



**Silver Lake Electronic Technology Group Co., Ltd**

[www.slweighing.com](http://www.slweighing.com)

# **SL550C8 Terminal Technical Manual**

## Preface

Thank you very much for your purchase!

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

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

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SL550C8 is a high quality product that made by our company for all kinds of industrial applications .The product adopt delta-sigma analog to digital conversion and digital filter technology. Processing digital via the weak weight signal output by load cell, Output the corresponding analog electric signal to the host system, It is easy to build a weighing system with the touch screen or PLC through the RS232/485 serial communication, .

Ordering model:

Model	Function Remarks
SL550C8-00	Panel & Basic type
SL550C8-01	Panel & Basic type + 4~20mA

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## 1. Safety Precaution



- **Do not use it in dangerous environment**

Do not use the product under the environment with combustible gas and explosive dust .if you have the need for this,please select our company's explosion-proof products

- **Do not use it in too hot environment**

Do not use it in too hot environment in order to get the best performance and operate life Avoid directing sunlight on this product。 Please install the cooling fan on the top of the cabinet when you install the cabinet.

- **Controller Grounding Protection**

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

- **Measuring Equipment's Grounding Protection**

For avoiding bodily injury from electric shock accident and keeping the load cells away from strong interference, the measuring equipment should be connected with the earth and the earthing resistance should be less than  $4\Omega$ .

- **Cable Laying**

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

- **Power Supply**

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

- **Environmental Protection**

While being discarded as worthless, the product should be processed lawfully as leady industrial waste for environment protection.

- **Other Notes**

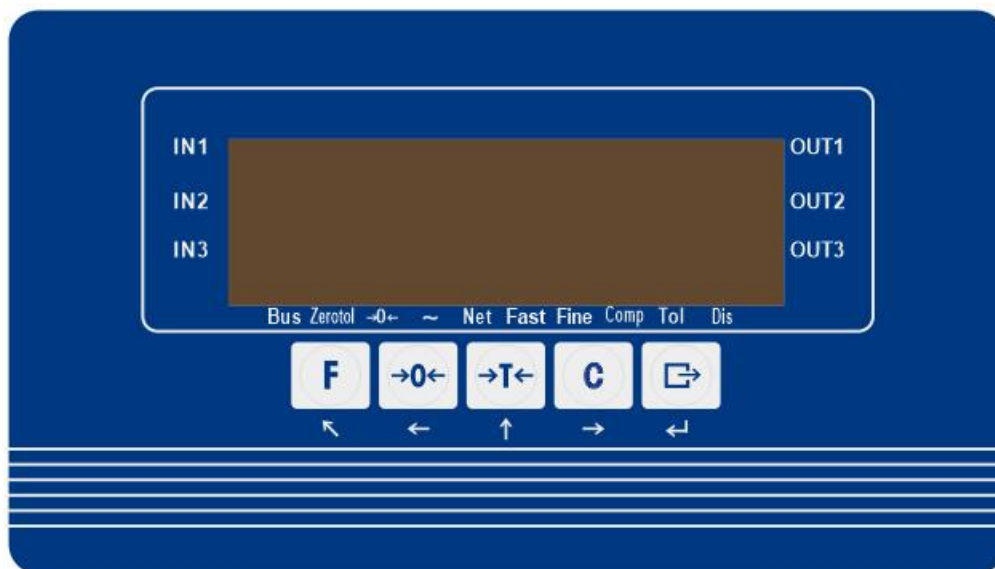
The installation, wiring and maintenance should be operated by the engineers with the relevant professional knowledge and safety operation ability. Although being not described in this manual, the relevant safety operating procedures and standards should be followed.

## 2. Technical Specification






- 220VAC or 24VDC power input, not more than 3W power consumption
- One load cell interface
  - up to 8x350 ohm load cells
  - Input signal: 0mV~+15mV
  - Up to 100,000 Display Division
  - 80Hz weighing updating speed
- Communication Port:
  - One RS232 and one RS485 serial communication port
  - Continuous weight output , Up to 1-100HZ weight output speed
  - Demand Input/Output
  - MODBUS-RTU slave,
- Target Controller
  - I/O option (3IN&3OUT)
  - 4-20mA analog output
- Operating and Humidity
  - Operating Temperature: -10°C~40°C, humidity: 10%~95% ,non-condensing
  - Storage Temperature: : -40°C~60°C, humidity: 10%~95% ,non-condensing

