

Intelligent Automatic Reserve Operator

Contents

1. Features.....	1
2. Technique Parameters.....	1
3. Ordering Number.....	2
4. Input Signal Type.....	3
5. Trouble Shooting.....	5
6. Installation Wiring.....	7
7. Panel Display.....	11

1. Feature

- Designed based on computer processor ,it can be programmed by keys on the panel to suit any type of sensor ,and there is no linear error for any sensor.
- All inputs can be calibrated with key button.
- It is produced according to ISO9000 qualified process.
- It can switch from manual state to auto state without interference.

2. Technique parameters:

- Environment condition: temperature: 0 ~ 50℃ , relation humidity: ≤90%
- Power supply: AC90V ~ 265V (50 ~ 60Hz) or DC24±10%V
- Accuracy : 0.5%F.S±1digital, dissolution: 0.001,0.01,0.1,1
- Input feature: Voltage input: input impedance >300kΩ,
mA: input impedance 250Ω
- Output feature: Capability of relay:3A/220VAC or 3A/24VDC, load of resistance
Output impedance of mA: < 600Ω
Output impedance of voltage: >200kΩ
- Transmit power supply output: Electric voltage 24 ± 10 % VDC, MAX electric current 22 mA,
can connect directly with passive transducer .
- Power dissipation: <3W
- Weight<0.5kg

3. Ordering number

Ordering number				Explain
DFQA				Intelligent Automatic Reserve Operator
Series	6			Electronic transformer
Value position command signal input		5		Suit for DC 0~10mA signal input
		6		Suit for DC 4~20mA signal input
		7		Suit for DC 0~5V signal input
		8		Suit for DC 1~5V signal input
Value position command signal output		5		0~10mA actual value position output
		6		4~20mA actual value position output
		7		0~5V actual value position output
		8		1~5V actual value position output
Outline type				160×80mm horizontal type
			V	80×160mm upright type
			F	96×96mm square type
			SF	72×72mm small square type
			S	96×48mm small horizontal type
			SV	48×96mm small upright type
Power supply				Power supply 220VAC
			D	Power supply 24VDC (no to S, SV outline)
Communication port				Without communication port
			RS232	With RS232 isolated communication port
			RS485	With RS485 isolated communication port

4. Input signal type

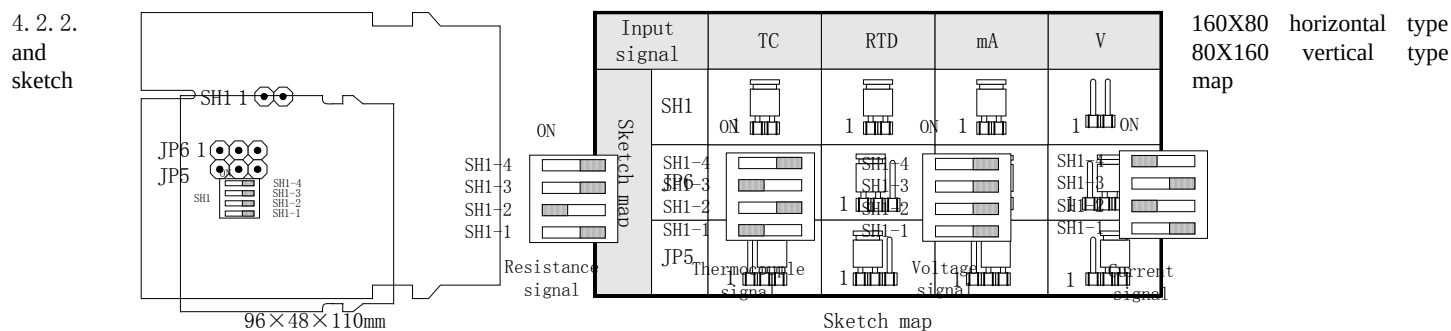
4.1. Linear input and measurement range

Input type		Display symbol	Resolution	Measurement range	Suitable sensor	Reference to 4.2
Standard linear input	Linearity		10μA	-1999~9999	0-10mA input	
	Linearity		10μA	-1999~9999	4-20mA input	
	Linearity		1mV	-1999~9999	0-5V input	
	Linearity		1mV	-1999~9999	1-5V input	
Un-standard linear input			1mV	-1999~9999	Un-standard linear input (>60mV)	

