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G-2301P

_Packaging

Operation Manual

110615020001
V01.00.01

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WARNING

The product is powered by a **DC24V power** supply. Using an AC220V power supply by mistake will permanently damage the instrument.

Please ensure that the instrument is properly grounded.

The product is a static-sensitive device. Please take anti-static measures during using and maintenance

Product Standard: GB/T 7724-2023

Verification regulation: JJG 649-2016

Standards &
Certifications

Cantonese 0000000048; Safety certification: **CE**



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Chapter 1 Overview

1.1 Product Overview and Features

G-2301P is a compact, powerful, and reliable new weight indicator. It can be widely applied in industries such as feed, chemicals, grain, and other sectors that require quantitative packaging equipment.

- ◆ Refined appearance with dual-line display and intelligent prompts; detail design meets on-site efficient integration requirements.
- ◆ Precise measurement with automatic weight deviation correction support, maintaining consistent accuracy.
- ◆ **Rich interfaces and multiple communication protocols meet various signal transmission requirements and enable flexible linkage between devices.**
- ◆ Equipped with companion PC software, supporting remote parameter editing, debugging, and print format customization.
- ◆ **USB parameter backup and migration, as well as history record tracing, facilitate troubleshooting and management.**
- ◆ Product trial lock can be freely set to prevent unauthorized use and protect project assets.
- ◆ supports hopper, hopper-less and bulk packaging

1.2 Product Parameters

Enclosure Type	Panel Mount
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Sensor Interface	1 x 6-wire analog sensor platform interface, up to 8 x 350Ω sensors	
Display	LED Digital Display	
Interface	1 x RS232/RS485 interface (must be specified when ordering)	
	USB interface for convenient data import/export and software upgrade	
	4-in 10-out transistor I/O interface (outputs can be replaced with 5 relay + 4 transistor outputs)	
	2 x analog D/A interface (analog is optional, must be specified when ordering)	
	Optional Ethernet interface	Single Ethernet port Dual Ethernet ports, built-in switch 4 independent sockets, supporting separate configuration of multiple network communication parameters

1.3 Technical Specifications

Power Supply	24VDC (18~30VDC)
Enclosure Size	105*91*57(mm)
Product Weight	354g
Certification Environment	-10~40°C; 90% R.H non-condensing
Operating	-20~60°C; 90% R.H non-condensing

Environment	
Storage Environment	-40~60°C; 90% R.H non-condensing
Load Cell Excitation Voltage	5V 200mA(MAX)
Load Cell Requirements	1 analog sensor interface, up to 8 x 350Ω sensors, supports 1mV/V, 2mV/V, 3mV/V sensitivity
Input Sensitivity	0.1uV/d
Non-linearity	0.01% F.S
A/D Sampling Rate	50; 60; 100; 120; 200; 240; 400; 480; 800; 960 (SPS)
Maximum Display Resolution	1/999999
Keys	6-key audible keypad
Decimal Point Position	6 options available: 1, 0.1, 0.01, 0.001, 0.0001, 0.00001
Overload Display	OFL

Chapter 2 Panel and Wiring Terminals

2.1 Front Panel Description



Main Display: Six digits, used to display weighing data and indicator-related information

Status Indicators:

- ZERO: Zero indicator light, illuminates when weight is $0 \pm 1/4d$.
- STAB: Stable indicator light, illuminates when weight change is within the stable range; if stable range F1.3 is set to 0, this light stays on.
- NET: Discharge indicator light, illuminates during discharge.
- COM: Communication indicator light, blinks during data communication at a rate of once per 500ms.

- HOLD: Result Waiting/Ready indicator light, blinks at 200ms during result waiting, stays on when ready
- SP1 1 2 3: Filling status indicator lights, 1, 2, 3 correspond to flow rate indicators.
- AO: Bag lock indicator light, illuminates when bag lock signal is active.

Sequence Indicator:

- When stopped, the sequence digit is not lit.
- When running, indicates process status

Display Status	0	1	2	3	4	5	6	7	8
Corresponding Status	Pre-filling	Coarse Flow	Medium Flow	Fine Flow	Result Waiting	Over/Under Detection	Ready	Discharge	Bag Unlock Request

2.2 Keypad Description

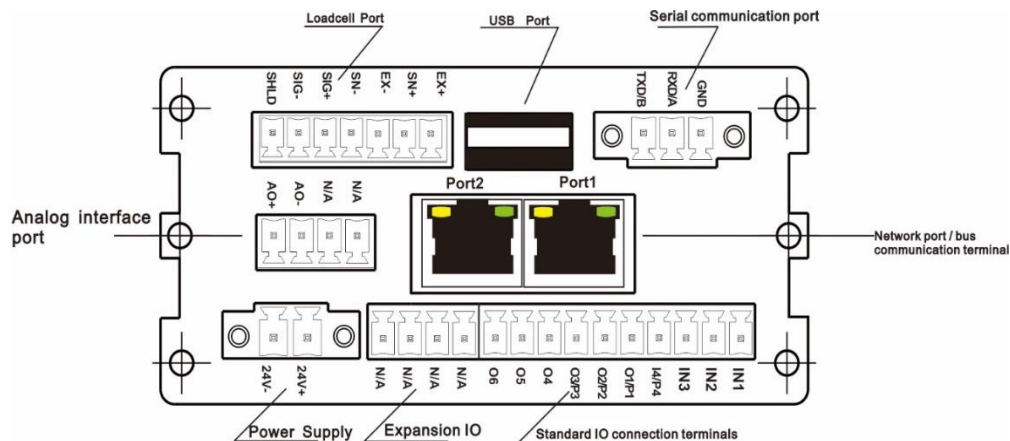
G-2301P has 6 keypad functions with different functions for short press and long press. Keypad illustration is shown below:

Keys	Operating Interface	Short Press	Long Press
	Main Interface	Print Total ACUM (customizable function)	Switch display content
	Menu Interface	Switch to previous sub-option	/
	Digit Input	Digit or letter +1	/
	Option type	Switch to previous sub-option	/
	Main Interface	/	Switch display content
	Menu Interface	Switch to next sub-option	/

	Digit Input	Digit or letter -1	/
	Option type	Switch to next sub-option	/
	Main Interface	Keypad Zero	/
	Menu Interface	/	/
	Digit Input	Digit position moves left	/
	Option type	/	/
	Main Interface	Enter calibration parameters	Enter time setting menu, refer to time setting menu description
	Menu Interface	Switch to next main option	/
	Digit Input	Digit position moves right	/
	Option type	/	/
	Main Interface	Enter menu	Quick view software version, compile date, No.138 and serial number
	Menu Interface	Confirm selection	/
	Digit Input	Confirm selection	/
	Option type	Confirm selection	/
	Main Interface	Switch secondary display content (Target / Recipe ID)	Set Recipe ID

	Menu Interface	Return to previous level	/
	Digit Input	Return to previous level	/
	Option type	Return to previous level	/

2.3 Rear Panel Description



2.4 Wiring Terminal Description

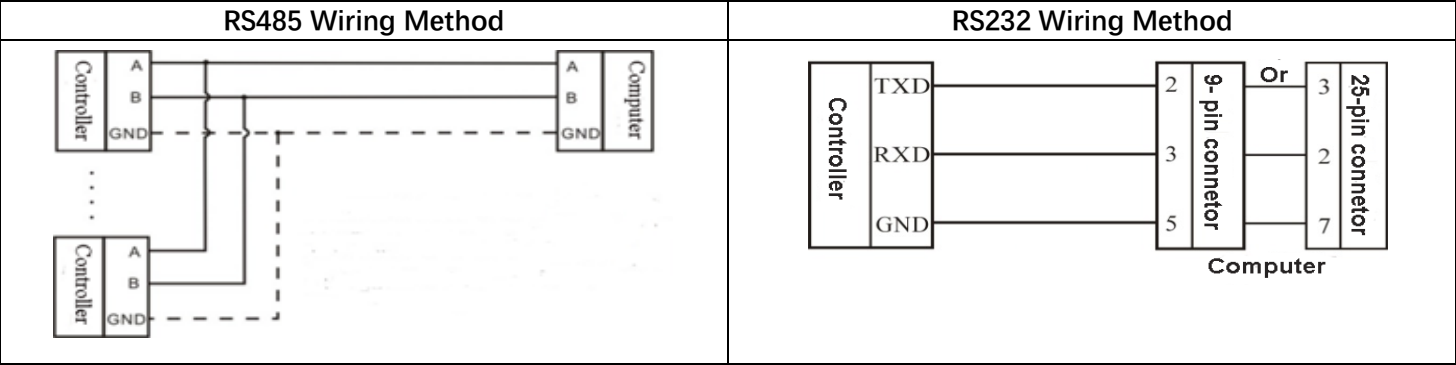
Print Label	Function	Description
24V+	24V DC POWER POSITIVE TERMINAL	! NOTE: PRODUCT USES 24V DC POWER SUPPLY. USING 220V AC POWER

