



BST106-F11 Weighing Controller

For: Material Level Scale, Manual/Auto Totalizing Scale

Operation Manual V7.2

Changsha Supmeter Technological Co.,Ltd.

Preface

Thank you very much for your purchase!

This manual covers safety precaution, technical specification, operation interface, installation& connection, function&operation and so on. In order to make the product running at its best, please read this manual in advance, and reserve it for the future reading.

The technology update, function enhancement and quality improvement may lead to some differences between this manual and the physical product, please understand.

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Main Features:

- ✧ Application: Weight Display, Setpoint DO Output, Manual/Auto Totalizing and AO/Digit Transmission. Suitable for Material Level Scale, Platform Scale / Pallet Truck Scale / Grab Bucket Scale / Overhead Traveling Crane Scale with Manual/Auto Totalizing and Batch Counting functions.
- ✧ 3 Optional Setpoint DO Output Modes: Weight Limit DO Alarm Mode, Weight Increment DO Output Mode and Weight Decrement DO Output Mode.
- ✧ EMC design with high anti-jamming capability, suitable for industrial environment.
- ✧ 6+10 green VFD digital tubes for English character and digit display.
- ✧ Optional English keypad, Simplified Chinese keypad and Complex Chinese keypad.
- ✧ Menu&Shortcut mode operation with key tone.
- ✧ 24-bit High-precision and high-speed Σ - Δ A/D conversion module with 1/1,000,000 internal resolution and sampling frequency 400Hz.
- ✧ Special anti-vibration digital filtering algorithm for ensuring the weighing stability and accuracy when there is strong vibration on the load receptor, and the rapid response capability when the weight signal changes.
- ✧ Max. Connection Quantity: 8 Loadcells (350 Ω).
- ✧ Auto Zero Initial Calibration after Power-on, Auto Zero Tracking, Zero Fine Adjustment, Zero Calibration and Load Calibration functions available.
- ✧ Optional Data Calibration, Segmenting Span Correction and Segmenting Weight Calculation functions.
- ✧ Auto-locking, Key-locking, Key-unlocking, Digital Setting&Calibration and I/O Testing functions available.
- ✧ 1 Optional and definable analog signal output [AO: 4~20mA].
- ✧ 3 Normally open switch inputs [DI] and 5 normally open relay switch outputs [4 'Weight Setpoint' DOs and 1 'Present Batch Totalized' DO].
- ✧ 2 Optional communication ports for linking to Host IPC/PLC, LED Remote Display, Serial Printer and Wireless Module.
- ✧ The Weighing Record and Totalizing Report can be printed.
- ✧ With the multitasking mode, the weighing&control process will not be interrupted by parameter setting and the other operations.

Model Panel-mounting: F11

Model Explosion-proof: F11EX

Contents

1. SAFETY PRECAUTION	4
2. TECHNICAL SPECIFICATION	5
3. OPERATION INTERFACE	7
3.1 MODEL PANEL-MOUNTING OPERATION INTERFACE.....	7
3.2 MODEL EXPLOSION-PROOF OPERATION INTERFACE	8
3.3 KEYPAD OPERATION.....	9
3.4 STATE INDICATION.....	10
3.5 ALARM SIGN	11
4. INSTALLATION&CONNECTION.....	12
4.1 INSTALLATION	12
4.1.1 Model Panel-mounting Installation	12
4.1.2 Model Explosion-proof Installation.....	13
4.2 TERMINAL	14
4.2.1 Model DC24V Terminal	14
4.2.2 Model AC85~264V/AC220V Terminal.....	14
4.3 DO/DI FUNCTION DEFINITION	18
4.4 DO/DI CONNECTION FOR TYPLE APPLICATION	19
5. OPERATION PROCEDURE	20
6. FUNCTION&OPERATION	21
6.1 MAIN DISPLAY INTERFACE	21
6.1.1 Gross/Net Weight Value and Percent [L].....	21
6.1.2 Gross/Net Weight, Totalized Net Weight [TOT]	21
6.1.3 Gross/Net Weight, Batch Count [PCS], Net Weight of Present Batch.....	22
6.1.4 Gross/Net Weight, AO Output Value [Ao]	22
6.2 MAIN MENU.....	23
6.3 F1-SET PARAMETER SETTING.....	25
6.3.1 Weighing Parameters (SCAL)	25
6.3.2 Calibration Parameters (CALP).....	27
6.3.3 Setpoint Parameters (SEtP)	29
6.3.4 Communication Parameters (SErP).....	30
6.3.5 Display Parameters (dISP)	32

6.3.6 Time Parameter (tIEE).....	32
6.3.7 A Sample of Parameter Setting.....	33
6.4 F2-CAL SYSTEM CALIBRATION	34
6.4.1 Zero Calibration (ZErO).....	34
6.4.2 Data Calibration (dAtA).....	35
6.4.3 Load Calibration (LoAd).....	37
6.4.4 Segmenting Span Correction (SEgC).....	38
6.5 F4-CLN DATA CLEARING	39
6.6 F5-LOC KEY-LOCKER.....	40
6.6.1 Key-unlocking (oPEn).....	40
6.6.2 Key-locking (Locc)	40
6.6.3 Password Set (PASS).....	41
APPENDIX A. PRINT FORMATS	42
APPENDIX B. REGISTER TABLE OF HOST-SLAVE MODBUS[ASCII/RTU].....	43
APPENDIX C. DATA FRAME FORMAT OF CONTINUOUS SENDING [ASCII].....	46



1. Safety Precaution

● Lithium Battery Installation

A Lithium battery should be equipped in the product. If it is not allowed to be transported together with the product because of embargo, please make a purchase according to the model offered by us and install it by yourself.

● Application environment

Make sure that this product works under the environment where is accord with the technical specifications. Do not open the shell before power-off.

● Avoid using the product under overheated environment

Make sure that the product works under the environment with allowed temperature range to get good performance and long working life.

Please keep the product away from direct sunlight. If it is installed in a cabinet, please install cooling fans on the top of the cabinet.

● Controller Grounding Protection

The product, as a low-voltage equipment, should be kept away from the high-voltage equipments.

For avoiding bodily injury from electric shock accident and keeping the product separate from strong interference, the metal shell of the product should be grounded directly and the ground resistance should be less than 4Ω .

● Scale Frame Grounding Protection

For avoiding bodily injury from electric shock accident and keeping the loadcells separate from strong interference, the scale frame should be connected with the electronic scale grounding net and the ground resistance should be less than 4Ω .

● Cable Laying

Weighing signal, analog signal and communication signal cables should be laid in pipes, and do not lay them together with power cables.

● Power Supply

Please make sure that the inputted voltage is correct before power-on.

If the voltage fluctuation exceeds the allowed range, please use a power stabilizer to get a stable voltage supply.

● Environmental Protection

Before the Lithium battery equipped in the product being discarded, please insulate its positive or negative pole, do not put it into fire.

Although the product is made of the lead-free components, after used in the industrial environments, it's possible to be polluted. So, while being discarded as worthless, the product should be processed lawfully as leady industrial waste for environment protection.

● Other Notes

The installation, wiring and maintenance should be operated by the engineers with the relevant professional knowledge and safety operation ability. Although being not described in this manual, the relevant safety operating procedures and standards should be followed.