### 3. Operating Interface

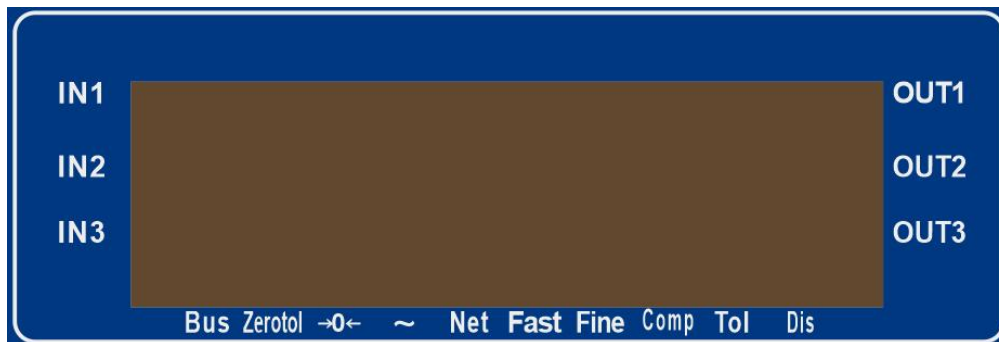
#### 3.1 Operating Interface Diagram



#### 3.2 Keypad Operation

Key	Description
	Weighing mode: Setup target value Setup mode:ESC/Exit menu
	Weighing mode: Zero Setup mode:Shift Left
	Weighing mode:Tare Setup mode:Up switch key or increase digit key.
	Weighing mode:Clear Setup mode: Right switch key
	Weighing mode:Short press to print and long press to enter the menu Setup mode:Confirm