24V-	24V DC Power Negative Terminal	WILL PERMANENTLY DAMAGE THE INDICATOR
RXD/A	RS232: RXD terminal interface RS485: A terminal interface	1) RS232/RS485 mode is factory-set and not adjustable 2) GND must be connected in RS232 mode. Otherwise communication will fail 3) In RS485 mode GND is signal ground; in high-interference environments, use low-impedance wires to equalize node ground potential, significantly improving communication quality. 4) Wiring method, refer to: Note 1
TXD/B	RS232: TXD terminal interface RS485: B terminal interface	
GND	Communication Ground Terminal	
EX+	Sensor - Power Positive Terminal	
SN+	Sensor - Sense Positive Terminal	1) When connecting 4-wire sensors, EX+ and SN+ must be shorted, EX- and SN- must be shorted. Otherwise indicator weight data readout will be incorrect 2) Sensor output signal is analog and sensitive to electronic noise; sensor wiring should use shielded cables and be routed separately from other cables, especially away from AC power 3) For short distance with small temperature change or low accuracy requirements, 4-wire sensors can be used; for long distance or high accuracy applications, 6-wire sensors should be selected; 4) For multi-sensor parallel applications, ensure all sensors have the same sensitivity (mV/V)
EX-	Sensor - Power Negative Terminal	
SN-	Sensor - Sense Negative Terminal	
SIG+	Sensor - Signal Positive Terminal	
SIG-	Sensor - Signal Negative Terminal	
SHLD	Sensor - Shield Terminal	

IN1	1-Start	1) IN is I/O input interface, active low 2) Connect indicator to external devices via wiring; control zero, print, start functions via external input 3) Functions shown are factory defaults; users can customize port functions. See section 7.3 for definition method and function codes
IN2	2-Emergency Stop	
IN3	3-Stop	
IN/P4	4-Bag Lock/Unlock Request	
O1/P1	1-Running Status	1) OUT is I/O output interface, active low 2) O1/P1-O3/P3 are PWM ports, can be used as regular ports or PWM ports. When connecting servo motors, must define on these 3 ports (e.g. O11-Filling PWMS_A must be assigned to O1/P1-O3/P3) 3) Transistor output, 200mA drive current per channel. Maximum full load current 1.2A. 4) Functions shown are factory defaults; users can customize port functions. See section 7.3 for definition method and function codes 5) Wiring principle, refer to Note 2
O2/P2	2-Stopped Status	
O3/P3	3-Alarm Status	
OUT54	5-Coarse Flow Status	
OUT5	6-Medium Flow Status	
OUT6	7-Fine Flow Status	
OUT7	17-Result Waiting	
OUT8	18-Over/Under Status	
OUT9	23-Bag Lock Status	
OUT10	29-Discharge Status	
AO1+	1 x Analog Output Positive	1) Analog is optional, must specify when ordering 2) Analog output can be voltage or current type. User can select corresponding mode in F4 analog parameter output mode.
AO1-	1 x Analog Output Negative	
AO2+	2 x Analog Output Positive	

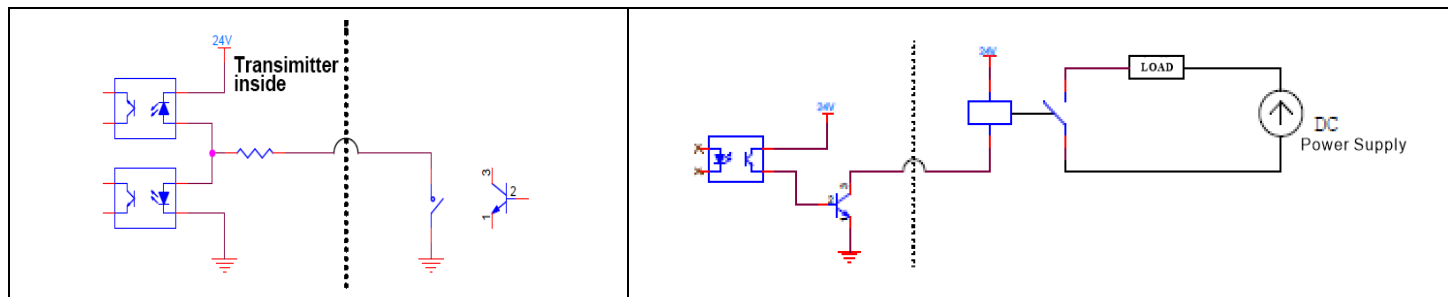
AO2-	2 x Analog Output Negative	3) No print label without analog configuration 1) Indicator supports optional single/dual Ethernet ports (built-in switch)
LAN1	LAN Communication Port 1	
LAN2	LAN Communication Port 2	

Note 1: Communication Port Wiring Description



Note 2: I/O Wiring Principle

Indicator Input Wiring Diagram	Indicator Output Wiring Diagram
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Note 3: Communication Troubleshooting

If serial port communication fails, please check:

- Check wiring according to the above wiring method to ensure correct connections.

RS232 interface requires all three wires: Rx, Tx, GND.

RS485 interface requires A and B wires.

- Ensure connection port parameters are consistent with the host computer parameters.

Communication ID, baud rate, data format, and communication protocol must be consistent with the host computer and PLC.

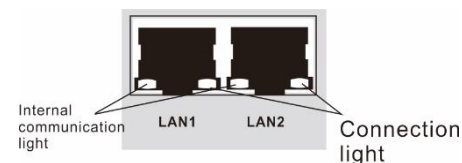
If Ethernet port communication fails, please check:

- Check the Ethernet port indicator lights.

Hardware connection is normal, internal communication light stays on.

Network cable connection is normal, connection light blinks.

- Check if communication protocol is consistent with the host computer and PLC.



- Confirm G-2301P can be pinged on the network. If not, check the hardware interface.
- Confirm there is no IP conflict.
- Restart the indicator.

Chapter 3 Menu Overview

3.1 Menu Parameters

Parameter Display	Corresponding Parameter	Description
1 CAL	Calibration Parameters	Set unit, range, zero, and gain calibration for the scale.
2 COM	Communication Parameters	Set serial port, Ethernet port, and print-related communication protocols and formats.
3 SCB	Working Parameters	Set scale-related parameters; such as stable judgment, filter, filling, and supplement mechanism parameters.
4 REC	Recipe Parameters	Set recipe-related parameters; such as target value, over/under limits, etc.
5 io.P	I/O Function Definition	Set I/O input and output port functions.
6 S.P	Accumulation and Batch	Set and view accumulation and batch-related parameters.
7 SYS	System Parameters	Set, query, and test indicator-related information: such as I/O test, serial port function test, data import/export operations.

3.2 Parameter Setting and Viewing

Indicator parameters are roughly divided into 2 types: option type and numerical type

Parameter Viewing: Press "MENU" to enter menu items, use arrow keys (Up, Down) to switch parameter items. Find the corresponding parameter item, press "MENU" to enter sub-items.

Parameter Setting: For option and numerical parameters that need modification, under the parameter item, press "MENU" key, the parameter value will blink, use arrow keys (Up, Down) to switch parameter values. For numerical parameters, use Left/Right keys to switch blinking position, then Up/Down keys to change values.

Chapter 4 Calibration Parameters

When using G-2301P weight Controller for the first time, or when any part of the weighing system is changed, or when current calibration parameters do not meet user requirements, the indicator should be calibrated. Calibration determines the weighing system zero point, gain, etc.

