

PLY900 Indicator

Hiya Mechanical Equipment Co., Ltd.

Catalogue

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Chapter 1 Main technical indicators and functions

1、 Main functions

- A combination of weighing, display, communication, printing and proportioning control.
- ❖ With analog, digital double filtering function.
- ❖ Automatic error diagnosis, easy to find and solve problems.
- ❖ Provide complete material batch control.
- ❖ Automatic/manual dosing.
- ❖ The batching process can be suspended at any time.
- ❖ With automatic zero tracking.
- ❖ Can realize automatic reset to power on.
- ❖ Automatic zeroing with ingredient start.
- ❖ Automatic selection with 4 materials.
- ❖ Feel free to modify and print the recipe.
- ❖ With manual / automatic setting drop correction function.
- ❖ With password permission setting function, easy to manage.

Zero setting range, zero tracking range, overload range.

2、 The main technical indicators

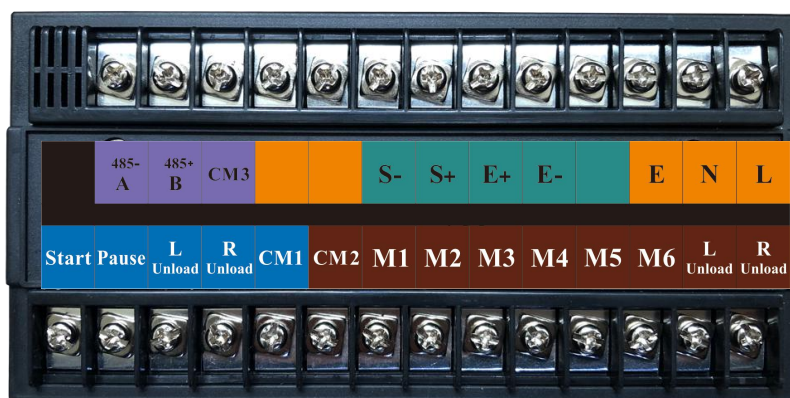
Basic parameters	Description
Display	Single row LED digital tube, LED light indication
Graduation value	1、 2、 5、 10、 20、 50
Maximum display value	99999
Decimal point display	0、 0.0、 0.00
Weight unit	kg
G.W	1600±300g
Performance	
Accuracy	±0.01%FS
Maximum signal input range	±16mv
Sensor interface input impedance	≥20MΩ

Nonlinear error	$\leq 0.002\%FS$
A/D Conversion speed	10 Times/second
Working parameters	
Communication interface form	RS485、RS232
Serial port baud rate	4800、9600、19200、115200
Sensor type	Resistance strain gauge sensor
Sensor excitation voltage	DC 5V
Analog output	4-20ma、0-5v
Switch input parameter	5-12V DC
Working conditions	
Power supply voltage range	AC 220V (AC175-265V) , 50Hz/60Hz
Product power	<8W
Operating temperature	-20°C~60°C
Humidity range	$\leq 90\%$









Chapter 2 Panel and Interface description

Main display panel and rear structure:





Key Description

Key	Description
	Press the button in the weighing state, press “start”key, start working.
	Press the button in the weighing state, press “stop”key, stop working.
	Press the“menu”key in the weighing state 8seconds Enter the setting operation of the configuration parameters.
	In the weighing state, press 5 seconds, Enter the calibration operation。
	In the weighing state,press 8 seconds,Enter the ingredient value of the ingredient, drop the difference, and automatically follow the parameter setting.
	After the data is input, press this button and the meter will store the entered value in memory.
	Return to the previous interface function, do not save any parameters when returning.
	For example, the tare/zero button is valid only when the 0 button is pressed on the main page (weighing page), and the zero tare/zero button is directly pressed to zero. Must be on the main interface, the working state is 0, zero, and tare invalid.
Number key	Ten numeric keys for entering set values。 Among them, the number keys 2 and 8 have a page turning function.
Discharge key	Discharge key, Batching is done in semi-automatic or manual situations ,Press the discharge button to activate!

Note: Automatic mode: automatic batching and unloading during work; manual mode: manual discharge is required during work, and discharge is completed and returned to the main interface; semi-automatic

mode: batching is completed, manual unloading is completed, and unloading is completed automatically.

