BST100-B11/B21 Weighing Controller

For: Ration Belt Weighfeeder

Operation Manual V3.6

Changsha Supmeter Technological Co.,Ltd.

Preface

Thank you very much for your purchase!

This manual covers safety precautions, technical specifications, 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:

- ✧ Suitable for Ration Belt Weighfeeder with Ration Flow Feeding & Ration Weight Batch Control.
- ✧ EMC design with high anti-jamming capability, suitable for industrial environment.
- ✧ 16-bit LED display screen for English character and digit display.
- ✧ Menu&Shortcut mode operation with key tone.
- ✧ Optional English keypad, Simplified Chinese keypad and Complex Chinese keypad.
- ✧ High-precision ∑-Δ A/D conversion technology and broad-range speed pulse input circuit.
- ✧ Max. Connection Quantity: 8 Loadcells (350Ω).
- ✧ Auto-locking, Key-locking, Key-unlocking, Digital Setting&Calibration and I/O Testing functions available.
- ✧ Auto Zero Tracking, Speed Calibration and Belt Length Calibration functions available.
- ✧ One optional 'Flow Setpoint' analog signal input [AI: 4~20mA].
- ✧ Max.3 definable 'Flow/Control Current /…' analog signal outputs [AO: 4~20mA].
- ✧ Quick and steady PID for ration feeding control available.
- ✧ 3 Definable normally open switch inputs [DI] and 4 definable normally open relay or transistor switch outputs [DO].
- ✧ The feeder and belt weigher can be started and stopped by DI&DO signals.
- ✧ 1 'Totalized Weight High-speed Pulse' output [PO].
- ✧ 2 Optional communication ports for linking to IPC/PLC, remote display&operation terminal, serial printer and wireless module.
- ✧ Support industry configuration software, e.g. iFix.
- ✧ Weight Records per shift/day/month of a year can be queried and printed.
- ✧ With the multitasking mode, the weighing&control process will not be interrupted by parameter setting and the other operations.

Model Panel-mounting: B11

Model Wall-mounting: B21

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1. Safety Precautions



- **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.

- **Prohibit using the product under dangerous environment**

  Prohibit using the product under the dangerous environment with combustible gas and explosive dust. If you have this need, please use our explosion-proof products.

- **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 and speed sensor 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, speed signal, analog signal and communication signal cables should be laid in pipes, and do not lay them together with power cables.

- **Power Supply**

  Please use line isolation transformer to keep the power supply of the product separate from the other driving power supply. If the voltage fluctuation exceeds the allowed range of the product, please use a voltage-stabilized power supplier.

- **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.

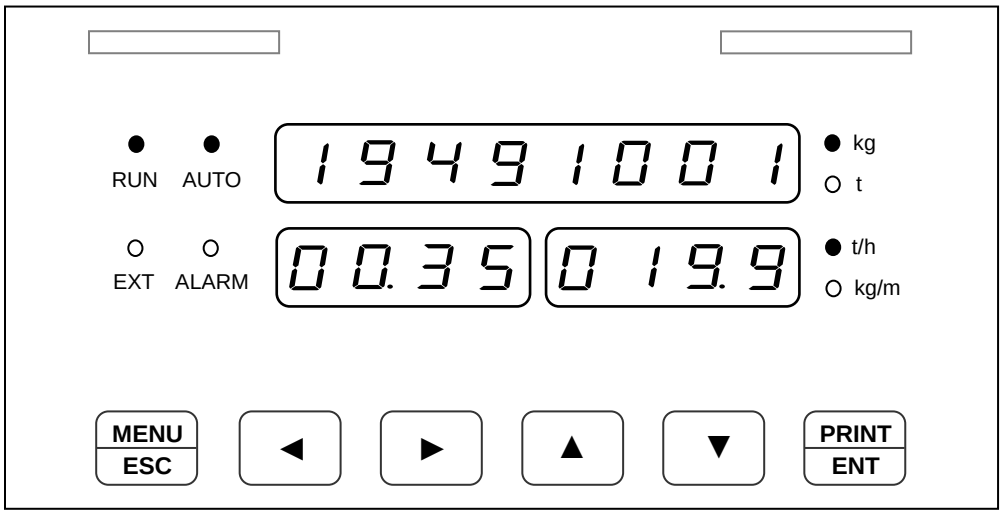
2. Technical Specifications

- Power Supply
  - ✧ Operating Voltage: AC220V ±15%.
  - ✧ Operating Frequency: 50/60Hz.
  - ✧ Model Wall-mounting Optional: DC24V ±20%.
  - ✧ Max. Power: 15W.
- Display
  - ✧ 16-bit LED display screen for English character and digit display.
- Keypad
  - ✧ 6 keys for Menu&Shortcut mode operation with key tone.
  - ✧ Optional English keypad, Simplified Chinese keypad and Complex Chinese keypad.
  - ✧ Auto-locking, Key-locking, Key-unlocking, Digital Setting&Calibration and I/O Testing functions available.
- Loadcell Signal Input Interface (SENSOR/LOADCELL)
  - ✧ 1 Weighing Signal Input: 0~25mV.
  - ✧ Excitation Voltage Output: DC10V.
  - ✧ Max. Connection Quantity: 8 Loadcells (350Ω).
- Weighing Accuracy
  - ✧ 24-bit Σ-△ADC.
  - ✧ Sampling Frequency: 200Hz.
  - ✧ Zero Drift: ±0.1μV/℃ RTI (Relative to Input).
  - ✧ Gain Drift: ±5ppm/℃.
  - ✧ Non-linearity: 0.005%FS.
- Speed Sensor Signal Input Interface (SENSOR/SPEED)
  - ✧ 1 Speed Pulse Input Signal.
  - ✧ Frequency Range: 0.5~3000Hz.
  - ✧ Output Voltage: DC12V; Max. Current: 100mA.
- Analog Signal Output Interface (AO)
  - ✧ Max.3 Definable 'Flow/Control Current /…' Analog Signal Outputs: 4~20mA (AO3: optional).
  - ✧ Non-linearity: 0.05%FS.
- Analog Signal Input Interface (AI)
  - ✧ 1 Optional 'Flow Setpoint' Analog Signal Input: 4~20mA.
  - ✧ Non-linearity: 0.05%FS.
- Totalized Weight High-speed Pulse Signal Output Interface (PO)
  - ✧ 1 'Totalized Weight High-speed Pulse' Output.
  - ✧ Capacity of Contacts: 100mA, DC5~24V.
  - ✧ Weight per Pulse and Pulse Width can be preset.

- Switch Signal Output Interface (DO)
  - ✧ 4 Definable Normally Open Relay or Transistor Switch Outputs.
  - ✧ Capacity of Relay Switch: AC250V/DC24V, 1A.
  - ✧ Capacity of Transistor Switch: DC24V, 500mA.
- Switch Signal Input Interface (DI)
  - ✧ 3 Definable Normally Open Switch Inputs.
- Digital Communication Interface (COM1/2)
  - ✧ COM1 Optional: RS232/RS485/RS422/Profibus-DP/CANBUS/Ethernet modules.
  - ✧ COM2: RS232.
  - ✧ Connectable: IPC/PLC, Remote Display&Operation Terminal, Serial Printer and Wireless Module.
  - ✧ Power Supply Output: DC5V, 100mA.
- Report Print
  - ✧ Weight Records per shift/day/month of a year can be queried and printed.
- Outline Dimension
  - ✧ Model Panel-mounting: 160 ×84 ×188 mm (W×H×D).
  - ✧ Model Wall-mounting: 202 ×305 ×90 mm(W×H×D).
- Cut Dimension
  - ✧ Model Panel-mounting: 151 ×76 mm(W×H).
- Weight
  - ✧ Model Panel-mounting: Approx. 1.5kg.
  - ✧ Model Wall-mounting: Approx. 3.4kg.
- Temperature and Humidity
  - ✧ Service Temperature: -25℃ to +40℃.
  - ✧ Storage Temperature: -30℃ to +60℃.
  - ✧ Relative Humidity: Max. 85%RH.
- Protection Level
  - ✧ Model Panel-mounting: IP50.
  - ✧ Model Wall-mounting: IP65.

3. Operation Interface

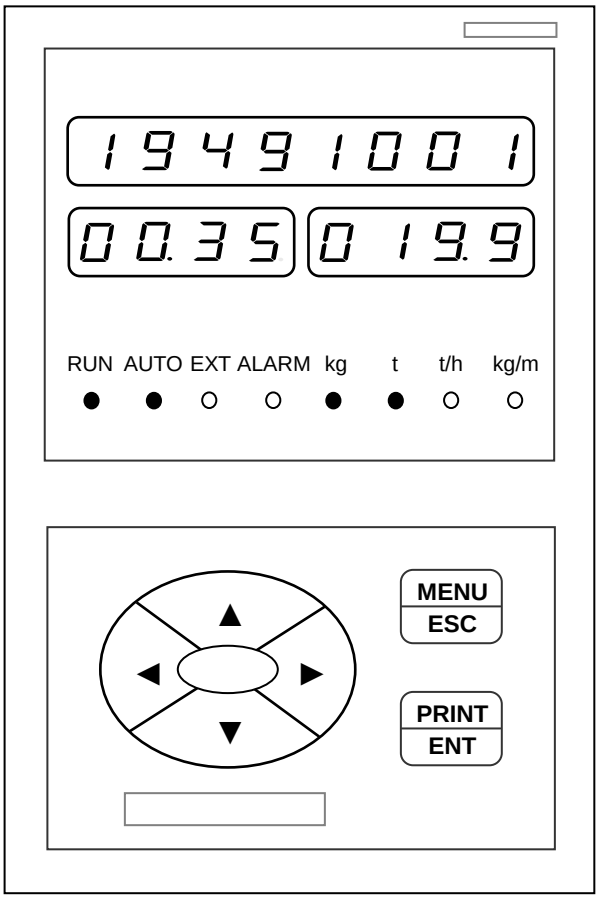
3.1 Model Panel-mounting Operation Interface



Display Panel A: kg, t, t/h, kg/m

Display Panel B: g, kg, kg/h, g/m

3.2 Model Wall-mounting Operation Interface



Display Panel A: kg, t, t/h, kg/m
Display Panel B: g, kg, kg/h, g/m

3.3 State Indication

LED Lamp	Description	Note
[RUN]	ON: Weighing state. OFF: Stopping state.	
[AUTO]	Feeding control mode: ON: Auto [PID]. OFF: Manual.	
[EXT]	Flow Set Mode: ON: External [AI: 4~20mA]. OFF: Internal.	
[ALARM]	Alarm.	
[kg]	Weight Display Unit: kg.	Display Panel A ([P107] Internal Scale Unit=kg)
[t]	Weight Display Unit: t.	
[t/h]	Flow Display Unit ON: t/h. OFF: kg/min or kg/h.	
[kg/m]	Load Display Unit: kg/m.	
[g]	Weight Display Unit: g.	Display Panel B ([P107] Internal Scale Unit=g)
[kg]	Weight Display Unit: kg.	
[kg/h]	Flow Display Unit ON: kg/h. OFF: g/min or g/h.	
[g/m]	Load Display Unit: g/m.	

3.4 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.

3.4.1 Menu Operation

Key Name	Description
【MENU】 【ESC】	Enter Main Menu. Exit.
【ENT】	Enter/Save.
【◄】	Cursor shifts left.
【►】	Cursor shifts right.
【▲】	Cursor shifts up. Display the previous interface or option. Digit input: +1.
【▼】	Cursor shifts down. Display the next interface or option. Digit input: -1.

3.4.2 Quick Operation

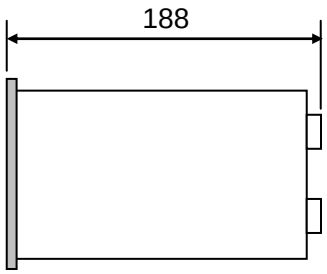
Key Name	Description
【MENU】* (【LOCK】)	✧ Key-locking. ✧ Key-unlocking.
【◄】 (【ADJ+】)	Control Current +1mA.
【►】 (【ADJ-】)	Control Current -1mA.
【◄】* (【AUTO】)	'Manual/Auto' Control Mode Selection.
【►】* (【EXT】)	'Internal/External' Flow Set Mode Selection.
【PRINT】	Print.

*: Keep the key pressed for 2 seconds.

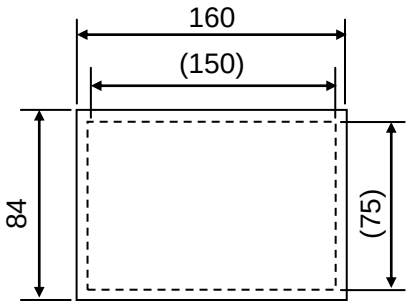
4. Installation&Connection

4.1 Installation

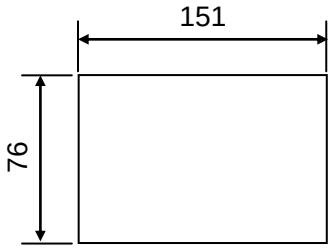
4.1.1 Model Panel-mounting Installation



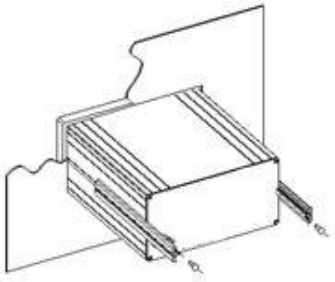
Outline dimension



Panel dimension



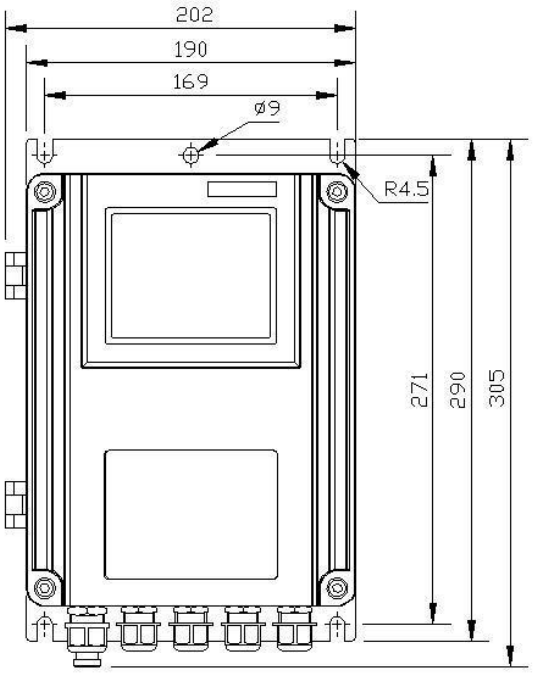
Cut dimension



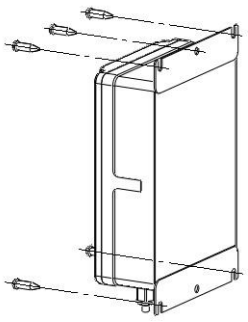
Installation Mode

Outline dimension W×H×D [mm]	Panel dimension W×H [mm]	Box dimension W×H [mm]	Cut dimension W×H [mm]
160×84×188	160×84	150×75	151×76

4.1.2 Model Wall-mounting Installation



Outline dimension

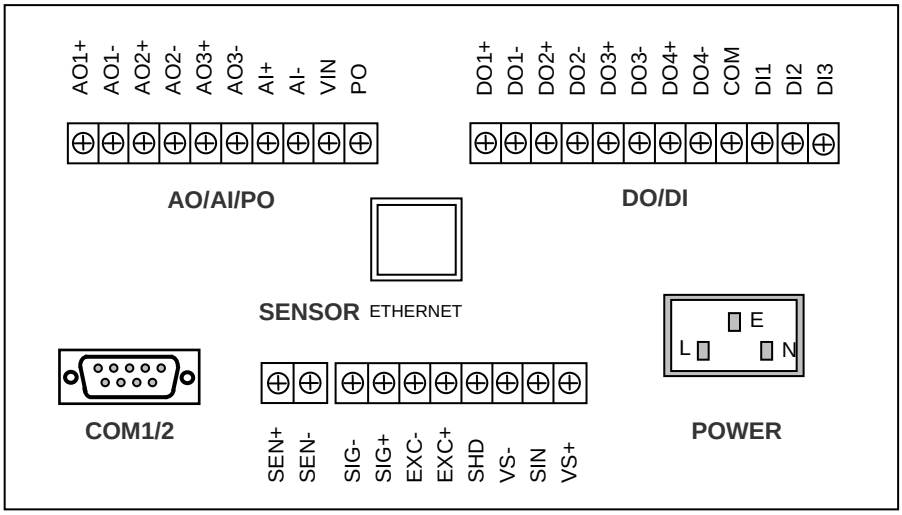


Installation mode

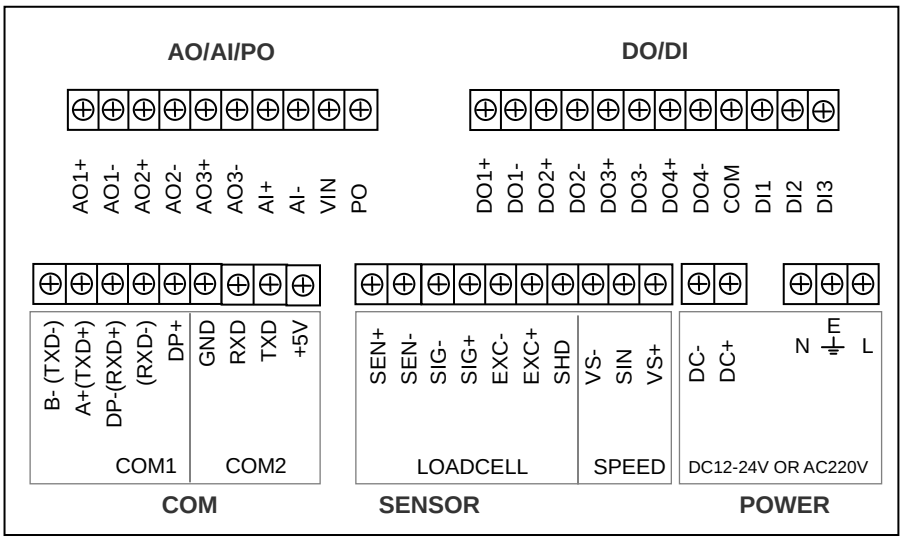
Outline dimension W×H×D [mm]	Mounting dimension W×H [mm]	Mounting hole dimension [mm]
202×305×90	169×271	Φ9