4.1 CAL Calibration Parameters

Display	No.	Parameter Name	Initial Value	Description
1.1 CE	1.1.1	Unit	kg	Range: t; kg; g; lb;
	1.1.2	Range	10000	Maximum indicator value, typically the sensor range. Range: 1~999999. Display follows actual decimal point in 1.1.3.
	1.1.3	Resolution	1	Minimum indicator value change. Use Left/Right keys for decimal point, Up/Down keys for division number. Range: 50, 20, 10, 5, 2, 1, 0.1, 0.2, 0.5, 0.01, 0.02, 0.05, 0.001, 0.002, 0.005, 0.010, 0.020, 0.050, 0.0001, 0.0002, 0.0005, 0.00001, 0.00002, 0.00005
1.2 ZR	1.2.1	Zero Calibration	//	Empty platform calibration, see section 4.1.1 for details
1.3 WT	1.3.1	Weight Calibration	//	Weight calibration, see section 4.1.2 for details
1.4 Mt	1.4.1	Auto Correction	//	When entering 1.4.1, indicator records current weight. User adds or removes weight, enters removed weight, presses Menu to confirm.

		Acquisition		Indicator waits for stability then auto-calculates correction factor.
	1.4.2	Manual Correction Calculation	//	If indicator displays weight A but actual weight is B, correction factor = (Actual weight B x Current correction factor) / Display weight A
1.5 ot	1.5.1	Remote calibration enabled	OFF	ON, OFF is optional. When set to OFF , remote calibration is not allowed.

4.2 Zero Calibration

Zero calibration calibrates the zero point of the weighing platform. Success condition: weighing platform is stable.

Operation: Enter 1.2 Zero Calibration interface, press MENU to enter automatic zero calibration indicator interface, secondary display shows current millivolt value. Empty the weighing platform, wait for stability, when STAB indicator is on, press MENU, enter calibration password correctly, then press MENU again. At this point, Zero indicator lights up, completing automatic zero calibration.

4.3 Weight Calibration

Weight calibration uses standard weights. Calibration method: (Zero calibration must be completed before weight calibration)

4.4 calibrate the password

This is used to set the calibration password. Do it as follows:



Use the up, down, left and right keys to adjust the value and enter the new password for the first time.

Enter the new password for the second time and make sure it is the same as the first password.

The password has been modified successfully. Enter the new password for calibration.

Chapter 5 Weighing and Scale Parameters (3 SC.b)

No.	Parameter Name	Initial Value	Description
3.1 WF -> Weight Parameters			
3.1.1	Stable Range	2	Range: 0-99d, default: 2d. When set to 0, stable judgment is disabled and stable flag is always active. When non-zero, if weight change does not exceed the set range within stable time, weight is considered stable
3.1.2	Stable Timer	0.300	Range: 0-999.999(s). If weight change does not exceed stable range within this time, weight is considered stable
3.1.3	Zero Range	200	Range: 0-999, default: 200. Sets the zero range as permille of full scale
3.1.4	Zero Trace Range	0	Range: 0-99d, default: 0d. When set to 0, zero tracking is disabled. When non-zero, if weight change is less than zero trace range within zero trace time, system auto-tracks zero.
3.1.5	Zero Trace Timer	1.000	Range: 1000-999.999(s). Within zero trace time, if weight change is less than zero trace range, system auto-tracks zero
3.1.6	A/D Sampling Rate	200	Range: 50; 60; 100; 120; 200; 240; 400; 480; 800; 960 (Hz)
3.1.7	Signal Range	0-10V	Range: 0-5mV; 0-10mV; 0-15mV (sensor signal range, corresponding to 1-3mV/V sensitivity sensor)
3.1.8	Power-On Zero Range	0	Range: 0-999, default: 0. 0 means no zeroing; non-zero means zero range as permille of full scale, alarm if exceeded.

3.1.9	Running Stable Timeout	3.000	Range: 0-999.999(s). For pre-filling zero and result waiting process, 0: always wait for stable; non-zero: stable judgment fails after this time.
3.1.10	Running Zero Range	20	Range: 0-999, Sets zero range as permille of target value
3.1.11	Working Mode	0	Range: 0-3, 0: Hopper; 1: no Hopper; 2: Bluk
3.1.12	no Hopper Mode	0	Range: 0-1, 0: Net Packing; 1: Gross Packing
3.1.13	Flowrate Calculation Window	3	Range: 1-6, The current flow rate shall be calculated from sampling counts.
3.1.14	Single-speed Mode	1	Range: 0-1; 0: Coarse、Medium、Fine Flow shall be performed for every weighing cycle. 1: In hopper and bulk Out mode, Coarse -medium- Fine Flow feeding applies only to the last two weighing cycles, and slow feeding is disabled for all other cycles
3.1.15	Manual-clear IN/OUT ACUM on-startup switch	0	Range:0-1; 0: Upon startup, auto to clears last-run In/Out ACUM; 1: must be manually cleared the last-run In/Out ACUM before restart at startup
3.2 FL -> Filter Parameters			
3.2.1	Stop Status Filter	7	Range: 0-9; Filter strength level during stopped state
3.2.2	Vibration Elimination Filter	0	Range: 0-99; 0 disables filter; non-zero defines vibration elimination range, e.g. 7 means eliminating vibration of about 7 divisions
3.2.3	Filling Filter	2	Range: 0-9; Filter parameter during filling process

3.2.4	Result Waiting Filter	7	Range: 0-9; Filter parameter during result waiting process
3.2.5	Discharge Filter	1	Range: 0-9; Filter parameter during discharge process
3.3 FM -> Supplement Mechanism			
3.3.1	Pre-supplement Delay / Empty Detection Time	0	Range: 0-999.999(s); When material level input is invalid, supplement output becomes active after pre-supplement delay. When material level input is valid, supplement output becomes inactive after post-supplement delay. If I/O does not define material level input, no material level check is performed.
3.3.2	Post-supplement Delay / Supplement Delay Time	0	
3.3.3	Full Startup Switch (Add-on)	OFF	When parameter is ON, supplement starts immediately when material level is invalid at first bag, without waiting for empty detection time.
3.3.4	Supplement Timeout (Add-on)	0	Range: 0-999.999(s); If material level is not detected as valid within this time after supplement output is active, alarm.
3.4 DM -> Filling Mechanism			
3. 4.1	Mechanism Type A	Air	None: None; Air: Regular IO (pneumatic); DA1: Analog output port 1; DA2: Analog output port 2; PWMS: Filling mechanism controlled by PWM steps to adjust feed gate size;

			PWMC: Filling mechanism controlled by PWM frequency for speed, such as belt, screw
3.4.2	Mechanism Type B	none	Options: None, DA1, DA2, PWMC (function same as 3.4.1 description)
3.4.3	Close Timeout	0	Default: 0; Range: 0~999.999(s).
3.4.4	Limit Signal Type	OFF	OFF: Limit reached when signal active; ON: Limit reached when signal inactive.
3.4.5	Filling Motor Frequency	10000	Range: 0~60000(Hz).
3.4.6	Start Frequency	0	Range: 0~60000(Hz). Not user-adjustable, default 0 is 1/3 of running frequency. Normal operation: no adjustment needed
3.4.7	Acceleration Time	200	Range: 0~999.999(s) motor acceleration time.
3.4.8	Deceleration Time (Hidden)	0	Range: 0~999.999(s) motor deceleration time. Not user-adjustable, default 0 is half of acceleration time.
3.4.9	Power-On Return Zero Frequency (Hidden)	0	Range: 0~60000(Hz).not user-adjustable , default 0 is 1/3 of running frequency; normal operation no adjustment needed.
3.5 BC -> Bag Lock Mechanism			
3.5.1	Mechanism Type	Air	Air: Pneumatic; Motor: Regular motor forward/reverse; PWMS: Stepper motor forward/reverse;
3.5.2	Bag Lock Debounce	0.100	Range: 0~999.999(s)

