

WEIGHT DISPLAY CONTROLLER

LZ-803 SERIES

USER MANUAL



FOR YOUR SAFTY, PLEASE READ THIS MANUAL CAREFULLY

SAFETY CAUTION

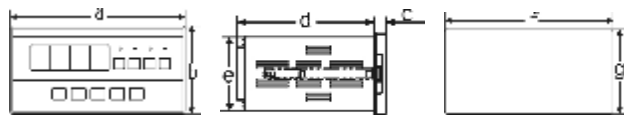
- Please do not use on equipments such as atomic energy equipment, medical equipments, or other equipments related to the life.
- There is no fuse in the controller, please set the safe circuit break components like fuse in the external power supply circuit.
- Please do not use the product besides the standard specification.
- Please do not use in the flammable and explosive places.
- Please avoid installing the product at right above large energy instruments such as heater, transformers, and high power resistance.

WARNING

- When the ambient temperature reaches above 50°C, please use fan or cooler to cool it, but do not let the cool air blow directly to the product.
- For panel installed controller, please take necessary measure to prevent user accessing high-voltage compartment such as power supply terminal.
- Please install, calibrate and maintain the product by the qualified engineering technician.
- If the product failure or abnormal could lead to a major system accident, please set appropriate protection circuit on external to prevent the accidents.
- We are responsible for any direct or indirect losses other than the product itself.
- We reserve the rights to any change of product manual prior any notice

PANEL DIMENSION

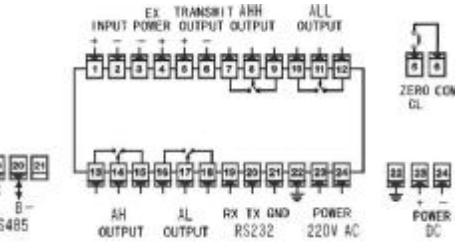
Dimensions : Mount Dimensions :



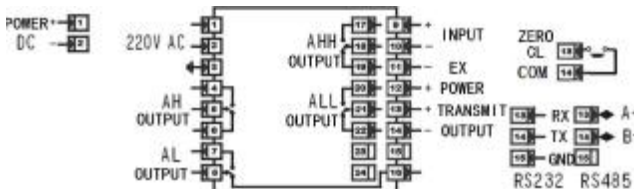
SPECIFICATION	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)	f (mm)	g (mm)
160×80	160	80	10	115	75	152.1	76.1
96×96	96	96	12	100	91	92.0.5	92.0.5
96×48	96	48	12	100	43	92.0.5	45.0.5
72×72	72	72	12	100	67	68.0.5	68.0.5

WIRING

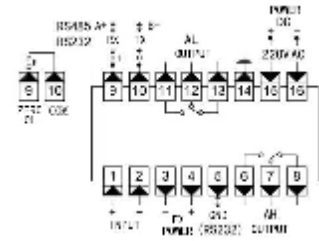
4 For 160×80mm:



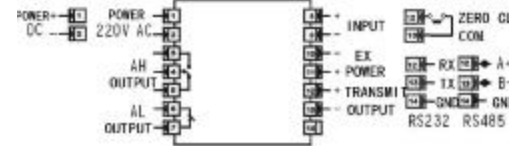
4 For 96×96mm:



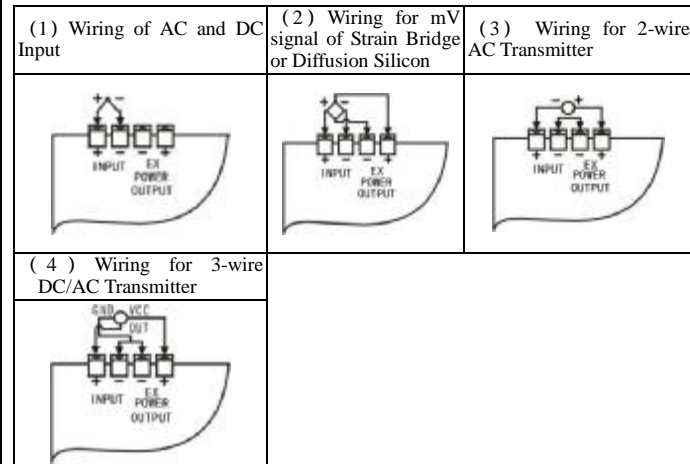
4 For 96×48mm:



4 For 72×72mm:



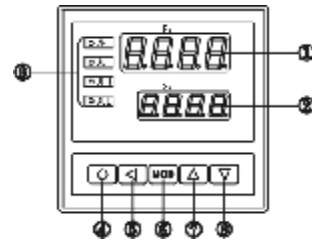
INPUT WIRE CONNECTION



SETTING

1. PANEL AND KEY DESCRIPTION

(Take 96×96mm for example)



Name	Description
Display	① Measured Value Display Y Display measured/peak/valley value Y Display parameter symbol and value under the parameter setting status
Screen	② Alarm Set Display Y Display alarm set value/peak/valley value
Indicator Light	③ Y Display alarm status of each alarm point
Function Key	④ Setup Key Y Under measuring status, press for 2s until it enters setting status; and when the screen shows parameter symbol, press for 2s until it enters next group parameter or back to the measuring status.
	⑤ Left Key Y Under measuring status, to reset peak/valley value (Fbc=on) Y Under measuring status: ① pull the original parameter value; ② shift editing place
	⑥ Confirm Key Y Under measuring status, switch among measured value, peak value, and valley value (Fbc=on) Y Under measuring status, record the edited parameter value
	⑦ Increase Key Y Invalid under measuring status Y Under measuring status, increase parameter value or change setting type
	⑧ Decrease Key Y Under measuring status, to reset the measured value Y Under measuring status, decrease parameter value or change setting type

2. PARAMETER DESCRIPTION

4 First Group Parameter: Alarm Setup Value

Symbol	Name	Description	Address	Value Range
Av	Av	Comparative value of bias alarm mode	00H	-1999~9999
AH	AH	1 st alarm setting value	01H	-1999~9999
AL	AL	2 nd alarm setting value	02H	-1999~9999
AHH	AHH	3 rd alarm setting value	03H	-1999~9999
ALL	ALL	4 th alarm setting value	04H	-1999~9999

4 Second Group Parameter: Alarm Setup Configuration

Symbol	Name	Description	Address	Value Range
oA	oA	Password	10H	0~9999
ALo1	ALo1	Alarm mode at 1 st alarm set point	11H	Note 1
ALo2	ALo2	Alarm mode at 2 nd alarm set point	12H	Note 1
ALo3	ALo3	Alarm mode at 3 rd alarm set point	13H	Note 1
ALo4	ALo4	Alarm mode at 4 th alarm set point	14H	Note 1
HYA1	HYA1	Sensitivity at 1 st alarm set point	19H	0~8000
HYA2	HYA2	Sensitivity at 2 nd alarm set point	1AH	0~8000
HYA3	HYA3	Sensitivity at 3 rd alarm set point	1BH	0~8000
HYA4	HYA4	Sensitivity at 4 th alarm set point	1CH	0~8000
cYt	cYt	Alarm Delay	1FH	0~20

4 Third Group Parameter: Break Line Calculation

Symbol	Name	Description	Address	Value Range
c1	c1	Measured value of 1 st break point	20H	-1999~9999
b1	b1	Standard value of 1 st break point	21H	-1999~9999
c2	c2	Measured value of 2 nd break point	22H	-1999~9999
b2	b2	Standard value of 2 nd break point	23H	-1999~9999
c3	c3	Measured value of 3 rd break point	24H	-1999~9999
b3	b3	Standard value of 3 rd break point	25H	-1999~9999
c4	c4	Measured value of 4 th break point	26H	-1999~9999
b4	b4	Standard value of 4 th break point	27H	-1999~9999
c5	c5	Measured value of 5 th break point	28H	-1999~9999
b5	b5	Standard value of 5 th break point	29H	-1999~9999
c6	c6	Measured value of 6 th break point	2AH	-1999~9999
b6	b6	Standard value of 6 th break point	2BH	-1999~9999
c7	c7	Measured value of 7 th break point	2CH	-1999~9999
b7	b7	Standard value of 7 th break point	2DH	-1999~9999
c8	c8	Measured value of 8 th break point	2EH	-1999~9999
b8	b8	Standard value of 8 th break point	2FH	-1999~9999