Semi-manual state: the ingredients are completed, no unloading, return to the main interface.

Chapter 3 Installation process description

1. Before connecting the sensor cable, please check whether the four corners of the sensor on the weighing hopper are level, and the screw engagement part of the sensor should not exceed the upper plane of the S-type sensor during installation.

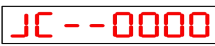

2. Please connect the system three-phase incoming line and motor output line to the controller reliably.

3. Connect the sensor cable and the hand-held box to the computer-side air connector.

4. the above process can be checked if it is correct, and the formula and calibration scale can be set.


Chapter 4 Calibration and charge mixture operation














4.1 Calibration


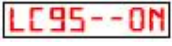

Calibration; Press“Cal”more than 5 seconds	
Calibration step	<p>1、 Empty the weighing platform and keep the weighing platform stable.</p> <p>2、 Press“Cal”more than 5 seconds, The meter automatically jumps to the  interface.</p> <p>3、  Enter the weight of the interface, in kg.</p> <p>4、 Place the weight on the weighing platform to keep the weighing platform stable.</p> <p>5、 Click the “Enter” button on the panel to complete the calibration.</p>

4.2 Parameter

Press “Parameter”key show the following table:

Parameter setting,long press the "Parameter" button for more than 5seconds,					
No.	Parameter	Display	Range	default	Remarks
1	Decimal point		0-2	0	0: Do not display the decimal point 1: Display 1 decimal place

					2: Display 2 decimal place by“↑、 ↓”Selection parameter
2	Graduation value		1、 2、 5、 10、 20、 50	1	by“↑、 ↓”Selection parameter
3	Material interval time		3-999s	3	Interval between each material ingredient. (second) Input via numeric keypad
4	Unloading waiting time		3-999s	1	Indicates the discharge control delay time (second)
5	Cycle interval		3-999s	3	Interval between each cycle. Input via numeric keypad (second)
6	Unloading selection		L/R	L	Cutting mode selection in automatic mode. by“↑、 ↓”Selection parameter.
7	Unloading percentage		0-99	00	
8	Unloading delay time		2-999	002	second
9	Serial port baud rate		4800, 9600, 19200, 115200	9600	
10	Zero tracking range		0-999g	50g	0: Do not start zero tracking. Input via numeric keypad
11	Measuring range		0-99999	99999	kg
12	Drop 1 setting		0-99999KG	0	Drop 1 setting, Input via numeric keypad
13	Drop 2 setting		0-99999KG	0	Drop 2 setting, Input via numeric keypad
14	Drop 3 setting		0-99999KG	0	Drop 3 setting, Input via numeric keypad

15	Drop 4 setting		0-99999KG	0	Drop 4 setting, Input via numeric keypad
16	Drop following		ON/OFF	ON	Drop automatically follow the selection, by“↑、↓”Selection parameter.
17	Operating mode		0; 1; 2; 3	2	0: Manual mode, manual unloading is required during work, and unloading is completed and returned to the main interface. 1: Automatic mode, automatic batching and unloading during work; 2: Semi-automatic mode: batching completed, manual unloading, unloading completed, automatic next batching 3: Semi-manual state: the ingredients are completed, no unloading, return to the main interface

Note: In the drop manual setting mode, the recipe and drop must be reset each time the decimal point is changed. If you use the drop to automatically follow, you don't have to reset the drop.

4.2.1、 Parameter setting range

Note 1: Index value Unloading The baud rate is selected by ↑ or ↓

Note 2: The ingredients and drop values in each recipe should be reset every time the decimal point is set.

4.3、 Ingredients

4.3.1、 Formulation instructions

- 1、 Press“Formula”key more than 5 seconds, in PF-----1 , by“↑、 ↓”arrow selection formula group
- 2、 After selecting the recipe group, click enter.Set in order L1、 L2、 L3、 L4 parameter.After the setting is completed, click Back to complete the setting.

Note: In the drop manual setting mode, the recipe and drop must be reset each time the decimal point is changed. If you use the drop to automatically follow, you don't have to reset the drop.