4.2 Terminal

4.2.1 Model Panel-mounting Terminal



4.2.2 Model Wall-mounting Terminal



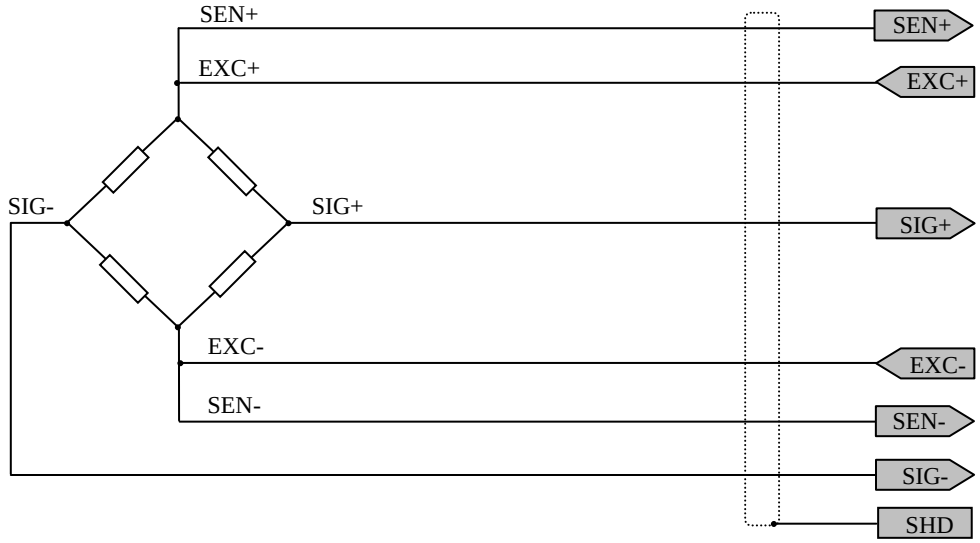
4.3 Connection

4.3.1 Loadcell & Speed Sensor Connector (SENSOR)

The shielded cable must be used and kept separate from the AC cable and other noise generating cables. Please use loadcells with the same capacity, bridge resistance & sensitivity (mV/V) for parallel connection.

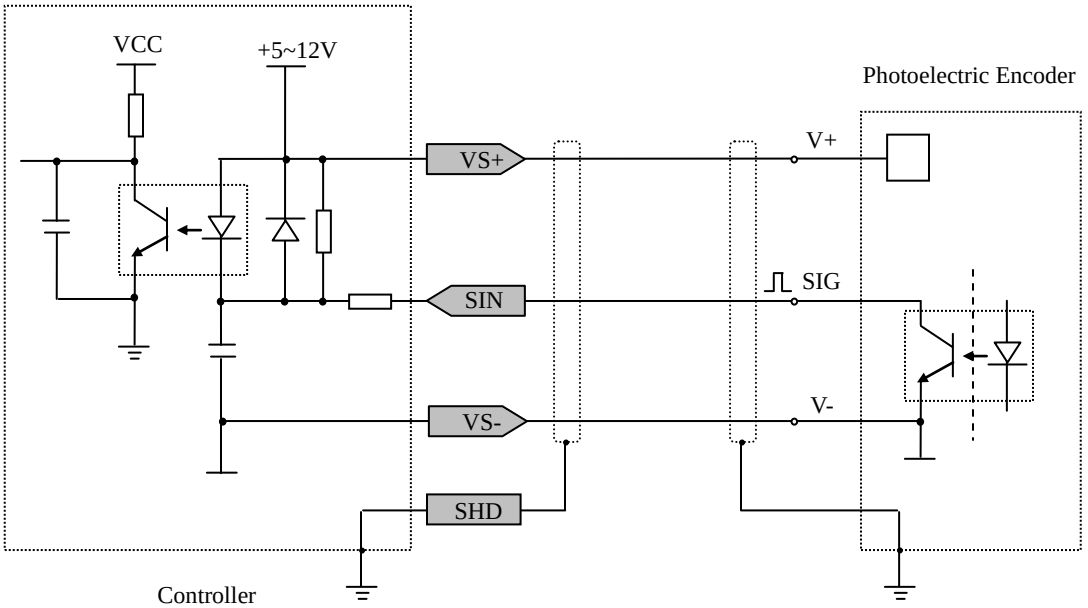
No.	Pin	Description
1	SEN+	Voltage Feedback + from Loadcell. [4-wire connection: short to 'EXC+']
2	SEN-	Voltage Feedback - from Loadcell. [4-wire connection: short to 'EXC-']
3	SIG-	Weighing Signal (mV) Input -.
4	SIG+	Weighing Signal (mV) Input +.
5	EXC-	Excitation Voltage Output - for Loadcell.
6	EXC+	Excitation Voltage Output + for Loadcell (DC10V).
7	SHD	Shield.
8	VS-	Voltage Output - for Speed Sensor.
9	SIN	Pulse Signal Input from Speed Sensor.
10	VS+	Voltage Output + for Speed Sensor (DC12V).

4.3.1.1 Loadcell Connection (SENSOR/LOADCELL)

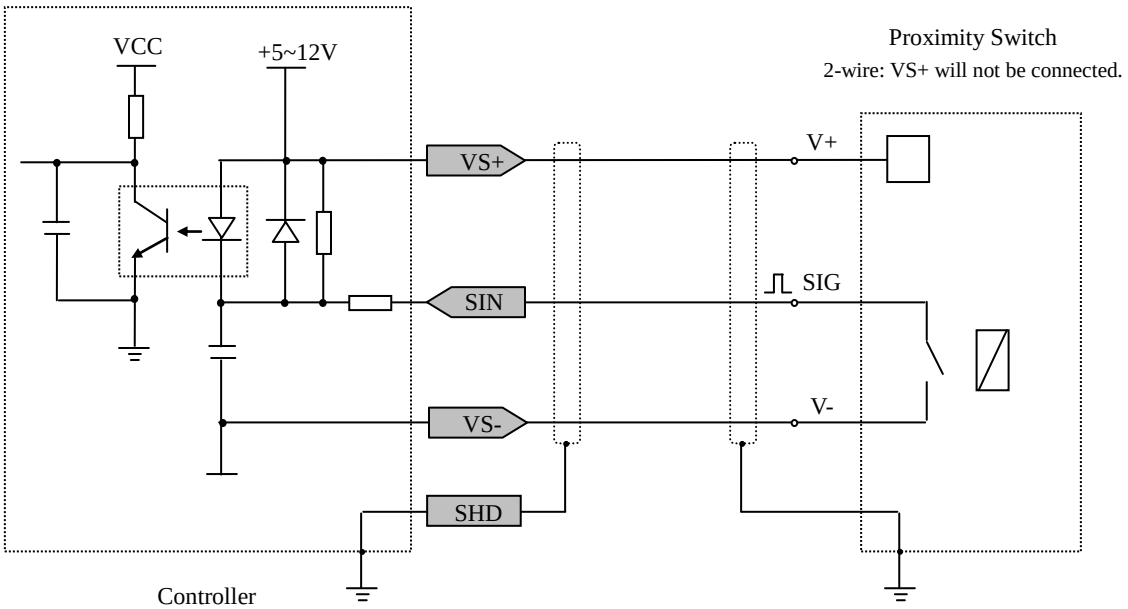


4.3.1.2 Speed Sensor Connection (SENSOR/SPEED)

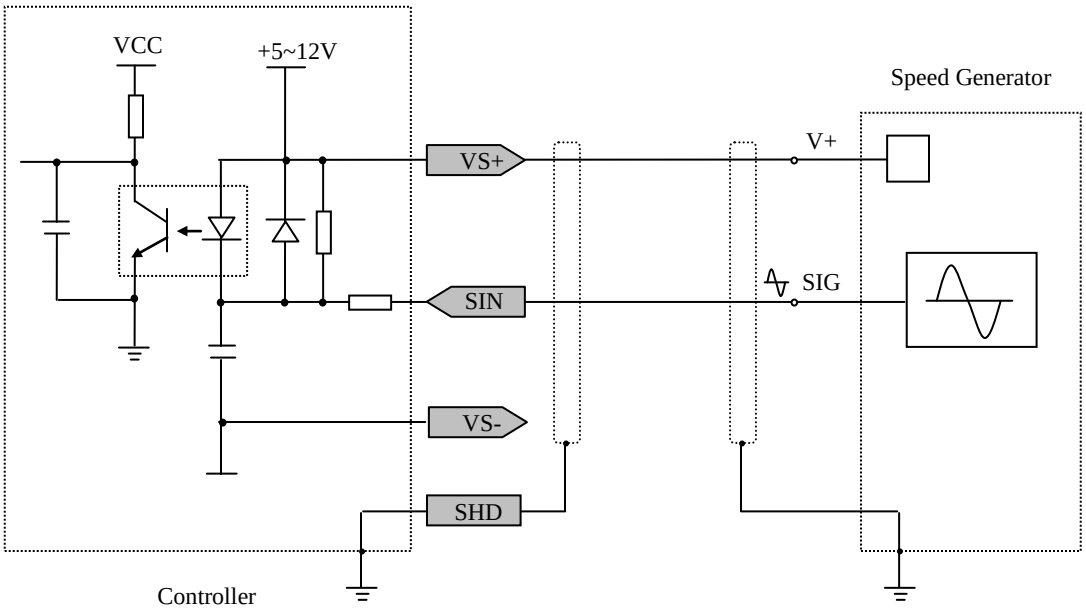
4.3.1.2.1 Photoelectric Encoder Connection



4.3.1.2.2 Proximity Switch Connection



4.3.1.2.3 Speed Generator Connection

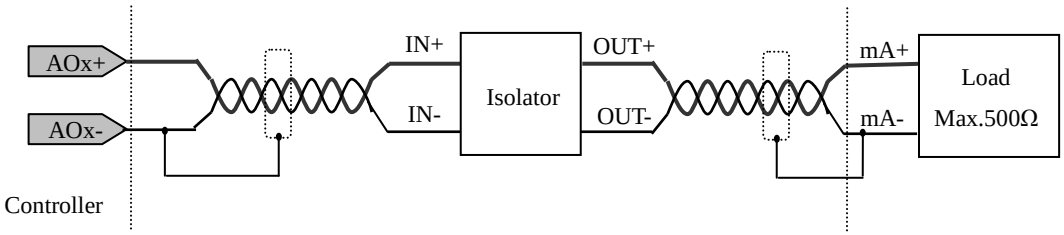


4.3.2 4~20mA Analog Output/Input & Totalized Weight Pulse Connector (AO/AI/PO)

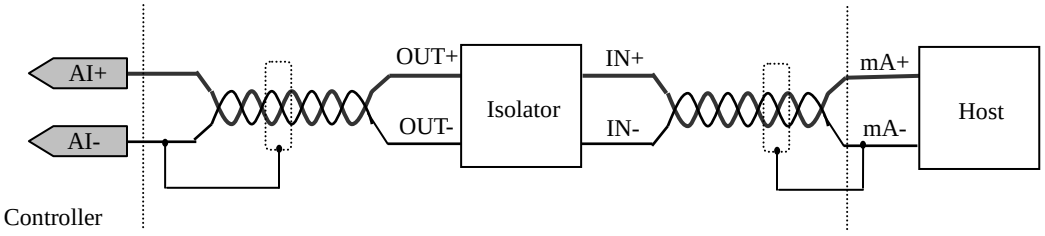
Max.3 definable AOs (4~20mA) are used for outputting 'Flow/Control Current /…' signals to external devices. 1 Optional AI (4~20mA) is used for receiving 'Flow Setpoint' signal from external devices. 1 High-speed Pulse [PO] is used for outputting Totalized Weight signal to external devices.

No.	Pin	Description
1	AO1+	4~20mA Analog Signal No.1 Output +/-.
2	AO1-	
3	AO2+	4~20mA Analog Signal No.2 Output +/-.
4	AO2-	
5	AO3+	4~20mA Analog Signal No.3 Output +/- [Optional].
6	AO3-	
7	AI+	4~20mA Input +.
8	AI-	4~20mA Input -.
9	VIN	+5~24V Input for PO.
10	PO	Totalized Weight High-speed Pulse Output.

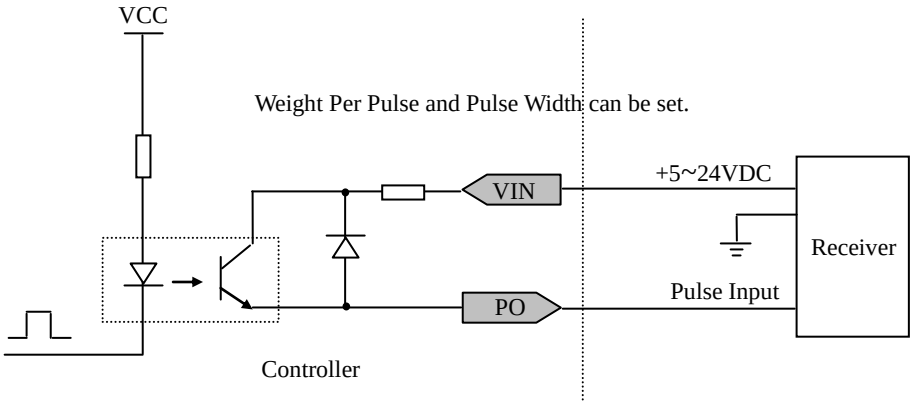
4.3.2.1 4~20mA Analog Output Connection (AO)



4.3.2.2 4~20mA Analog Input Connection (AI)



4.3.2.3 Totalization Weight Pulse Output Connection (PO)

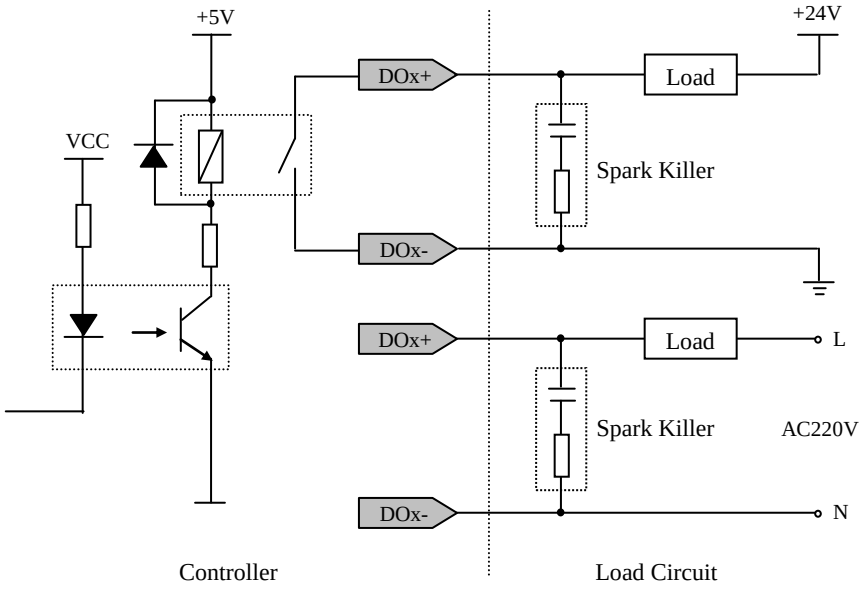


4.3.3 Switch Output/Input Connector (DO/DI)

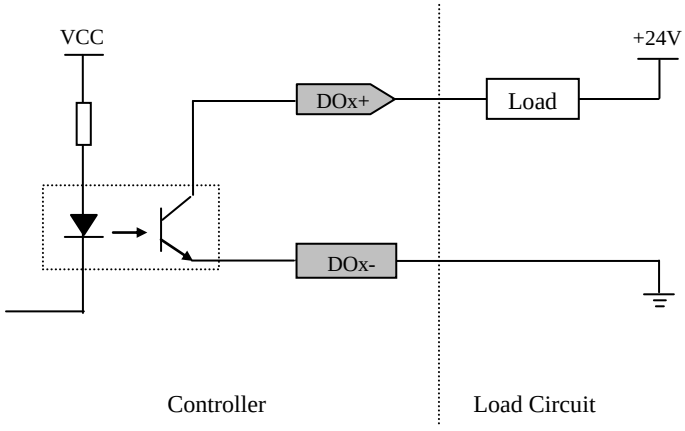
4 Definable normally open relay (AC250V/DC24V, 1A) or transistor (DC24V, 500mA) switches are used for outputting alarm/control signals to external devices. 3 Definable normally open switch inputs are used for receiving control signals from external devices.