4 Fourth Group Parameter: Measurement and Display

Symbol	Name	Description	Address	Value Range
incH	incH	Input signal option	30H	0~7
in-d	in-d	Display decimal places option	31H	Note 2
u-r	u-r	Lower limit of measuring range	32H	-1999~9999
F-r	F-r	Upper limit of measuring range	33H	-1999~9999
in-A	in-A	Zero modified value	34H	-1999~9999
Fi	Fi	Full scale modified value	35H	0.500~1.500
FLtr	FLtr	Time constant of digital filtering	36H	1~20
c-b	c-b	Broken line function option	37H	Note 3
Zror	Zror	Zero reset range	38H	0~9999
Zrot	Zrot	Valid time for pressing zero reset	39H	0~6
At	At	Display update rate	3AH	1~60
bout	bout	Fault substitute value	3CH	-1999~9999
HL	HL	Setting value display option	3DH	0~6
Fbc	Fbc	Working mode	3EH	Note 3
FbAo	FbAo	1 st screen display option	3FH	0~3

4 Fifth Group Parameter: Communication Interface, and Transmitting Output, etc

Symbol	Name	Description	Address	Value Range
Add	Add	Controller communication address	40H	0~99
bAud	bAud	Baud rate option	41H	Note 4
ctd	ctd	Option for right of control to alarm signal output	44H	Note 3
ctA	ctA	Option for right of control to transmitting output	45H	Note 3
oA1	oA1	Password option for alarm set	46H	Note 3
oP	oP	Output signal option	4DH	0~2
bA-L	bA-L	Lower limit of transmitting output	4EH	-1999~9999
bA-H	bA-H	Upper limit of transmitting output	4FH	-1999~9999

Note 1: "0~4" represents 5 types of alarm modes from ---H to --PA, respectively.

Note 2: "0~3" represents 0.000, 00.00, 000.0, 0000., respectively.

Note 3: "0" for "OFF"; "1" for "ON".

Note 4: "0~3" represents "2400, 4800, 9600, 19.2k", respectively.

3. PARAMETER SETTING

The parameter has been divided into several groups, and each parameter of every group is listed in above PARAMETER DESCRIPTION table.

★ The 2nd group parameter and after are controlled by password, so it cannot be accessed without password setting.

★ Set oA1 parameter can decide if 1st group parameter is controlled by password. When oA1 is set "OFF", it is not controlled by password; when it is "ON", if the password is not set yet, the parameter setting can be accessed and edited but can be stored.

★ After entering setting status, if there is no operation over 1min, it will exit the setting status.

3.1 Setting for Alarm Setting Value

Alarm setting value is in the first group parameter. And controller with no alarm function has no such group parameter.

- Press **▶** key for 2 seconds to enter the setting, and it displays the first parameter symbol.
- Press **MOD** key to enter other parameter of this group in order.
- Press **◀** key to pull the original setting value of the current parameter, the flashing place is the editing place.
- Use **◀** key to change the editing place, **▲** key for increase, and **▼** key for decrease to enter the needed value.

- Press **MOD** key confirm and enter the next parameter. If it is the last parameter of this group, after press **MOD** key, it will exit the setting status.

Repeat step ② ~ ⑤ to set the other parameter of this group.

3.2 Password Setting

When the controller is at measuring status or displaying first group parameter, it can set the password.

- Press the setting key **▶** until it shows oA.
- Press **◀** key to enter the edit mode, use **◀**, **▲**, **▼** keys to enter "1111".
- Press **MOD** key to confirm.

★ When the controller is connected to power supply or there is no operation over 1 min, the password will be reset to zero.

3.3 Other Parameter Setting

- To set the password first.
- Password parameter is in the second group parameter. After setting password, press **MOD** key to choose other parameter in this group.
- To set other group parameter, press **▶** key until it enters each group parameter in order, and it displays the first valid parameter symbol of that group.
- After enter the needed setting parameter group, press **MOD** key to choose to set the parameter of that group in turns.
- Press **◀** key pull the original setting value of the current parameter, the flashing place is the editing place.
- Use **◀** key to change the editing place, **▲** key for increase, and **▼** key for decrease to enter the needed value.

★ The parameter value is in symbolic form. The flashing place should be the last point when editing.

- Press **MOD** key to confirm and enter the next parameter.

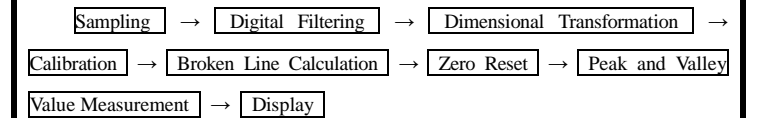
Repeat step ④ ~ ⑦ to set other parameter of that group.