Note: (1) When the self-calibration drop is not turned on, the drop value will not change. When the self-calibration drop is on. The drop value will automatically judge the error of the set drop value to automatically adjust the drop value but will not remember. After the power is turned back on, the drop value will be restored to the manually set value.

(2) The ingredient switch is judged to stop according to the set difference value of the ingredient value

4.3.2、 Instrument drop setting

Drop setting range

The drop setting range is from 0 to 999 divisions and cannot be greater than one-half of the material's ingredient setting.

Chapter 5 MODBUS communication

Read parameter request in device:	Response:
Add	Add
Function code	Function code
	Number of bytes
High register address	High register address
Low register address	Low register address
High register address	High register address
Low register address	Low register address
...	...
CRC low	CRC low
CRC high	CRC high

Example 1:

Display weighing platform weight:

Request: 01 03 00 01 00 02 95 CB

If the weight on the platform is 1 kg now

Return: 01 03 04 00 00 03 E8 FA 8D

If the weight on the platform is -1 kg now

Return: 01 03 04 FF FF FC 18 BB 1D

Example 2:

Read decimal point:

Request: 01 03 00 03 00 01 74 0A

If the decimal point is 1 now

Return: 01 03 02 00 01 79 84

Note:

A: Add(initial:01)

F: Low number of registers

B: Function code0X03

G: CRC Low

C: High register address

H: CRC High

D: Low register address

I: Return data description(decimal example)

E: High number of registers

	A	B	C	D	E	F	G	H	I
Weight	01	03	00	01	00	02			Signed data-99999 000—99999000g
Decimal point	01	03	00	03	00	01			0-2
Indexing	01	03	00	04	00	01			1、2、5、10、20、50
Material interval time	01	03	00	05	00	01			3-999s
Unloading waiting time	01	03	00	06	00	01			1-999s
Cycle interval time	01	03	00	07	00	01			3-999s
Unloading direction	01	03	00	08	00	01			0:left unload 1:right unload
Unloading percentage	01	03	00	09	00	01			0-99

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Unloading delay time	01	03	00	0A	00	01		2-999s
Baud rate	01	03	00	0B	00	01		0: 4800 1: 9600 2: 19200 3: 115200
Zero range	01	03	00	0C	00	01		0-9999g
Sensor capacity	01	03	00	0D	00	02		0-99999kg
Drop1	01	03	00	0F	00	02		0-99999000g
Drop2	01	03	00	11	00	02		0-99999000g
Drop3	01	03	00	13	00	02		0-99999000g
Drop4	01	03	00	15	00	02		0-99999000g
Drop5	01	03	00	17	00	02		0-99999000g
Drop6	01	03	00	19	00	02		0-99999000g
Automatic adjustment of drop	01	03	00	1B	00	01		0:OFF 1:ON
Mode	01	03	00	1C	00	01		0(Single batch manual unloading) 1(Automatic unloading of circulating ingredients) 2(Manual unloading of circulating ingredients) 3(Single batch without unloading)
Current formula	01	03	00	1D	00	01		1-4
Formula1 M1	01	03	00	1E	00	02		0-99999000g
Formula1 M2	01	03	00	20	00	02		0-99999000g
Formula1 M3	01	03	00	22	00	02		0-99999000g
Formula1 M4	01	03	00	24	00	02		0-99999000g

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Formula1	M5	01	03	00	26	00	02			0-99999000g
Formula1	M6	01	03	00	28	00	02			0-99999000g
Formula2	M1	01	03	00	2A	00	02			0-99999000g
Formula2	M2	01	03	00	2C	00	02			0-99999000g
Formula2	M3	01	03	00	2E	00	02			0-99999000g
Formula2	M4	01	03	00	30	00	02			0-99999000g
Formula2	M5	01	03	00	32	00	02			0-99999000g
Formula2	M6	01	03	00	34	00	02			0-99999000g
Formula3	M1	01	03	00	36	00	02			0-99999000g
Formula3	M2	01	03	00	38	00	02			0-99999000g
Formula3	M3	01	03	00	3A	00	02			0-99999000g
Formula3	M4	01	03	00	3C	00	02			0-99999000g
Formula3	M5	01	03	00	3E	00	02			0-99999000g
Formula3	M6	01	03	00	40	00	02			0-99999000g
Formula4	M1	01	03	00	42	00	02			0-99999000g
Formula4	M2	01	03	00	44	00	02			0-99999000g
Formula4	M3	01	03	00	46	00	02			0-99999000g
Formula4	M4	01	03	00	48	00	02			0-99999000g
Formula4	M5	01	03	00	4A	00	02			0-99999000g
Formula4	M6	01	03	00	4C	00	02			0-99999000g