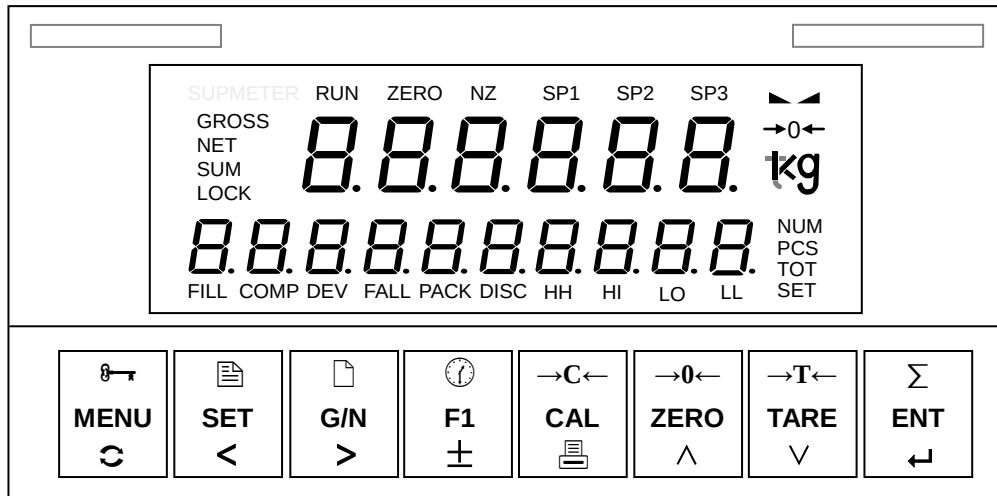
2. Technical Specification

- Executing Standard
 - ✧ CMC GB/T 7724-2008 《Electronic Weighing Meter》 PRC National Standard.
 - ✧ OMIL R76: 2006 《Non-automatic Weighing Instruments》 International Recommendation.
 - ✧ Accuracy Grade: III .
 - ✧ Number of Verification Intervals: 5,000.
 - ✧ Static Weighing Accuracy: 0.2‰.
- Display
 - ✧ 6+10 Green VFD digital tubes for for English character and digit display.
 - ✧ Weight Display Range: -99,999~+999,999.
 - ✧ Scale Capacity: Setting Range 1~999,999.
 - ✧ Scale Division: Optional 1, 2, 5, 10, 20, 50, 100, 200, 500.
 - ✧ Display Resolution: 1/100,000.
 - ✧ Weight Unit: Optional kg, t, g, none.
 - ✧ Decimal Point: Optional 0, 0.0, 0.00, 0.000, 0.0000.
 - ✧ Display Refreshing Time: Setting Range 0.01~1.00s.
- Keypad
 - ✧ Optional 8-key English keypad, Simplified Chinese keypad and Complex Chinese keypad.
 - ✧ Menu&Shortcut mode operation with key tone.
- Loadcell Interface
 - ✧ Excitation Voltage/Max. Current: DC10V/250mA [8-350Ω loadcells].
 - ✧ Signal Input Range: 0~25mV.
 - ✧ Output Sensitivity of Loadcell: 1.0~2.5mV/V.
 - ✧ 24-bit Σ - Δ ADC with internal resolution 1/1,000,000.
 - ✧ Sampling Frequency: 400Hz.
 - ✧ Special anti-vibration digital filtering algorithm.
 - ✧ Zero Drift: $\pm 0.1\mu\text{V}/^\circ\text{C}$ RTI (Relative to Input).
 - ✧ Gain Drift: $\pm 5\text{ppm}/^\circ\text{C}$.
 - ✧ Non-linearity: 0.005%FS.
- Switch&Analog Signal Interface
 - ✧ 3 Normally Open Switch Inputs [DI].
 - ✧ 5 Normally Open Relay Switch Outputs [DO]: AC250V/DC24V, 1A.
 - ✧ 1 Optional&Definable Analog Signal Output [AO]: 4~20mA, Non-linearity: 0.05%FS.
- Digital Communication Interface
 - ✧ COM1: Fixed configuration RS232&RS485. Free to use one of them.
 - ✧ COM2: Optional RS232/RS485/RS422/Profibus-DP/Ethernet modules.
 - ✧ Connectable: Host IPC/PLC, LED Remote Display, Serial Printer and Wireless Module.

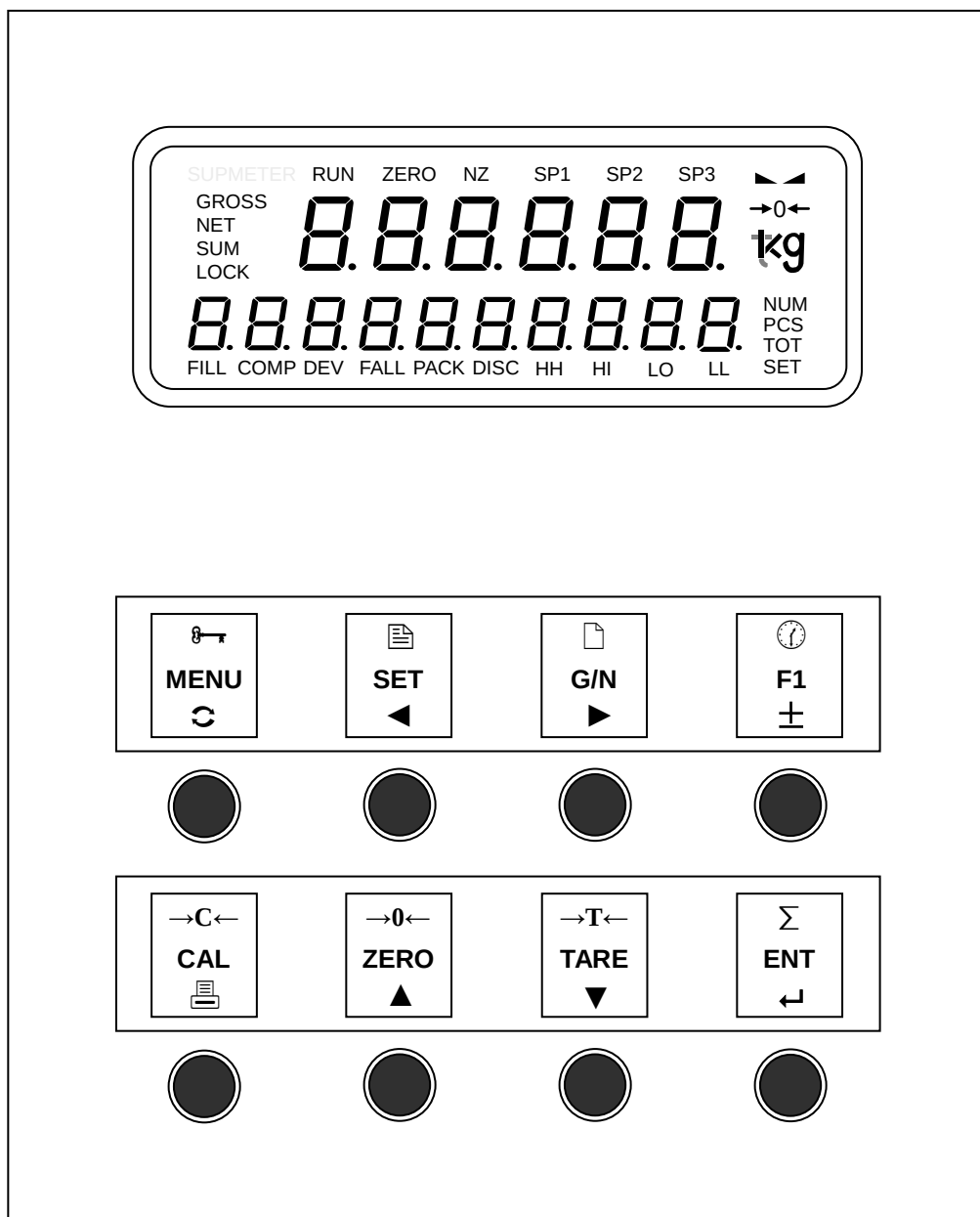
- Report Print
 - ◇ The Weighing Record and Totalizing Report can be printed.
- Operating Specification
 - ◇ Optional Operating Voltage
 - Operating Voltage 1: DC24V±20%.
 - Operating Voltage 2: AC85~264V, 50/60Hz.
 - Operating Voltage 3: AC220V±15%, 50/60Hz.
 - Free to configure one of them.
 - ◇ Max. Power Consumption: 10W.
 - ◇ Outline Size
 - Model Panel-mounting: 164×82×188mm [W×H×D].
 - Model Explosion-proof: 340×390×205mm [W×H×D].
 - ◇ Panel Cut-out Size
 - Model Panel-mounting: 153×77mm [W×H].
 - ◇ Operating Temperature: -25℃ to +40℃.
 - ◇ Storage Temperature: -30℃ to +60℃.
 - ◇ Relative Humidity: Max. 85%RH.
 - ◇ Application Environment of Model Explosion-proof
 - Explosion gas environment: Zone 1&2.
 - Classes of explosion gas mixture: IIA, IIB.
 - Temperature grades of explosion gas mixture: T1~T6.
 - Ex-mark: Ex d IIB T6 Gb.
 - ◇ Protection Level
 - Front Panel of Model Panel-mounting: IP65.
 - Model Explosion-proof: IP65.
 - ◇ Weight
 - Model Panel-mounting: Approx. 1.6kg.
 - Model Explosion-proof: Approx. 19.2kg.

3. Operation Interface

3.1 Model Panel-mounting Operation Interface



3.2 Model Explosion-proof Operation Interface



3.3 Keypad Operation

If there is not any keypad operation in one minute and it's not in the processes of 'F2 Calibration' & 'F6 Factory Adj.', the controller will return to 'Main Display Interface' automatically.

Menu Operation	
Key Name	Description
【MENU】	Enter Main Menu / Exit.
【ENT】	Enter / Save / Alarm Acknowledge.
【◀】	Cursor shifts left.
【▶】	Cursor shifts right.
【▲】	Display the previous interface or option. Digit input: +1.
【▼】	Display the next interface or option. Digit input: -1.
Quick Operation	
【】 *	◇ Key-locking. ◇ Key-unlocking.
【SET】	Setpoint parameters setting.
【G/N】	Gross Weight / Net Weight display switch.
【F1】	Cancel Totalizing.
【→C←】 【CAL】 *	Load Calibration.
【→0←】 【ZERO】 *	◇ [-ZEro-]: Zero Calibration with Power-down Protection and Clearing Tare Weight. ◇ [=ZEro=]: Zero Fine Adjustment without Power-down Protection and without Clearing Tare Weight. ◇ The controller will switch to Gross Weight display.
【→T←】 【TARE】 *	◇ [=tArE=]: Manual Tare without Power-down Protection. ◇ [-PStr-]: Preset Tare Weight with Power-down Protection. ◇ [-rStr-]: Clear Tare Weight with Power-down Protection. ◇ The controller will switch to Net Weight display.
【】 *	Unused.
【】 *	Clear Screen: Clear the display value of Net Weight of Present Batch, Totalized Net Weight and Batch Count.
【】 *	Time display and setting.
【±】	'+'/'-' switch.
【】	◇ [bAt.tAb]: Print Present Weight Record. ◇ [tot.tAb]: Print Totalizing Report.
【Σ】	Manual Totalizing: Net Weight Totalizing and Batch Counting.

*: Keep the key pressed for 2 seconds.