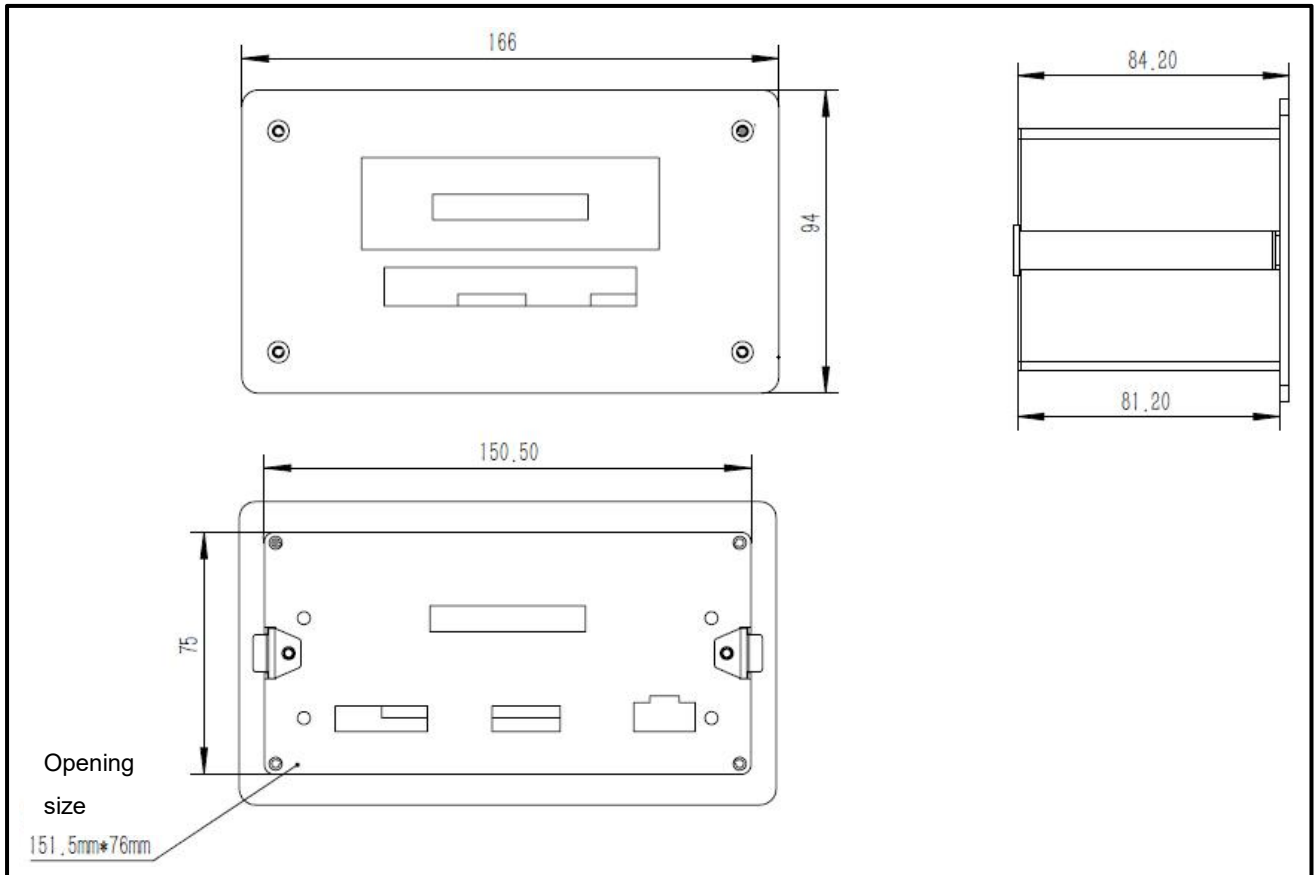
### 3.3 State Indication



Light	Description	Light	Description
IN1	IN1 State	>0<	In the center of zero
IN2	IN2 State	~	Motion
IN3	IN3 State	Net	Net
OUT1	OUT1 State	Fast	Fast
OUT2	OUT2 State	Fine	Fine
OUT3	OUT3 State	Comp	Complete
Bus	Communication	Tol	Tolerance
Zerotol	Near zero	Dis	Discharge

## 4. Installation&Connection

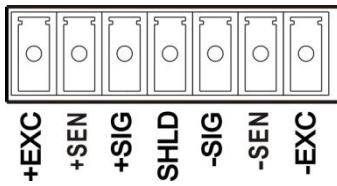
### 4.1 Installation



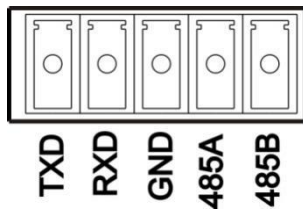
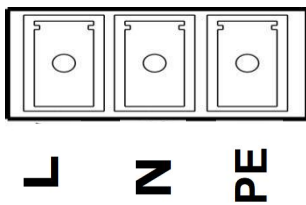


## 4.2 Interface

Load cell

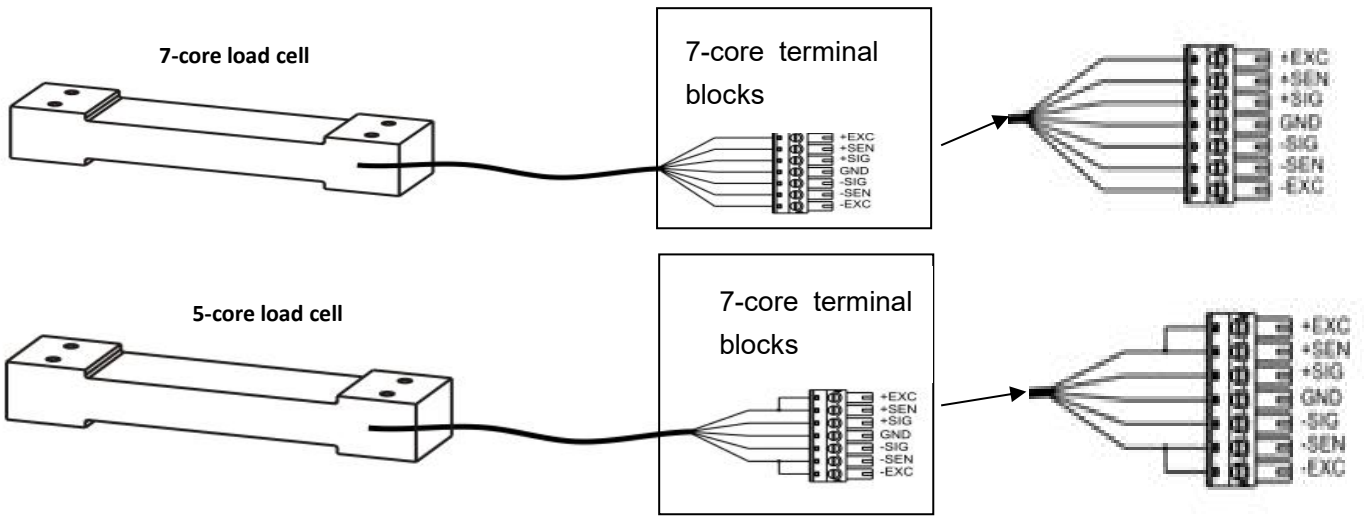


Power

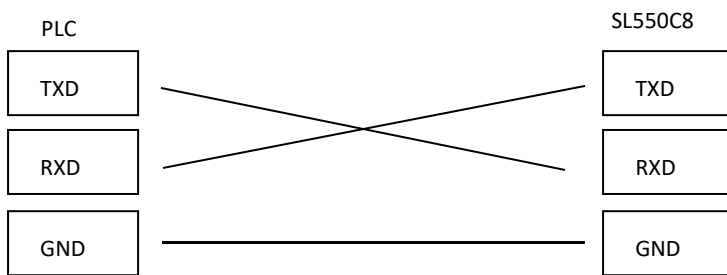


Pin	Signal	Description
Load cell wiring		If you use 4-wire load cell, you need to take Pin1 and pin2 short
1	+EXC	+EXC
2	+SEN	+SEN
3	+SIG	+SIG
4	SHLD	SHLD
5	-SIG	-SIG
6	-SEN	-SEN
7	-EXC	-EXC
Power wiring		Use 3-core terminal blocks
1	L	L
2	N	N
3	PE	PE
Communication wiring		Use 5-core terminal blocks
1		TXD
2		RXD
3		GND
4		485A
5		485B