Modify the parameters in the device

Request:	Response:
Add	Add
Function code	Function code
Start register address is high	Start register address is high
Start register address is low	Start register address is low
High number of registers	High number of registers
Low number of registers	Low number of registers
Number of bytes	
High register value	

Low register value	
High register value	
Low register value	
CRC low	CRC low
CRC high	CRC high

Example 1:

Modify the number of decimal places (display two decimal places):

Request: 01 10 00 03 00 01 02 00 02 27 A2

Return: 01 10 00 03 00 01 F1 C9

Example 2:

Modify the index (display index 5)

Request: 01 10 00 04 00 01 02 00 05 67 D7

Return: 01 10 00 04 00 01 40 08

Precautions:

1: The maximum setting range of ingredients and drop is related to the decimal point

When the decimal point is 0, the maximum setting range is 0-99999000g.

When the decimal point is 1, the maximum setting range is 0-9999000 grams.

When the decimal point is 2, the maximum setting range is 0-999000 g.

2: After calibrating the zero point, the calibration weight should be calibrated.

3: In the batching process, only start the ingredients, suspend the ingredients, return to the main interface, the discharge command is valid, and other needs to be effective under the weighing interface.

Note:

A: Add

B: function code

C: Start register address is high

D: Start register address is low

E: High number of registers

F: Low number of registers0

G: Number of bytes

H: High register value

I: Low register value

J: Write data description (decimal)

	A	B	C	D	E	F	G	H	I	J
Device address	01	10	00	00	00	01	02			0-255
Decimal point	01	10	00	03	00	01	02			0-2

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Indexing	01	10	00	04	00	01	02			1、2、5、10、20、50
Material interval time	01	10	00	05	00	01	02			3-999s
Unloading waiting time	01	10	00	06	00	01	02			1-999s
Cycle interval time	01	10	00	07	00	01	02			3-999s
Unloading direction	01	10	00	08	00	01	02			0:left unload 1:right unload
Unloading percentage	01	10	00	09	00	01	02			0-99
Unloading delay time	01	10	00	0A	00	01	02			2-999s
Baud rate	01	10	00	0B	00	01	02			0: 4800 1: 9600 2: 19200 3: 115200
Zero range	01	10	00	0C	00	01	02			0-9999g
Sensor capacity	01	10	00	0D	00	02	04			0-99999kg
Drop1	01	10	00	0F	00	02	04			0-99999000g
Drop2	01	10	00	11	00	02	04			0-99999000g
Drop3	01	10	00	13	00	02	04			0-99999000g
Drop4	01	10	00	15	00	02	04			0-99999000g
Drop5	01	10	00	17	00	02	04			0-99999000g
Drop6	01	10	00	19	00	02	04			0-99999000g
Automatic adjustment of drop	01	10	00	1B	00	01	02			0:OFF 1:ON
Mode	01	10	00	1C	00	01	02			0:Single batch manual unloading