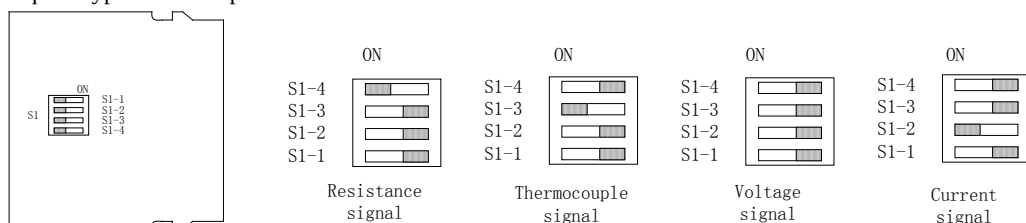
4.2. DIP switch sketch map

4.2.1. 96×48 and 48×96 small type sketch map

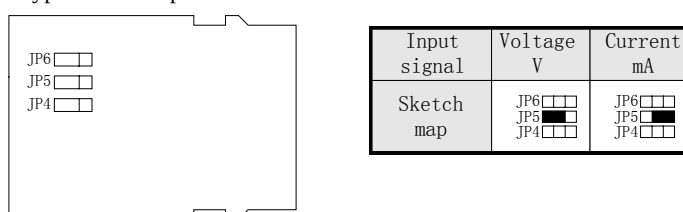
If there is no SH1, please parallel connection one 250.0 Ω resistance between 4 and 6 junctions when input signal is current (mA).



4. 2. 3. 96X96 square type sketch map



4. 2. 4. 72X72 small square type sketch map



5. Trouble

shooting

5.1. Trouble shooting

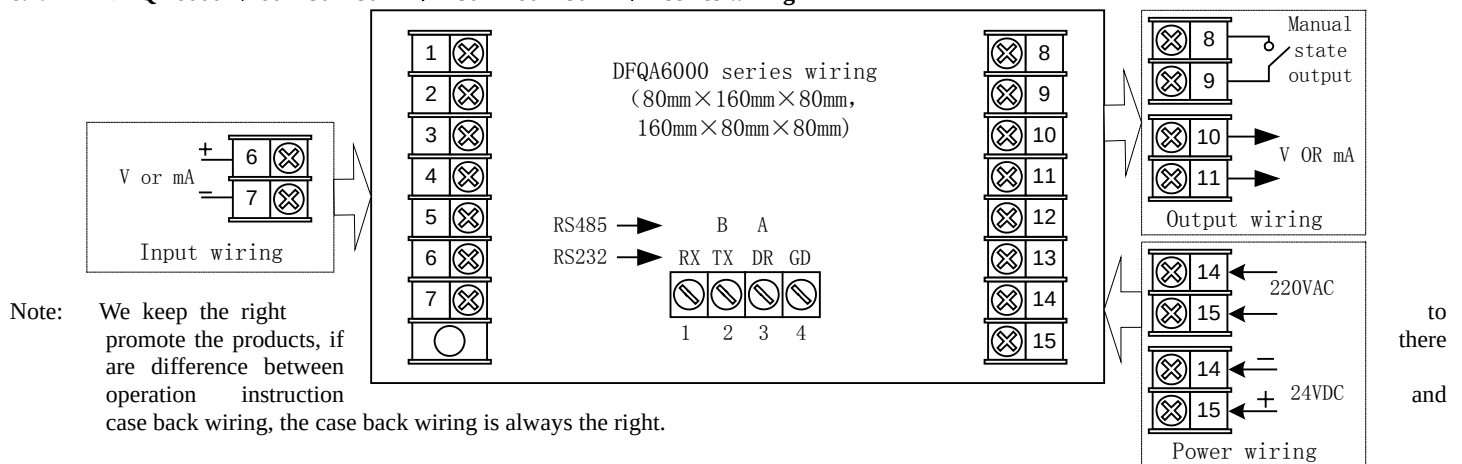
Trouble		Cause	Eliminate method
Not lighting		Power fail	Check the power
		Power terminal fail	Take out the device core and check the power terminal
		Device go wrong	Contact to the distribute or manufacture
LED display		Input type setting wrong	Check the input type setting
		Input signal overflow	Check the input signal
		Input signal line break	Check the input signal wire
		Input type wrong	Check the input type setting
		Input signal overflow	Check input signal
		Calibration wrong	Calibration the input again
		Input type wrong	Check input type setting
		Input signal under -range	Check input signal
		Calibration wrong	Calibration the input again
Display wrong		Input type wrong	Check the input type setting
		Correction menu setting wrong	Check the correction setting menu
Trouble		Cause	Eliminate method
Display wrong		Input wire wrong	Check the input wire
		Input signal wrong	Check the input signal
Can not enter the corresponding menu		Device type wrong	Contact to the distribute or manufacture
		The menu be locked	Unlock the menu
Can't unlock the menu		Lose the unlock code	Contact to the distribute or manufacture
Display change suddenly	Influenced by the rear contactor's spark	Ac circuit, join a resistor-capacity spark-absorbent.	
		DC circuit join a reverse diode	