➤ Load cell wiring

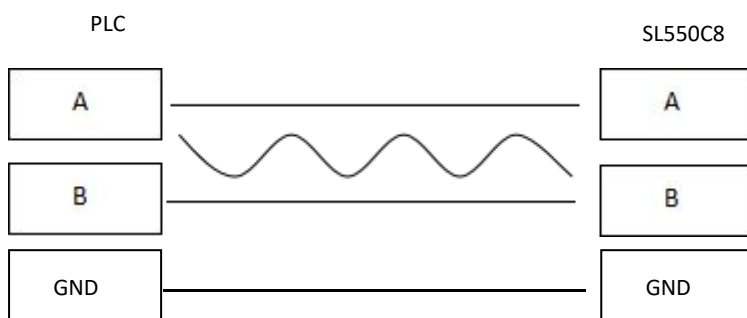


➤ RS232 configuration



※RS232 transmission distance is not more than 15 meters ;

➤ RS485 configuration

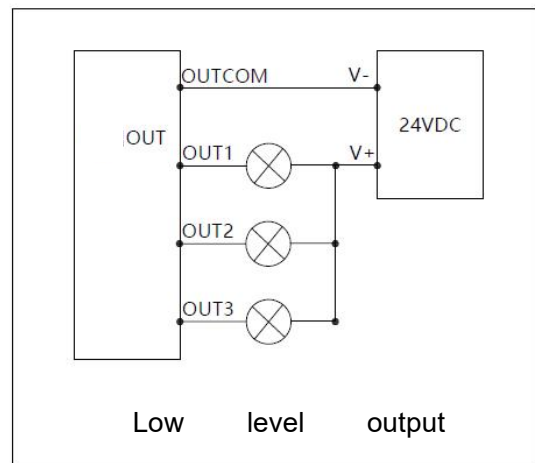
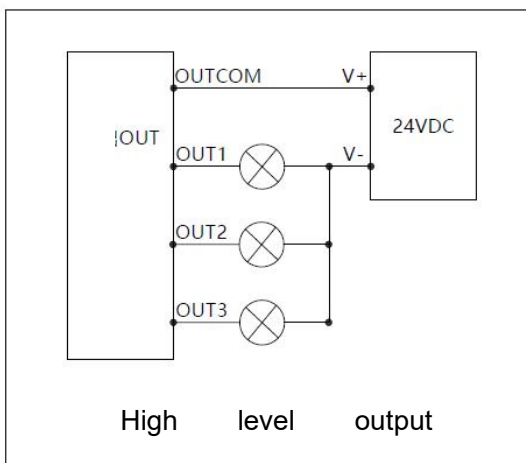
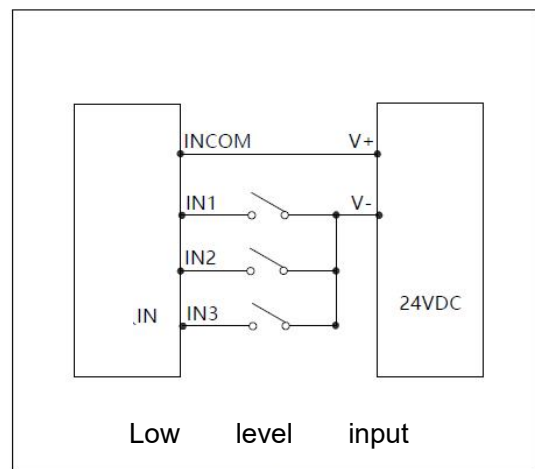
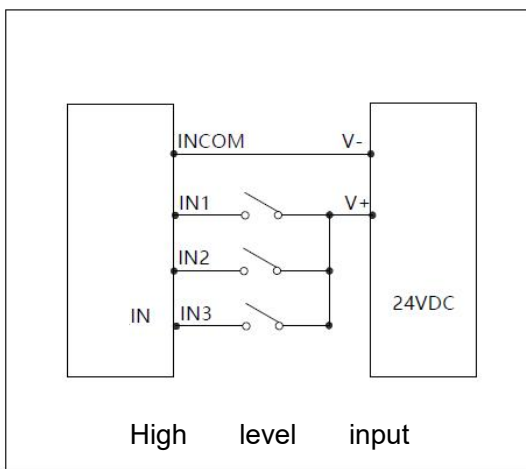