3.4 State Indication

Sign	Description
[GROSS]	Gross Weight display.
[NET]	Net Weight display.
[SUM]	ON: The Net Weight of present batch has been totalized into 'Totalized Net Weight' and DO5 switch turns on.
[LOCK]	ON: Key-locked. OFF: Key-unlocked.
▴ ▾	Weight is stable: Weight Variance per [107] 'Stablity Judging Time' is in [106] 'Stablity Judging Range'.
[→0←]	The present Gross Weight or Net Weight display value is in 'Display Value Auto-Zero Range'.
[kg/t/g]	Weight unit.
[PCS]	Batch Count display.
[TOT]	Totalized Net Weight display.
[SET]	Parameter setting state.
[RUN]	ON: Weighing state. OFF: Calibrating state.
[ZERO]	Net Weight value $\leq$ Non-load Zero Range.
[NZ]	It's allowed to do Zero Fine Adjustment.
[FILL]	Weight value is increasing.
[COMP]	Auto Totalizing function is open.
[DISC]	Weight value is reducing.
[HH]	Weight Uppermost Limit / Weight Setpoint 4.
[HI]	Weight Upper Limit / Weight Setpoint 3.
[LO]	Weight Lower Limit / Weight Setpoint 2.
[LL]	Weight Lowest Limit / Weight Setpoint 1.

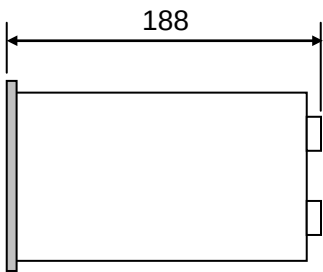
3.5 Alarm Sign

Sign	Alarm Cause	Solution
Err1	RAM Failure.	Replace the chip RAM.
Err2.1 Err2.2	EEPROM Failure.	Replace the chip EEPROM.
Err3	Signal Reversed. Not connected.	Connect the loadcell correctly.
Err4	ADC Failure.	Replace the ADC module.
oV-Ad	Over ADC Range.	Weighing signal exceeds A/D conversion range. 1. Check if the loadcell is connected. 2. Check if the capacity of loadcell is too small. 3. Check if the loading weight is too big.
oL	Overload Alarm.	Gross Weight > (Scale Capacity + 9 × Scale Division). 1. Check if the loadcell is connected. 2. Check if the capacity of loadcell is too small. 3. Check if the loading weight is too big.
oV-tr	Not meet the condition of Manual Tare.	When Gross Weight is at the state with negative value display, overload alarm or dynamic variation, 'Manual Tare' will be invalid.
oV-nZ	Over 'Zero Fine Adjusting Range'.	Refer to parameter [123] 'Zero Fine Adjusting Range'.
HEAt	Preheating Time Countdown [min.sec].	Refer to parameter [128] 'Auto Zero Initial Calibration after Power-on', [129] 'Auto Zero Initial Calibrating Time' and [130] 'Auto Zero Initial Calibrating Range'. Wait for the preheating time over or press any key to exit.
oV-Zr	Over 'Auto Zero Initial Calibrating Range'.	
Prt-undef	Print port is not defined.	Refer to 'Communication Parameters'.

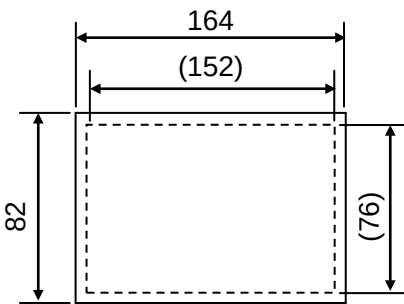
4. Installation&Connection

4.1 Installation

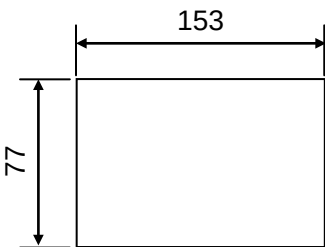
4.1.1 Model Panel-mounting Installation



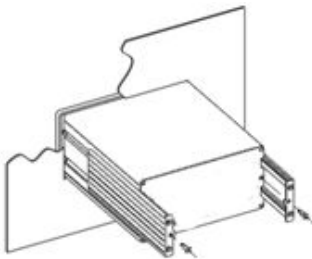
Outline Size



Front Panel Size



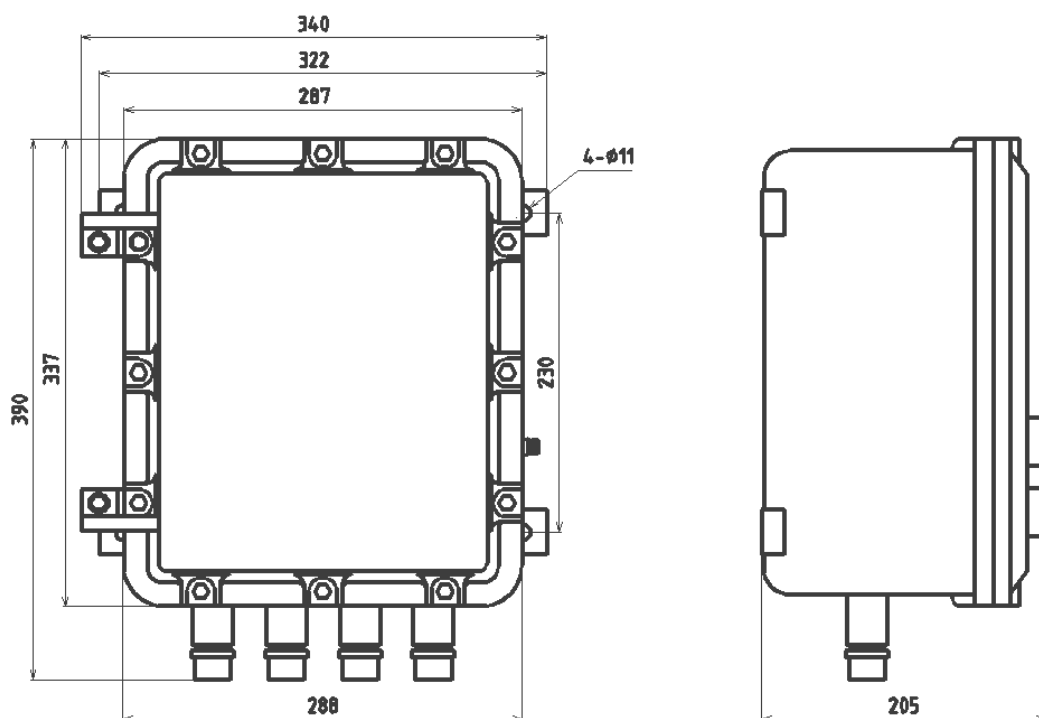
Panel Cut-out Size



Installation Mode

Outline Size	Front Panel Size	Box Body Size	Panel Cut-out Size
W×H×D[mm]	W×H[mm]	W×H[mm]	W×H[mm]
164×82×188	164×82	152×76	153×77

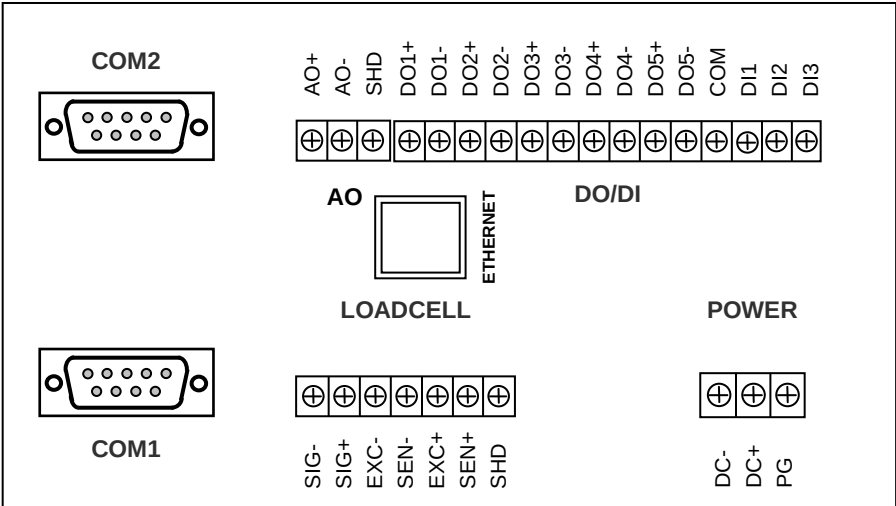
4.1.2 Model Explosion-proof Installation



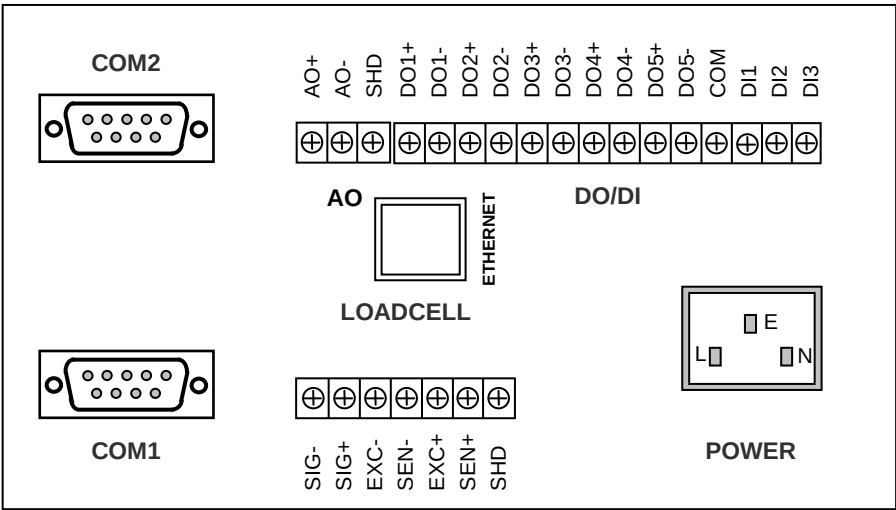
Outline Size W×H×D[mm]	Mounting Size W×H[mm]	Mounting Hole Size [mm]
340×390×205	288×230	Φ11

4.2 Terminal

4.2.1 Model DC24V Terminal



4.2.2 Model AC85~264V/AC220V Terminal



No.	Pin	Description	
LOADCELL		Loadcell Port	
Connection Mode		6-Wire	4-Wire
Internal Dip Switch DIP1		DIP1→ 【6-WIRE】	DIP1→ 【4-WIRE】 [Default Set]
1	SIG-	Weighing Signal [mV] Input -.	Weighing Signal [mV] Input -.
2	SIG+	Weighing Signal [mV] Input +.	Weighing Signal [mV] Input +.
3	EXC-	Excitation Voltage -.	Excitation Voltage -.
4	SEN-	Feedback Voltage -.	
5	EXC+	Excitation Voltage + [DC10V].	Excitation Voltage + [DC10V].
6	SEN+	Feedback Voltage +.	
7	SHD	Shield Ground.	Shield Ground.
POWER		Power Input Port	
DC24V		DC24V[±20%] Power Input	
1	DC-	DC Input -.	
2	DC+	DC Input +.	
3	PG	Protective Ground.	
AC		AC85~264V or AC220V[±15%] Power Input	
1	N	Null Wire.	
2	E	Protective Ground.	
3	L	Live Wire.	
The metal shell should be grounded directly to avoid electric shock.			