No.	Pin	Description
1	DO1+	Realy or Transistor Switch No.1 Output +/-.
2	DO1-	
3	DO2+	Realy or Transistor Switch No.2 Output +/-.
4	DO2-	
5	DO3+	Realy or Transistor Switch No.3 Output +/-.
6	DO3-	
7	DO4+	Realy or Transistor Switch No.4 Output +/-.
8	DO4-	
9	COM	DI Common Terminal [GND].
10	DI1	Switch Input No.1.
11	DI2	Switch Input No.2.
12	DI3	Switch Input No.3.

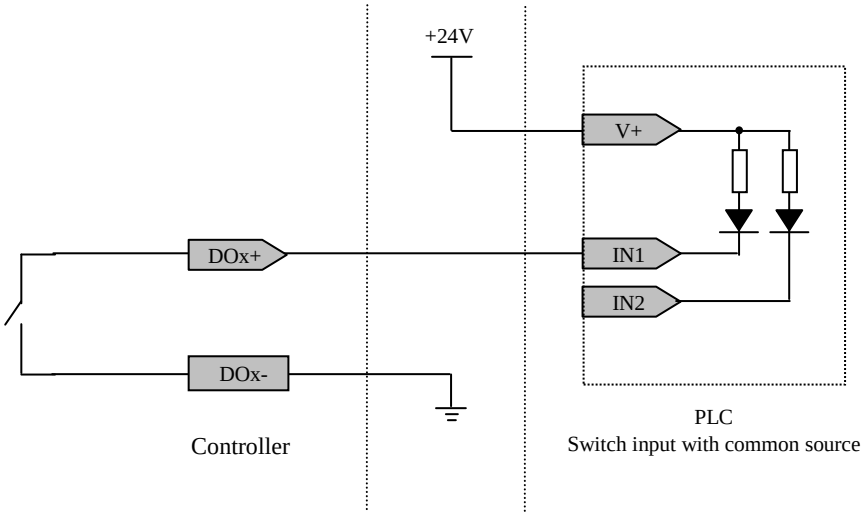
4.3.3.1 Relay Switch Output (DO) to Load Connection

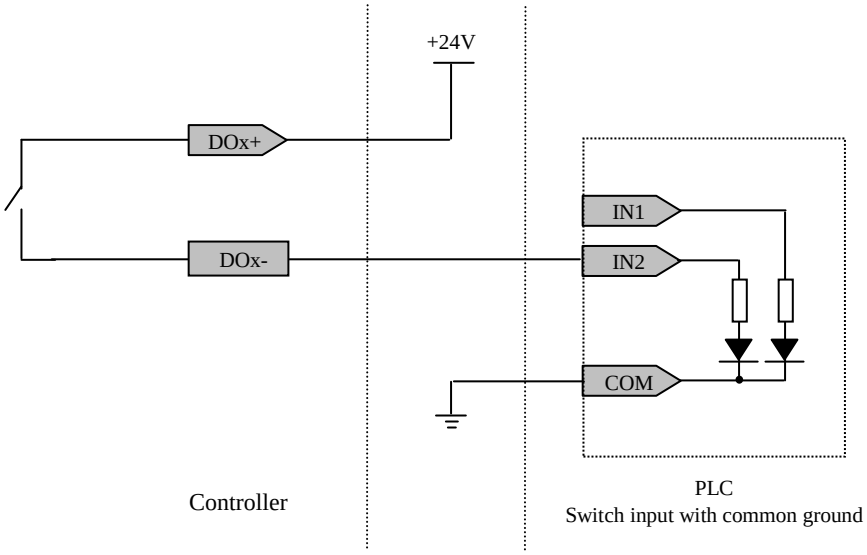


4.3.3.2 Transistor Switch Output (DO) to Load Connection

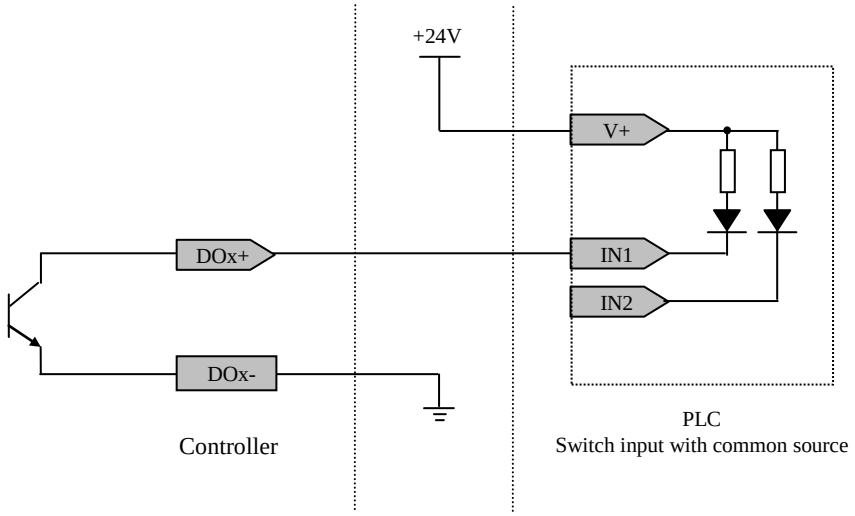


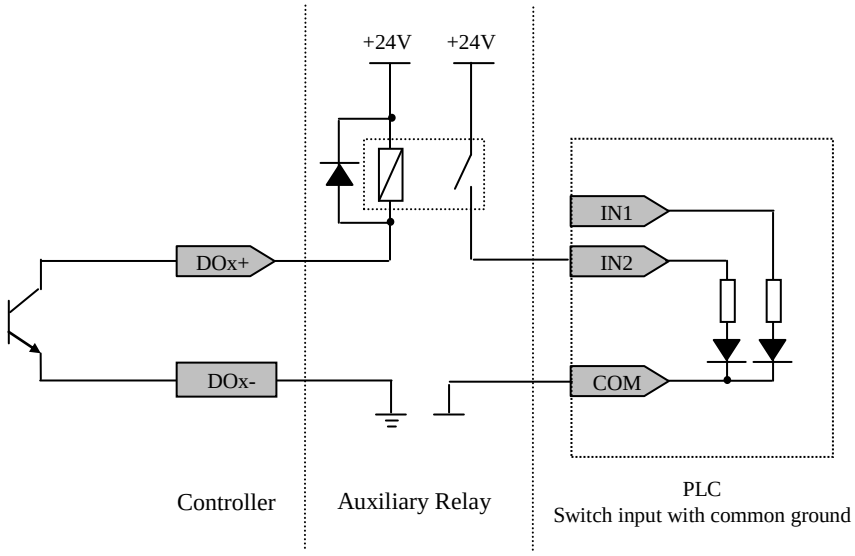
4.3.3.3 Relay Switch Output (DO) to PLC Connection



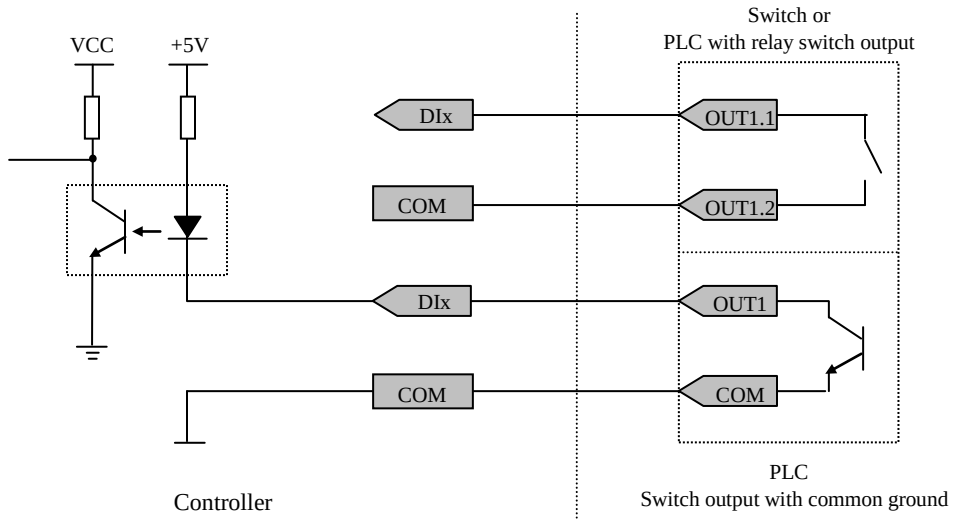


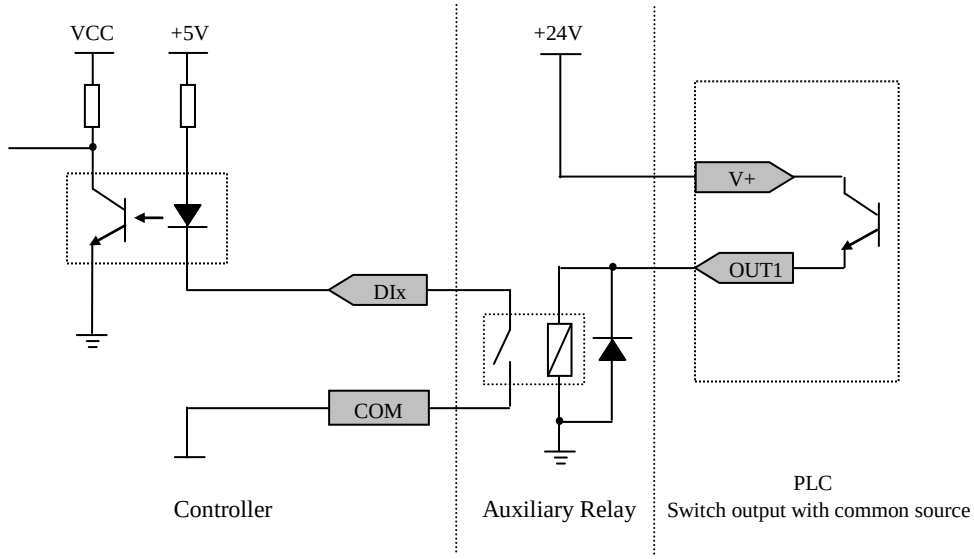
4.3.3.4 Transistor Switch Output (DO) to PLC Connection





4.3.3.5 Switch Input (DI) to Switch/PLC Connection





4.3.4 Digital Communication Port Connection (COM1/2)

COM1 Optional: RS232/RS485/RS422/Profibus-DP/CANBUS/Ethernet modules.
COM2: RS232.
Connectable: IPC/PLC, Remote Display&Operation Terminal, Serial Printer and Wireless Module.

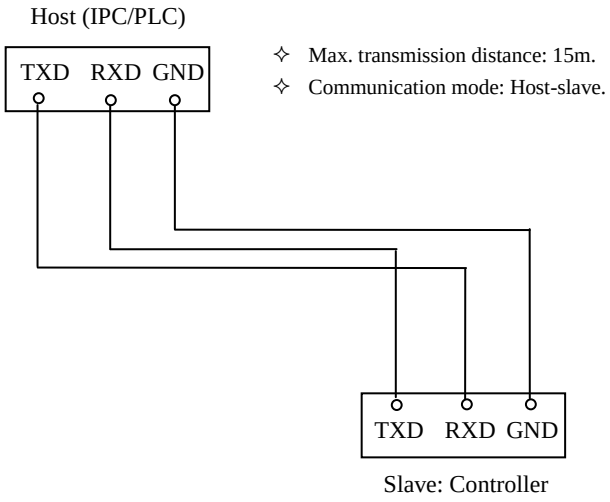
4.3.4.1 Model Panel-mounting Communication Port

No.	COM1				COM2
	RS232	RS485 CANBUS	Profibus-DP	RS422 Ethernet	RS232
1		B-		TXD-	
2	RXD	A+		TXD+	
3	TXD		DP- (B)	RXD+	
4				RXD-	
5	GND	GND	GND	GND	GND
6					TXD
7					RXD
8			DP+ (A)		
9	+5V (+5V/100mA power supply can be used for external wireless communication device)				

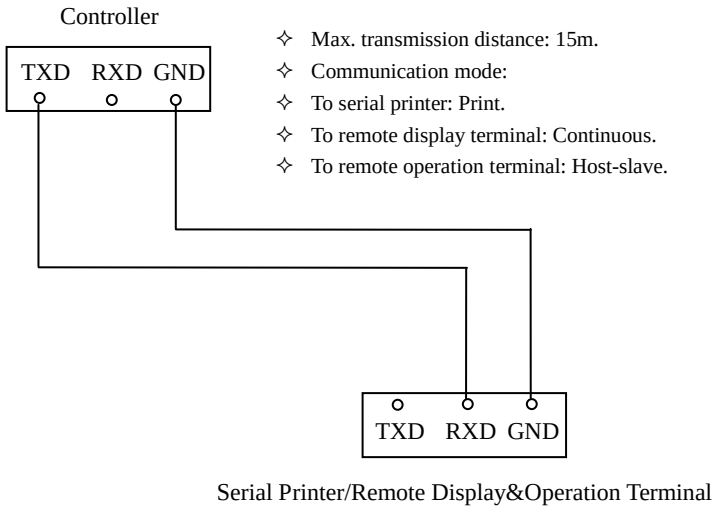
4.3.4.2 Model Wall-mounting Communication Port

No.	COM1				COM2
	RS232	RS485 CANBUS	Profibus-DP	RS422 Ethernet	RS232
1		B-		TXD-	
2	RXD	A+		TXD+	
3	TXD		DP- (B)	RXD+	
4				RXD-	
5			DP+ (A)		
6	GND	GND	GND	GND	GND
7					RXD
8					TXD
9	+5V (+5V/100mA power supply can be used for external wireless communication device)				

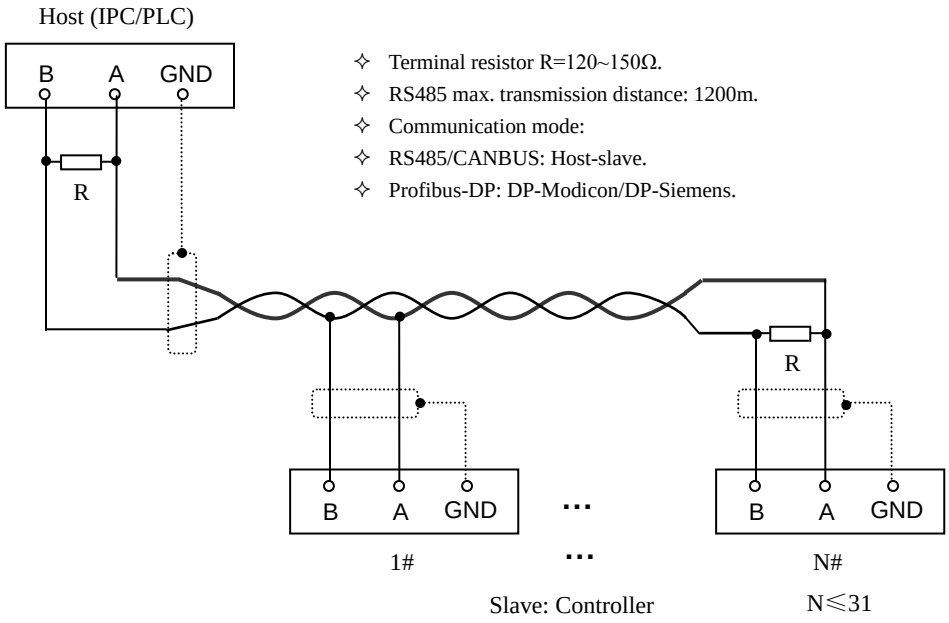
4.3.4.3 RS232 to IPC/PLC Host-slave&Point-to-point Network



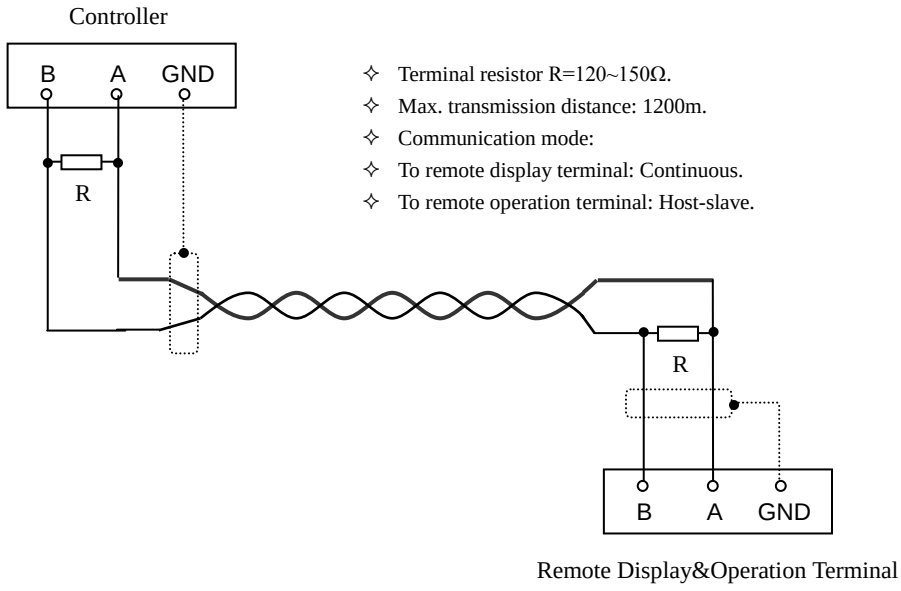
4.3.4.4 RS232 to Printer, Remote Display&Operation Terminal Point-to-point Network