※RS485 transmission distance is not more than 1200 meters ;

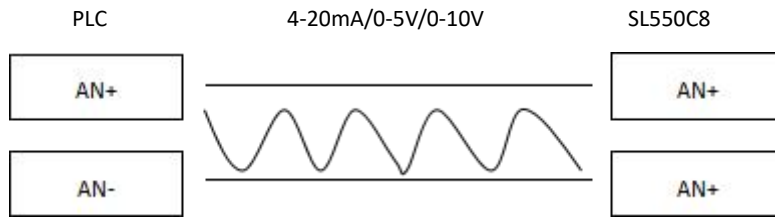
➤Option Interface

Pin	Signal	Description
1	AN-	- 4-20mA
2	AN+	+4-20mA
3	NC	NC
4	OUTCOM	OUTCOM
5	OUT3	OUT3
6	OUT2	OUT2
7	OUT1	OUT1
8	NC	NC
9	INCOM	INCOM
10	IN3	IN3
11	IN2	IN2
12	IN1	IN1

➤Input&Output wiring















➤ Analog signal wiring












## 5. MENU&Function

### 5.1 MENU






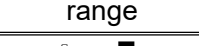
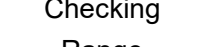
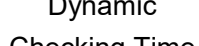
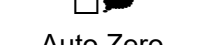

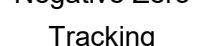
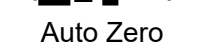
#### 5.1.1 F key function menu (set target value and other parameters)

Main menu	Second menu	
Prompt	Prompt	Description
 key menu		Target value setting
		Fine value setting
		Spill value setting
		Zeroband value setting
		Low tolerance value setting
		Up tolerance value setting
		Start lower threshold
		Start upper threshold
		Lower limit value setting
		Upper limit value setting
		Full bin value setting in work mode 4

### 5.1.2 F1 Scale calibration function (press and hold F key and ENTER key to enter)

Main menu	Second menu	
Prompt	Prompt	Description
 Calibration	 Increment Size	
	 Capacity	Setup the scale capacity
	 Calibration mode	0: Two point calibration 1: Weight-free Calibration
	 Zero Calibration	Empty the scale and do zero Calibration
	 Weight calibration	Load the weight and do weight calibration
	 Sensor sensitivity	Sensor sensitivity
	 Sensor capacity	Actual sensor capacity

### 5.1.3 F2 Scale setting








Main menu	Second menu			
Prompt	Prompt	Default	Range	Description
 Scale setting	 Primary filtering	2	0~5	0: The lightest 5: The heaviest
	 Secondary filtering	0	0~30	Moving average of 0~30 times of weight data
	 Key zero range	20	0~99	Range of allowed zeroing (Capacity percent)
	 Power zero range	0	0~50	Range of allowed power zeroing (Capacity percent)
	 Dynamic Checking Range	5	0~9	Unit: 1d (Minimum display value )
	 Dynamic Checking Time	0.5	0~5.0	Unit: second
	 Auto Zero Tracking Range	0	0~99	Unit: 1d (Minimum display value )
	 Negative Zero Tracking Range	0	0~99	Unit: 1d (Minimum display value )
	 Auto Zero Tracking Time	0.5	0~3.0	Unit: second
	 Weighing unit	2	0~3	0-None; 1-g; 2-kg; 3-t
	 Dynamic tare&zero	1	0 or 1	In addition to dynamic range of the weight data set whether to open the




























### 5.1.7 F6 Communication

Main menu	Second menu			
Prompt	Prompt	Default	Range	Description
 Communicati on COM1-RS232 COM2-RS485	 COM1 Protocol	1	0-5	0: None 1: Continuous output 2: MODBUS—RTU1 (Div) 3: MODBUS—RTU2 (Float) 4: Command mode 5: Manual Print
	 COM1 continuous output format	1	0-3	1:Continuous output format 1 2:Continuous output format 2 (have parity ) 3:Continuous output format 3 4:Continuous output format 4
	 COM1 continuous output rate	40	0-100	unit: frames/sec continuous output rate
	 COM1 MODBUS Address	1	0-255	MODBUS Address
	 COM1 Baud Rate	38400	1200-57600	unit: bit/s 1200/2400/4800/9600/19200 /38400/57600
	 COM1 Data format	2	0-5	0--7E1: 7 bits data size, 1 stop bit, even parity 1--7O1: 7 bits data size, 1 stop bit, odd parity 2--8N1: 8 bits data size, 1 stop bit, no parity 3--8N2: 8 bits data size, 2 stop bit, no parity