No.	Pin	Description	
COM1		RS232/RS485 Digital Communication Port [Free to use one of them]	
DB9 Socket		RS232	RS485
1	B-		Data -.
2	A+		Data +.
3			
4			
5	GND	Signal Ground / Shield Ground.	Shield Ground.
6	TXD	Transmit Data.	
7	RXD	Receive Data.	
8			
9	+5V	+5V/100mA Output.	+5V/100mA Output.

No.	Pin	Description			
COM2		RS232/RS485/RS422/Profibus-DP/Ethernet Digital Communication Port [It's optional to configure one of them]			
DB9 Socket		RS232	RS485	RS422	Profibus-DP
1			B-	TXD-	
2		RXD	A+	TXD+	
3		TXD		RXD+	DP- [B-]
4				RXD-	
5		GND	GND	GND	GND
6					
7					
8					DP+ [A+]
9					
RJ45[DCE] Socket		Ethernet [T568B Wiring Mode]			
1	RXD+	Orange-white			
2	RXD-	Orange			
3	TXD+	Green-white			
4	Unused	Blue			
5	Unused	Blue-white			
6	TXD-	Green			
7	Unused	Brown-white			
8	Unused	Brown			

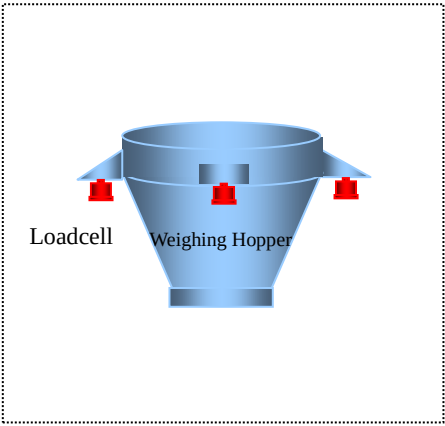
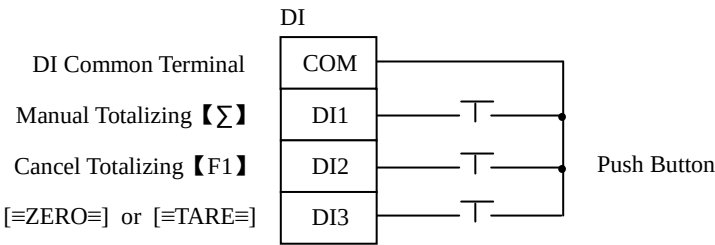
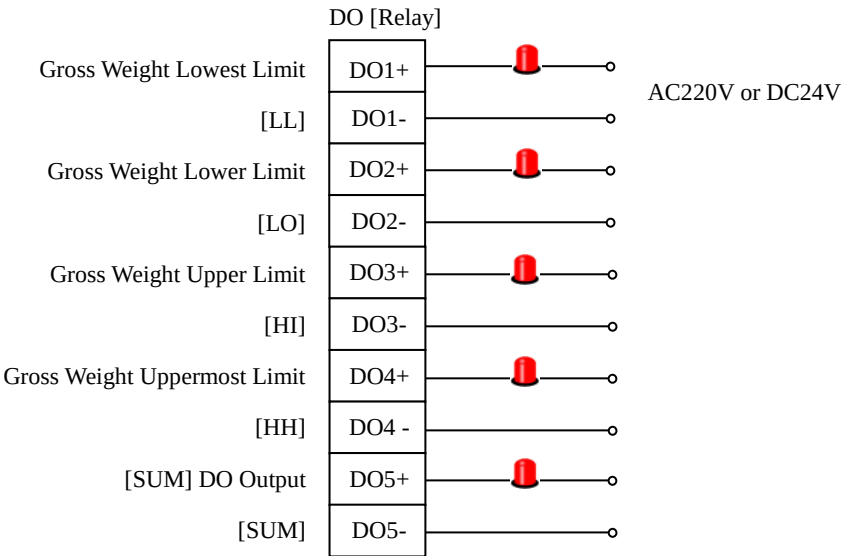
No.	Pin	Description
AO		Analog Output Port [Definable]
1	AO+	4~20mA Output +.
2	AO-	4~20mA Output -.
3	SHD	Shield Ground.
DO/DI		Relay Switch Signal Output / Switch Signal Input Port
DO		Relay Switch Signal Output [Definable]
1	DO1+	Normally Open Contact Output 1 [+/-].
2	DO1-	
3	DO2+	Normally Open Contact Output 2 [+/-].
4	DO2-	
5	DO3+	Normally Open Contact Output 3 [+/-].
6	DO3-	
7	DO4+	Normally Open Contact Output 4 [+/-].
8	DO4-	
9	DO5+	Normally Open Contact Output 5 [+/-].
10	DO5-	
DI		Switch Signal Input
11	COM	DI Common Terminal [GND].
12	DI1	Switch Signal Input 1.
13	DI2	Switch Signal Input 2.
14	DI3	Switch Signal Input 3.
Contact Capacity of Relay Switch: AC250V/DC24V, 1A.		

4.3 DO/DI Function Definition

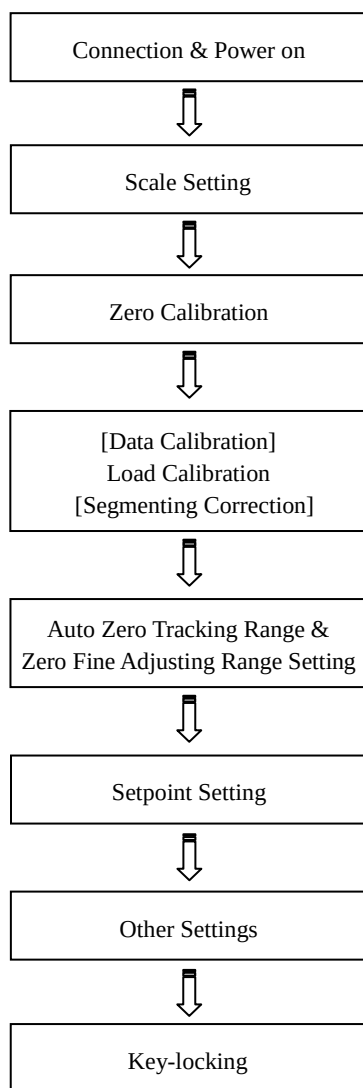
No.	Pin	Application Modes		
		Weight Limit DO Alarm Mode ([215] APPL=1)	Weight Increment DO Output Mode ([215] APPL=2)	Weight Decrement DO Output Mode ([215] APPL=3)
1	DO1+	Lowest Limit Alarm.	Weight Setpoint1 Output.	Weight Setpoint1 Output.
2	DO1-	$[209] \leq [\text{SET1} + \text{LEAd1}]$.	$[209] \geq [\text{SET1} - \text{LEAd1}]$.	$[209] \leq [\text{SET1} + \text{LEAd1}]$.
3	DO2+	Lower Limit Alarm.	Weight Setpoint2 Output.	Weight Setpoint2 Output.
4	DO2-	$[209] \leq [\text{SET1} + \text{LEAd1}]$.	$[209] \geq [\text{SET2} - \text{LEAd2}]$.	$[209] \leq [\text{SET2} + \text{LEAd2}]$.
5	DO3+	Upper Limit Alarm.	Weight Setpoint3 Output.	Weight Setpoint3 Output.
6	DO3-	$[209] \geq [\text{SET3} - \text{LEAd3}]$.	$[209] \geq [\text{SET3} - \text{LEAd3}]$.	$[209] \leq [\text{SET3} + \text{LEAd3}]$.
7	DO4+	Uppermost Limit Alarm.	Weight Setpoint4 Output.	Weight Setpoint4 Output.
8	DO4-	$[209] \geq [\text{SET4} - \text{LEAd4}]$.	$[209] \geq [\text{SET4} - \text{LEAd4}]$.	$[209] \leq [\text{SET4} + \text{LEAd4}]$.
9	DO5+	'Present Batch Totalized' [SUM] DO Output.		
10	DO5-			
11	COM	DI Common Terminal [GND].		
12	DI1	【Σ】 : Manual Totalizing [Net Weight Totalizing and Batch Counting]. OFF→ON→OFF		
13	DI2	【F1】 : Cancel Totalizing. OFF→ON→OFF.		
14	DI3	$[209] = '0: \text{Gross Weight}':$	$[\equiv \text{ZERO} \equiv]$: Zero Fine Adjustment. OFF→ON→OFF	
		$[209] = '0: \text{Net Weight}':$	$[\equiv \text{TARE} \equiv]$: Manual Tare. OFF→ON→OFF	

Note: Parameter [209] 'Data Compared with Weight Setpoints' can be defined to 'Gross Weight' or 'Net Weight'.