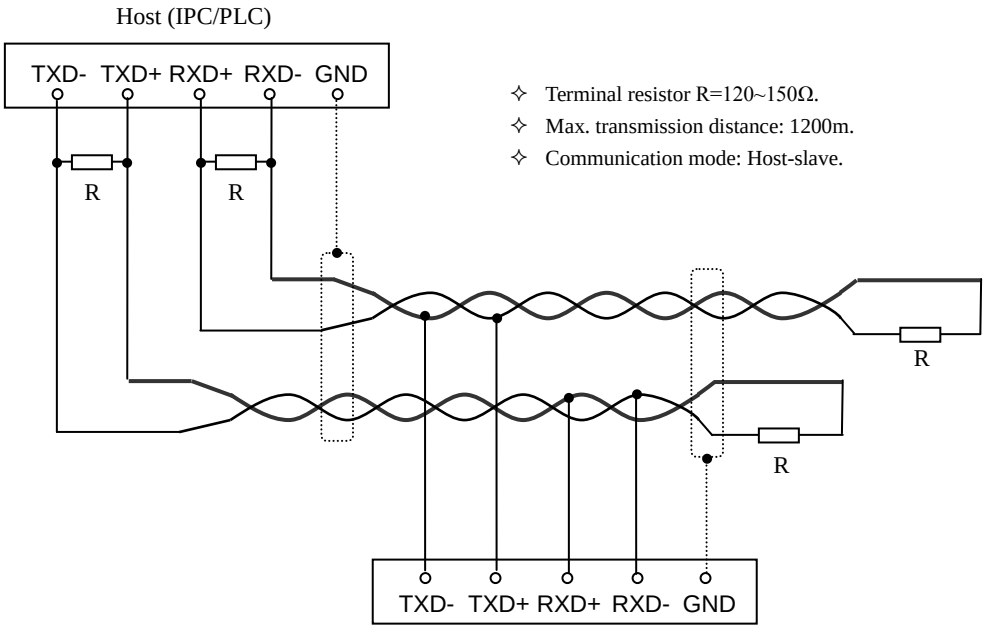
4.3.4.5 RS485/CANBUS/Profibus-DP to IPC/PLC Host-slave Data-bus Network



4.3.4.6 RS485 to Remote Display&Operation Terminal Point-to-point Network

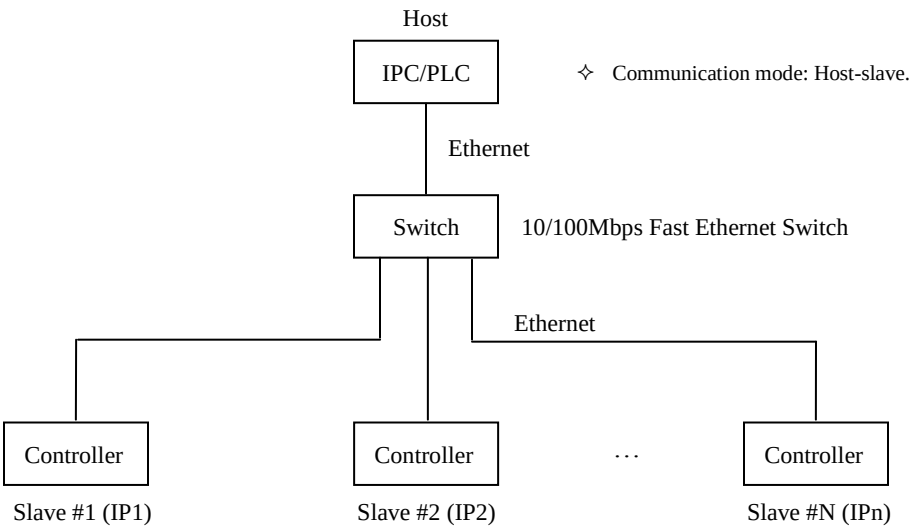


4.3.4.7 RS422 to IPC/PLC Host-slave Data-bus Network



Slave: Controller #1~N, N≤31

4.3.4.8 Ethernet Host-slave Network



4.3.5 Power Supply Connector (POWER)

Please make sure that the power supply is correct before power-on. If the voltage fluctuation exceeds the allowable range, please use regulated power supply.

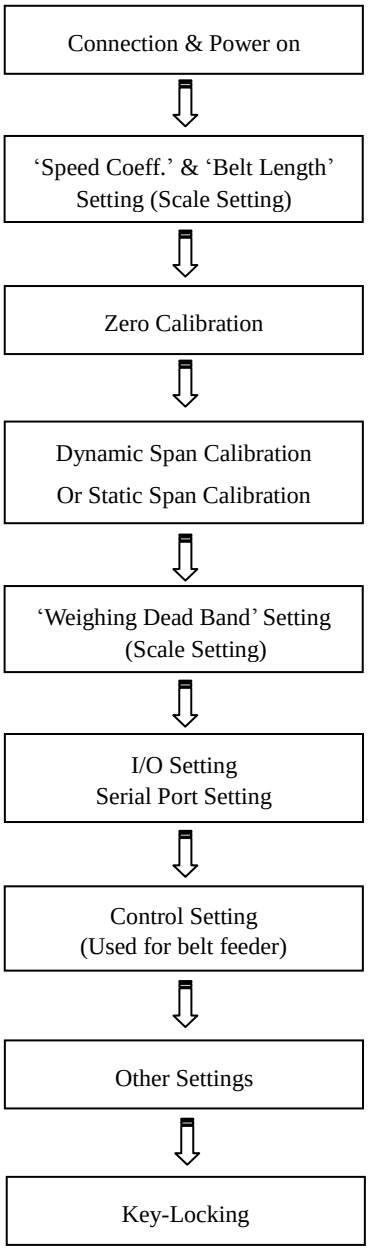
Pin	Description	Voltage
N	Null Wire.	AC220V ±15%.
E	Earth Wire.	
L	Live Wire.	

Pin	Description	Voltage
DC-	DC Input -.	DC24V ±20%.
DC+	DC Input +.	
Optional for Model Wall-mounting.		

4.3.6 Ground Protection

For avoiding electric shocks, the metal shell should be grounded directly.

5. Operation Procedure



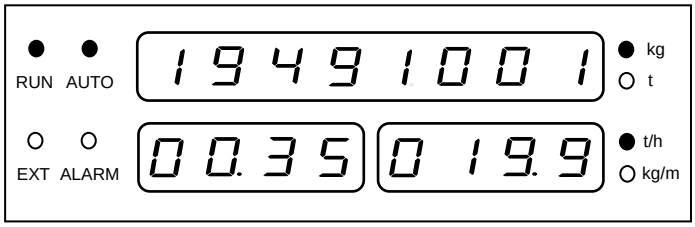
6. Function&Operation

The following display&operation interfaces are described with ‘kg’ as the Internal Scale Unit. If the parameter ‘[P107] Internal Scale Unit’ is set to ‘g’, the actual Weight Display Unit will be different.

6.1 Main Display Interface

【▲】【▼】: Display the next/previous interface.

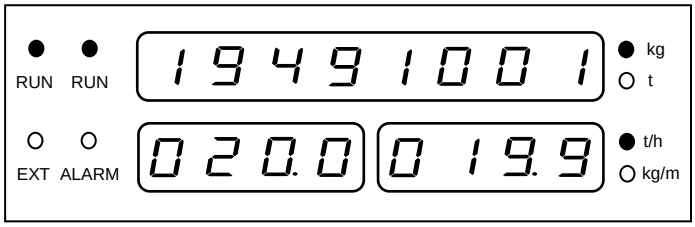
6.1.1 Totalized Weight, Belt Speed & Flow



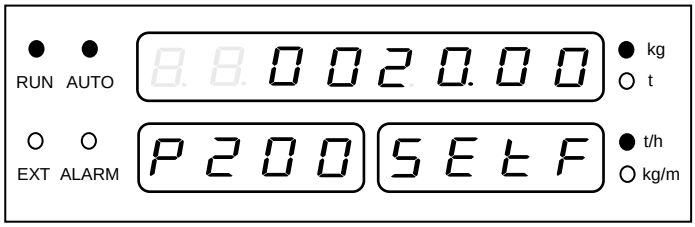
Press【PRINT】key to print: 2009-05-20 23:59

19491001kg

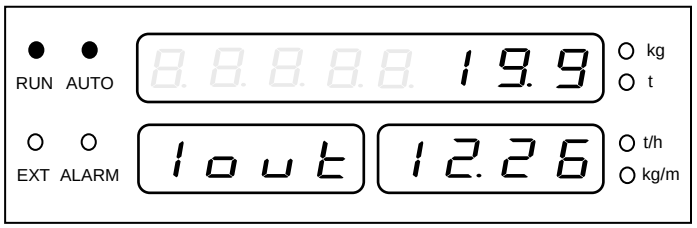
6.1.2 Totalized Weight, Flow Setpoint & Flow



【ENT】: Set ‘Flow Setpoint’ value

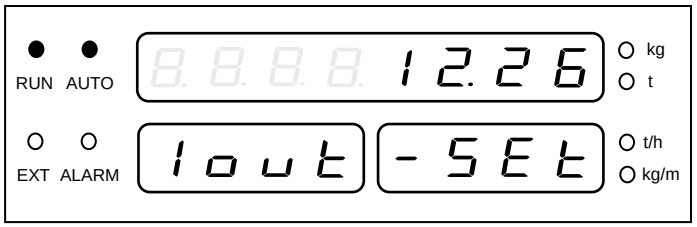


6.1.3 Flow & Control Current

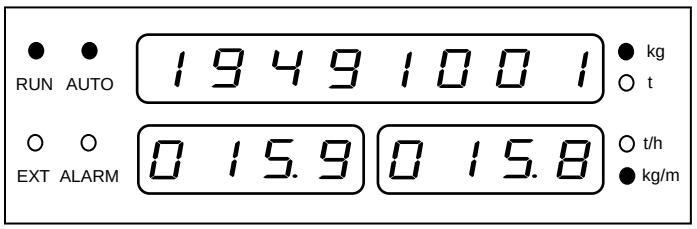


【◄】【►】: Control Current Iout ±1mA

【ENT】: Set 'Control Current' value

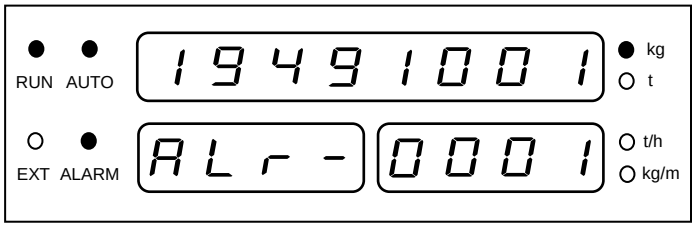


6.1.4 Totalized Weight, Load Setpoint & Load



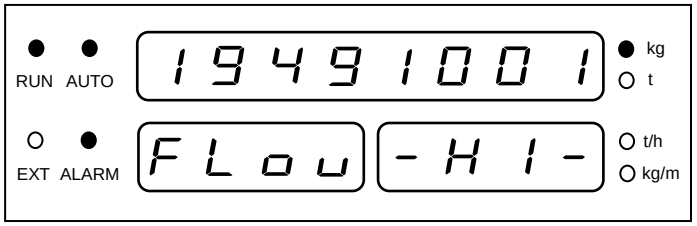
Load=Flow / (3.6×Speed)
Load Setpoint=Flow Setpoint / (3.6×Speed)
Load: kg/m; Flow: t/h
Belt Speed: m/s

6.1.5 Alarm Items



ALr- Alarm Count

⇩ 【ENT】: Alarm Query



【▲】【▼】: Query Switch; 【MENU】: Exit

Sign	Alarm Item	Alarm Condition
FLou -HI-	Flow Upper Limit	Flow ≥ Flow Range ×Flow Upper Limit(%)
FLou -Lo-	Flow Lower Limit	Flow ≤ Flow Range ×Flow Lower Limit(%)
LoAd -HI-	Load Upper Limit	Load ≥ Load Range ×Load Upper Limit(%)
LoAd -Lo-	Load Lower Limit	Load ≤ Load Range ×Load Lower Limit(%)
SPEd -HI-	Speed Upper Limit	Speed ≥ Speed Range ×Speed Upper Limit(%)
SPEd -Lo-	Speed Lower Limit	Speed ≤ Speed Range ×Speed Lower Limit(%)
PId- -HI-	Control Current Upper Limit	Control Current ≥ PID Control Current Upper Limit
PId- -Lo-	Control Current Lower Limit	Control Current ≤ PID Control Current Lower Limit
dEV- -HI-	Flow Positive Deviation Limit	Flow Deviation [E%] > Flow Positive Deviation Limit
dEV- -Lo-	Flow Negative Deviation Limit	Flow Deviation [E%] < (－Flow Negative Deviation Limit)
dEV=XXX.X	Flow Deviation Value [E%]	0.0~999.9% Flow Deviation [E%] = ((Flow －Flow Setpoint) / Flow Setpoint) ×100%
XXXX ----	Normal	

6.1.6 Other Display Interface

The Numeric Display 1 displays Totalized Weight value and the Numeric Display 2-3 displays the following data:

NO.	Display iterms	Sign	Range
6	Totalized Weight of Current Batch	P=	0~999999
7	AD Value	Ad=	0~65535
8	Zero Value	Zr=	0~60000
9~11	DI State	dI1-/dI2-/dI3-	-oFF/-on-
12~15	DO State	do1-/do2-/do3-/do4-	-oFF/-on-
16	AI Signal	AI1=	4.00~20.00mA
17~19	AO Signal	Ao1=/Ao2=/Ao3=	4.00~20.00mA
20	Totalized Weight High Speed Pulse	HP	0~999999 Pulse
21	Totalized Weight Low Speed Pulse	LP	0~999999 Pulse
22	Date	20YY.MM.DD	Year. Month. Day
23	Time	HH.MM.SS-W	Hour. Minute. Second-Week
24	Totalized Weight of Current Shift	t=	0~99999.9t

6.2 Main MENU

Main Menu	Second Menu	Description
≡F1-SEt≡ Setting	--SCAL--	Basic scale parameters setting.
	--SCAL1-	Extra scale parameters setting.
	--CtrL--	Basic feeding control parameters setting.
	--CtrL1-	Extra feeding and batching control parameters setting.
	--Flou--	Flow parameters setting.
	--SPEd-	Speed parameters setting.
	--LoAd--	Load parameters setting.
	--SAVE--	Weight record parameters setting.
	--SErP--	Communication parameters setting.
	---Io---	Input/output parameters setting.
	--dISP--	Display and operation interface parameters setting.
	--tIEE--	Date/Time parameters setting.
≡F2-CAL≡ Calibration	--ZEro--	Zero Calibration without loading for correcting Zero Value.
	--LoAd--	Dynamic Span Calibration with loading materials or Poise Weights for correcting Span Coefficient.
	-CHAn--	Static Span Calibration with a measured chain weight as a continuous and steady load on the running belt weigher for correcting Span Coefficient.
	--HAng--	Static Span Calibration with a measured Hanging Weight as a steady load on the running belt weigher for correcting Span Coefficient.
	--SEgC--	Segmenting Span Correction. After doing Dynamic or Static Span Calibration, further corrections for 3 [AD Value: 0~60000] linear segments are optional for correcting Correction Coefficient 1~3.
	--SPEd--	Speed Coefficient Calibration. Keep the belt weigher running at a constant speed. After the running time of a revolution being measured with using a stopwatch, do this operation for correcting Speed Coefficient.
	--LEnS--	Belt Length Calibration. Keep the belt weigher running at a constant speed. After the running time of a revolution being measured with using a stopwatch, do this operation for correcting Belt Length.
≡F3-rEC≡ Weight Record		Query and print Weight Records.

Main Menu	Second Menu	Description
≡F4-CLS≡ Data Clearing	---CLS--	Clear Screen: Clear Totalized Weight and Totalized Weight Pulse Count. But Totalized Weight of Current Shift will not be cleared, so this operation has no effect on recording of weight per shift.
	---CLt--	Clear Weight: Clear Totalized Weight, Totalized Weight Pulse Count and Totalized Weight of Current Shift. The cleared value of Totalized Weight of Current Shift will not be recorded.
	---CLr--	Clear Records: Clear History Records of Totalized Weight. But Current Totalized Weight, Totalized Weight Pulse Count and Totalized Weight of Current Shift will not be cleared.
≡F5-SAF≡ Security	--ALoc--	Auto-locking: 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.
	--Locc--	Locking keypad.
	--oPEn--	Unlocking keypad.
	--PASS--	Set Password. Exfactory Password: 001.
	--dEFU--	RAM Reset: Restore to factory defaults.
≡F6-FAC≡ Factory Adj.	--Ao1E--	AO1 Zero Adjustment.
	--Ao1F--	AO1 Full Range Adjustment.
	--Ao2E--	AO2 Zero Adjustment.
	--Ao2F--	AO2 Full Range Adjustment.
	--Ao3E--	AO3 Zero Adjustment.
	--Ao3F--	AO3 Full Range Adjustment.
	--AI1E--	AI Zero Adjustment.
	--AI1F--	AI Full Range Adjustment.
≡F7-InF≡ Product Info.	---VEr--	Version No.: Only for query.
	---Sn---	Serial No.: Only for query.
	--dAtE--	Exfactory Date: Only for query.
	--AudIt-	Audit Counter: Audit Trail Counter [0~99999999] for Scale parameter's modification. Only for query.
	--AutH--	Authorization Code: Only for query.