				4--8E1: 8 bits data size, 1 stop bit, even parity 5--8O1: 8 bits data size, 1 stop bit, odd parity
 COM2 Protocol	2	0-5	0: None 1: Continuous output 2: MODBUS—RTU1 (Div) 3: MODBUS—RTU2 (Float) 4: Command mode 5: Manual Print	
 COM2 continuous output format	1	0-2	1:Continuous output format 1 2:Continuous output format 2 (have parity ) 3:Continuous output format 3 4:Continuous output format 4	
 continuous output rate	40	1-100	unit: frames/sec continuous output rate	
 COM2 MODBUS Address	1	0-255	MODBUS Address	
 COM2 Baud Rate	38400	1200-57600	unit: bit/s 1200/2400/4800/9600/19200 /38400/57600	
 COM2 Data format	2	0-5	0--7E1: 7 bits data size, 1 stop bit, even parity 1--7O1: 7 bits data size, 1 stop bit, odd parity 2--8N1: 8 bits data size, 1 stop bit, no parity 3--8N2: 8 bits data size, 2 stop bit, no parity 4--8E1: 8 bits data size, 1	

				stop bit, even parity 5--8O1: 8 bits data size, 1 stop bit, odd parity
--	--	--	--	--

### 5.1.8 F8 Analog Output

Main menu	Second menu			
Prompt	Prompt	Default	Range	Description
 Analog Output	  Analog mode	2	2	4~20mA
	  Analog data	1	0	Gross
			1	Net
	 	4.0	0-22.0	The first analog value unit: mA
	 	0	0-Capacity	The first analog correspond to the weight value
	 	20.0	0-22.0	The second analog value unit: mA
	 	1000	0-Capacity	The second analog correspond to the weight value
  Load setting values			Load setting values when change the first and the second analog value	


				Roughly adjust the first analog output
				Fine adjust the first analog output
				Roughly adjust the second analog output
				Fine adjust the second analog output

### 5.1.9 F10 Restore Default value

Main menu	Second menu	
Prompt	Prompt	Description
 Restore Default value	 Restore Default value1	Restore system parameters default value
	 Restore Default value2	Restore calibration parameters default value
	 Restore Default value3	Restore all parameters default value

### 5.1.10 F11 System information

Main menu	Second menu	
Prompt	Prompt	Description
 System information	 AD value	Display A/D conversion value
	 Input port test	Input port test (IN1~IN3)
	 Output port test	Output port test (OUT1~OUT3)
	 Display Version information	Display Version information

	Version information	
	 load cell signal test	load cell signal test

## 5.2 Function Operation

### 5.2.1[ F1]Scale calibration

❖ Scale calibration can configure calibration Parameters and calibration function

#### 5.2.1.1[ F1.1] Increment Size

Long press F key and enter key to enter menu F1,Press enter key to enter F1.1,Press enter key to edit values. Press T key or zero key to select Increment Size。 Press enter key to save parameters and display F1.2.

#### 5.2.1.2[ F1.2] Capacity



When display F1.2, then press enter key to edit values. Press T key and zero key to set capacity value, press enter key to save parameters and display F1.3.

#### 5.2.1.3[ F1.3] Calibration mode




When display F1.3, then press enter key to edit values. Press T key or zero key to select calibration mode, press enter key to save parameters and display F1.4.

0-Weight calibration mode      1-Weight-Free calibration mode

#### 5.2.1.4 [ F1.4] Zero calibration

When display F1.4, then press enter key to display  ✓ ♯ \_., then clear the scale platform, press enter key to do zero calibration, display 10..9..8..7....1.. means zero calibration success, then press enter key to save parameters and display F1.6.

#### 5.2.1.5 [ F1.6]Weight calibration

When display F1.6, then press enter key to display  ♯ , then press enter key to display the weight weight. Press T key and zero key to set the weight value, then load the weight on the scale platform, press enter key to do weight calibration, display 10..9..8..7....1.. means weight calibration success, then press enter key to save parameters and display F1.7.

Then back the weight display interface,when display weight is same as weight weight, means weight calibration success.

#### 5.2.1.6 Weight free calibration

- [ F1.7]Sensor sensitivity

When display F1.7, then press enter key to edit values. Press T key and zero key to set sensor sensitivity, press enter key to save parameters and display F1.8.You can refer to the sensor manual for sensor sensitivity.

- [ F1.8]Actual sensor capacity

When display F1.8, then press enter key to edit values. Press T key and zero key to set actual sensor capacity, press enter key to save parameters and display F1.1.You can refer to the sensor manual for actual sensor capacity.

#### 5.2.2 [F8]Analog output

- ❖ SL550C8 can only configure 4~20mA analog output.