	Time		
3.5.3	Manual Unlock Switch	OFF	ON: After discharge, bag will not auto-unlock. Manual unlock required before next weighing
3.5.4	Unlock Timeout / Lock/Unlock Timeout	0	Range: 0~999.999(s)
3.5.5	Limit Signal Type	OFF	OFF: Limit reached when signal active; ON: Limit reached when signal inactive.
3.5.6	Bag Lock Motor Frequency	10000	Range: 0~60000(Hz).
3.5.7	Start Frequency	0	Range: 0~60000(Hz).not user-adjustable, default 0 is 1/3 of running frequency; normal operation no adjustment needed.
3.5.8	Acceleration Time	0.200	Range: 0~999999(s) motor acceleration time.
3.5.9	Deceleration Time	0	Range: 0~999.999(s) motor deceleration time. Not user-adjustable, default 0 is half of acceleration time.
3.5.10	Power-On Return Zero Frequency	0	Range: 0~60000(Hz).not user-adjustable, default 0 is 1/3 of running frequency; normal operation no adjustment needed
3.6 DS -> Discharge Mechanism			
3.6.1	Mechanism Type	Air	Air: Pneumatic discharge; Motor: Regular motor forward/reverse; Rot: Regular motor rotation; PWMS: Stepper motor forward/reverse; PWMrot:

			Stepper motor rotation
3.6.2	Manual Discharge Accumulation	OFF	ON: Enabled, manual discharge will be added to accumulation.
3.6.3	Next Weighing Start Condition	OFF	OFF: Wait for discharge gate to close before filling. ON: Do not wait for discharge gate to close.
3.6.4	Limit Signal Type	OFF	OFF: Limit reached when signal active. ON: Limit reached when signal inactive.
3.6.5	Limit Real-Time Detection	OFF	OFF: Off, ON: On;
3.6.6	Discharge Gate Open/Close Timeout	0	Range: 0~999.999(s)
3.6.7	Discharge Motor Frequency	10000	Range: 0~60000(Hz).
3.6.8	Start Frequency (Hidden)	0	Range: 0~60000(Hz).not user-adjustable , default 0 is 1/3 of running frequency; normal operation no adjustment needed
3.6.9	Acceleration Time	200	Range: 0~999.999(s) motor acceleration time.
3.6.10	Deceleration Time (Hidden)	0	Range: 0~999.999(s) motor deceleration time. Not user-adjustable, default 0 is half of acceleration time.
3.6.11	Power-On Return Zero Frequency	0	Range: 0~60000(Hz).not user-adjustable , default 0 is 1/3 of running frequency; normal operation no adjustment needed(Hidden para.)

Chapter 6 Recipe Parameters (4 rec)

No.	Parameter Name	Initial Value	Description
4.1 ri -> Recipe			
4.1.1	Recipe ID	1	Range: 1~100.
4.1.2	Target	0	Range: 0~Full Scale. Quantitative target value.
4.1.3	Total Target	0	Range: 0~Full Scale. For hopper structure, number of bags per unlock calculated by total target/target. Last bag target adjustable based on accumulation. bulk-material mode, after the set total shipped weight is accumulated and reached, the instrument triggers an alarm prompting "Shipment Complete / Batch Complete" on the main interface.
4.2 bd -> Pre-filling Parameters			
4.2.1	Filling Start Delay	0.500	Range: 0~999.999(ms). At the start of quantitative process, after this delay, indicator performs stable zero (if zero interval condition not met, no stable judgment or zero), then starts filling process
4.2.2	First Bag Zero Mode	0	Range: 0~2. 0: No zero on first run; 1: Zero on first bag of first run (only when weight < target x running zero range); 2: Zero on second bag of first run
4.2.3	Auto Zero Interval	0	Range: 0~99. Zero current weight after completing this many packaging cycles Hopper-less Mode: If the zero-clear interval is 0, the tare weight shall be refreshed only on the first run. If the zero-clear interval is non-zero, the tare weight value will be refreshed when the accumulated tare-removal interval is greater than

			or equal to the zero-clear interval.
4.2.4	Continuous Zero Failure Shutdown Count	0	Range: 0~99. 0: Alarm only, no shutdown; Non-zero: Shutdown alarm after this many consecutive zero failures
4.3 dd -> Filling Parameters			
4.3.1	Coarse Flow Remains	0	Range: 0~Full Scale. During quantitative process, if weight >= target - coarse flow remains, close coarse flow
4.3.2	Coarse Flow Min Time	0.600	Range: 0~999.999(s). Coarse flow minimum run time
4.3.3	Medium Flow Remains	0	Range: 0~Full Scale. During quantitative process, if weight >= target - medium flow remains, close medium flow
4.3.4	Medium Flow Min Time	0.800	Range: 0~999.999(s). Coarse flow minimum run time
4.3.5	Fine Flow Remains	0	Range: 0~Full Scale. During quantitative process, if weight >= target - fine flow remains, close fine flow
4.3.6	Fine Flow Min Time	1.000	Range: 0~999.999(s). Coarse flow minimum run time
4.3.7	Filling Timeout	0	Range: 0~999.999(s). If non-zero and filling time exceeds this during filling, alarm and shutdown.
4.3.8	Coarse Flow Output Mode	111	Range: 0-111. Bit display, e.g. b111 means Filling 1, 2, 3 active during coarse flow
4.3.9	Medium Flow	11	Range: 0-111. Bit display, e.g. b101 means Filling 1, 3 active during medium flow

	Output Mode		
4.3.10	Fine Flow Output Mode	1	Range: 0-111. Bit display, e.g. b001 means Filling 3 active during fine flow
4.3.11	Coarse Flow Pulses	7750	Range: -60000~60000. Negative pulses indicate motor reverse
4.3.12	Medium Flow Pulses	4300	Range: -60000~60000. Negative pulses indicate motor reverse
4.3.13	Fine Flow Pulses	1800	Range: -60000~60000. Negative pulses indicate motor reverse
4.3.14	A Rotation Motor Coarse Flow Frequency	0	Range: 0-60000. For A rotation motor coarse flow filling.
4.3.15	A Rotation Motor Medium Flow Frequency	0	Range: 0-60000. For A rotation motor medium flow filling.
4.3.16	A Rotation Motor Fine Flow Frequency	0	Range: 0-60000. For A rotation motor fine flow filling.
4.3.17	B Rotation Motor Coarse Flow Frequency	0	Range: 0-60000. For B rotation motor coarse flow filling.
4.3.18	B Rotation Motor Medium	0	Range: 0-60000. For B rotation motor medium flow filling.

	Flow Frequency		
4.3.19	B Rotation Motor Fine Flow Frequency	0	Range: 0-60000. For B rotation motor fine flow filling.
4.3.20	Mechanism A Coarse Flow Analog Output	0	Range: 0-10000(mV) or 0~24000(uA), optional analog for vibration plate filling
4.3.21	Mechanism A Medium Flow Analog Output	0	Range: 0-10000(mV) or 0~24000(uA), optional analog for vibration plate filling
4.3.22	Mechanism A Fine Flow Analog Output	0	Range: 0-10000(mV) or 0~24000(uA), optional analog for vibration plate filling
4.3.23	Mechanism B Coarse Flow Analog Output	0	Range: 0-10000(mV) or 0~24000(uA), optional analog for vibration plate filling
4.3.24	Mechanism B Medium Flow Analog Output	0	Range: 0-10000(mV) or 0~24000(uA), optional analog for vibration plate filling
4.3.25	Mechanism B Fine Flow Analog Output	0	Range: 0-10000(mV) or 0~24000(uA), optional analog for vibration plate filling

4.3 Hd -> Result Waiting Parameters			
4.4.1	Final Weight Holding	OFF	OFF: Main display shows real-time weight during result waiting. 1: Weight display holds after result waiting time ends, changes again after discharge starts.
4.4.2	Result Waiting Stable Check Switch	ON	OFF: No stable check needed for result waiting. ON: Stable check required before result waiting time
4.4.3	Result Waiting Stable Timeoutalarm pause switch	OFF	OFF: Disable result waiting stable timeout alarm. ON: Enable result waiting stable timeout alarm
4.4.4	Result Waiting Time	1.000	Range: 0~999.999(s). After fine flow closes, this time elapses before result waiting is considered complete, entering next process.
4.4.5	Free Fall Correction Interval	0	Range: 0~99. 0: Disable free fall correction; Non-zero: Perform correction every this many cycles.
4.4.6	Free Fall Correction Range	200	Range: 0~999. Range as permille of target value
4.4.7	Free Fall Correction Percentage	50	100: 100% correction; 50: 50% correction; 25: 25% correction (per correction)
4.5 UL -> Over/Under Parameters			