6.3 F1-SET Setting

6.3.1 Basic Scale Parameters (SCAL)

No.	Sign	Parameter	Range	Default	Set
P100	UnIt	Weight Display Unit	0: kg 1: t ([P107] Scale Unit = kg)	0	
			0: g 1: kg ([P107] Scale Unit = g)		
P101	-dot	Weight Decimal Point	0: o 1: o.o 2: o.oo When [P100]=1, it's valid.	1	
P102	--L-	Belt Length	0.01~5000.00m	10.00[*]	
P103	--C-	Speed Coefficient	1.0~99999.9 pulse/m	100.0[*]	
P104	ZEro	Zero Value	0~60000 (Max. AD Value)	15000[*]	
P105	CALC	Span Coefficient	1~99999999	200000 [*]	
P106	dEAd	Weighing Deadband	±(0.00~200.00) t/h ([P107] Scale Unit = kg) If Flow < Deadband value, the variance of Totalized Weight will be ignored.	±0.00	
			±(0.00~200.00) kg/h ([P107] Scale Unit = g)		
P107	SCAL	Internal Scale Unit	0: kg 1: g	0/1[*]	

* 'RAM Reset' operation has no effect on this parameter.

6.3.2 Extra Scale Parameters (SCAL1)

No.	Sign	Parameter	Range	Default	Set
P110	-Cn-	Calibration Revolutions	1~99R (1R=1 Belt Length)	3	
P111	CHAn	Chain Weight	0.1~1000.0kg/m ([P107] Scale Unit = kg) Chain Weight for Span Calibration 0.1~1000.0g/m ([P107] Scale Unit = g)	10.0	
P112	HAng	Hanging Weight	0.1~1000.0kg ([P107] Scale Unit = kg) Hanging Weight for Span Calibration 0.1~1000.0g ([P107] Scale Unit = g)	10.0	
P113	SCLL	Weigh Length	0.001~50.000m	1.000	
P114	CALI	Calibration Current	4.00~20.00mA Control Current for System Calibration	12.00	
P115	-Zt-	Zero Tracking Permission	0: OFF; 1: ON	0	
P116	-tr-	Zero Tracking Range	±(0~10%) ×[P302] Flow Range	±5%	
P117	-ZA-	Zero Adjusting Range	±(0~10%) ×[P104] Zero Value	±5%	
P118	-Zr-	Zero Refresh	0: RAM (Only Refresh RAM Zero Value) 1: FLASH/RAM (Refresh Original Zero Value)	0	
P119	-SP1	Breakpoint1	0~[P120] (AD Value: 0~60000) Breakpoint1 of Segmenting Span Correction	18000	
P120	-SP2	Breakpoint2	[P119]~Max. AD Value (60000) Breakpoint2 of Segmenting Span Correction	42000	
P121	-C1-	Span Correction Coefficient 1	0.500~2.000; Span Correction Coefficient of AD Value Linear Segment 1: 0~[P119]	1.000	
P122	-C2-	Span Correction Coefficient 2	0.500~2.000; Span Correction Coefficient of AD Value Linear Segment 2: [P119]~[P120]	1.000	
P123	-C3-	Span Correction Coefficient 3	0.500~2.000; Span Correction Coefficient of AD Value Linear Segment 3: [P120~Max. AD Value	1.000	
P124	CAdd	Totalizing While Calibrating	0: OFF 1: ON [In the process of 'Load Calibration', the inputted actual weight value will be added to Totalized Weight]	0	
P125	nAdd	Negative Totalizing	0: OFF [The negative variance of Totalized Weight will be ignored] 1: ON	1	

6.3.3 Basic Control Parameters (CtrL)

No.	Sign	Parameter	Range	Default	Set
P200	SEtF	Flow Setpoint	0.00~5000.00t/h ([P107] Scale Unit = kg) 0.00~5000.00kg/h ([P107] Scale Unit = g)	20.00	
P201	--P-	P Value	0.1~5000.0 A bigger P value indicates a higher-precision feeding adjustment but a longer time for flow to reach the target value [Flow Setpoint].	100.0	
P202	--I-	I Value	0.1-9.9s A smaller I value indicates a higher-frequency feeding adjustment but a potential flow over-adjustment.	0.5	
P203	PIHI	PID Upper Limit	[P204]~20.00mA Auto[PID]/Manual Control Current Upper Limit	20.00	
P204	PILo	PID Lower Limit	4.00~[P203]mA Auto[PID]/Manual Control Current Lower Limit	5.00	
P205	rAtE	PID Control Ratio	1~500% The 2nd&3rd Control Current=Control Ratio×(The 1st Control Current-4.00)+4.00 [mA]	100%	
P206	oVEr	Flow Positive Deviation Limit	(0.5~100.0)%	10.0%	
P207	Undr	Flow Negative Deviation Limit	(0.5~100.0)%	10.0%	
P208	CtrL	Feeding Control Mode	0: Auto[PID] 1: Manual 2: Communication	1	
P209	FLSt	Flow Set Mode	0: Internal/Communication 1: External AI: 4~20mA	0	

6.3.4 Extra Control Parameters (CtrL1)

No.	Sign	Parameter	Range	Default	Set
P210	PIdL	PID Initial Current Hold Time	0.0-999.9s	2.0	
P211	InIC	PID Initial Current	0: Present (Present Current Value) 1: Fuzzy (Fuzzy Current Value) 2: Set [P219] (Set Value of [P219])	0	
P212	FuZE	Fuzzy Equivalent	0.01~100.00 [t/h]/mA ([P107] Scale Unit = kg) Flow Increment per Increasing 1mA Adjusting Current. 0.01~100.00 [kg/h]/mA ([P107] Scale Unit = g)	2.50	
P213	StdL	Start/Stop Delay	0.0~999.9s Delay Time of Feeder Starting Delay Time of Scale Stopping	0.0	
P214	bCon	Batch Permission	0: OFF; 1: ON	0	
P215	-bSt	Batch Loop Mode	0: Manual Mode; 1: Auto Mode	0	
P216	-bdL	Batch Interval	0.0-9999.9s	60.0	
P217	SEtb	Batch Weight Setpoint	0~99999999kg ([P107] Scale Unit = kg) 0~99999999g ([P107] Scale Unit = g)	0	
P218	SEtP	Batch Preact Weight	0~[P217] kg ([P107] Scale Unit = kg) Batch Preact Weight 0~[P217] g ([P107] Scale Unit = g)	0	
P219	SEtI	Set Value of PID Initial Current	4.00~20.00mA	12.00	

Note:

[P213] Start/Stop Delay:

1. Delay Time of Feeder Starting: When there is a “DI.Start” pulse signal input, ‘DO. Scale Start&Stop Control’ will turn on to start the belt weigher, and after delaying this time, ‘DO. Feeder Start&Stop Control’ will turn on to start the feeder.

2. Delay Time of Scale Stopping: When there is a “DI.Stop” pulse signal input, ‘DO. Feeder Start&Stop Control’ will turn off to stop the feeder, and after delaying this time, ‘DO. Scale Start&Stop Control’ will turn off to stop the belt weigher.

6.3.5 Flow Parameters (Flou)

No.	Sign	Parameter	Range	Default	Set
P300	UnIt	Flow Display Unit	0: t/h 1: kg/min 2: kg/h ([P107] Scale Unit = kg) 0: kg/h 1: g/min 2: g/h ([P107] Scale Unit = g)	0	
P301	-dot	Flow Decimal Point	0: o; 1: o.o; 2: o.oo	1	
P302	rAng	Flow Range	0.01~5000.00t/h ([P107] Scale Unit = kg) 0.01~5000.00kg/h ([P107] Scale Unit = g)	100.00	
P303	-HI-	Flow Upper Limit	(0.0~100.0)% Flow Range	100.0%	
P304	-Lo-	Flow Lower Limit	(0.0~100.0)% Flow Range	0.0%	
P305	FILt	Flow Filter	1~200	10	
P306	FLt2	Flow Filter 2	1~100 The secondary filter for flow display.	1	
P307	FdEV	Flow Deviation Range for Filter2	±(0~20)% When Flow Deviation [E%] is within this range, the secondary filter will work.	±2%	

6.3.6 Speed Parameters (SPEd)

No.	Sign	Parameter	Range	Default	Set
P400	-dot	Speed Decimal Point	0: o 1: o.o 2: o.oo 3: o.ooo	2	
P401	rAng	Speed Range	0.100~5.000m/s	3.000	
P402	-HI-	Speed Upper Limit	(0.0~100.0)% Speed Range	100.0%	
P403	-Lo-	Speed Lower Limit	(0.0~100.0)% Speed Range	0.0%	
P404	FILt	Speed Filter	1~200	10	
P405	PuLS	Speed Source	0: Ext. Speed (Weighing by the external speed) 1: Int. Speed1 (Weighing by the internal speed) 2: Int. Speed2 (Connect a normally open switch related to the running state of the weighing belt between the terminals 'SIN' and 'VS-'. Switch ON with Belt's Running: Weighing by the internal speed; Switch OFF with Belt's Stopping: Stop weighing) 3: Int. Speed3 (Weighing by the internal speed while the external speed pulse inputting) Note: If a DI signal is defined as '1: Weighing', then only when this DI turns on, the weighing process is allowed.	0	
P406	InPL	Internal Speed	0.001~5.000m/s	0.500	
P407	FrEH	Speed Pulse Frequency Upper Limit	0.1~3.0kHz If the frequency of speed pulse exceeds this set value, the speed pulse will be invalid.	1.0	

6.3.7 Load Parameters (LoAd)

No.	Sign	Parameter	Range	Default	Set
P500	-dot	Load Decimal Point	0: o 1: o.o 2: o.oo	1	
P501	rAng	Load Range	0.01~5000.00kg/m ([P107] Scale Unit = kg) 0.01~5000.00g/m ([P107] Scale Unit = g)	100.00	
P502	-HI-	Load Upper Limit	(0.0~100.0)% Load Range	100.0%	
P503	-Lo-	Load Lower Limit	(0.0~100.0)% Load Range	0.0%	
P504	FILt	Load Filter	1~20	10	
P505	LdCA	Speed for Calculation	0.000 (Use external speed for Load calculation) 0.001~5.000m/s (Used for Load calculation)	0.000	

6.3.8 Weight Record Parameters (SAVE)

No.	Sign	Parameter	Range	Default	Set
P600	SHFn	Shifts per Day	1: One Shift; 2: Two Shifts; 3: Three Shifts; 4: Four Shifts	3	
P601	SHF1	Shift1 Time	00:00~23:59	07:59	
P602	SHF2	Shift2 Time	00:00~23:59	15:59	
P603	SHF3	Shift3 Time	00:00~23:59	23:59	
P604	SHF4	Shift4 Time	00:00~23:59	23:59	
P605	APrt	Auto-print	0: OFF; 1: Per Hour 2: Per Shift; 3: Per Day	0	
P606	ACLn	Auto Clear Screen	0: OFF; 1: Per Shift 2: Per Day; 3: Per Month 'Auto-clear' has no effect on recording of weight per shift.	0	

6.3.9 Communication Parameters (SErP)

No.	Sign	Parameter	Range	Default	Set
P700	-Adr	Communication Address	00~99	01	
P701 P702	bPS1 bPS2	COM1 Baud Rate COM2 Baud Rate	0: 1200bps 1: 2400bps 2: 4800bps 3: 9600bps 4: 19200bps 5: 115200bps	3 3	
P703 P704	CHC1 CHC2	COM1 Parity Check COM2 Parity Check	0: None 1: Even 2: Odd	0 0	
P705	Con1	COM1 Communication Mode	0: Host-slave Modbus ASCII 1: Continuous Sending ASCII 2: DP-Modicon (Profibus-DP; Data Format: 4321) 3: DP-Siemens (Profibus-DP; Data Format: 1234) 4: Print[A] 5: Print[B] 6: Host-slave Modbus RTU 7: Continuous Sending RTU 8: TCP 9: User1	0	
P706	Con2	COM2 Communication Mode	0: Host-slave Modbus ASCII 1: Continuous Sending ASCII 2: Unused 3: Unused 4: Print[A] 5: Print[B] 6: Host-slave Modbus RTU 7: Continuous Sending RTU 8: TCP 9: User1	0	
P707	dAtF	Data Format	0: 4321 1: 3412 2: 1234 3: 2143	0	

6.3.10 I/O Parameters (-Io-)

No.	Sign	Parameter	Range	Default	Set
P800 P801 P802	-Ao1 -Ao2 -Ao3	AO1 Signal AO2 Signal AO3 Signal	0: None 1: Flow 2: Control Current 3: Load 4: Speed 5: From AI [4~20mA] 6: From Communication Port 7: Totalized Weight High-speed Pulse (4mA→20mA→4mA) 8: Totalized Weight Low-speed Pulse (4mA→20mA→4mA) 9: Batch Weight (Output Capacity: [P217] 'Batch Weight Setpoint')	1 2 0	
P803 P804 P805 P806	-do1 -do2 -do3 -do4	DO1 Signal DO2 Signal DO3 Signal DO4 Signal	0: None 1: Flow Upper Limit Alarm 2: Flow Lower Limit Alarm 3: Load Upper Limit Alarm 4: Load Lower Limit Alarm 5: Speed Upper Limit Alarm 6: Speed Lower Limit Alarm 7: PID Upper Limit Alarm 8: PID Lower Limit Alarm 9: Flow Positive Deviation Limit Alarm 10: Flow Negative Deviation Limit Alarm 11: Totalized Weight Low-speed Pulse 12: Auto Feeding Control Mode 13: Calibrating State 14: Running State 15: From DI1 16: From DI2 17: From DI3 18: From Communication Port 19: Feeder Start&Stop Control 20: Belt Weigher Start&Stop Control) 21: BatchEnd[ON] (Totalized Weight reaches to Batch Weight Setpoint) 22: BatchEnd[OFF] (Totalized Weight reaches to Batch Weight Setpoint)	0 0 0 0	

No.	Sign	Parameter	Range	Default	Set
P807 P808 P809	-dI1 -dI2 -dI3	DI1 Signal DI2 Signal DI3 Signal	0: None 1: Weighing (ON: Weighing; OFF: No Weighing) 2: PID Start (ON: Start PID; OFF: Stop PID) 3: Sys. Ready (ON: System Ready, DI.Start Signal is valid) 4: Zero Calibration (OFF→ON→OFF) 5: Clear Screen (OFF→ON→OFF) 6: Start (OFF→ON→OFF) 7: Stop (OFF→ON→OFF) 8: Feeding Control Mode (ON: Auto Control; OFF: Manual Control) 9: Flow Set Mode (ON: Internal; OFF: External) 10: Clear Batch (OFF→ON→OFF, Clear Batch Weight) 11: Batch Permit (ON: Batch Control) 12: End Batch (OFF→ON→OFF)	0 0 0	
P810	ALSo	Alarm Sound	0: OFF 1: ON	0	
P811	ALdL	Alarm Delay	0.0~9.9s Alarm Delay Time	1.0	
P812	HIPL	HP Weight	1~1000kg ([P107] Scale Unit = kg) Weight value per high-speed pulse outputting from PO/AO port 1~1000g ([P107] Scale Unit =kg)	100	
P813	HIPt	HP Width	50~500ms Width of high-speed pulse	100	
P814	LoPL	LP Weight	10~10000kg ([P107] Scale Unit = kg) Weight value per low-speed pulse outputting from DO/AO port 10~10000g ([P107] Scale Unit = g)	1000	
P815	LoPt	LP Width	50~1000ms Width of low-speed pulse	200	