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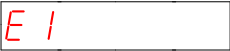
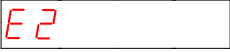
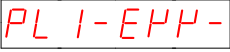
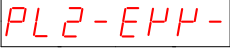
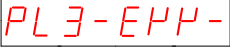
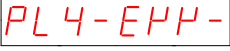
										1:Automatic unloading of circulating ingredients
										2:Manual unloading of circulating ingredients
										3:Single batch without unloading
Current formula	01	10	00	1D	00	01	02			1-4
Formula1 M1	01	10	00	1E	00	02	04			0-99999000g
Formula1 M2	01	10	00	20	00	02	04			0-99999000g
Formula1 M3	01	10	00	22	00	02	04			0-99999000g
Formula1 M4	01	10	00	24	00	02	04			0-99999000g
Formula1 M5	01	10	00	26	00	02	04			0-99999000g
Formula1 M6	01	10	00	28	00	02	04			0-99999000g
Formula2 M1	01	10	00	2A	00	02	04			0-99999000g
Formula2 M2	01	10	00	2C	00	02	04			0-99999000g
Formula2 M3	01	10	00	2E	00	02	04			0-99999000g
Formula2 M4	01	10	00	30	00	02	04			0-99999000g
Formula2 M5	01	10	00	32	00	02	04			0-99999000g
Formula2 M6	01	10	00	34	00	02	04			0-99999000g
Formula3 M1	01	10	00	36	00	02	04			0-99999000g
Formula3 M2	01	10	00	38	00	02	04			0-99999000g
Formula3 M3	01	10	00	3A	00	02	04			0-99999000g
Formula3 M4	01	10	00	3C	00	02	04			0-99999000g
Formula3 M5	01	10	00	3E	00	02	04			0-99999000g
Formula3 M6	01	10	00	40	00	02	04			0-99999000g
Formula4 M1	01	10	00	42	00	02	04			0-99999000g

Formula4 M2	01	10	00	44	00	02	04			0-99999000g
Formula4 M3	01	10	00	46	00	02	04			0-99999000g
Formula4 M4	01	10	00	48	00	02	04			0-99999000g
Formula4 M5	01	10	00	4A	00	02	04			0-99999000g
Formula4 M6	01	10	00	4C	00	02	04			0-99999000g
Tare(Clear)	01	10	00	4E	00	01	02	00	AA	Fixed value
Restore factory settings	01	10	00	4F	00	01	02	00	FF	Fixed value
Cal(cal Zero point)	01	10	00	50	00	01	02	FF	FF	Fixed value
Cal(cal weight)	01	10	00	50	00	01	02			0-9999kg
Unloading	01	10	00	51	00	01	02	DD	DD	Fixed value
Starting ingredients	01	10	00	52	00	01	02	AA	AA	Fixed value
Pause ingredients	01	10	00	53	00	01	02	BB	BB	Fixed value
Return to main interface	01	10	00	54	00	01	02	CC	CC	Fixed value

Chapter 6 Common trouble codes and troubleshooting

6.1、Error indication

Display content	Meaning	Solution
	Calibration failed	Keep the scale stable and re-calibrate the scale
	More than maximum display digits	Decrease the number of decimal places
	Unable to start ingredient, reason: recipe is not set	Set the ingredient value
	The system is running abnormally	Restart the device or restore factory settings

	Sensor abnormality	Turn off the power and connect the sensor
	Exceeding the maximum capacity	Replace the large capacity sensor
	Ingredients 1 error	An ingredient error indicates that the weight of the actual ingredient is greater than or less than one-half of the set value.
	Ingredients 2 error	
	Ingredients 3 error	
	Ingredients 4 error	

Note: During the operation of all the buttons, if the operation is wrong, the error LED on the display panel will be illuminated. If the password is entered incorrectly, press any key and then re-enter. If it is the start of the ingredient, the error is because the ingredient value is not set.

6.2、Troubleshooting

(1) Failure analysis that cannot be returned to zero after weighing

In the case of ensuring that the sensor output is normal (the scale body is stable), generally the zero point range setting is too small, and the zero point range should be set larger.

(2) Inaccurate fault analysis

Observe whether the internal code value is stable, whether there is friction in all parts of the sensor, whether the stabilized power supply is stable, whether the operational amplifier circuit is normal, and whether the weight of the four-legged weighing pan is averaged using the weight. Further instrumental analysis or weight correction according to the instructions.

(3) Unable to boot

First determine the problem of non-fuse, power switch, power line and voltage switch, check the transformer for AC voltage input and AC output. Secondly, check whether the rectifier circuit, the voltage regulator circuit and the display driver circuit are abnormal. If there is no problem, check whether the processor and the auxiliary circuit are burnt out.

(4) Show garbled

Remove the original display circuit and change to a normal display circuit to see if it is normal. If the display is normal, the display circuit has a problem. If it is not normal, check the driver circuit for faults. Finally, check if the processor shows that the output pin is in a reasonable output range.