### **5.2.2.1[F8.1]Analog mode**

### **5.2.2.2[F8.2]Analog data**




### **5.2.2.3[F8.3]The first analog value**

### **5.2.2.4[F8.4]The first analog correspond to the weight value**

### **5.2.2.5[F8.5]The second analog value**

### **5.2.2.6[F8.6]The second analog correspond to the weight value**

### **5.2.2.7[F8.7]Load setting values**

When display F8.7, then press enter key to edit values. Press T key or zero key to select    , press enter key to save parameters and display F8.7.

### **5.2.7.8[F8.8]Roughly adjust the first analog output**

When display F8.8, then press enter key to adjust values. Press T key or zero key to adjust the first analog output , press enter key to save parameters.

### **5.2.7.9[F8.9]Fine adjust the first analog output**

When display F8.9, then press enter key to adjust values. Press T key or zero key to adjust the first analog output , press enter key to save parameters.

### **5.2.7.10[F8.10]Roughly adjust the second analog output**

When display F8.10, then press enter key to adjust values. Press T key or zero key to adjust the second analog output , press enter key to save parameters.






### **5.2.7.11[F8.11]Fine adjust the second analog output**

When display F8.9, then press enter key to adjust values. Press T key or zero key to adjust the second analog output , press enter key to save parameters.

### **5.2.3[F10]Restore Default value**


❖ SL550C8 can restore all default value

### **5.2.3.1[F10.1]Restore system default value**


When display F10.1, then press enter key to Restore Default values. Press T key or zero key to select      , press enter key to save parameters.

### **5.2.3.2[F10.2]Restore calibration default value**

When display F10.2, then press enter key to Restore Default values. Press T key or zero

key to select **x ?**  **⊖ ?** , press enter key to save parameters.

### 5.2.3.3[F10.3]Restore all default value

When display F10.3, then press enter key to Restore Default values. Press T key or zero key to select **x ?**  **⊖ ?** , press enter key to save parameters.

### 5.2.4 [F11]Test menu

❖ SL550C8 can check A/D code、 Version information、 load cell signal

#### 5.2.4.1 [F11.1]AD value

Value that load cell analog transforms through A/D

#### 5.2.4.2 [F11.2]Input test

IN \_\_\_ (left to right) Respectively indicate :IN1, IN2, IN3

\_ indicate disconnected, NO.1~3 indicate the corresponding pin is connected

For example: IN 1 \_ 3 indicate IN1and IN3 is connected, IN2 is disconnected

#### 5.2.4.3 [F11.3]Output test

Press the T key to output the NO.1 to NO.3 output ports

OUT3 indicates NO.3 output port is output.

#### 5.2.4.4 [F11.4]Version information

Display Version information.

#### 5.2.4.5 [F11.5]Load cell signal test

Display sensor voltage.

## Appendix A

### .MODBUS-RTU ( Division )

MODBUS-RTU		
Address	Description	Attribute
40001/2	Display net weight	R
40003/4	Display tare weight	R
40005/6	Display result weight	R



40007	Bit 0 - IN1 state Bit 2 - IN3 state Bit 4 - Reserved Bit 6 - Reserved Bit 8 - In the center of zero Bit 10 - Over load Bit 12 - Motion Bit 14 - System error Bit 1 - IN2 state Bit 3 - Reserved Bit 5 - Reserved Bit 7 - Reserved Bit 9 - Under load Bit 11 - Net Bit 13 - Power zero Bit 15 - Reserved	R
40008	A/D value	R
40009	Calibration result 10,9,...,2,1 - Calibrating 0 - Calibration success 255 - Error	R
40010	Bit 0 - Fast Bit 1 - Reserved Bit 2 - Fine Bit 3 - Tolerance Bit 4 - Upper tolerance Bit 5 - Lower tolerance Bit 6 - OK Bit 7 - Running Bit 8 - Near zero Bit 9 - Complete Bit 10 - Start error Bit 11 - Full bin signal Bit 12~15 Reserved	R
40011	Bit 0 - Control OUT1 output signal( 0 - OFF, 1 - ON ) Bit 1 - Control OUT2 output signal( 0 - OFF, 1 - ON ) Bit 2 - Control OUT3 output signal( 0 - OFF, 1 - ON ) Bit 3 - Reserved Bit 4 - Reserved Bit 5 - Reserved Bit 6 - Reserved Bit 7 - Reserved Bit 8 - 0->1 Start Bit 9 - 0->1 Stop Bit 10 - Reserved Bit 11 - 0->1 Zero Bit 12 - 0->1 Tare Bit 13 - 0->1 Clear Bit 14 - Reserved	R/W