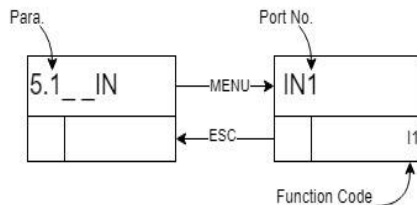
4.5.1	Over/Under Detection Mode	OFF	OFF: Disable over/under; Stop: Over/Under alarm pause; Alarm: Continue running after alarm output time
4.5.2	OverLimit Value	0	Range: 0~Full Scale. During quantitative process, if weight $\geq$ target + OverLimit value, judged as overlimit
4.5.3	UnderLimit Value	0	Range: 0~Full Scale. During quantitative process, if weight $\leq$ target - UnderLimit value, judged as underlimit
4.5.4	Over/Under Alarm Output Time	1.000	Range: 0~999.999(s).
4.5.5	Compensation Mode	OFF	Off: No compensation; Jog: Jog compensation (fine flow outputs compensation times on underlimit); Time: Time compensation (fine flow calculates compensation time based on flow rate)
4.5.6	Max Compensation Times	3	Range: 1~99. When judged as underlimit during quantitative process, perform fine flow compensation at this value.
4.5.7	Compensation Control Time A	0.500	Range: 0~999.999(s). Jog compensation: fine flow ON time per cycle; Time compensation: minimum compensation time
4.5.8	Compensation Control Time B	0.500	Range: 0~999.999(s). Jog compensation: fine flow OFF time per cycle
4.6 ds -> Discharge Parameters			
4.6.1	Near Zero Band	0	Range: 0~Full Scale. 0: No weight check; Non-zero: Start discharge delay when weight falls below near zero band

4.6.2	Discharge Delay	0.500	Range: 0~999.999(s). During discharge, when hopper weight is less than near zero band, this delay starts; when delay ends, discharge signal turns off.
4.6.3	Discharge Timeout	0	Range: 0~999.999(s). If non-zero and discharge time exceeds this during discharge, alarm and shutdown.
4.6.4	Discharge Cycles / Single Bag Discharge Cycles	1	Range: 1-9. Number of rotations to complete discharge (only valid for motor/stepper rotation mode)
4.6.5	Discharge Pulses	12000	Range: -60000~60000. Negative pulses indicate motor reverse
4.6.6	Discharge Gate Open Time	1.000	Range: 0~999.999(s). Discharge gate close time is fixed at open time x 110%.
4.7 pk -> Bag Lock/Unlock Parameters			
4.7.1	Post Lock/Unlock Delay	0.500	Range: 0~999.999(s). After bag lock/unlock signal, indicator considers bag lock complete after this delay.
4.7.2	Pre-Unlock Delay	0.500	Range: 0~999.999(s). After hopper discharge ends, unlock signal output after this delay.
4.7.3	Lock Pulses / Lock/Unlock Pulses	12000	Range: -60000~60000. Negative pulses indicate motor reverse
4.7.4	Bag-release Timeout Period	0	Range: 0 ~ 999999 (s) 。 When the parameter is non-zero, following bag-release under no hopper mode, the system waits for weight to drop below half the target value. Alarm and stop shall be activated if this duration exceeds the hopper-less

			mode bag-release timeout period. (no hopper para.)
4.8 pk —> Target Flow Rate Parameter			
4.8.1	Target Flowrate	0	Range: 0.00~999.999; If the target flow rate value is non-zero, the instrument calculates and converts using the set target flow rate value and target value to get the time required for a single discharging process. Discharging will not start until this calculated time has elapsed. When set to 0, target flow rate control is inactive.
4.8.2	Flowrate Low Alarm Trigger Count	0	Range: 0~99; When this parameter is non-zero: if the discharging interval times time-out for several consecutive discharging cycles and the accumulated count reaches the configured value, the instrument shall output the "Flowrate Low" alarm signal. When set to 0, no alarm shall be generated
4.8.3	Auto Flow-rate Adjustment Interval	0	Range: 0 ~ 99; When this parameter is non-zero, if the discharge interval times out or occurs in advance, the instrument will automatically adjust by shortening or lengthening the discharge interval until the target flow rate is achieved.
4.8.4	Flow-rate Adjustment Upper-limit Percentage	50	Range: 0 ~ 99, The extended discharge time for a single weighing cycle shall not exceed (Flow-rate Adjustment Upper-limit Percentage × discharge interval). When set to 0, no restriction shall be applied.

Chapter 7 I/O Module (5 io.d)

7.1 I/O Initial Values and Description

No.	Parameter Name	Initial Value	Description
5.1 in -> Input Port Definition			
5.1.1	Input Port Function Definition 1	1	Input Port Function Definition: Define input interface function, e.g. 5.1.1 set to I1; when input port 1 (IN1) is active, indicator starts (when filling conditions are met); Function code reference table, refer to: 
5.1.2	Input Debounce Time 1	0.005	
5.1.3	Input Port Function Definition 2	2	
5.1.4	Input Debounce Time 2	0.005	
5.1.5	Input Port Function Definition 3	3	
5.1.6	Input Debounce Time 3	0.005	
5.1.7	Input Port Function Definition 4	23	
5.1.8	Input Debounce Time 4	0.005	
5.2 OU -> Output Port Definition			

5.2.1	Output Port-1	1	Output Port Function Definition: Define output port function, e.g. 5.2.1 set to o1; output port 1 (OUT1) active during running. To change OUT1 to alarm status, define it as o3 Function code reference table, refer to:	
5.2.2	Output Port-2	2		
5.2.3	Output Port-3	3		
5.2.4	Output Port-4	5		
5.2.5	Output Port-5	6		
5.2.6	Output Port-6	7		
5.2.7	Output Port-7	17		
5.2.8	Output Port-8	18		
5.2.9	Output Port-9	23		
5.2.10	Output Port-10	29		

7.2 I/O Function Code Reference Table

Function Code	Function	Function Code	Function	Function Code	Function
Input Port Function Code Reference					
I0	None	I14	Material Level Detection (Level)	I28	Bag Lock/Unlock Request
I1	Start	I15	Fill-Go (Level)	I29	Bag Lock Request
I2	Emergency Stop	I16	Manual Coarse Feed	I30	Bag Unlock Request
I3	Stop	I17	Manual Coarse Feed (Level)	I31	Bag Locked (Level)
I4	Start/Stop (Level)	I18	Manual Medium Feed	I32	Bag Unlocked (Level)
I5	Start/Halt (Level)	I19	Manual Medium Feed	I33	Discharge Request (Level)

			(Level)		
I6	Zero	I20	Manual Fine Feed	I34	Manual Discharge
I7	Clear Alarm	I21	Manual Coarse Feed	I35	Manual Discharge (Level)
I8	Clear Total ACUM	I22	Manual Coarse Feed (Level)	I36	Discharge Gate Opened (Level)
I9	Clear Recipe ACUM	I23	Manual Medium Feed	I37	Discharge Gate Closed (Level)
I10	Manual Discharge	I24	Manual Medium Feed (Level)	I38	Manual Complete
I11	Manual Discharge (Level)	I25	Manual Fine Feed	I39	Print Total ACUM
I12	Manual Supplement	I26	Manual Fine Feed (Level)	I40	Print Current Recipe ACUM
I13	Manual Supplement (Level)	I27	Feed Gate Closed (Level)	I41	Clear In&Out ACUM
I42	CLOG (When this signal is active, it indicates blockage of the downstream equipment's discharge mechanism. The instrument shall not output the discharge signal until this signal becomes inactive.)				
Output Port Function Code Reference					
O0	None	O14	Filling PWMC_B	O28	Bag Lock/Unlock Motor Running
O1	Running	O15	Filling Mechanism A Motor Running	O29	Discharge Status
O2	Stopped	O16	Filling Mechanism B Motor Running	O30	Discharge Gate Open

O3	Alarm	O17	Result Waiting	O31	Discharge Gate Close
O4	Supplement (Empty)	O18	Over/Under	O32	Discharge PWM
O5	Coarse Flow Status	O19	OverLimit	O33	Discharge PWM_Forward
O6	Medium Flow Status	O20	UnderLimit	O34	Discharge Motor Running
O7	Fine Flow Status	O21	Qualified	O35	Near Zero
O8	Filling Control 1	O22	Ready	O36	Batch Complete
O9	Filling Control 2	O23	Bag Lock Status	O37	Last Feed
O10	Filling Control 3	O24	Bag Lock Output	O38	Clogged(Out)
O11	Filling PWMS_A	O25	Bag Unlock Output	O39	Delivery Done
O12	Filling PWMS_A Forward	O26	Bag Lock/Unlock PWM	O40	CUT
O13	Filling PWMC_A	O27	Bag Lock/Unlock PWM_Forward		

7.3 I/O Function Definition Operation

Input and output interface functions can be defined according to actual requirements:

- 1) Under the corresponding port number to be defined, press ENTER, the function code under the port number blinks (secondary display blinks);
- 2) Use arrow keys to select/set the function code, press ENTER to save. Setup complete.