6.3.11 Display Parameters (dISP)

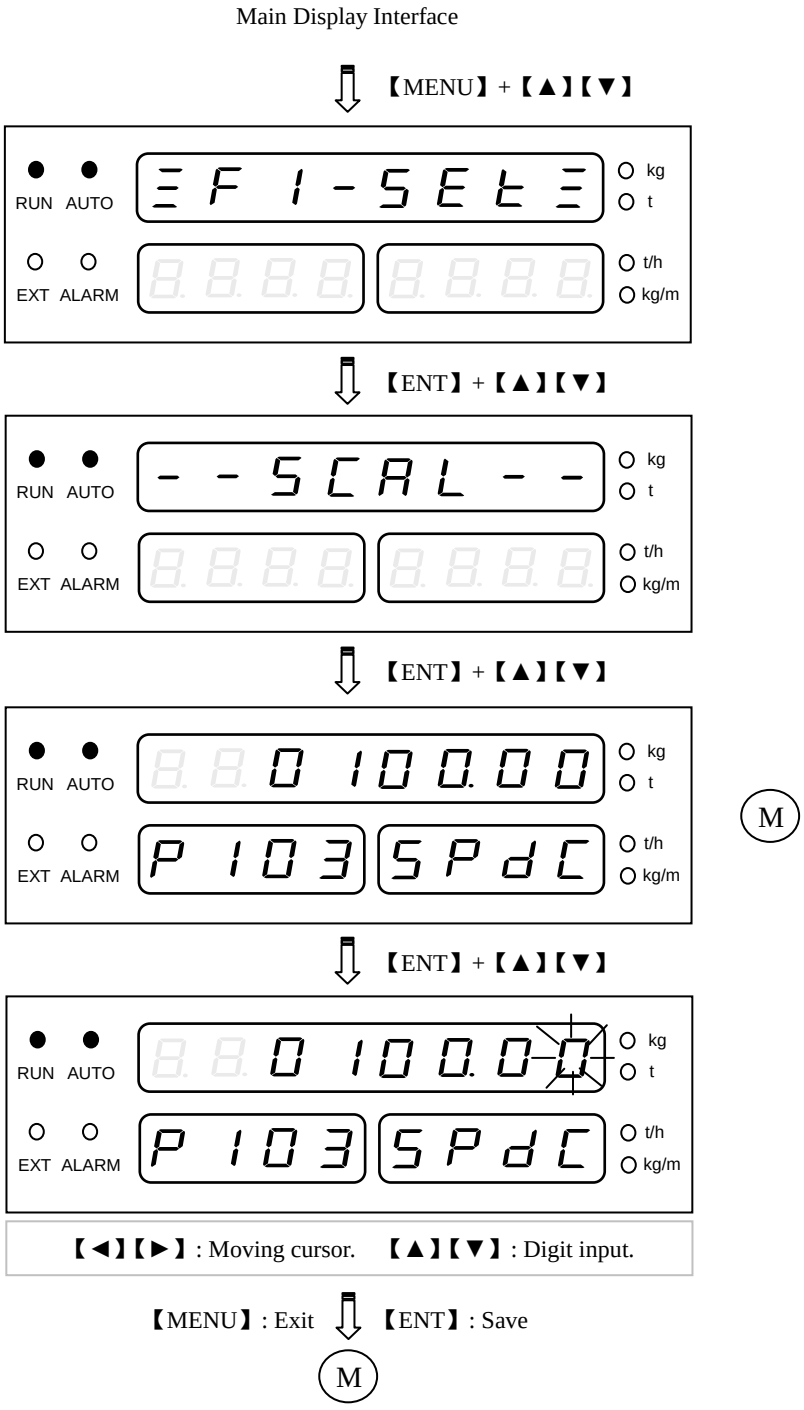
No.	Sign	Parameter	Range	Default	Set
P900	LAng	Printing Language	0: Chinese 1: English * 'RAM Reset' operation has no effect on this parameter.	0/1[*]	
P901	dSPt	Display Refreshing Time	0.1~2.0s	0.5	
P902	runL	LED Brightness While Running	5~15 * 'RAM Reset' operation has no effect on this parameter.	10[*]	
P903	StPL	LED Brightness While Stopping	5~15 * 'RAM Reset' operation has no effect on this parameter.	10[*]	
P904	InId	Initial Display Interface	1~6[#]	1	
P905	dSPS	Display Item (Displayable Interfaces)	0: 1 1: 1~5 2: 1~6 3: All	1	
P906	FAnr	Cooling Fan Running	0: OFF 1: ON	1	

6.3.12 Date/Time Parameters (tIEE)

No.	Sign	Parameter	Range	Default	Set
P998			20YY. MM. DD HH. MM. SS-Week [7: Sunday]	Local Time	

6.3.13 A Sample of Parameter Setting

Modify the parameter '[P103] Speed Coefficient'.



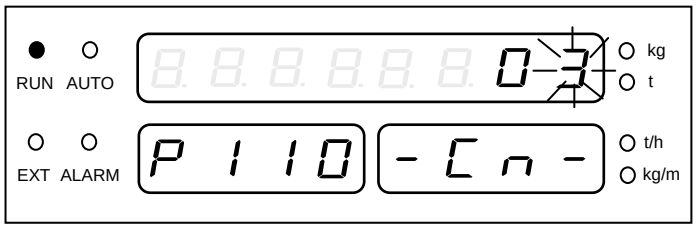
6.4 F2-CAL System Calibration

6.4.1 Zero Calibration (ZEro)

Keep the belt weigher running without load for correcting Zero Value.

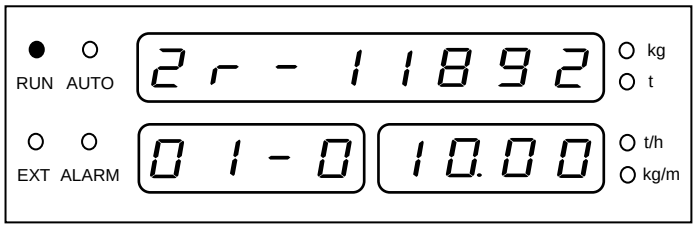
Main Display Interface

M ⇩ 【MENU】+【▲】【▼】: ═F2-CAL═
【ENT】+【▲】【▼】: --ZEro--
【ENT】



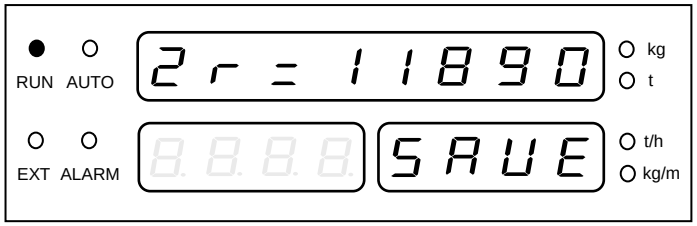
Input Calibration Revolutions

⇩ 【ENT】



Zr: Zero Value
Revolution Count &Remainder length of a revolution

⇩ After running Calibration Revolutions:



【MENU】: Exit ⇩ 【ENT】: Save

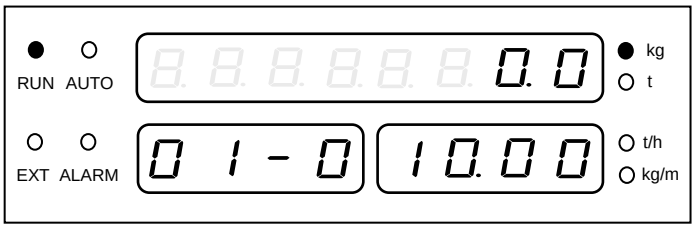
M

6.4.2 Dynamic Span Calibration (LoAd)

Let the belt weigher run with loading measured materials or Poise Weights for correcting Span Coefficient.

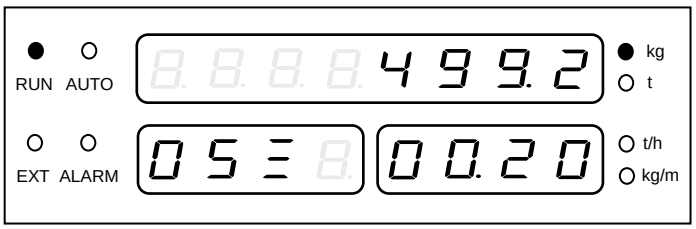
Main Display Interface

M ⇩ 【MENU】+【▲】【▼】: ═F2-CAL═
【ENT】+【▲】【▼】: --LoAd--
【ENT】& Start loading



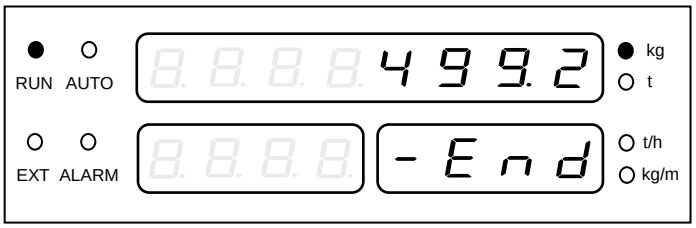
Totalized Weight; Revolution Count & Remainder length of a revolution (【▲】【▼】: Display Flow or AD value)

⇩ Stop loading & Press【ENT】to run the last revolution:

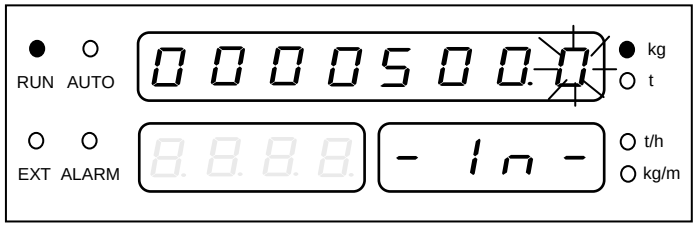


═: Running the last revolution

⇩ After running the last revolution:

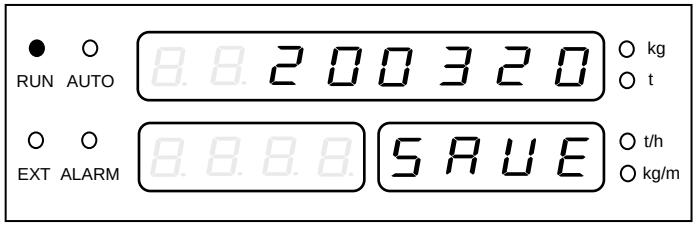


⇩ 【ENT】



Input Calibrating Weight [kg]

【ENT】



【MENU】: Exit 【ENT】: Save

M

6.4.3 Static Span Calibration with Chain Weight (CHAn)

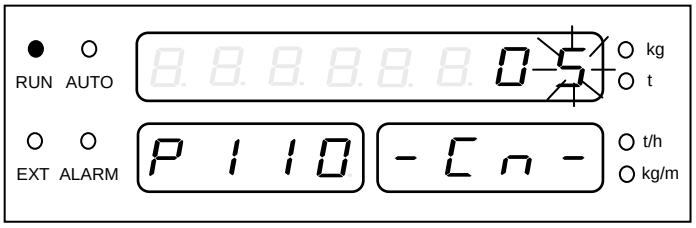
Keep the belt weigher running with loading a chain weight for correcting Span Coefficient.

Put a measured chain weight as a continuous and steady load on the belt weigher and then start the belt weigher.

Main Display Interface

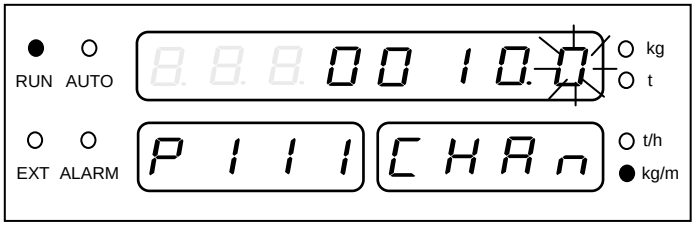
M

【MENU】+【▲】【▼】: ≡F2-CAL≡
【ENT】+【▲】【▼】: --CHAn--
【ENT】



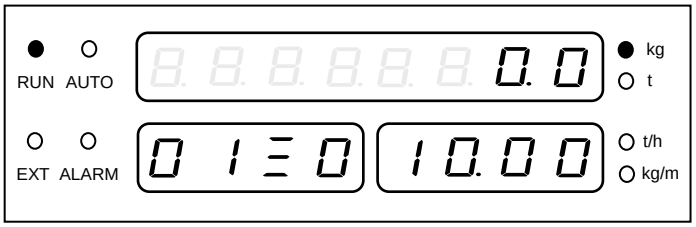
Input Calibration Revolutions

【ENT】



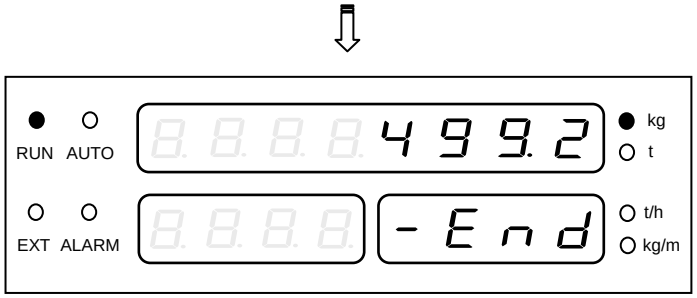
Input Chain Weight [kg/m]

【ENT】

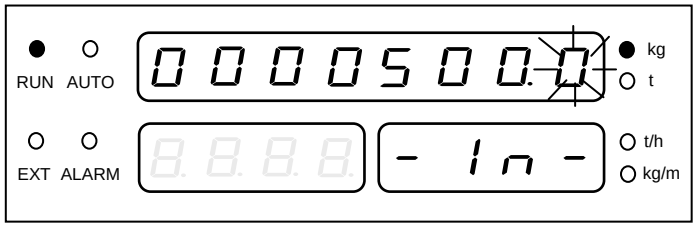


Totalized Weight; Revolution Count & Remainder length of a revolution (【▲】【▼】: Display Flow or AD value)

After running the last revolution

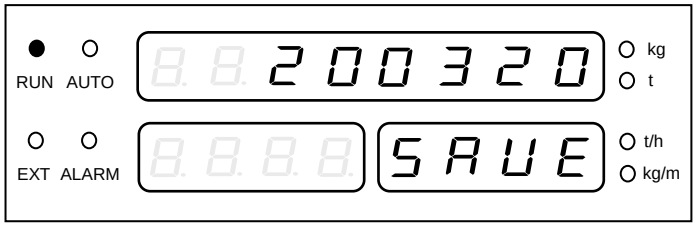


【ENT】



Input Calibrating Weight [kg] = Calibration Revolutions × Belt Length ×Chain Weight

【ENT】



【MENU】: Exit 【ENT】: Save

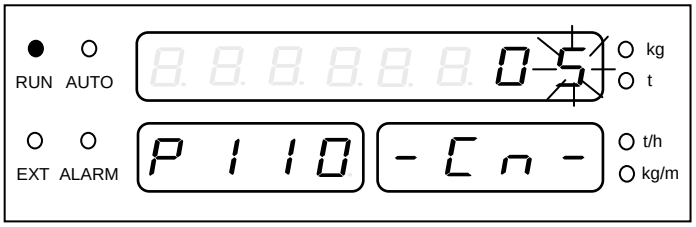
M

6.4.4 Static Span Calibration with Hanging Weight (HAng)

Keep the belt weigher running with loading hanging weights for correcting Span Coefficient.
Put a measured hanging weight as a steady load on the belt weigher and then start the belt weigher.

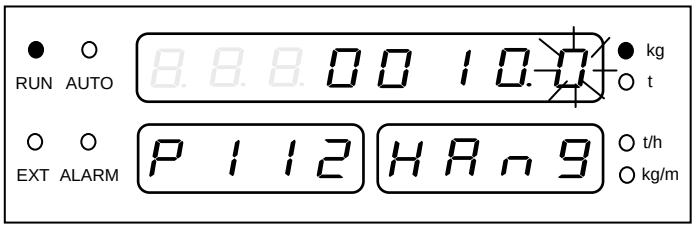
Main Display Interface

M ⇩ 【MENU】+【▲】【▼】: ≡F2-CAL≡
【ENT】+【▲】【▼】: --HAng--
【ENT】



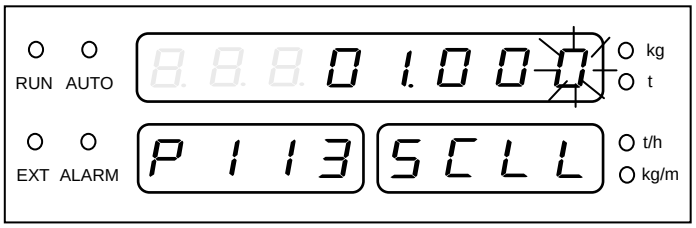
Input Calibration Revolutions

⇩ 【ENT】



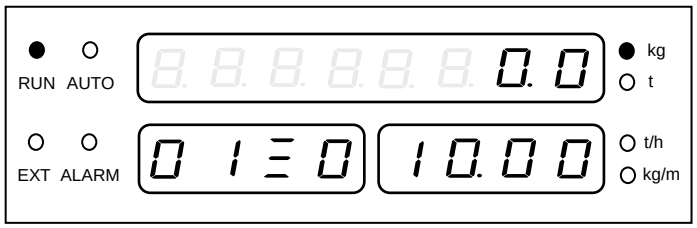
Input Hanging Weight [kg]

⇩ 【ENT】



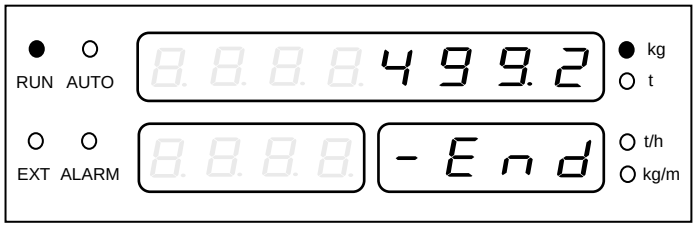
Input Weigh Length [m]

⇩ 【ENT】

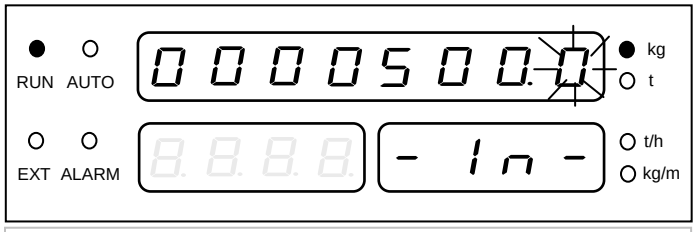


Totalized Weight; Revolution Count & Remainder length of a revolution (【▲】【▼】: Display Flow or AD value)

After running the last revolution

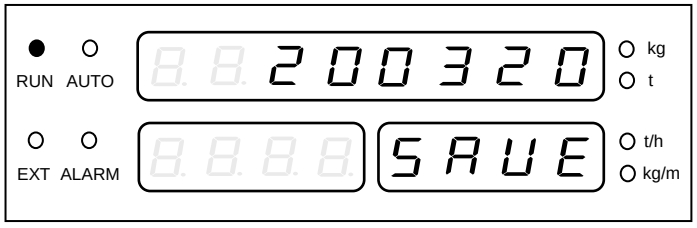


【ENT】



Input Calibrating Weight [kg] = Calibration Revolutions × Belt Length ×Hanging Weight / Weigh Length

【ENT】



【MENU】: Exit 【ENT】: Save

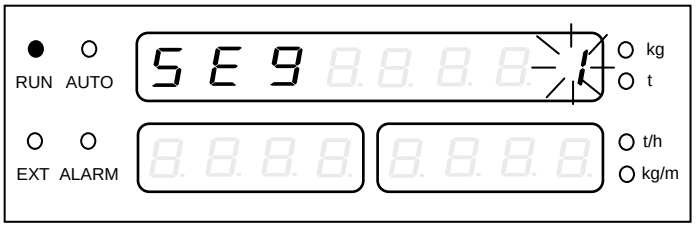
M

6.4.5 Segmenting Span Correction (SEgC)

After doing Dynamic or Static Span Calibration, further corrections for 3 [AD Value: 0~60000] linear segments are optional for correcting Correction Coefficient 1~3.