	Wrong wiring	Separate signal wire from power wire
	Disturbance of the power	Shield the signal wire and connect the shield to the ground on panel end.
The power board burned out	Wrong connection of the power line	Check the connection of the power line
	Bad power quality	Add purifying power, connect to other power
Relay action wrong	Influenced by the rear contactor's spark	AC circuit, join a resistor-capacity spark absorbent.
		DC circuit, join a reverse diode

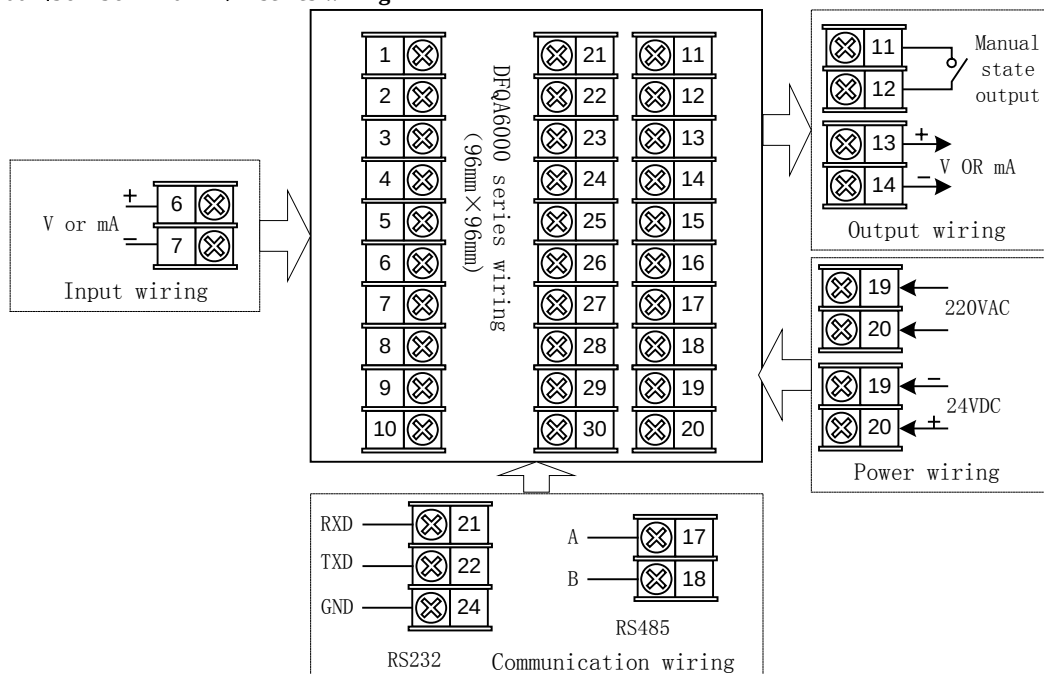
6. Installation wiring

- 6.1. Note: Signal cable should depart from the power supply, and must be the shield cable, and the shield must be connected to the signal earth, to avoid the signal influence
- 6.1.2 The device power should be an independent power, a cleaning power, and should not be connected to other polluted power.

6.2. DFQA6000 (160×80×80mm, 80×160×80mm) series wiring



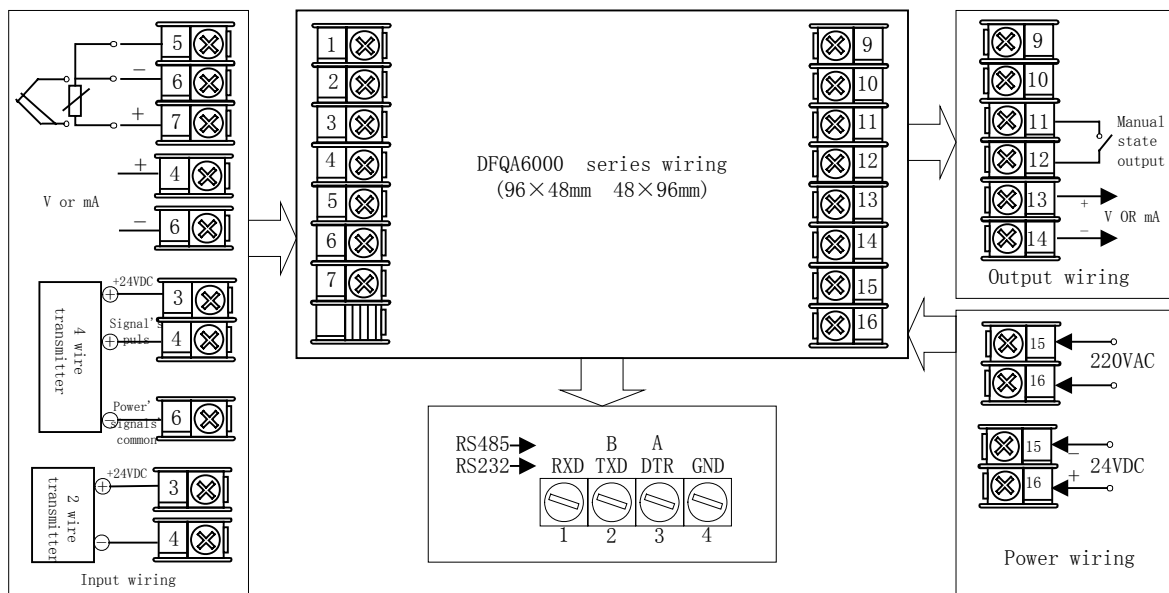
6.3. DFQA6000 (96×96×110mm) series wiring