7.4 I/O Test

The indicator provides I/O port test function for testing input/output connection status. I/O test function is in menu item 7.5.1

Chapter 8 Batch and Accumulation

No.	Parameter Name	Initial Value	Description
6.1 Sum -> Total ACUM			
6.1.1	Total ACUM PCS	0	Secondary display shows total ACUM count value
6.1.2	Total ACUM Weight	ACC	Press MENU to view total ACUM value
6.1.3	Clear Total ACUM	Clear	Press MENU, enter parameter password, press MENU again to clear total ACUM
6.1.4	Print Total ACUM	print	Press MENU, enter parameter password, press MENU again to clear total ACUM
6.2 rs -> Current Recipe ACUM			
6.2.1	Current Recipe ACUM PCS	0	Secondary display shows current recipe ACUM count value
6.2.2	Current Recipe ACUM Weight	ACC	Press MENU to view current recipe ACUM value
6.2.3	Clear Recipe ACUM	Clear	Press MENU, enter parameter password, press MENU again to clear total ACUM
6.2.4	Print Recipe ACUM	print	Press MENU, enter parameter password, press MENU again to clear total ACUM
6.3 PC -> Batch Parameters			
6.3.1	Set Batch	0	During auto operation, when batch count is reached, indicator alarms and shuts down; Range: 0-9999

6.3.2	Batch Alarm Clear Mode	on	Batch alarm clear mode: ON: Auto-clear 3S after batch count alarm, OFF: Manual clear
6.3.3	Remaining Batch PCS	0	Display Remaining Batch Count
6.4.1	ACUM Pcs	/	The parameter item is displayed as accumulated count.
6.4.2	ACUM Weight	/	The parameter item is displayed as accumulated weight.
6.4.3	Clear In&Out ACUM	/	Press MENU key to clear accumulation

Chapter 9 Communication Parameters

No.	Parameter Name	Initial Value	Description
2.1 rS -> Serial Port Parameters			
2.1.1	Communication ID	1	Communication ID; Range: 1-99
2.1.2	Baudrate	38400	Serial communication baudrate: 9600, 19200, 38400, 57600, 115200 optional
2.1.3	Communication Mode	MD_RTU	Serial communication protocol: MD_RTU(Modbus-RTU), PRINT, TT protocol optional
2.1.4	Data Format	8-E-1	0、8N1 1、8E1 2、8O1 3、7E1 4、7O1
2.1.5	Dword Format	AB-CD	0、AB-CD 、1、CD-AB,
2.1.6	Send Interval	20	Under TT protocol, data continuous send interval, 10-999999ms adjustable
2.1.7	TT Protocol Checksum Switch	ON	TT protocol checksum switch: ON: Enabled (required); OFF: Disabled (not required)
2.2 NP -> Ethernet Common Parameters			
2.2.1	Indicator IP High	192.168	IP High. Range: 0.0~255.255
2.2.2	Indicator IP Low	0.1	IP Low. Range: 0.0~255.255
2.2.3	Subnet Mask High	255.255	Subnet Mask High. Range: 0.0~255.255
2.2.4	Subnet Mask Low	255.0	Subnet Mask Low. Range: 0.0~255.255
2.3 N1 -> Ethernet Socket 1 Parameters			
2.3.1	Port Number	502	Ethernet port number; Range: 0-65535 adjustable
2.3.2	Communication	MD_TCP	Ethernet communication protocol: MD_RTU(Modbus-RTU), TT protocol

	Mode		optional
2.3.3	Dword Format	AB-CD	MODBUS Dword format: AB-CD, CD-AB
2.3.4	Send Interval	20	Under TT protocol, data continuous send interval, 10-999999ms adjustable
2.4 N2 -> Ethernet Socket 2 Parameters			
2.4.1	Port Number	0	Ethernet port number; Range: 0-65535 adjustable
2.4.2	Communication Mode	MD_TCP	Ethernet communication protocol: MD_RTU(Modbus-RTU), TT protocol optional
2.4.3	Dword Format	AB-CD	MODBUS Dword format: AB-CD, CD-AB
2.4.4	Send Interval	20	Under TT protocol, data continuous send interval, 10-999999ms adjustable
※ Indicator has 4 built-in independent Socket channels, non-interfering (Socket3/Socket4 parameters are items 2.5/2.6, refer to 2.4) ※ For communication format and address, please refer to the Product Communication Manual			
2.7 N2 -> Print Parameters			
2.7.1	Header Line Count	0	Print header info lines, content can be edited (via communication/host computer). Range: 0-4
2.7.2	Footer Line Count	0	Print footer info lines, content can be edited (via communication/host computer). Range: 0-4
2.7.3	Auto Print Switch	OFF	Whether to auto-print after one packaging cycle
2.7.4	Print Format	24	Print width: 24: 24-column format; 32: 32-column format
2.7.5	Print Language	CHN	Print Language: CHN: Chinese; ENG: English;
2.7.6	Paper Feed Lines	3	After printing, paper auto-feeds to leave configured lines; Range: 0-9 lines
2.7.7	Additional Info Print	0	Additional info is header/footer content; interval is print count between

	Interval		header and footer. If set to 3, footer prints after every 3 print operations
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9.1 Communication Commands and Addresses

The indicator provides MODBUS (RTU/TCP) and TT continuous sending protocols for communication with external host computers, PLCs, etc. For specific protocols, please refer to the Communication Manual or contact customer service.

9.2 Serial Port Firmware Test

Serial port test function sends and receives data at a fixed baud rate (38400) and data format (8-N-1) to detect serial port connection status. After connecting the serial port between indicator and host computer, serial port test can be performed.[3.4](#)

1) Send Test: Enter parameter 7.5.3, in secondary display SEND state, press MENU, SEND blinks, press MENU again, displays OK for 2s then shows SEND, starts sending data. If the host computer receives the following display, serial port send is normal.

2) Receive Test: Enter parameter 7.5.4, press MENU, Receive blinks, press MENU again, displays OK for 2s then shows -----, at this time send HEX "40 30 31 32 33 34 35 0D 0A" to the indicator externally, if the indicator shows as below, serial port connection is normal.

Chapter 10 Function Description

10.1 Zero Function

Zero success conditions:

- 1) Weighing platform is stable; 2) Weight is within zero range.

Zero operation methods:

- 1) Keypad zero; 2) Zero input port active; 3) Communication port zero (remote zero switch enabled)

10.2 Parameter Import/Export

The indicator supports parameter and operation record import/export; supports 2.0/3.0 USB drives:

No.	Parameter Name	No.	Description
USB Export		USB Import	
7.3.1	All Parameters	7.4.1	All Parameters
7.3.2	Non-Calibration Parameters	7.4.2	Non-Calibration Parameters
7.3.3	Operation History Export		
7.3.4	History Data Export		

1) Insert USB drive, find corresponding parameter item
2) Press MENU, Export/Import will flash, press MENU again to execute export/import operation.

10.3 USB Upgrade

1.	Place the upgrade file named G-2301PUpgrade.gm in the root directory of USB drive;
----	--

2.	Insert USB drive into indicator. Main display shows UPG prompting upgrade. Press ESC to return to weight display. To upgrade, press MENU and enter password, UPG continues blinking, press MENU shows Load... indicating upgrade in progress. Parameter interface item 7.7 also provides USB upgrade function Insert USB drive into indicator. Main display shows UPG prompting upgrade. Press ESC to return to weight display. To upgrade, press MENU and enter password, UPG continues blinking, press MENU shows Load... indicating upgrade in progress. Parameter interface item 7.7 also provides USB upgrade function
3.	Upgrade completes in approximately 30s and automatically restarts to main interface.