[EXIT SETTING]: When displaying the parameter symbols, press **▶** until it exits the parameter setting status.

FUNCTION PARAMETER DESCRIPTION

1 MEASURING AND DISPLAY

The processing procedures from sampling to display:



4 Dimensional Transformation: the conversion of Voltage, Current and mV signal between the upper and lower limit of the set measuring range.

In particular cases, it can be converted based on the provided comparison table or equation of signal and display by customer.

4 Calibration: please see CALIBRATION for more detail.

4 Broken Line Calculation: please see 8 SECTIONS OF BROKEN LINE CALCULATION FUNCTION for more detail.

Below is the parameter of measuring and display. If the setting is not correct, the controller may not display normal.

① Display is also affected by calibration and broken line calculation

4 incH (incH) — Input Signal Option

The set value should comply with the controller model and the actual input signal. The parameter value is in symbol form and table below has listed their correspondence :

0	4-20	4mA~20mA
1	0-10	0mA~10mA
2	0-20	0mA~20mA
3	1-5u	1V~5V
4	0-5u	0V~5V
5	20nu	±20mV
6	50nu	±50mV
7	90nu	±90mV

4 in-d (in-d) — Displayed decimal place option of measuring value

4 u-r (u-r) — Lower limit of measuring range

4 F-r (F-r) — Upper limit of measuring range

The two parameter specifies that the beginning and end point of input signal corresponds to the beginning and the end point of the display value.

4 FLtr (FLtr) — Time Constant of Digital Filter

It is used to overcome the display fluctuate of unstable signal, the bigger of the set value, the stronger of the effect but slower the responds. The default value is "1".

4 **At** (At) — Display Refresh Rate

The sampling rate of the controller is 10times/second. At parameter's setting value is that the display update 1 time needs the sample numbers of undergoing average calculation. E.g. when At is set to 5, the display updates 1 time after the 5 times sampling values take the average calculation.

The period of alarm and transmit output is also 10times/second, which is unrelated to this parameter.

4 **HL** (HL) — The display option of second screen.

The controller with set value display can display any certain set value through this parameter option.

"0-6" represent "AV", "AH", "AL", "AHH", "ALL", " ", "Peak Value" and "Valley Value".

4. ZERO RESET

4 **Zror** (Zror) —Zero reset range, the default is "0"

4 **Zrot** (Zrot) —Valid time for pressing zero reset.

The set range is 0-6 second, when the set value is "0", the measuring value is in the range of zero reset, press to reset.

Under measuring status, the measuring value is in the range of zero reset, there are 3 ways to realize zero reset of the measuring value:

- ① Press **▼** key for a certain time (time is decided by Zrot setting) to zero reset
- ② Zero reset from rear terminal for a certain time (time is decided by Zrot setting), the measured value reset to zero;
- ③ To zero reset from the host computer through communication interface.

5. MEASUREMENT OF PEAK VALUE AND VALLEY VALUE

4 **Fbc** (Fbc) — Operating mode option

When **off** is set, it is working in normal mode and only has measuring value;

When **on** is set, it is working at Peak/Valley value mode, and measuring Peak/Valley value.

4 **Fbno** (Fbc) — Display options

When "0" is set, the first screen displays measuring value;

When "1" is set, press **MODE** is set, 1st screen displays measuring value and peak value;

When "2" is set, press **MODE** is set, 1st screen displays measuring value and valley value;

When "3" is set, press **MODE** is set, 1st screen displays measuring value and peak and valley value.

Under the peak/valley value mode, peak/valley value has been detected by each measurement and control period. Press **MODE** to change the mode among measuring value, peak value, and valley value on 1st screen. And when displaying peak/valley value, the bottom decimal point is bright on 1st screen.

Under measuring status, **Fbc=on**, there are 2 ways to reset peak/valley value:

- ① Press **◀** Key to reset peak/valley value;
- ② From the host computer through communication interface to reset.

Note: When **Fbc=off**, **Fbno** parameter is invalid, but **HL** should be set as "0-4"

6. 8 SECTIONS OF BROKEN LINE CALCULATION FUNCTION

This function is an optional function.