4.4 DO/DI Connection for Ttype Application



5. Operation Procedure



6. Function&Operation

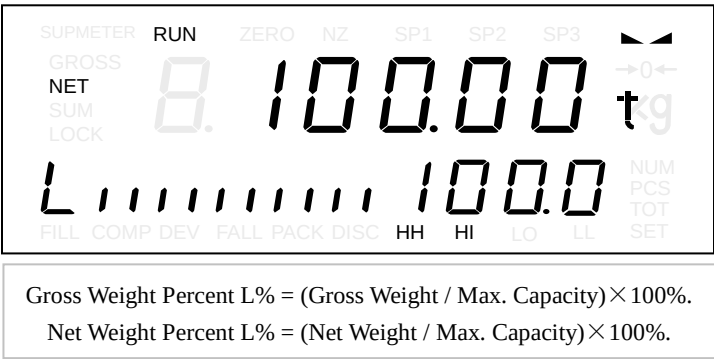
6.1 Main Display Interface

When power-on, if [209] ‘Data Compared with Weight Setpoints’ = ‘1: Net Weight’, Net Weight will be displayed; otherwise, Gross Weight will be displayed.

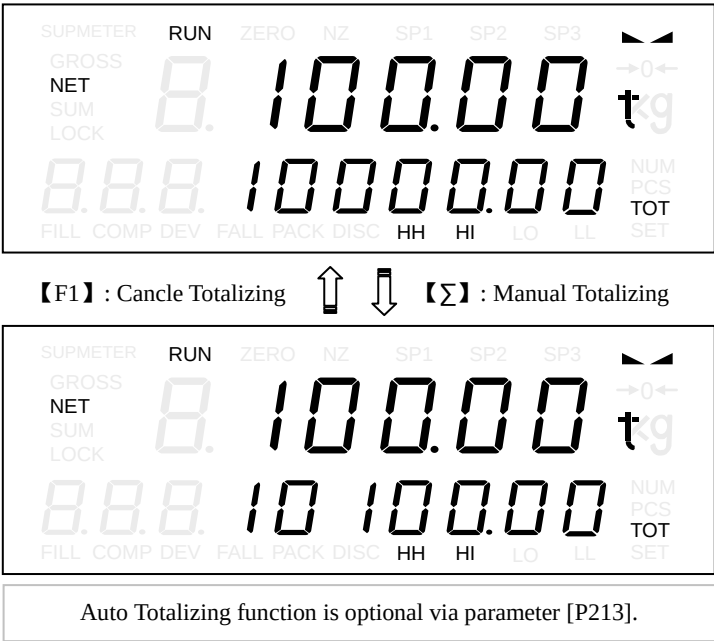
【G/N】 : Gross Weight / Net Weight display switch. 【▲】 【▼】 : Display interface switch.

【Σ】 : Manual Totalizing. 【F1】 : Cancele Totalizing. 【□】 : Clear Screen.

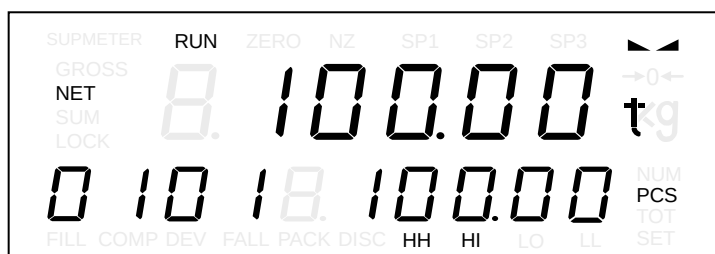
6.1.1 Gross/Net Weight Value and Percent [L]



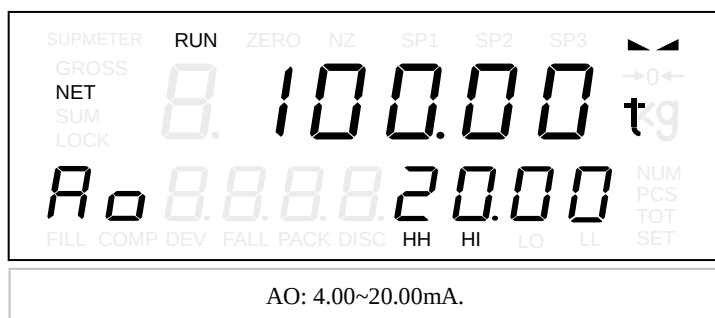
6.1.2 Gross/Net Weight, Totalized Net Weight [TOT]



6.1.3 Gross/Net Weight, Batch Count [PCS], Net Weight of Present Batch



6.1.4 Gross/Net Weight, AO Output Value [Ao]



6.2 Main Menu

Main Menu		Second Menu	
Sign	Function	Sign	Description
F1-SEt	Parameter Setting	-SCAL-	Scale parameters setting.
		-CALP-	Calibration parameter setting.
		-SEtP-	Setpoint parameters setting.
		-SErP-	Communication parameters setting.
		-dISP-	Display and operation interface parameters setting.
		-tIEE-	Time parameters setting.
F2-CAL	System Calibration	-ZEro-	Zero Calibration without loading on the weigher to correct Zero Value.
		-dAtA-	Data Calibration: Input the specification parameter values of loadcell [Total Capacity and Output Sensitivity] according to the actual configuration of the weighing system to correct Span Coefficient. If there is no access to get the specification parameter values for Data Calibration, then it's necessary to do Load Calibration.
		-LoAd-	Load Calibration: After doing Data Calibration, if there are conditions for Load Calibration, do Load Calibration with loading standard weight on the weigher to correct Span Coefficient further for higher weighing accuracy.
		-SEgC-	Segmenting Span Correction: After doing Zero Calibration and Load Calibration [or Data Calibration], it's allowed to do Segmenting Span Correction with loading standard weight on the weigher by 3 Correction Points to get Span Correction Ratio of 3 linearity segments for higher weighing accuracy.
F3-rEC			Unused.
F4-CLn	Data Clearing	--CLS-	Clear Screen: Clear the display value of Net Weight of Present Batch, Totalized Net Weight and Batch Count.
F5-Loc	Key-locker	-oPEn-	Key-unlocking.
		-Locc-	Key-locking.
		-PASS-	Password Set. Exfactory Passwords: ✧ Operator Password: 000000. ✧ Administrator Password: 000001.

Main Menu		Second Menu	
Sign	Function	Sign	Description
F6-FAC	Factory Adjustment	Special for manufacturer.	
		-SPAN-	Exfactory Span Adjustment: Use standard weighing test equipment to adjust the weighing signal interface for normalizing Span Coefficient to 1.
		-AdtS-	AD Value of Weighing Signal Linearity Test.
		-AoZF-	AO Zero/Full Adjustment.
		-AotS-	AO Linearity Test.
		-dIdo-	DI/DO Input&Output Test.
		-dEFU-	RAM Reset: Reset to factory defaults.
		-dStS-	Display/DO Reliability Test.
F7-InF	Product Information	Only for query.	
		--VEr-	Version No.
		--Sn--	Serial No.
		-dAtE-	Exfactory Date.
		-AutH-	Authorization Code.
F8-Aud	Audit Trail	Only for query.	
		-Cntr-	Operation Audit Trail Counter [0~999999] (Only for query).
		-oPtr-	Operation Trail. ✧ nonE: No Operation. ✧ SCAL: Scale Setting. ✧ dEFU: RAM Reset.

6.3 F1-SET Parameter Setting

6.3.1 Weighing Parameters (SCAL)

No.	Sign	Range	Default	Description	Set
100	UnIt	0~3	2	Weight Unit 0: None 1: kg 2: t 3: g	
101	dot	0~4	000.00	Decimal Point 0: 00000 1: 0000.0 2: 000.00 3: 00.000 4: 0.0000	
102	SCALE	1~999999	10000	Scale Capacity Max. loading weight of the load receptor. Scale Capacity $\leq$ (Loadcell Capacity $\times$ Loadcell Quantity) – Load Receptor Weight. When ‘Weight value = Scale Capacity’, AO of weight signal will output current 20mA.	
103	dIV	1~500	1	Scale Division 1, 2, 5, 10, 20, 50, 100, 200, 500	
104	ZEro	-20000~ +999999	0 [*]	Zero Value Only for query.	
105	SPAn	>0	1.0000 [*]	Span Coefficient Max. display value: 99.9999. Only for query.	
106	Stb.r	0~500	1	Stablity Judging Range [Division] Set value = 0: No ‘Stablity Judging’. Set value > 0: Weight Variance per [107] ‘Stablity Judging Time’ being in [106] ‘Stablity Judging Range’ means ‘Weight is stable’.	
107	Stb.t	0.5~5.0	1.0	Stablity Judging Time [s]	

[*]: ‘RAM Reset’ operation has no effect on the parameter.

No.	Sign	Range	Default	Description	Set
108	FrE	400	400	Sampling Frequency [Hz] 400	
109	FILt	0~9	5	Anti-Vibration Digital Filter 1	
				Digit	Cutoff Frequency
				0	None
				1	11.2Hz
				2	8.0Hz
				3	5.6Hz
				4	4.0Hz
				5	2.8Hz
				6	2.0Hz
				7	1.4Hz
				8	1.0Hz
				9	0.7Hz
110	StAb	1~20	1	Smooth Digital Filter 2 Smooth Filtering Sample Number. Further lower the cutoff frequency for more stable weight display.	