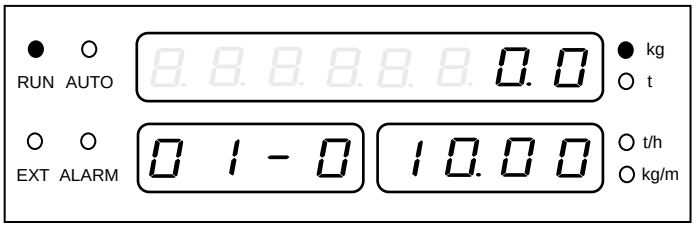
Main Display Interface

M ⇩ 【MENU】+【▲】【▼】: ≡F2-CAL≡
【ENT】+【▲】【▼】: --SEgC--
【ENT】



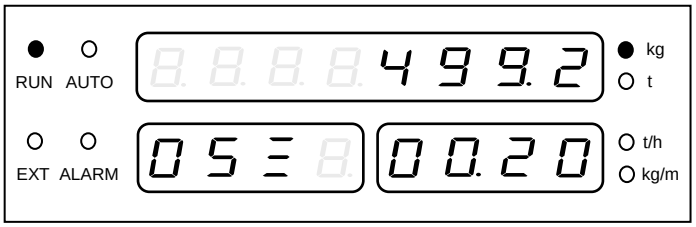
AD Value Linear Segment: 1~3; SEG1:0~[P119]; SEG2: [P119]~[P120]; SEG3: [P120]~ Max. AD Value

⇩ 【ENT】& Start loading



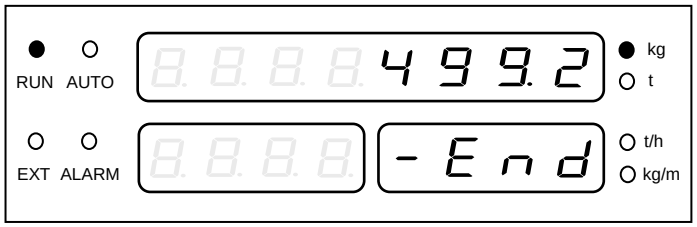
Totalized Weight; Revolution Count & Remainder length of a revolution (【▲】【▼】: Display Flow or AD value)

⇩ Stop loading & Press【ENT】to run the last revolution:

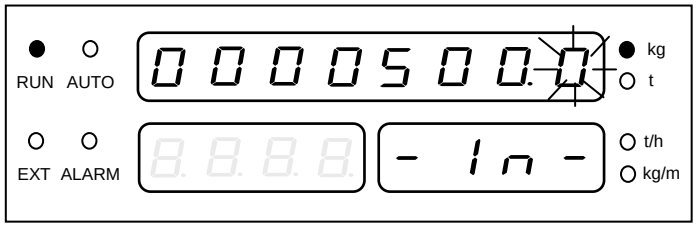


≡: Running the last revolution

⇩ After running the last revolution

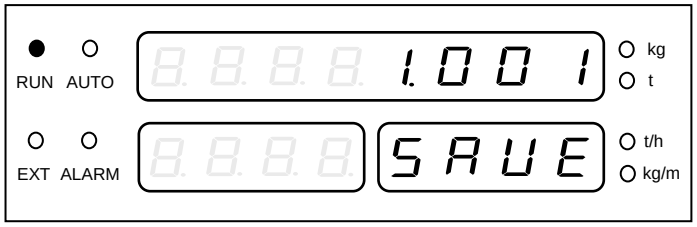


【ENT】



Input Calibrating Weight [kg]

【ENT】



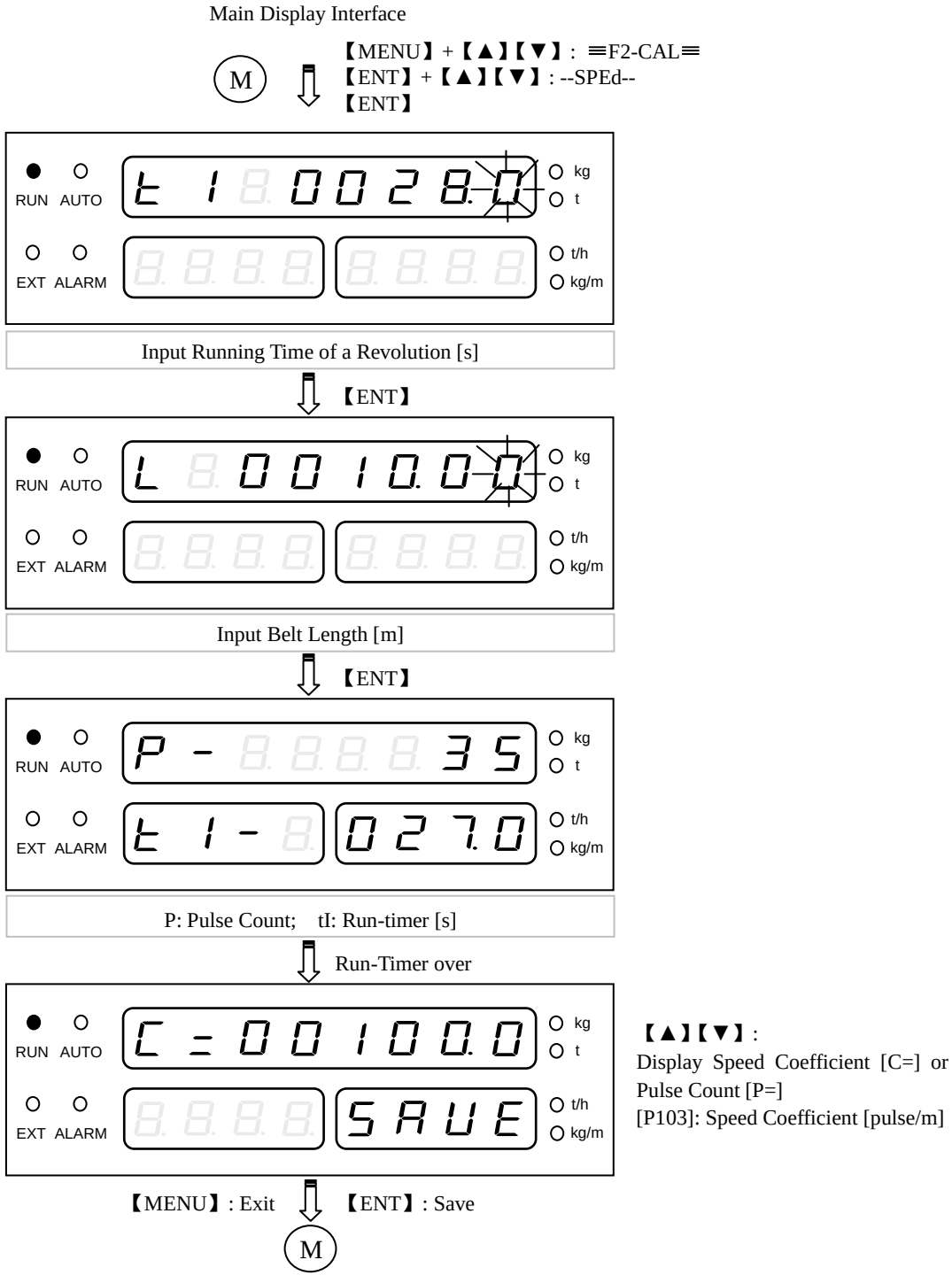
[P121]/[P122]/[P123] Span Correction Coefficient:
0.500~2.000

【MENU】: Exit 【ENT】: Save

M

6.4.6 Speed Calibration (SPEd)

Keep the belt weigher running at a constant speed. After the belt running time of a revolution being measured by stopwatch, do this operation for correcting Speed Coefficient.



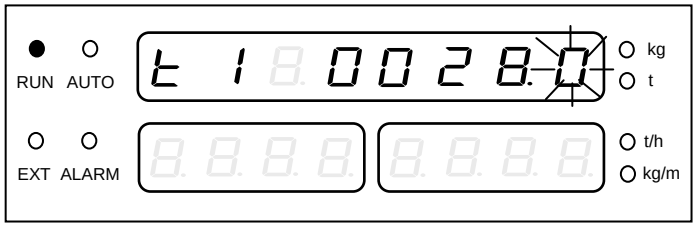
【▲】【▼】:
Display Speed Coefficient [C=] or Pulse Count [P=]
[P103]: Speed Coefficient [pulse/m]

6.4.7 Belt Length Calibration (LEnS)

Keep the belt weigher running at a constant speed. After the belt running time of a revolution being measured by stopwatch, do this operation for correcting Belt Length.

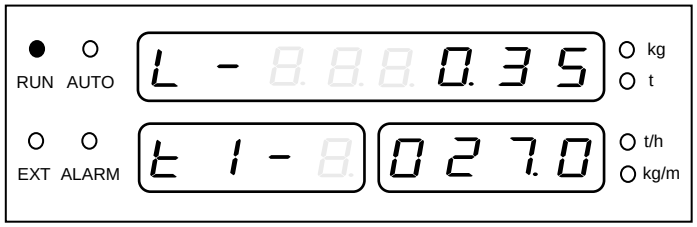
Main Display Interface

M ⇩ 【MENU】+【▲】【▼】: ≡F2-CAL≡
【ENT】+【▲】【▼】: --LEnS--
【ENT】



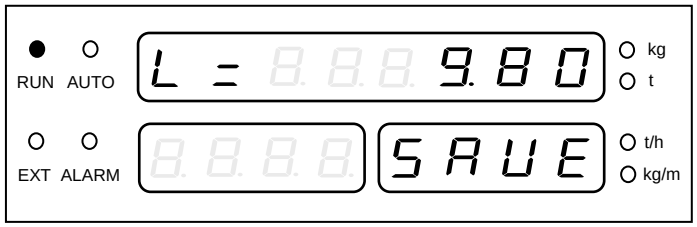
Input Running Time of a Revolution [s]

⇩ 【ENT】



L: Belt Length Detected [m]
tI: Run-timer [s]

⇩ Run-Timer over or【ENT】



[P102]: Belt Length [m]
【▲】【▼】: Display Belt Length [L=] or Pulse Count [P=]

【MENU】: Exit ⇩ 【ENT】: Save

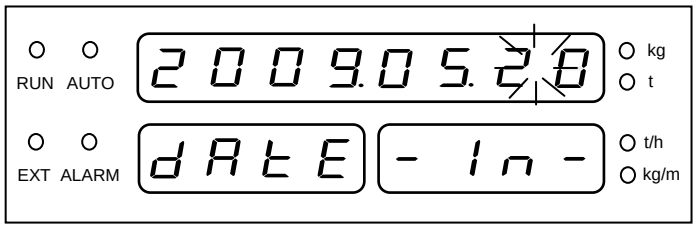
M

6.5 F3-REC Weight Record for Querying&Printing

Weight records per shift/day/month of a year can be queried and printed.

Main Display Interface

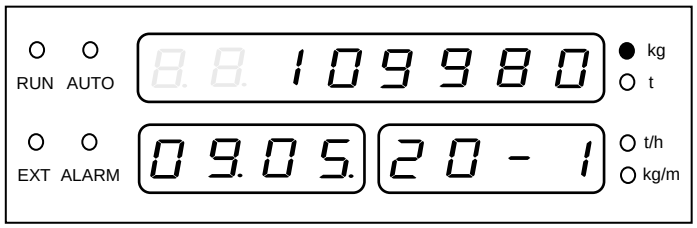
⇩ 【MENU】+【▲】/【▼】: ≡F3-REC≡
【ENT】



M

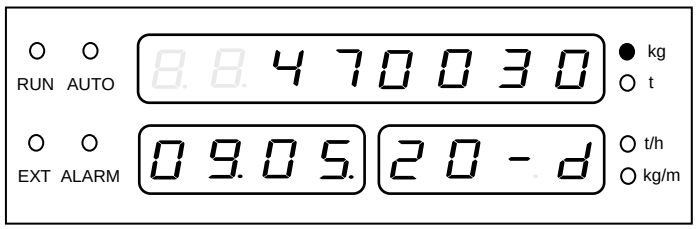
Input Date

⇩ 【ENT】



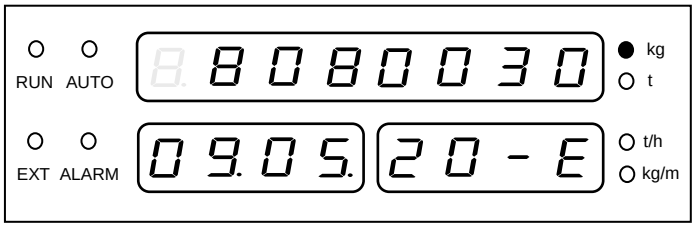
Totalized Weight of a Shift, YY.MM.DD-Shift No.1~4
【◄】【►】: Previous/next day; 【▲】【▼】: Previous/next record
【PRINT】:Print weight records of this shift, See Appendix A.Table 1

⇩



Totalized Weight of a Day, YY.MM.DD-d
【PRINT】:Print weight records of this day. See Appendix A.Table 2

⇩

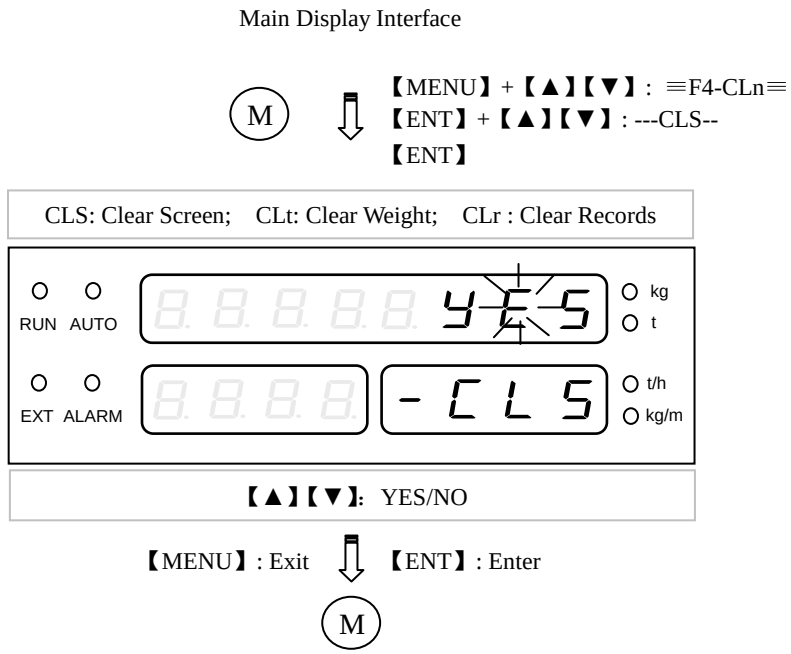


Totalized Weight from the first day of this month to this day,
【PRINT】: Print weight records (See Appendix A.Table 3)

【MENU】

M

6.6 F4-CLn Data Clearing



Data Clearing Mode Description:

- Manual Clearing Mode
  - ✧ 1 Clear Screen: Clear Totalized Weight and Totalized Weight Pulse Count. But Totalized Weight of Current Shift will not be cleared, so this operation has no effect on recording of weight per shift.
  - ✧ 2 Clear Weight: Clear Totalized Weight, Totalized Weight Pulse Count and Totalized Weight of Current Shift. The cleared value of Totalized Weight of Current Shift will not be recorded.
  - ✧ 3 Clear Records: Clear History Records of Totalized Weight. But Current Totalized Weight, Totalized Weight Pulse Count and Totalized Weight of Current Shift will not be cleared.
- Timing Auto Clearing Mode
  - ✧ The parameter '[P606] Auto-clear' can be set to '0: OFF / 1: Per Shift / 2: Per Day / 3: Per Month', and its default value is '0: OFF'.
  - ✧ 'Timing Auto Clearing' has no effect on recording of weight per shift.
  - ✧ [P606]='1: Per Shift': After recording Totalized Weight per Shift, do operation 'Clear Screen' automatically.
  - ✧ [P606]='2: Per Day': After recording Totalized Weight of the last Shift per Day, do operation 'Clear Screen' automatically.
  - ✧ [P606]='3: Per Month': After recording Totalized Weight of the last Shift per Month, do operation 'Clear Screen' automatically.
- Auto Clearing Before Overflowing Mode
  - ✧ When Totalized Weight value reaches to the maximum value 2×10^9[Scale Unit], do operation 'Clear Screen' automatically.
  - ✧ 'Auto-clear Before Overflowing' has no effect on recording of weight per shift.