	Bit 15 - 0->1 Initialize Data	
40012	Division 0 (0.0001), 1 (0.0002), 2 (0.0005), 3 (0.001), 4 (0.002),5 (0.005), 6(0.01), 7(0.02), 8(0.05), 9(0.1), 10(0.2),11(0.5),12(1), 13(2), 14(5),15(10), 16(20), 17(50)	R/W
40013	Calibration mode 0: Weight calibration 1: Weight-Free calibration	R/W
40014	Calibration command 0->1 : Zero calibration 0->3 : Weight calibration	R/W
40015/16	Capacity	R/W
40017/18	Weight weight	R/W
40019/20	Sensor sensitivity	R/W
40021/22	Actual sensor capacity	R/W
40023	Primary filtering	R/W
40024	Secondary filtering	R/W
40025	Key zero range	R/W
40026	Dynamic Checking Range (0-9d)	R/W
40027	Dynamic Checking Time (0~50x0.1s)	R/W
40028	Auto Zero Tracking Range (0-99d)	R/W
40029	Negative Zero Tracking Range (0-99d)	R/W
40030	Auto Zero Tracking Time (0~50x0.1s)	R/W
40031	Weighing unit	R/W
40032	Dynamic tare&zero	R/W
40033	Negative gross weight tare	R/W
40034	Over Capacity	R/W
40035	Under Zero Blank	R/W

40036	Work Mode 0:None 1:Simple Set point 2:Sequence Set point 3:Over/Under/OK 4:Subtraction Scale Mode	R/W
40037	Start delay time 0~100x0.1s	R/W
40038	Output work mode	R/W
40039	Auto tare mode	R/W
40040	Prohibit time 0~100x0.1s	R/W
40041	Automatic correction mode	R/W
40042	Automatic correction Range	R/W
40043	Drain time 0~100x0.1s	R/W
40044	Result output time 0~100x0.1s	R/W
40045	Completion signal time 0~100x0.1s	R/W
40046	INPUT1	R/W
40047	INPUT2	R/W
40048	INPUT3	R/W
40049	OUTPUT1	R/W
40050	OUTPUT2	R/W
40051	OUTPUT3	R/W
40052/53	Target value	R/W
40054/55	Fine value	R/W
40056/57	Spill value	R/W
40058/59	Zeroband value	R/W
40060/61	Low tolerance	R/W

40062/63	Up tolerance	R/W
40064/65	Start lower threshold	R/W
40066/67	Start upper threshold	R/W
40068/69	Upper limit value setting	R/W
40070/71	Lower limit value setting	R/W
40072/73	Full bin value	R/W
40074/75	Total count	R/W
40076/77	Total weight	R/W

## Appendix B Continuously output data format

### Continuously output1

Data	S T X	S W A	S W B	S W C	XXXXXX	XXXXXX	C R
	A	B	C	D	E	F	G

### Continuously output2

Data	S T X	S W A	S W B	S W C	XXXXXX	XXXXXX	C R	C H K
	A	B	C	D	E	F	G	H

**Interpretation of each data item:**

- A - STX: ASCII 02H
- B - SWA: Status word A
- C - SWB: Status word B
- D - SWC: Status word C
- E - Display weight, 6 byte, no decimal
- F - Tare weight, 6 byte
- G - CR: ASCII 0DH
- H - CHK: Checksum

SWA:				
Bit				
0 1 2	Bit2	Bit 1	Bit 0	Decimal
	0	0	1	XXXXX0
	0	1	0	XXXXXX
	0	1	1	XXXXX. X
	1	0	0	XXXX. XX
	1	0	1	XXX. XXX
	1	1	0	XX. XXXX

3 4	Bit4	Bit 3	Multiple
	0	1	X1
	1	0	X2
	1	1	X5
5	1		
6	0		
7	0		

SWB:	
Bit	
0	0 –Gross, 1 –Net
1	0 –Positive, 1 –Negative
2	1 –Over load&under load
3	1 –Motion
4	0
5	1
6	0 –Status OK, 1 –Initializing
7	0

SWC:	
Bit	
0	0
1	0
2	0
3	0
4	0
5	1
6	0

7	0
---	---

### Continuously output3

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
S	T	,	N	T	,	+/ -	1	2	3	4	.	5	6	K	G	CR	LF

N01, 2:           Status

                  OL: Over load

                  ST: Stable

                  US: Motion

N03

N06:           “ , ” 0x2C

N07:           Positive or Negative

N08~14 :       Weight value

                  If there is no decimal point, add a space before it

N015, 16:      Unit

                  g, kg, t

N017, 18:      Control code

CR LF

### Command mode

The currently supported directives are:

READ<CR><LF>                   Same as output3 data format

TARE ON<CR><LF>               YES<CR><LF> or NO <CR><LF>

TARE OFF<CR><LF>               YES<CR><LF> or NO <CR><LF>

ZERO ON<CR><LF>               YES<CR><LF> or NO <CR><LF>

The command to select the specified device address is supported on Serial Port 2 (RS485)

<ENQ>IDXX<CR><LF>           <ACK>XX<CR><LF>