6.3.2 Calibration Parameters (CALP)

No.	Sign	Range	Default	Description	Set
120	AZt.P	0~1	0	Auto Zero Tracking Permission 0: <i>oFF</i> 1: <i>on</i> (Only when weight is stable, Auto Zero Tracking will be allowed. Refer to Parameter [106]/[107])	
121	AZt.t	1~10	1	Auto Zero Tracking Time T [s] T = Set value × [107] Stability Judging Time.	
122	AZt.r	0.1~50.0	0.2	Auto Zero Tracking Range [Division] Zero Tracking Rate = [122] / [121]. Suggestion: Zero Tracking Rate ≤ 0.5[Division/s].	
123	nEAr.Z	0~50000	50	Zero Fine Adjusting Range If Gross Weight variation caused by Zero Value changing is within this range, 'Zero Fine Adjustment' will be valid. Suggestion: Set value ≤ (Scale Capacity × 4%).	
124	LoAd	1~999999	10000	Calibrating Weight Loading Weight for Span Calibration.	
125	totL	1~999999	12000 [*]	Total Capacity of Loadcells Total Capacity of Loadcells = Loadcell Capacity × Loadcell Number. Only for query.	
126	SEnS	0.5000 ~5.0000	2.000 [*]	Output Sensitivity of Loadcell [mV/V] Only for query.	
127	Ao.Er	-2.00~+2.00	0.00	AO Offset Value [mA] Try to change 'AO Offset Value' for making the AO current display value of the AO receiving terminal the same as that of the controller. If the AO current display value of the AO receiving terminal is smaller than that of the controller because of signal attenuating, the 'AO Offset Value' should be set to positive value. If the AO current display value of the AO receiving terminal is bigger than that of the controller because of interference signal superposing, the 'AO Offset Value' should be set to negative value. 【±】: Optional '-' (negative sign) at the highest bit.	

[*]: 'RAM Reset' operation has no effect on the parameter.

No.	Sign	Range	Default	Description	Set
128	InI.Z	0~1	0	Auto Zero Initial Calibration after Power-on 0: <i>oFF</i> 1: <i>on</i> [without Power-down Protection]	
129	InI.t	0~1800	10	Auto Zero Initial Calibrating Time [s]	
130	InI.r	0~50000	50	Auto Zero Initial Calibrating Range Suggestion: Set value $\leq$ (Scale Capacity $\times$ 20%).	
131	LoAd1	1~999999	2000 [*]	Correcting Weight 1/2/3 Loading Weight of 'Correction Point 1/2/3' for Segmenting Correction. Suggestion: LoAd1= Scale Capacity $\times$ 20%. LoAd2= Scale Capacity $\times$ 60%. LoAd3= Scale Capacity $\times$ 90%. Only for query.	
132	LoAd2	1~999999	6000 [*]		
133	LoAd3	1~999999	9000 [*]		
134	Ad1	-20000~ +999999	200000 [*]	AD Value of Correction Point 1/2/3 AD Value of 'Correction Point 1/2/3' detected via Segmenting Correction. If not meet the condition of 'Ad1 $\leq$ Ad2 $\leq$ Ad3', then the function of Segmenting Weight Calculation will be invalid. Only for query.	
135	Ad2	-20000~ +999999	600000 [*]		
136	Ad3	-20000~ +999999	900000 [*]		
137	S.Cor1	0.5000~ 2.0000	1.0000 [*]	Span Correction Ratio 1/2/3 Span Correction Ratio of 'Linearity Segment 1/2/3' got via Segmenting Correction. ✧ Linearity Segment 1: [Zero Value]~[134]. ✧ Linearity Segment 2: [134]~[135]. ✧ Linearity Segment 3: [135]~[Max. AD Value]. Only for query.	
138	S.Cor2	0.5000~ 2.0000	1.0000 [*]		
139	S.Cor3	0.5000~ 2.0000	1.0000 [*]		
140	SEg.C	0~1	0 [*]	Segmenting Weight Calculation Permission 0: <i>oFF</i> 1: <i>on</i> [It's allowed to calculate weight value by 3 Linearity Segments] Operating Authorization: Administrator.	

[*]: 'RAM Reset' operation has no effect on the parameter.

6.3.3 Setpoint Parameters (SEtP)

No.	Sign	Range	Default	Description	Set
200	SEt1	0~999999	1000	DO1 Weight Lowest Limit/ Weight Setpoint 1	
201	SEt2	0~999999	2000	DO2 Weight Lower Limit / Weight Setpoint 2	
202	SEt3	0~999999	8000	DO3 Weight Upper Limit / Weight Setpoint 3	
203	SEt4	0~999999	9000	DO4 Weight Uppermost Limit / Weight Setpoint 4	
204	LEAd1	0~60000	0	DO1 Initial Lead Value	
205	LEAd2	0~60000	0	DO2 Initial Lead Value	
206	LEAd3	0~60000	0	DO3 Initial Lead Value	
207	LEAd4	0~60000	0	DO4 Initial Lead Value	
208	nuLL	0~60000	50	Non-load Zero Range Only when 'Net Weight > Non-load Zero Range', 'Manual/Auto Totalizing' is valid.	
209	dAtA	0~1	0	Data Compared with Weight Setpoints <i>0. groS</i> [Gross Weight] <i>1. nEt</i> [Net Weight]	
210	do.SL	0~1	1	DO Output Permission <i>0: oFF</i> <i>1: on</i>	
211	do.dL	0.1~5.0	0.5	DO Debounce Delay Time [s] Used for avoiding the related DO switch turning on and off frequently when the real-time data is at the critical point.	
212	Ao	0~3	0	AO Signal <i>0. groS</i> [Gross Weight] <i>1. nEt</i> [Net Weight] <i>2. dISP</i> [Displayed Weight] <i>3. bAt</i> [Net Weight of Present Batch]	
213	Au.Add	0~1	0	Auto Totalizing Permission <i>0: oFF</i> <i>1: on</i>	
214	tL.Stb	0.1~99.9	1.0	Wait Time for Stabilizing Weight before Auto Totalizing [s]	
215	APPL	1~3	1/2/3 [*]	Application Mode <i>1: Weight Limit Alarm Mode</i> <i>2: Weight Increment Output Mode</i> <i>3: Weight Decrement Output Mode</i> Operating Authorization: Administrator.	

[*]: 'RAM Reset' operation has no effect on the parameter.

6.3.4 Communication Parameters (SErP)

No.	Sign	Range	Default	Description	Set
800	Adr	0~99	1	Communication Address	
801	bPS1	0~5	3	COM1/COM2 Baud Rate <i>0: 1200bps</i> <i>1: 2400bps</i> <i>2: 4800bps</i> <i>3: 9600bps</i> <i>4: 19200bps</i> <i>5: 115200bps</i>	
802	bPS2		3		
803	CHC1	0~2	0	COM1/COM2 Parity Check <i>0. none</i> [None Check] <i>1. EVEn</i> [Even Check] <i>2. odd</i> [Odd Check]	
804	CHC2		0		
805	Con1	0~3	0	COM1 Communication Mode <i>0. HASC</i> [Host-slave, Modbus ASCII] <i>1. Hrtu</i> [Host-slave, Modbus RTU] <i>2. Cont</i> [Continuous Sending ASCII] <i>3. Prt</i> [Print]	
806	Con2	0~5	0	COM2 Communication Mode <i>0. HASC</i> [Host-slave, Modbus ASCII] <i>1. Hrtu</i> [Host-slave, Modbus RTU] <i>2. Cont</i> [Continuous Sending ASCII] <i>3. dP-C</i> [Modicon Profibus-DP] <i>4. dP-S</i> [Siemens Profibus-DP] <i>5. Prt</i> [Print]	
807	dAtA	0~4	2	Data for Continuous Sending Mode <i>0. groS</i> [Gross Weight] <i>1. nEt</i> [Net Weight] <i>2. dISP</i> [Displayed Characters] <i>3. bAt</i> [Net Weight of Present Batch] <i>4. tot</i> [Totalized Net Weight]	

No.	Sign	Range	Default	Description	Set
808	S.Int	4~400	80	Continuous Sending Interval Number N Sending Interval Time: $T = N \times 2.5$ [ms]. Sending Frequency: $F = 1000 / T$ [Hz].	
				Examples	
				Interval Number N	Sending Frequency F
				4	100Hz
				8	50Hz
				10	40Hz
				40	10Hz
				80	5Hz
				100	4Hz
				400	1Hz
				Note	
				Baud Rate	Max. Sending Frequency
				1200bps	5Hz
				2400bps	10Hz
				4800 bps	25Hz
				9600 bps	50Hz
				19200 bps	100Hz
				115200 bps	100Hz
809	dAt.F	0~3	0	Modbus Data Format Reading&Writing Order of 4-Byte Registers: 0: 4321 [HB4 HB3 LB2 LB1] 1: 3412 [HB3 HB4 LB1 LB2] 2: 1234 [LB1 LB2 HB3 HB4] 3: 2143 [LB2 LB1 HB4 HB3] The HEX byte order of float and long int registers in the weighing controller is 'HB4 HB3 LB2 LB1'.	

