. Data length = 8 including decimal with leading space (Hex code 20) • **d3** = capacity = lb. Data length = 8 including decimal with leading space (Hex code 20)
Ad	Capacity 2 of kg, g, lb	• **d1** = mode: - 0 = Off; 1 = dual weighing range; 2 = dual interval • **d2** = capacity in kg. Data length = 8 including decimal with leading space (Hex code 20) • **d3** = capacity = g. Data length = 8 including decimal with leading space (Hex code 20) • **d4** = capacity = lb. Data length = 8 including decimal with leading space (Hex code 20)
Ae	Division 1 of kg, g, lb	• **d1** = kg: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50 • **d2** = g: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50 • **d3** = lb: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50
Af	Division 2 of kg, g, lb	• **d1** = kg: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50 • **d2** = g: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50 • **d3** = lb: - 0 = 1; 1 = 2; 2 = 5; 3 = 10; 4 = 20; 5 = 50
Ag	Gravity Factor of Calibration Place and Operation Place	• **d1** = gravity factor of calibration place. Data length = 8 including decimal with leading space (Hex code 20). • **d2** = gravity of location of operation place. Data length = 8 including decimal with leading space (Hex code 20).
Ah	Linearity Compensation Function	0 = Off; 1 = On

[39] Connect the external peripheral which generates system parameter inquiry commands to Comport 2 and set Comport 2 to CMD.

Aj	ad value of zero point (offset), span weight value, net span AD value	• **d1** = as value of zero point. Data length = 8 (integers only) with leading space (Hex code 20). • **d2** = span weight value. Data length =8 including decimal with leading space (Hex code 20). • **d3** = net span AD value. Data length = Data length = 8 (integers only) with leading space (Hex code 20)
Ak	Weight unit enable/disable for kg, g and lb	• **d1** = kg: - 0 = Off; 1 = On • **d2** = g: - 0 = Off; 1 = On • **d3** = lb: - 0 = Off; 1 = On
Al	Filter strength	0 = level 1; 1 = level 2; … ;7 = level 8; 8 = level 9
Am	Initial Zero range, manual zero range, auto zero tracking speed	• **d1** = initial zero range: - 0 = Off, 1 = 1%, 2 = 2%; … 5 = 5%; 6 = 10%; 7 = 20% • **d2** = manual zero range: - 0 = 1%; 1 = 2%; 2 = 3%; 3 = 4%; 4 = 5%; 5 = 10%; 6 = 20%; 7 = 50%; 8 = 75%; 9 = 100% • **d3** = auto zero tracking speed: - 00 = Off; 01 = 0.25e; 02 = 0.50e; 03 = 10e; 04 = 1.5e; 05 = 2.0e; 06 = 2.5e; 07 = 3.0e; ….; 09 = 5e; 10 = 7.5e; 11 = 10e
An	Auto tare, repetitive tare and preset tare	• **d1** = auto tare: - 0 = Off; 1 = On; 2= Continuous • **d2** = repetitive tare: - 0 = Off; 1 = On • **d3** = Preset tare: - 0 = Off; 1 = On
Ao	Stability control of manual zero and manual tare	• **d1** = manual zero stability control: - 0 = no (disable); 1 = Yes (enable) • **d2** = manual tare stability control: - 0 = no (disable); 1 = Yes (enable)
Ap	Auto power off time, display brightness, auto power saving, keypad buzzer and system buzzer	• **d1** = auto power off time: - 0 = Off; 1 = 1 minute; 2 = 3 minute; 3 = 5 minute; 4 = 10 minute; 5 = 20 minute • **d2** = display brightness (01 ~ 04). 01 = lowest, 04 = highest. • **d3** = auto power saving: - 00 = Off; 01 = On • **d4** = keypad buzzer: - 0 = Off; 1 = On • **d5** = system buzzer: - 0 = Off; 1 = On
Aq	Check result buzzer, near zero value, high limit for weighing, low limit for weighing, high limit for counting, low limit for counting	• **d1** = check result buzzer: - 0 = Off; 1 = In; 2 = Out; 3 = hi, 4 = lo • **d2** = near zero value. Data length = 8 with leading space (Hex code 20) • **d3** = Hi Limit for weighing. Integer only. Data length = 8 including decimal with leading space (Hex code 20). • **d4** = Lo Limit for weighing. Integer only. Data length = 8 including decimal with leading space (Hex code 20). • **d5:** = Hi Limit for counting. Integer only. Data length = 8 (integers only) with leading space (Hex code 20). • **d6**: = Lo Limit for counting. Integer only. Data length = 8 (integers only) with leading space (Hex code 20).
Ar	Comport 1 working mode, baud rate, output protocol, print stability control, transmission interval, Auto Accumulation, number of copy, check result control, print	• **d1** = working mode: - 0 = Auto 1; 1 = Auto 2; 2 = Auto 3; 3 = Manual; 4 = PC; 5 = Scanner; 6 = Off • **d2** baud rate: - 0 = 1200; 1 = 2400; 2 = 4800; 3 = 9600; 4 = 19200; 5 = 38400; 6 = 57600; 7 = 115200; 8 = 256000 • **d3** = protocol: - 0 = Protocol 1; 1 = Protocol 2; … ; 8 = Protocol 9 • **d4** = print stability control: - 0 = no (disable); 1 = Yes (enable)