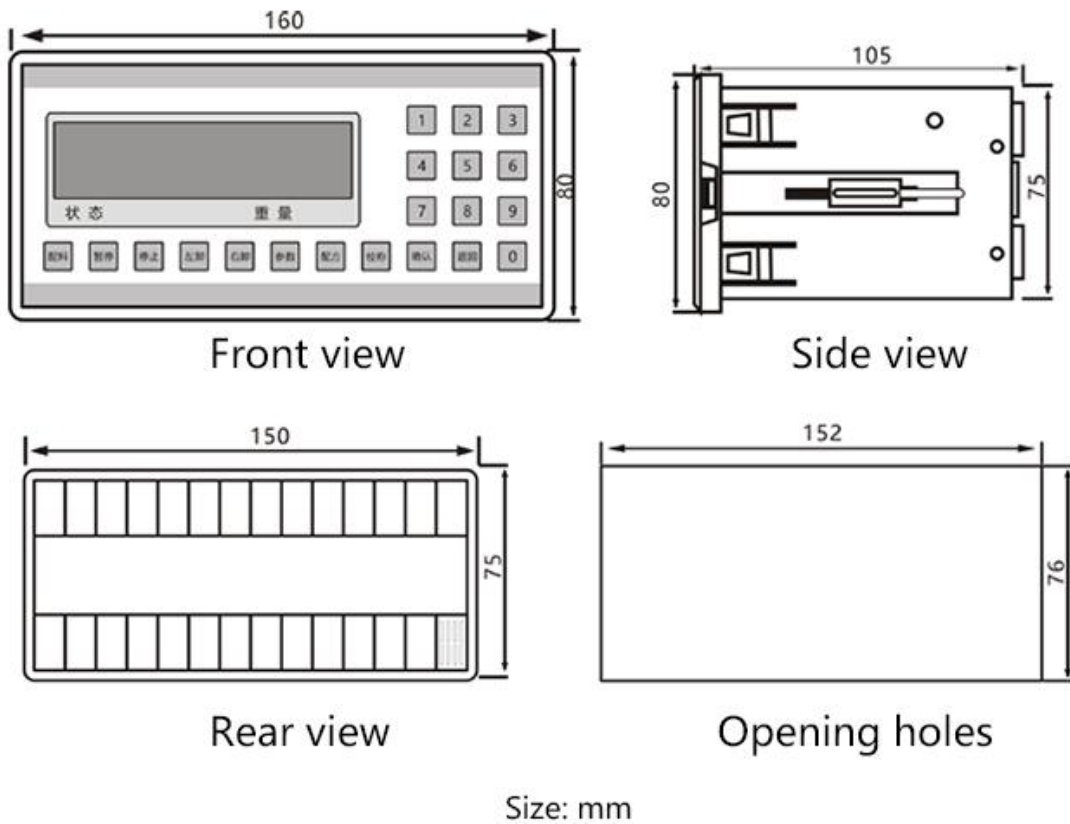
(5) Can't be called full

Similar to the situation where it is impossible to return to zero, most of them may be changed due to

the small signal input range or the range setting is not set correctly. According to the method that cannot be returned to zero, if the problem cannot be found, first check whether the power supply, A/D circuit is normal, the range setting is normal, and then detect the sensor output.

Chapter 7 Instrument installation size

Main Dimensions and Accessories



Chapter 8 Attention

- (1) Do not remove the connector on the rear panel of the instrument or replace the sensor when power is on.
- (2) Do not use organic solvents such as hydrocarbons, alcohols, ketones or strong acid or strong alkali solutions to clean the instrument, so as not to damage the casing, panel and internal components of the instrument.

- ※ This equipment cannot be cleaned with organic solvents such as hydrocarbons, alcohols, ketones or strong acid or alkali solutions to avoid damage to the casing, panels and internal components of the equipment.
- ※ This equipment will not accept any repairs or modifications made by you. If the equipment malfunctions, please follow this manual for troubleshooting or contact us, otherwise you will lose the right to after-sales service.
- ※ Do not install in dusty, multi-metal powder.
- ※ Non-corrosive, explosive gas at the installation site.
- ※ Installed in a place where there is no direct sunlight or shelter from the rain.

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