6.3.5 Display Parameters (dISP)

No.	Sign	Range	Default	Description	Set
900	LAng	0~1	0/1 [*]	Printing Language 0. CHn [Chinese] 1. Eng [English]	
901	dS.tI	0.01~1.00	0.20	Display Refreshing Time [s]	
902	Au.Loc	0~1	0	Auto-Locking 0: oFF 1: on [If there is not any keypad operation in one minute and it's not in the processes of 'F2 Calibration' & 'F6 Factory Adj.', the controller will lock the keypad and return to 'Main Display Interface' automatically]	
903	dAtE	0~2	0 [*]	Date Format 0: yy. EE. dd [Year. Month. Day] 1: EE. dd. yy [Month. Day. Year] 2: dd. EE. yy [Day. Month. Year]	
904	FAn.r	0~1	1	Cooling Fan Running 0. oFF 1. on	

[*]: 'RAM Reset' operation has no effect on the parameter.

6.3.6 Time Parameter (tIEE)

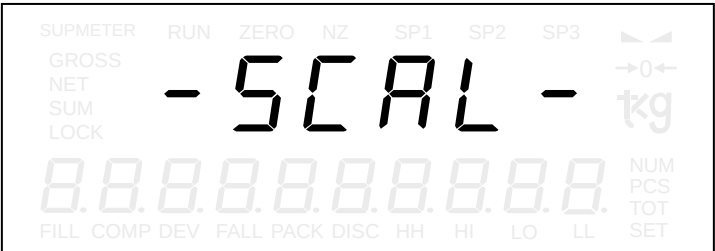
No.	Sign	Range	Default	Description	Set
998			Local Time	HH[Hour]. MM[Mintus]. SS[Second] [903] Date Format - W[Week] [W=7: Sunday]	

6.3.7 A Sample of Parameter Setting

Modify the parameter ‘[102] Scale Capacity’.

Main Display Interface

↓ 【MENU】 + 【▲】【▼】 : F1-SEt
【ENT】 + 【▲】【▼】



↓ 【ENT】 + 【▲】【▼】



M

↓ 【ENT】



【◀】【▶】 : Moving cursor; 【▲】【▼】 : Digit input.

【MENU】 : Exit ↓ 【ENT】 : Save

M

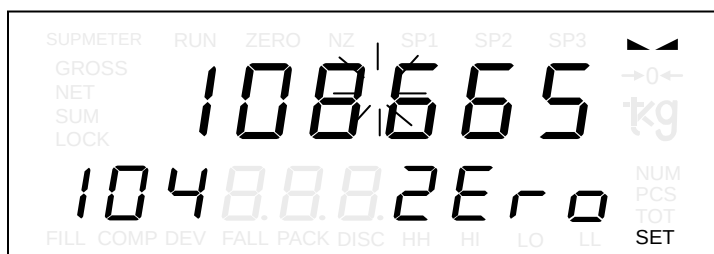
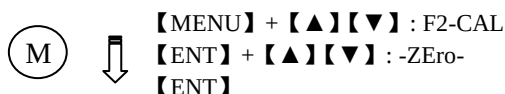
6.4 F2-CAL System Calibration

After doing 'System Calibration', Tare Weight value will return to zero automatically.

6.4.1 Zero Calibration (ZEro)

Do Zero Calibration with no loading on the weigher and save the new Zero Value.

Main Display Interface



【▲】【▼】：

- ✧ 104: New Zero Value (-20000~+999999).
- ✧ oLd: Original Zero Value.
- ✧ Er: Error = New Value - Original Value.

If Zero Value exceeds allowed range, [SET] will turn off, and it's not allowed to save Zero Value.

【MENU】 : Exit  **【ENT】** : Save



6.4.2 Data Calibration (dAtA)

Input the specification parameter values of loadcell [Total Capacity and Output Sensitivity] according to the actual configuration of the weighing system to correct Span Coefficient. If there is no access to get the specification parameter values for Data Calibration, then it's necessary to do Load Calibration.

Main Display Interface



【MENU】 + 【▲】【▼】 : F2-CAL

【ENT】 + 【▲】【▼】 : -dAtA-

【ENT】

SUPMETER	RUN	ZERO	NZ	SP1	SP2	SP3	
GROSS	0 120.00						→0←
NET							
SUM							
LOCK							
InPut 8 totL							NUM
							PCS
							TOT
							SET
FILL	COMP	DEV	FALL	PACK	DISC	HH	HI LO LL

Input 'Total Capacity of Loadcells' [totL]: 1~999999 Weight Unit.



【ENT】

SUPMETER	RUN	ZERO	NZ	SP1	SP2	SP3	
GROSS	8.20000						→0←
NET							
SUM							
LOCK							
InPut 8.5 EnS							NUM
							PCS
							TOT
							SET
FILL	COMP	DEV	FALL	PACK	DISC	HH	HI LO LL

Input 'Output Sensitivity of Loadcell' [SEnS]: 0.5000~5.0000mV/V.



【ENT】

SUPMETER	RUN	ZERO	NZ	SP1	SP2	SP3	
GROSS	8.10000						→0←
NET							
SUM							
LOCK							
InPut 8 VoL.r							NUM
							PCS
							TOT
							SET
FILL	COMP	DEV	FALL	PACK	DISC	HH	HI LO LL

Input 'Voltage Ratio' [VoL.r]: 1.0000~2.0000.



【ENT】



【▲】【▼】:

- ✧ 105: New Span Coefficient value (Max. Display Value: 99.9999).
- ✧ oLd: Original Span Coefficient value.
- ✧ Sr: Span Correction Ratio = New Value / Original Value (Display Range: 0.00001~9.99999).

【MENU】: Exit



【ENT】: Save



Note:

- ✧ Total Capacity of Loadcells = Loadcell Capacity × Loadcell Number.
- ✧ Voltage Ratio = Excitation Voltage on the terminal of controller / Excitation Voltage on the terminal of loadcells.
- ✧ The rated excitation voltage for loadcells is DC10V. It's best to measure the actual voltage value.
- ✧ 4-wire connection: The voltage attenuation is big, the voltage on both sides should be measured.
- ✧ 6-wire connection: The voltage attenuation is small, Voltage Ratio can be set to 1.0000.

6.4.3 Load Calibration (LoAd)

A After doing Data Calibration, if there are conditions for Load Calibration, do Load Calibration with loading standard weight on the weigher to correct Span Coefficient further for higher weighing accuracy. The loading weight should be bigger than 50% of Scale Capacity value.

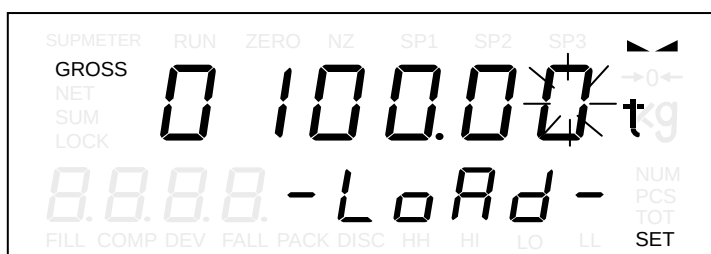
Main Display Interface



【MENU】 + 【▲】【▼】 : F2-CAL

【ENT】 + 【▲】【▼】 : -LoAd-

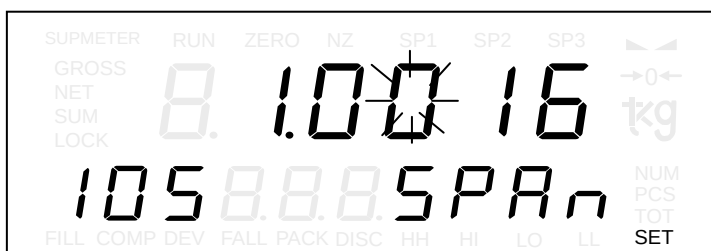
【ENT】



Input 'Calibrating Weight': 1~999999 Weight Unit.



【ENT】



【▲】【▼】 :

- ✧ 105: New Span Coefficient value (Max. Display Value: 99.9999).
- ✧ oLd: Original Span Coefficient value.
- ✧ Sr: Span Correction Ratio = New Value / Original Value (Display Range: 0.00001~9.99999).
- ✧ Ad: AD Value.

If AD Value $\leq$ Zero Value, display 'Err', [SET] will turn off, and it's not allowed to save Span Coefficient.

【MENU】 : Exit



【ENT】 : Save



6.4.4 Segmenting Span Correction (SEgC)

After doing Zero Calibration and Load Calibration [or Data Calibration], it's allowed to do Segmenting Span Correction with loading standard weight on the weigher by 3 Correction Points to get Span Correction Ratio of 3 linearity segments for higher weighing accuracy.

Main Display Interface

【MENU】 + 【▲】【▼】 : F2-CAL



【ENT】 + 【▲】【▼】 : -SEgC-

【ENT】

Loading 'Correcting Weight 1/2/3' on the weigher. Suggestion:

LoAd1 = Scale Capacity × 20%.

LoAd2 = Scale Capacity × 60%.

LoAd3 = Scale Capacity × 90%.

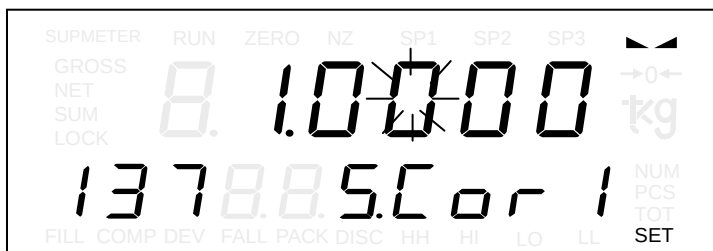
(M)



Input 'Correcting Weight 1/2/3': 1~999999 Weight Unit.



【ENT】



【▲】【▼】:

◇ 137/138/139: Span Correction Ratio 1/2/3 (0.5000~2.0000).

◇ 134/135/136: AD Value of Correction Point1/2/3.
(-20000~+999999).