10.4 Customizable Functions

The indicator provides customizable COM indicator light, main interface arrow keys (i.e., Up, Down, Left, Right), and analog output mode, greatly facilitating on-site commissioning.

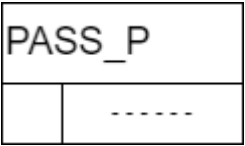
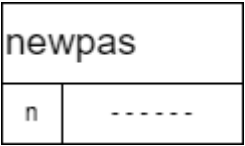
No.	Parameter Name	Initial Value	Description
7.6.1	COM Indicator	0	Range: 0-9; 0: Serial port (COM indicator blinks during normal communication)
7.6.2	 ZERO Keypad	Zero	1) Under parameter (secondary display shows current key function) 2) Can define I/O functions under "I/O Function Definition" parameters (except level signals).

7.6.3	 PRT Keys	Print Total ACUM	3) Definition method: Under parameter item, press "MENU", secondary display blinks, use arrow keys to switch to corresponding function code. Finally press "MENU" to save settings. 4) If parameter 7.6.2 secondary display shows "6", refer to "7.2-I/O Function Code Reference Table" "ZERO" to execute zero operation. If parameter value is 1, pressing "ZERO" starts packaging process (when packaging conditions are met)
7.6.4	 TARE Keys	Bag Lock/Unlock	
7.6.5	 CAL Keys	Emergency Stop	
7.6.6	DA Output Mode	0-10V	Analog output type: 0-10V, 4-20mA, 0-5V optional

10.5 Password Settings

1) Indicator parameters have password protection. When parameter "7.1.2" is set to "ON", password is required for modification. After correct password entry, no repeat entry is needed until exiting to the main interface.

2) Initial password: 000000

Password Input Interface	Password Setting (Modification) Interface	Description
		1) In input/settings interface, press MENU. Left digit blinks, use arrow keys to enter correct password 2) Password setting/modification requires entering twice for confirmation

10.6 Time Settings

No.	Initial Value	Parameters and Description
H1.1	-8.0	Timezone setting, range: -12.0 to +12.0. Interval: 0.5 timezone Note: timezone change will affect date/time; symbol position can only be selected as ' - ' or space using Up/Down keys.
H1.2	YY.MM.DD	Date display format, options: YY.MM.DD; DD.MM.YY.
H1.3	2025.09.03	Set date: press MENU to edit a digit (blinks), use Up/Down keys to change value. Display format set by H1.2. YY (year) range 00-99, MM (month) range 00-12, DD (day) range 00-31
H1.4	06.03.06	Set time: press MENU to edit a digit (blinks), use Up/Down keys to change value. Hour: 00-23, Minute: 00-59, Second: 00-59.

*Enter Time Settings parameters:On the main interface,Long pressCCAL key (3S)

Chapter 11 System Parameters

No.	Parameter Name	Initial Value	Description
2.1 rS -> Serial Port Parameters			
7.1.1	Calibration Password	000000	Displays Newpass - - - - -, enter new password first time, displays Newpass =====, enter new password second time, PassOk indicates successful change.
7.1.2	Basic Parameter Password Switch	OFF	After password enabled, parameter changes require password entry. No verification needed after exiting parameter interface.
7.1.3	Basic Parameter Password	000000	Displays Newpass - - - - -, enter new password first time, displays Newpass =====, enter new password second time, PassOk indicates successful change.
7.2.1	Reset All	/	Operation parameter: Under corresponding parameter item, press MENU, Reset will flash, press MENU again to reset parameter to factory default.
7.2.2	Reset Non-Calibration	/	
7.2.3	Reset Calibration Parameters	/	
7.2.4	Reset Communication Parameters	/	
7.2.5	Reset Working Parameters	/	

7.2.6	Reset Recipe Parameters	/	
7.2.7	Reset I/O Parameters	/	
7.3.1	All Parameters	/	Operation parameter: Press MENU, Export will flash, press MENU again to export
7.3.2	Non-Calibration Parameters	/	
7.3.3	Operation History Export	/	
7.3.4	History Data Export	/	
7.4.1	All Parameters	/	Operation parameter: Press MENU, Import will flash, press MENU again to import
7.4.2	Non-Calibration Parameters	/	
7.5.1	I/O Port Test	/	Parameter description and application, see section 7.4
7.5.2	Display LED Test	/	Under this parameter, press MENU to light up all screen indicators (for checking display firmware status)
7.5.3	Serial Port Send Test	/	Parameter description and application, see section 9.2
7.5.4	Serial Port Receive Test	/	Parameter description and application, see section 9.2
7.6.1	COM LED Customization	0	Range: 0-2: 0: COM indicates serial communication (blinks during RS485/232 data transmission) 1: COM indicates Ethernet communication

7.6.2	ZERO Keypad	6	Parameter is I/O function code, see section 7.2 reference table. Default: Zero
7.6.3	PRT Keypad	34	Parameter is I/O function code, see section 7.2 reference table. Default: Print Total ACUM
7.6.4	TARE Keypad	23	Parameter is I/O function code, see section 7.2 reference table. Default: Bag Lock/Unlock
7.6.5	CAL Keypad	2	Parameter is I/O function code, see section 7.2 reference table. Default: Emergency Stop
7.6.6	DA Output Mode	3	DA output type: 0: 4-20mA; 1: 0-5V; 2: 0-10V

* Keypad definition does not support level signal definition

Chapter 12 Control Process Description

Hopper Process	Start -> Pre-filling Check(Item 4.2) -> Filling(Item 4.3) -> Result Waiting(Item 4.4) -> Over/Under(Item 4.5) -> Discharge(Item 4.6) -> Batch & Accumulation(Item 6) -> Bag Unlock(Item 4.7)
No Hopper Process	Start -> Pre-filling Check(Item 4.2) -> Filling(Item 4.3) -> Result Waiting(Item 4.4) -> Over/Under(Item 4.5) -> Bag Unlock(Item 4.7) -> Batch & Accumulation(Item 6)
Bulk Process	Start -> Pre-filling Check(Item 4.2) -> Filling(Item 4.3) -> Result Waiting(Item 4.4) -> Over/Under(Item 4.5) -> Discharge(Item 4.6) -> Batch & Accumulation(Item 6)
Pre-filling Check Content: 1) Batch Management: If disabled, this judgment is skipped. If enabled and the target number of batches is completed, an alarm shall be triggered; if the batches are not completed, the process shall continue. 2) Zero-reset / Tare Judgment: - Hopper-based Mode: ① First-bag zero-reset condition is satisfied (Parameter Item 4.2.2); ② The auto zero-reset interval has elapsed (Parameter Item 4.2.3). - Hopper-less Mode: ① Tare weighing is required for the first run; ② Parameter Item 4.2.3 denotes the tare processing interval. When set to 0, tare weight is refreshed only on the first run; when set to a non-zero value, tare weight is refreshed at the configured interval (i.e., tare weight is refreshed after a defined number of consecutive packaging cycles). 3) Check whether the pre-feed delay time has elapsed (Item 4.2.1).	

- 4) Mechanism Status Judgment: - Hopper-based Mode: Detect whether the discharge gate is fully closed. An alarm output shall be triggered upon timeout. - Hopper-less Mode: Verify that the feed gate is fully closed, the bag-clamping signal is valid, and the feed enable signal is valid.
- 5) If material level monitoring is configured (refer to Section 12.1 for function description), low-material-level alarm shall be activated and the system shall stop. Otherwise, the process continues.
- 6) Under Bulk-material Mode, judge the receipt/dispatching mode after startup. In dispatching mode, judge whether it is the last weighing cycle; the target value will be automatically adjusted according to the total dispatching quantity.