	format, label format group 1 file number, label format group 2 file number, data length, parity, minimum output weight value	• **d5** = transmission interval: - 0 = int 0; 1 = int 0.5; 2 = int 1.0; 3 = int 1.5; …..; 9 = int 300. • **d6** = Auto Accumulation: - 0 = Off (disable); 1 = On (enable) • **d7** = number of copy: - 0 = 1 copy; … 7 = 8 Copy • **d8** = check result control: - 0 = no (disable); 1 = Yes (enable) • **d9** = print format: - 0 = Lab 1; 1 = Lab 2; 2 = Lab 3; 3= Lab 4; 4 = Lab 5; 5 = LP-50; 6 = TSC; 7 = Sbarco • **d10** =label format group 1 file number (00~99): - 00 = file AA00; 1 = file AA01; …98 = file AA98; 99 = file AA99 • **d11** = label format group 2 file number (00~99): - 00 = file BB00; 1 = file BB01; …98 = file BB98; 99 = file BB99 • **d12** = data length:- 0 = 7bit; 1 = 8bit • **d13** = parity: = 0 = none; 1 = 0dd; 2 = even • **d14**: minimum output weight value: - 0 = from 00d; 01 = from 01d; … ; 20 = from 20d. Data length = 2 with leading zero
As	Comport 2 working mode, baud rate, output protocol, print stability control, transmission interval, Auto Accumulation, number of copy, check result control, print format, label format group 1 file number, label format group 2 file number, data length, parity, minimum output weight value	• **d1** = working mode: - 0 = Auto 1; 1 = Auto 2; 2 = Auto 3; 3 = Manual; 4 = PC; 5 = CMD; 6 = Off • **d2** baud rate: - 0 = 1200; 1 = 2400; 2 = 4800; 3 = 9600; 4 = 19200; 5 = 38400; 6 = 57600; 7 = 115200; 8 = 256000 • **d3** = protocol: - 0 = Protocol 1; 1 = Protocol 2; … ; 8 = Protocol 9 • **d4** = print stability control: - 0 = no (disable); 1 = Yes (enable) • **d5** = transmission interval: - 0 = int 0; 1 = int 0.5; 2 = int 1.0; 3 = int 1.5; …..; 9 = int 300. • **d6** = Auto Accumulation: - 0 = Off (disable); 1 = On (enable) • **d7** = number of copy: - 0 = 1 copy; … 7 = 8 Copy • **d8** = check result control: - 0 = no (disable); 1 = Yes (enable) • **d9** = print format: - 0 = Lab 1; 1 = Lab 2; 2 = Lab 3; 3= Lab 4; 4 = Lab 5; 5 = LP-50; 6 = TSC; 7 = Sbarco • **d10** =label format group 1 file number (00~99): - 00 = file AA00; 1 = file AA01; …98 = file AA98; 99 = file AA99 • **d11** = label format group 2 file number (00~99): - 00 = file BB00; 1 = file BB01; …98 = file BB98; 99 = file BB99 • **d12** = data length:- 0 = 7bit; 1 = 8bit • **d13** = parity: = 0 = none; 1 = 0dd; 2 = even • **d14**: minimum output weight value: - 0 = from 00d; 01 = from 01d; … ; 20 = from 20d. Data length = 2 with leading zero
At	Current weight unit and function mode	• **d1** = weight unit: - 0 = kg; 1 = g; 2 = lb • **d2** = function mode: - 0 = weighing; 1 = piece count; 2 = AT 1; 3 = (reserved); 4= animal weighing
Av	Auxiliary Function mode enable/disable status	• **d1** = Piece count: - 0 = Off; 1 = On • **d2** = ATM: - 0 = Off; 1 = On • **d3** = (reserved): - 0 = Off; 1 = On • **d4** = Animal Weighing: - 0 = Off; 1 = On
Aw	Machine ID & group number	• **d1** = 4 digit machine ID number. Nothing = no machine ID is set

		• **d2** = 2-digit machine group number. Nothing = no group number is set
Ax	Operator Number	4-digit operator number. **** = no operator number is set
AA	Customer Code	1~18 actual digit of Customer Code set. Blank = no customer code is set.
AB	Product Code	1~18 actual digit of Product Code set. Blank = Product code is set.