When input signal is only rising nonlinear with the displayed data, and the data can be sure when order so it needs amendment in calibration, under this circumstance, the broken line calculation function can be used.

Only rising means that within the input signal range, the input signal increases, the displayed data increases as well.

① The parameter of Broken Line Calculation:

4 **c-b** (c-b) — Broken line function option

4 **c1~c8**: measured value of each broken line point

4 **b1~b8**: standard value of each broken line point

Measured Value: the displayed value before broken line calculation;

Standard Value: the expected display value after broken line calculation.

② Application Method

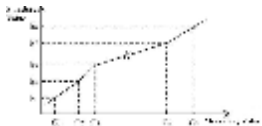
· Broken line calculation is performed after dimensional transformation and calibration, and it should be set according to the parameter of CALIBRATION

· Set **c-b** parameter as "OFF" to turnoff the broken line calculation function.

· After input signal is received, during the process of increase the input signal from small to large, the measured value and standard value of each broken line have been recorded as **c1~c8**. **b1~b8**.

· Set **c-b** parameter is "ON" to turn on the broken line calculation function to set **c1~c8**. **b1~b8** parameter.

③ Diagram



★ Measured value less than C1 is calculated down recursion at the latter section data;

★ Measured value larger than C8 is calculated down recursion at the latter section data.

7. ALARM OUTPUT

This function is an optional function.

It can be set max. 4 alarm point. Each alarm point has 3 parameter for setting alarm value, alarm mode option and setting alarm sensitivity, respectively.

4 **AH, AL, AHH, ALL** for each alarm set point from 1st to 4th.

4 **ALO1~ALO4** for each alarm mode option from 1st to 4th.

4 **HYA1~HYA4** for each alarm set sensitivity from 1st to 4th.

And there are 2 more public parameter for alarm output:

4 **Av** (Av) —Comparative value of bias alarm mode

When the bias between measured value and above value is over the set value, it will alarm. The non-bias alarm mode is unrelated to this parameter.

4 **cYt** (cYt) — Alarm-delay time

The setting range is 0~20 second, there is no alarm-delay function when it is set to "0";

When the measured value is over the set alarm value, it starts alarm-delay. And if the measured value is always in the alarming status under the alarm-delay period, it will output the alarm signal when the alarm-delay time is over, otherwise there is no signal.

Alarm restore is also controlled by the delay time.

4 Alarm Mode: 5 modes for each alarm point to be chosen through **ALO1~ALO4** parameter;

--H: for upper limit alarm, it will alarm when the measured value > the set value

--L: for lower limit alarm, it will alarm when the measured value > the set value

-PAH: for bias upper limit alarm, it will alarm when (Measured value—AV)> the set value;

-PAL: for bias lower limit alarm, it will alarm when (AV—Measured value) > the set value;

--PA: for bias absolute value alarm, it will alarm when |AV—Measured value| > the set value.

① Under bias alarm mode, the set value cannot be negative.

4 Alarm sensitivity: to prevent the measured value fluctuating near the set value resulting frequently operation of alarm relay, it can be set an extension area of clearing alarm when it is necessary.

① The controller with communication function, when **ctd** parameter is set "ON", it will not alarm.

8. TRANSMITTING OUTPUT

This function is an optional function. There are 3 parameter for transmit output:

4 **op** (op) — Output signal option

Options: **4-2Q**: Output is 4mA -20mA (or 1 V -5V)

0-1Q: Output is 0mA -10mA

0-2Q: Output is 0mA -20mA (or 0 V -5V; or 0 V -10V)

4 **ba-L** (ba-L) — Lower limit setting of transmit output

4 **ba-H** (ba-H) — Upper limit setting of transmit output

① The controller with communication function, when **ctR** parameter is set "ON", it will not transmitting output.

9. COMMUNICATION INTERFACE

This function is an optional function. There are 4 parameter for communication function:

4 **Add** (Add) — Communication address. The range is 0-99. The default is "1".

4 **bAud** (bAud) — Communication baud rate option. 4 options at 2400, 4800, 9600, 19.20k. The default is "9600";

4 **ctd** (ctd) — Alarm output right option. The default is "OFF";

When it is OFF, the controller operates the alarm function; when it is "ON", the control right has transferred to computer, the alarm output is controlled directly by the switch output command sent by the computer.