Filling Process:

- 1) Indicator provides 3 feeding parameters: coarse, medium, fine. These parameters affect filling speed
- 2) Coarse/medium/fine minimum time: when remains are 0, these are filling times controlling overshoot; when remains are non-zero, minimum time is inhibition time (prevents weight misjudgment from overshoot).
- 3) Coarse, medium, fine filling modes are configurable; combined or individual feeding can be set;
4.3.8 is coarse flow output mode: if set to 111, all three filling ports feed during coarse flow; if set to 110, coarse and medium ports feed. Each digit represents one filling port, 1=active, 0=inactive
4.3.9 is medium flow output mode; 4.3.10 is fine flow output mode; settings refer to coarse flow description.

Result Waiting Process:

- 1) In this process, indicator records packaging weight, parameter 4.4 sets result waiting process parameters

Over/Under Judgment:

1) During packaging, if weight exceeds a range, it is judged as overlimit; if below a range, judged as underlimit. 2) Overlimit and underlimit are considered unqualified. Indicator will have alarm output. Users can set alarm form (alarm prompt or alarm shutdown) 3) When underlimit, optional compensation can be performed; Parameter 4.5.5: 0=no compensation, 1/2=enables fine flow jog compensation or time-based compensation after underlimit
Discharge: Indicator discharge function has multiple control parameters for near zero band, discharge delay, timeout, cycles, pulses, and gate open time, providing comprehensive control of discharge start/stop, segmented discharge, mechanism action and timeout protection for various material packaging

12.1 Material Level Control Description

Input and output port functions:

- 1) Material level detection function is assigned to IN port (i.e., I14 needs to be assigned to one of IN1-IN4 ports)
- 2) Supplement output needs to be assigned to OUT port (i.e., O4 needs to be assigned to one of OUT1-OUT10 ports)

Parameter items:

- 1) Pre-supplement delay / Empty detection time (parameter 3.3.1): After detecting material level invalid, supplement output becomes active (start supplementing) after this delay time

- 2) Post-supplement delay / Supplement delay time (parameter 3.3.2): After detecting material level signal, supplement output becomes inactive (stop supplementing) after this delay time
- 3) Full startup switch (parameter 3.3.3): When enabled, starts supplementing immediately when material level is invalid at the first weighing cycle.
- 4) Supplement timeout (parameter 3.3.4): If material level is not detected as valid within this time after supplement output is active, an alarm is triggered (supplement abnormal).

Parameter setting suggestions:

When material level is at the lower part of the hopper:

- 1) Set pre-supplement delay to 0, meaning supplement starts immediately when material level is invalid.
- 2) Supplement duration based on approximate time from material level to full hopper.

When material level is at the middle of the hopper:

- 1) Do not set supplement delay to 0; delay this time after material level becomes invalid before starting supplement.
- 2) Supplement duration can also be set to non-zero, based on approximate time from material level to full hopper.

When material level is at the top of the hopper:

- 1) Do not set supplement delay to 0; after material level becomes invalid, wait this duration before supplementing.
- 2) Set supplement duration to 0; stop supplementing immediately when material level is reached to prevent over-supplementing and overflow.

12.2 Free Fall Correction Function

This function can calculate and record the fine flow remains based on packaging results, improving packaging accuracy by adjusting fine flow remains. Free fall parameters are in recipe parameters items 4.4.5 to 4.4.6 (see parameter description column)

12.3 Compensation Function

When packaging results show underlimit, this function can perform supplementary filling to achieve the set target value. Compensation parameters are in recipe parameters items 4.5.5 to 4.5.8 (see parameter description column)

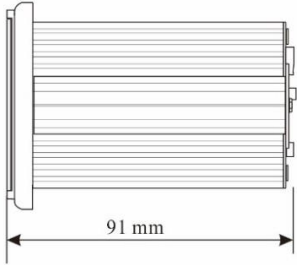
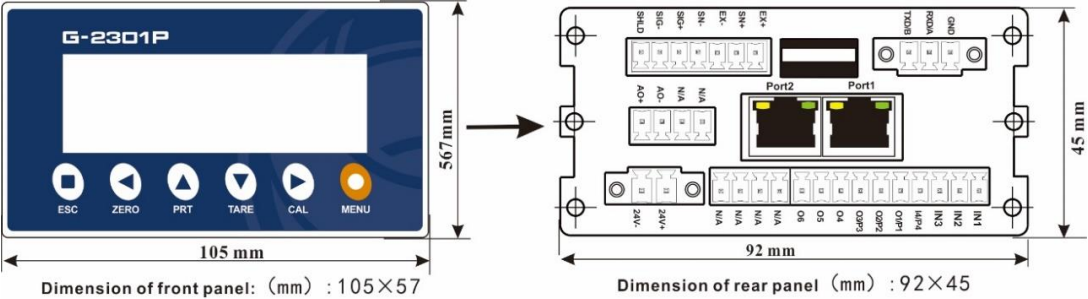
Chapter 13 Error Codes and Alarm Messages

Err 00	Unknown Error Type	Err 32	Zero Over Range	Err202	Feed Gate Not Closed Alarm at Startup
Err 01	Input Out of Range	Err 33	Zero Unstable	Err203	Discharge Gate Not Closed Alarm at Startup
Err 07	Calibration Locked, Calibration Prohibited	Err 34	Sensor Positive Overflow During Zero	Err204	Running Zero Over Range
Err 08	Remote Calibration Switch Protection, Calibration Not Allowed	Err 35	Sensor Negative Overflow During Zero	Err205	Stable Judge Timeout During Running Zero
Err 09	Resolution Setting Exceeds Precision	Err 36	Net Weight Zero Not Allowed	Err206	Over/Under Alarm
Err 10	Zero Calibration Unstable	Err 37	Tare Operation Switch Not Enabled	Err207	Operation Not Allowed During Running
Err 11	Zero Calibration Sensor Negative Overflow	Err 38	Unstable During Tare	Err208	Data Writing, Please Wait
Err 12	Zero Calibration Sensor Positive Overflow	Err 39	Sensor Negative Overflow During Tare	Err209	Start Not Allowed During Manual Operation
Err 13	Weight Calibration Unstable	Err 40	Sensor Positive Overflow During Tare	Err300	Supplement Timeout

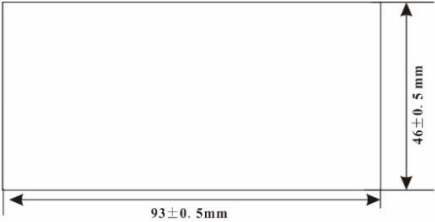
Err 14	Weight Calibration Sensor Negative Overflow	Err 41	Negative Weight During Tare	Err301	Running Zero Failure Exceeded Threshold
Err 15	Weight Calibration Sensor Positive Overflow	Err 42	Continuous Tare Prohibited	Err302	Result Waiting Stable Timeout
Err 17	Weight Calibration Input is 0	Err 60	USB Drive Not Detected	Err303	Over/Under Pause
Err 18	Weight Calibration Input Exceeds Full Scale	Err 61	USB File Error	Err304	Batch Complete
Err 19	Weight Calibration Exceeds Minimum Resolution	Err 62	File Open Error	Err305	Filling Timeout Alarm
Err 21	Print Protocol Not Selected	Err 63	Upgrade Checksum Error	Err306	Discharge Timeout Alarm
Err 22	Unstable During Auto Weight Correction	Err100	Password Input Error	Err307	OFL During Packaging
Err 23	Net Weight During Auto Weight Correction	Err101	Password Mismatch	Err308	Feed Gate Close Timeout
Err 24	Overflow During Auto Weight Correction	Err102	Timezone Setting Error	Err309	Bag Unlock Timeout

Err 25	Result Less Than Zero or Weight Change Too Small During Auto Weight Correction	Err103	Date Setting Error	Err310	Bag Lock Timeout
Err 26	Auto Weight Correction Switch Not Enabled	Err104	Time Setting Error	Err311	Discharge Gate Limit Release Alarm
Err 27	Auto Weight Correction Factor Out of Range	Err200	Target is 0 or Recipe Parameters Invalid at Startup	Err312	Discharge Gate Close Timeout
Err 30	Power-On Zero Over Range	Err201	OFL at Startup	Err313	Discharge Gate Open Timeout
Err 31	Power-On Zero Unstable				

Chapter 14 Product Dimensions



Side view (mm) : 91



Dimension of rear panel (mm) : 93×46