If AD Value or Span Correction Ratio is not in the allowed range,
display 'Err', [SET] will turn off, and it's not allowed to save them.

【MENU】 : Exit



【ENT】 : Save

(M)

6.5 F4-CLN Data Clearing

Main Display Interface

M

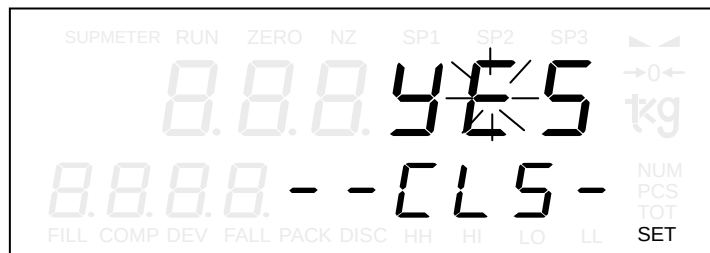


【MENU】 + 【▲】【▼】 : F4-CLn

【ENT】 : --CLS-

【ENT】

CLS: Clear Screen.



【▲】【▼】: YES/NO.

【MENU】: Exit



【ENT】 : Enter

M

6.6 F5-LOC Key-locker

6.6.1 Key-unlocking (oPEn)

Main Display Interface

  **【MENU】 + 【▲】【▼】 : F5-Loc**
【ENT】 + 【▲】【▼】 : -oPEn-
【ENT】



 **【ENT】** : If inputted password is correct, Key-unlocking will be valid and [LOCK] will turn off.


6.6.2 Key-locking (Locc)

Main Display Interface

  **【MENU】 + 【▲】【▼】 : F5-Loc**
【ENT】 + 【▲】【▼】 : -Locc-
【ENT】



 **【ENT】** : If inputted password is correct, Key-locking will be valid and [LOCK] will turn on.


6.6.3 Password Set (PASS)

Main Display Interface

  **【MENU】 + 【▲】【▼】 : F5-Loc**
【ENT】 + 【▲】【▼】 : -PASS-
【ENT】



 **【ENT】**

If inputted is Operator Password, this operation interface will be skipped; if inputted is Administrator Password, ‘Administrator Password [AP]’ or ‘Operator Password [oP]’ can be modified via **【▲】【▼】** .



 **【ENT】**



Input the new Password. Please remember it.

【MENU】 : Exit  **【ENT】 : Save**



Appendix A. Print Formats

- Table 1. Weighing Record

```
WEIGHT RECORD
-----
DATE:  2009-05-20
TIME:   23:59:45
GROSS:   100.00t
TARE:     0.00t
NET:     100.00t
-----
```

- Table 2. Totalizing Report

```
TOTAL REPORT
-----
DATE:  2009-05-20
TIME:   23:59:45
TOT:    10100.00t
PCS:      101
-----
```

Appendix B. Register Table of Host-Slave MODBUS[ASCII/RTU]

Data Name	Type	Address	Attribute	Command [HEX]	Description
Gross Weight	Long	40001	R	03	
Net Weight	Long	40003	R	03	
Running State 1	UnShort	40005.0	R	03	1: Weighing state. 0: Calibrating state.
		40005.1			
		40005.2			
		40005.3			
		40005.4			
		40005.5			
		40005.6			
		40005.7			
		40005.8			
		40005.9			
		40005.10			
		40005.11			1: Present Batch Totalized.
		40005.12			1: Non-load Zero Range.
		40005.13			1: Weight Value is stable.
		40005.14			1: Overload Alarm.
		40005.15			1: Controller Fault.
Running State 2 [Unused]	UnShort	40006.0	R	03	
		40006.1			
		40006.2			
		40006.3			
		40006.4			
		40006.5			
		40006.6			
		40006.7			
		40006.8			
		40006.9			
		40006.10			
		40006.11			
		40006.12			
		40006.13			
		40006.14			
		40006.15			

Data Name	Type	Address	Attribute	Command [HEX]	Description
DO State	UnShort	40007.0	R	03	1: DO1 ON; 0: DO1 OFF.
		40007.1			1: DO2 ON; 0: DO2 OFF.
		40007.2			1: DO3 ON; 0: DO3 OFF.
		40007.3			1: DO4 ON; 0: DO4 OFF.
		40007.4			1: DO5 ON; 0: DO5 OFF.
		40007.5			
		40007.6			
		40007.7			
		40007.8			
		40007.9			
		40007.10			
		40007.11			
		40007.12			
		40007.13			
		40007.14			
		40007.15			
Operation	UnShort	40008	W	06	0xA500: Manual Totalizing. 0xA501: Cancel Totalizing. 0xA502: Unused. 0xA503: Unused. 0xA504: Unused. 0xA505: Unused. 0xA506: Unused. 0xA507: Unused. 0xA508: Unused. 0xA509: Print. 0xA50A: Clear Screen. 0xA50B: Manual Tare. 0xA50C: Alarm Acknowledge. 0xA50D: Zero Fine Adjustment. 0xA50E: Zero Calibration. 0xA50F: Load Calibration. Do Span Calibration with the value of parameter 'Calibrating Weight' as loading weight. 0xA510~0xA5FF: Unused.
Calibrating Weight	UnLong	40009	R/W	03/10	Parameter No. 124
Totalized Net Weight	UnLong	40011	R	03	
Batch Count	UnLong	40013	R	03	

Data Name	Type	Address	Attribute	Command [HEX]	Description
Net Weight of Present Batch	UnLong	40015	R	03	
Non-load Zero Range	UnShort	40017	R/W	03/06	
DO1 Weight Setpoint 1	UnLong	40018	R/W	03/10	
DO2 Weight Setpoint 2	UnLong	40020	R/W	03/10	
DO3 Weight Setpoint 3	UnLong	40022	R/W	03/10	
DO4 Weight Setpoint 4	UnLong	40024	R/W	03/10	
Data Compared with Weight Setpoints	UnShort	40026	R/W	03/06	0: Gross Weight. 1: Net Weight.
Application Mode	UnShort	40027	R/W	03/06	1: Weight Limit Alarm Mode. 2: Weight Increment Output Mode. 3: Weight Decrement Output Mode.
DO1 Initial Lead Value	UnShort	40028	R/W	03/06	
DO2 Initial Lead Value	UnShort	40029	R/W	03/06	
DO3 Initial Lead Value	UnShort	40030	R/W	03/06	
DO4 Initial Lead Value	UnShort	40031	R/W	03/06	
Wait Time for Stabilizing Weight before Auto Totalizing	UnShort	40032	R/W	03/06	
Auto Totalizing Permission	UnShort	40033	R/W	03/06	0: OFF; 1: ON.

UnShort: Unsigned Short Int; UnLong: Unsigned Long Int; Long: Signed Long Int.

Appendix C. Data Frame Format of Continuous Sending [ASCII]

Filed Name		Code	HEX	Description	Example
START [Byte1]		=	3D		=
Weighing State [Byte2]		O	4F	Overload	S
		S	53	Stable	
		M	4D	Motion	
Data Name [Byte3]		G	47	Gross Weight	N
		N	4E	Net Weight	
		B	42	Net Weight of Present Batch	
		T	54	Totalized Net Weight	
		D	44	Displayed Characters	
		U	55	Unused	
Data [9 Bytes]	Format A: Weight Data [Byte4~12]	+/-	2B/2D	Sign	+00123.4k [DEC]
		Weight Value [7 Bytes]	30~39 2EH	0~9 Decimal Point ‘.’	
		Unit [1 Byte]: (Space) k t g	20 6B 74 67	Space: None k: kg	
		d	64	ID Code	
	Format B: Displayed Characters [Byte4~12]	Point Code [1 Byte]	00~FF	BIT7=0: Unused	2. dISP Highest Bit's Point: ON Point Code =20H
				BIT6=0: Unused	
				If BIT5=1: Highest Bit's Point: ON	
				If BIT4=1: Bit5's Point: ON	
				If BIT3=1: Bit4's Point: ON	
				If BIT2=1: Bit3's Point: ON	
				If BIT1=1: Bit2's Point: ON	
				If BIT0=1: Lowest Bit's Point: ON	
		Characters [6 Bytes]	XX XX XX XX XX XX	ACSII	
	d	64	ID Code	d	
	SUM Check [Byte13]		1 Byte	XX	SUM=Byte1+Byte2+... +Byte12
END [Byte14~15]		<CR> <LF>	0D 0A		<CR> <LF>

Example 1. Sending Weight Data '+00123.4kg'

Byte	Field Name	HEX	Note
1	START	3D	=
2	Weighing State	53	S
3	Data Name	4E	N
4	Sign	2B	+
5	Weight Value	30	0
6	Weight Value	30	0
7	Weight Value	31	1
8	Weight Value	32	2
9	Weight Value	33	3
10	Weight Value	2E	.
11	Weight Value	34	4
12	Unit	6B	k
13	SUM	CC	SUM=Byte1+Byte2+...+Byte12
14	END	0D	<CR>
15	END	0A	<LF>

Example 2. Sending Displayed Characters '2. dISP'

Byte	Field Name	HEX	Note
1	START	3D	=
2	Weighing State	53	S
3	Data Name	44	D
4	ID Code	64	d
5	Point Code	20	
6	Displayed Characters	32	2
7	Displayed Characters	20	Space
8	Displayed Characters	64	d
9	Displayed Characters	49	I
10	Displayed Characters	53	S
11	Displayed Characters	50	P
12	ID Code	64	d
13	SUM	5E	SUM=Byte1+Byte2+...+Byte12
14	END	0D	<CR>
15	END	0A	<LF>



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