4 **ctA** (ctA) — Transmit output right option. The default is "OFF"

When it is OFF, the controller operates the transmit output function; when it is "ON", the control right has transferred to computer, the transmit output is controlled directly by the analog output command sent by the computer.

Please see COMMUNICATION PROTOCOL for relative communication commands and protocols. The commands for the controller are listed as followings:

- Measuring value reading
- Peak value reading
- Valley value reading
- Zero reset of measuring value
- Peak/Valley value reset
- Output analog value reading (transmit output)
- Switch input status reading
- Switch output status reading (alarm output)
- Version number of the controller
- The expressed symbol of controller parameter (Name)
- Parameter value of the controller

- Parameter setting
- Output switch value
- Output analog value

■ CALIBRATION

For calibration, it has to correct the zero first, and then to amend full scale.

4 **in-A** (in-A) — Zero Correction Value, the default is "0";

4 **Fi** (Fi) — Full scale amendment value, the default is "1.000".

The displayed value = (the displayed value before zero correction + in-A) × Fi

■ CONDUCT TO FAULT SIGNAL OF INPUT

This troubleshooting function can effectively ensure the safe operation and resolve the problem of the abnormal operation caused by input signal failure, such as interlocking, shutdown, and etc. When it displays **oL** which is input signal failure, but it can also process the parameter setting.

Input signal failure is caused by AD transfer overflow which is resulted by larger input signal.

4 **bout** (bout) — The substitute measured value when input signal failure

When the input signal is deemed as failure/malfunction, the set **bout** value will be the input value of alarm output and transmit output.

This input signal failure alarm function can be added by users' requirement.

① If there is no function of either alarm output, or transmit output, or communication, this parameter is not functional.

■ SPECIFICATION

1. General Specification

Power Supply	AC	100-240 V AC 50/60 Hz
	AC/DC	10-24V AC 50/60 Hz; 10-24V DC
Power Consumption	AC	< 7 VA
	AC/DC	AC: < 6 VA; DC: < 5W
Allowed Voltage Change Range		90 ~ 110 % supply voltage
Insulation Resistance		> 100MΩ (500 V DC MEGA Standard)
Voltage Resistance		1 min under 2000 V AC 50/60Hz
Anti-Interference		IEC61000-4-2 (electrostatic discharge), Class III ; IEC61000-4-4 (Electrical fast transient burst), Class III ; IEC61000-4-5 (surge) ,Class III
Protection Class		IP65 (Front part of the product)
Environment	Temperature	-10 ~ 55°C; Storage: -25 ~ 65°C
	Humidity	35 ~ 85 %RH; Storage: 35 ~ 85 %RH

2. Input Specification

Measuring Control Speed		> 10 times/second	
Basic Error		±0.2 %FS	
Display Range		-1999~ 9999	
Input Signal	Voltage	V	0-5V DC; 1-5V DC
	Current	I	4-20/0-10/0-20 mA
	mV	M	±20, ±50, ±90 mV
Digital Filter		Inertia; Average value; Moving average, etc	

3. Optional Parts Specification

Output of Terminal Point	T1-T4	1-4 points, 250VAC/3A resistive load	
Input of Terminal Point	K	point 1 of external analog input for zero rest	
Analog Output (Resolution 1/3000)	A1	Current output (4-20)mA, (0-10) mA, (0-20) mA	
	A2	Voltage output (1-5) V, (0-5) V	
Communication Interface	S1	TC ASCII Protocol: RS232	Rate: 2400; 4800; 9600; 19200
	S2	TC ASCII Protocol: RS485	Address: 0 ~ 99
	M1	Modbus-RTU Protocol:RS232	Response Time: 500μS
	M2	Modbus-RTU Protocol:RS485	(Measured value)
External Power Supply	B1	< 24V±5%, 50mA	
	B1G	< 24V±5%, 100mA	
	B2	< 12V±5%, 50mA	
	B2G	< 12V±5%, 100mA	
B3	Precision power supply, normally 10V±2%, under 30ppm, 100mA		

■ MODEL DESCRIPTION



- ① Product Model Number
- ② Dimension Specification
- ③ Panel Dimension
- ④ Input Specification
- ⑤ These five digits stand for custom requirement
- ⑥ Optional Parts Specification
- ⑦ Power Supply Specification: V0 for 220VAC; V1 for 10-24VDC (or AC) with letter"N" in the end, means that this optional parts need to be customized.