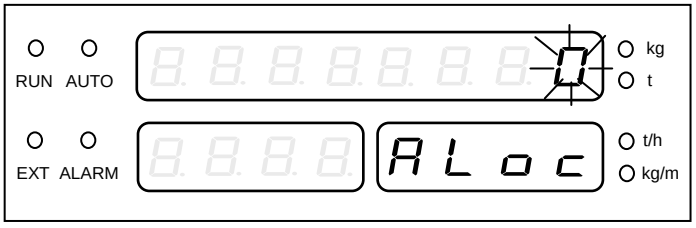
6.7 F5-SAF Security

6.7.1 Auto-locking (ALoc)

Main Display Interface

M

【MENU】+【▲】【▼】: ≡F5-SAF≡
【ENT】+【▲】【▼】: --ALoc--
【ENT】+ Input Password +【ENT】



【▲】【▼】: 0[OFF] / 1[ON]

【MENU】: Exit 【ENT】: Enter

M

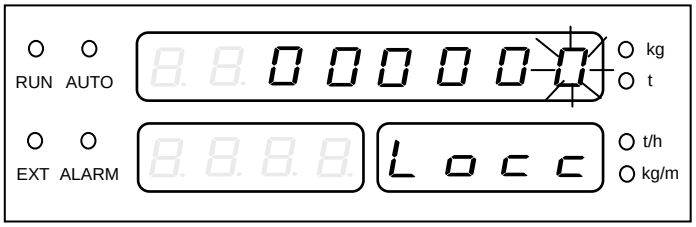
Auto-locking: If there is not any keypad operation in one minute and it's not in the processes of 'F2 Calibration' & 'F6 Factory Adj.', the controller will lock the keypad and return to 'Main Display Interface' automatically.

6.7.2 Key-locking (Locc)

Main Display Interface

M

【MENU】+【▲】【▼】: ≡F5-SAF≡
【ENT】+【▲】【▼】: --Locc--
【ENT】



Input Password

【MENU】: Exit 【ENT】: Enter

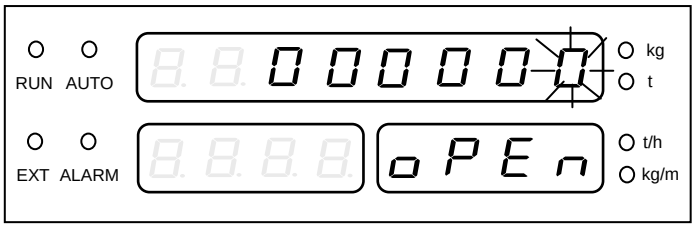
M

6.7.3 Key-unlocking (oPEn)

Main Display Interface

M

【MENU】+【▲】【▼】: ≡F5-SAF≡
【ENT】+【▲】【▼】: --oPEn--
【ENT】



Input Password

【MENU】: Exit 【ENT】: Enter

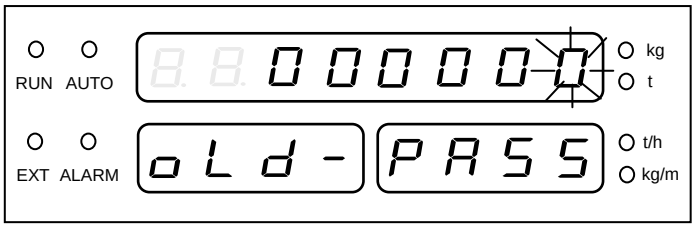
M

6.7.4 Password Set (PASS)

Main Display Interface

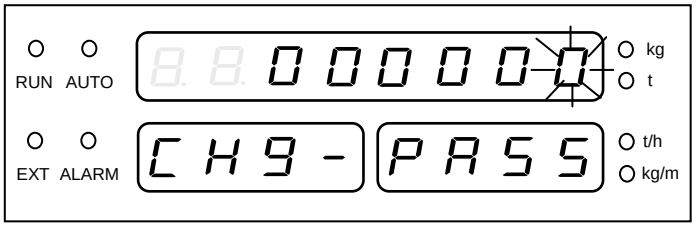
M

【MENU】+【▲】【▼】: ≡F5-SAF≡
【ENT】+【▲】【▼】: --PASS--
【ENT】



Input Original Password

【ENT】

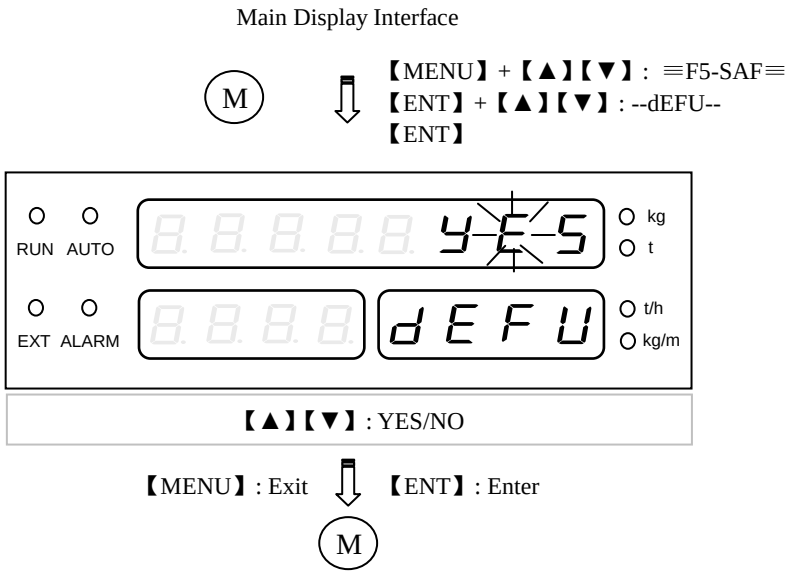


Please input and remember the new password

【MENU】: Exit 【ENT】: Save

M

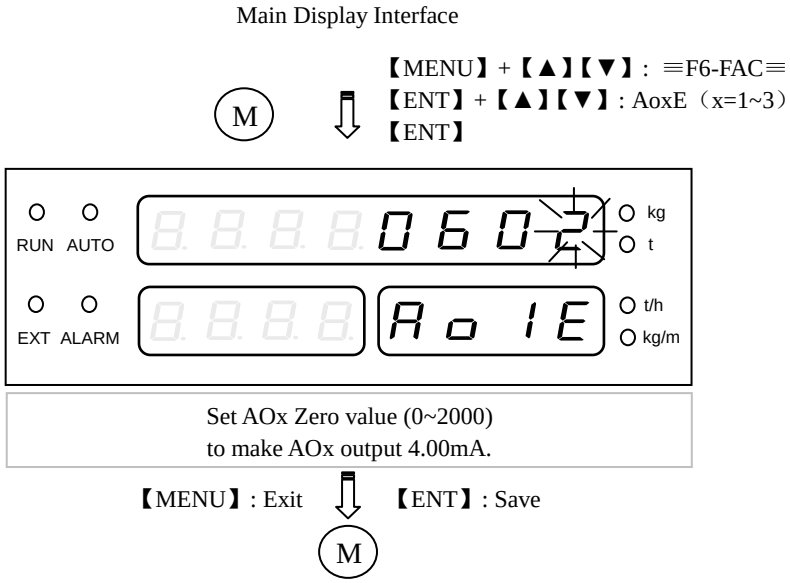
6.7.5 RAM Reset (dEFU)



6.8 F6-FAC Factory Adjustment

Only after Key-unlocking with the Factory Password, this operation will be valid.

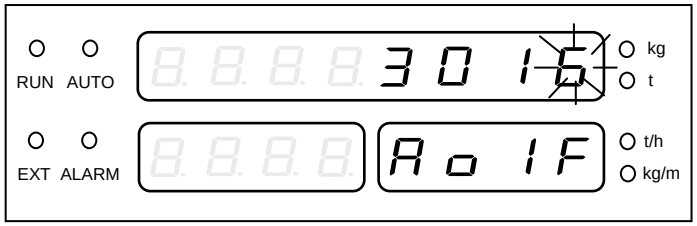
6.8.1 AO Zero Adjustment (AoxE)



6.8.2 AO Full Range Adjustment (AoxF)

Main Display Interface

【MENU】+【▲】【▼】: ≡F6-FAC≡
【ENT】+【▲】【▼】: AoxF（x=1~3）
【ENT】



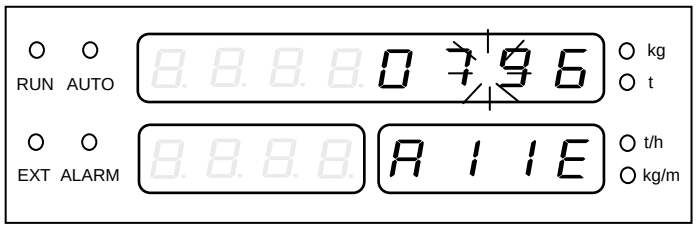
Set AOx Full value (2000~4095)
to make AOx output 20.00mA.

【MENU】: Exit 【ENT】: Save

6.8.3 AI Zero Adjustment (AI1E)

Main Display Interface

【MENU】+【▲】【▼】: ≡F6-FAC≡
【ENT】+【▲】【▼】: AI1E
【ENT】



Input 4.00mA from AI port to correct AI zero value (0~2000)

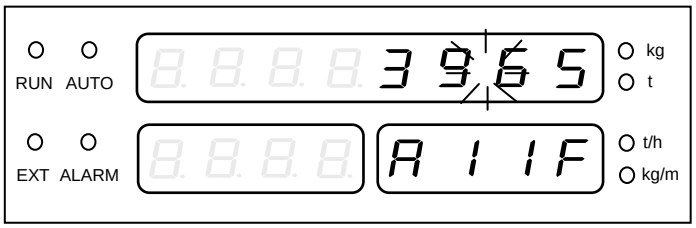
【MENU】: Exit 【ENT】: Save

6.8.4 AI Full Range Adjustment (AI1F)

Main Display Interface

M

【MENU】+【▲】【▼】: ═F6-FAC═
【ENT】+【▲】【▼】: AI1F
【ENT】



Input 20.00mA from AI port to correct AI full value (2000~4095)

【MENU】: Exit 【ENT】: Save

M

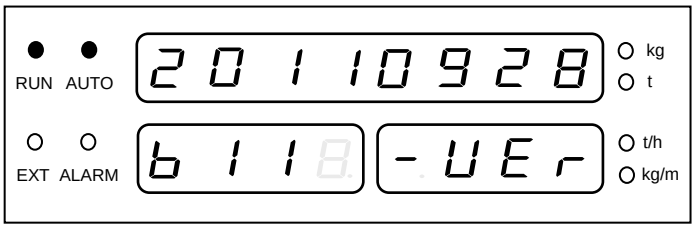
6.9 F7-InF Product Information

Main Display Interface

M

【MENU】+【▲】【▼】: ═F7-INF═
【ENT】+【▲】【▼】: ---VEr--
【ENT】

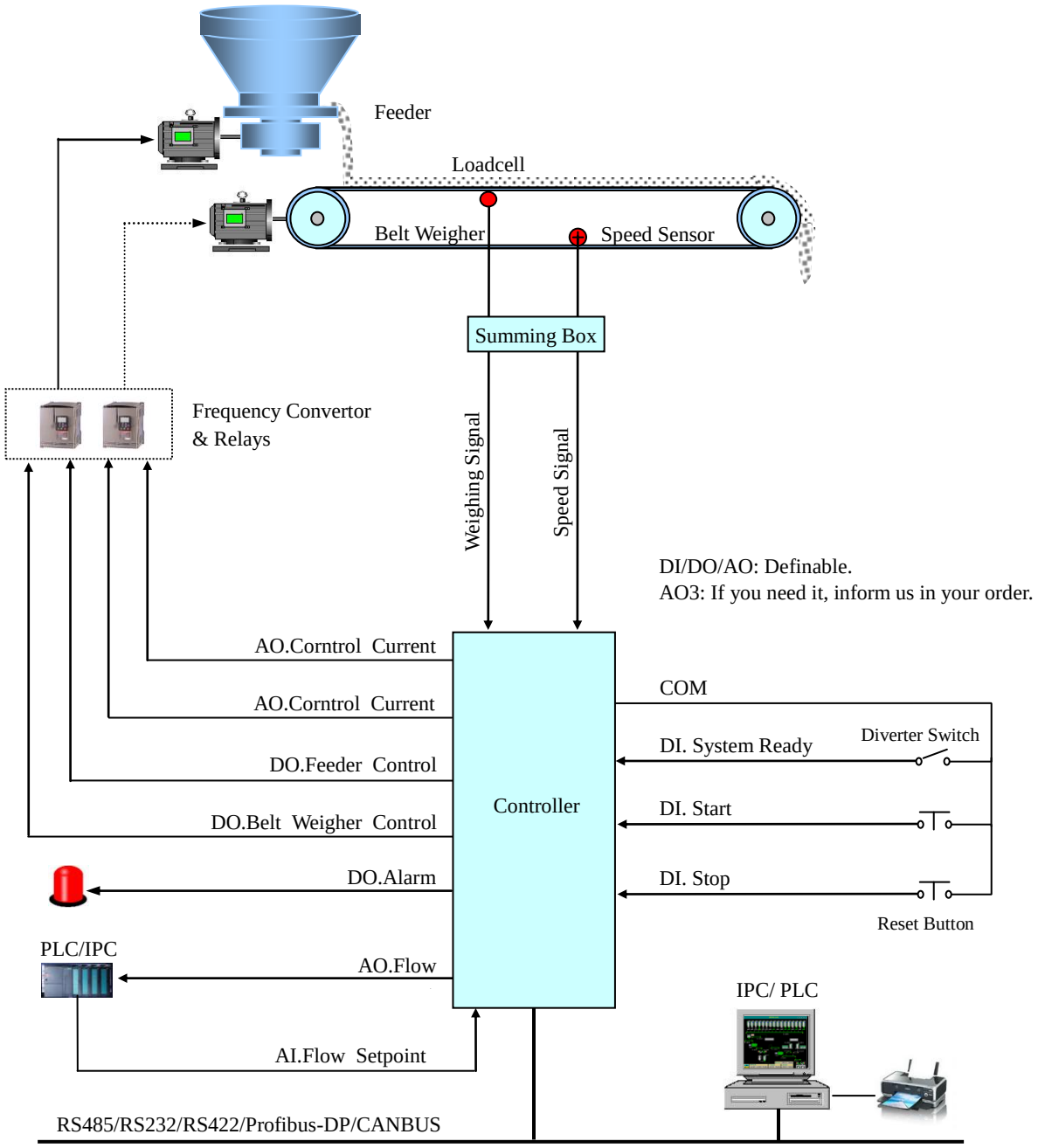
VEr : Version No.; Sn: Serial No.; dAtE: Exfactory Date
AudIt: Audit Counter; AutH: Authorization Code



【MENU】

M

7. Ration Flow Auto-Feeding System



Appendix A. Print Formats

Print Format A:

- Table 1. Weight Record For A Shift (SW)

```
WEIGHT RECORD
--------------------------
DATE:    2009-05-20
NAME:          SW
TW:       109980kg

--------------------------
2009-05-20    23:59
```

- Table 2. Weight Record For A Day (DW)

```
WEIGHT RECORD
--------------------------
DATE:    2009-05-20
NAME:          1W
TW:       109980kg

DATE:    2009-05-20
NAME:          2W
TW:       169900kg

DATE:    2009-05-20
NAME:          3W
TW:       190150kg

DATE:    2009-05-20
NAME:          DW
TW:       470030kg

--------------------------
2009-05-20    23:59
```

- Table 3. Weight Record For A Month (MW)

```
WEIGHT RECORD
--------------------------
DATE:    2009-05-01
NAME:          DW
TW:       387090kg

DATE:    2009-05-02
NAME:          DW
TW:       568800kg

。。。          。。。

DATE:    2009-05-20
NAME:          DW
TW:       470030kg

DATE:    2009-05-20
NAME:          MW
TW:      8080030kg

--------------------------
2009-05-20    23:59
```

Print Format B:

- Table 1. Weight Record For A Shift (SW)

```
                    WEIGHT RECORD
-------------------------------------------------
DATE            NAME            WEIGHT
2009-05-20      SW              109980kg
-------------------------------------------------
2009-05-20    23:59
```

`

- Table 2. Weight Record For A Day (DW)

```
                    WEIGHT RECORD
-------------------------------------------------
DATE            NAME            WEIGHT
2009-05-20      1W              109980kg
2009-05-20      2W              169900kg
2009-05-20      3W              190150kg
2009-05-20      DW              470030kg
-------------------------------------------------
2009-05-20    23:59
```

- Table 3. Weight Record For A Month (MW)

```
                    WEIGHT RECORD
-------------------------------------------------
DATE            NAME            WEIGHT
2009-05-01      DW              387090kg
2009-05-02      DW              568800kg
2009-05-03      DW              190150kg
◦◦◦             ◦◦◦             ◦◦◦
2009-05-20      DW              470030kg
2009-05-20      MW              8080030kg
-------------------------------------------------
2009-05-20    23:59
```

Appendix B. Communication Protocols

If you need the communication protocols, please contact us.

User’s Memo

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