Note: 1. Modem and PRN's wiring are the same as RS232's wiring

2. We keep the right to promote the products, if there are difference between operation instruction and case back wiring, the case back wiring is always the right.

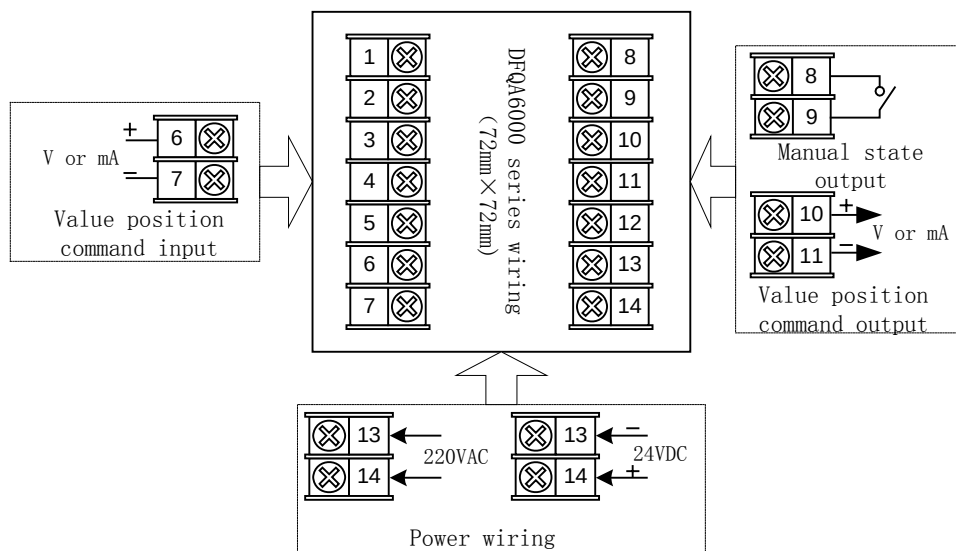
6.4. DFQA6000 (96×48×110mm, 48×96×110mm) series wiring



Note:1. Modem and PRN's wiring are the same as RS232's wiring

2. We keep the right to promote the products, if there are difference between operation instruction and case back wiring, the case back wiring is always the right.

6. 5. DFQA6000 (72×72×110mm) series wiring



Note: We keep the right to promote the products, if there are difference between operation instruction and case back wiring, the case back wiring is always the right.

7. Panel Display



Outline (mm):

160×80×80

80×160×80

96×96×110

72×72×110

96×48×110

48×96×110

Panel cutoff (mm):

$152^{+1.00}_{-0.76}$

$76^{+0.74}_{-0.74} \times 152^{+1.00}_{-0.74}$

$92^{+0.87}_{-0.87} \times 92^{+0.87}_{-0.87}$

$68^{+0.74}_{-0.74} \times 68^{+0.74}_{-0.74}$

$92^{+0.87}_{-0.87} \times 44^{+0.62}_{-0.62}$

$44^{+0.62}_{-0.62} \times 92^{+0.87}_{-0.87}$

Name		Contents
Display	Up display	- When in working state ,it indicates input. - When in setting state ,in indicates parameter name or parameter value.
	Lower display	- When in working state ,it indicates other parameter with low display setting menu. - When in setting state ,it indicates parameter suggestive information.
Operation	▽	It is used to decrease parameter in setting state.
	SET	It is used to confirm parameter setting in setting state.
	△	It is used to increase parameter in setting state.
	A/M	Manual/Auto ,it is used to change state between Manual and Auto state.
LED lamp	HIGH	High alarm () indicator
	LOW	Low alarm () indicator
	A/M lamp	- Manual/Auto (A/M) indicator - Manual state , A/M lamp is light ,and press ▽ or △ to change the output firsthand and display on the lower display. - Auto state ,A/M lamp is off ,and the output run after input.

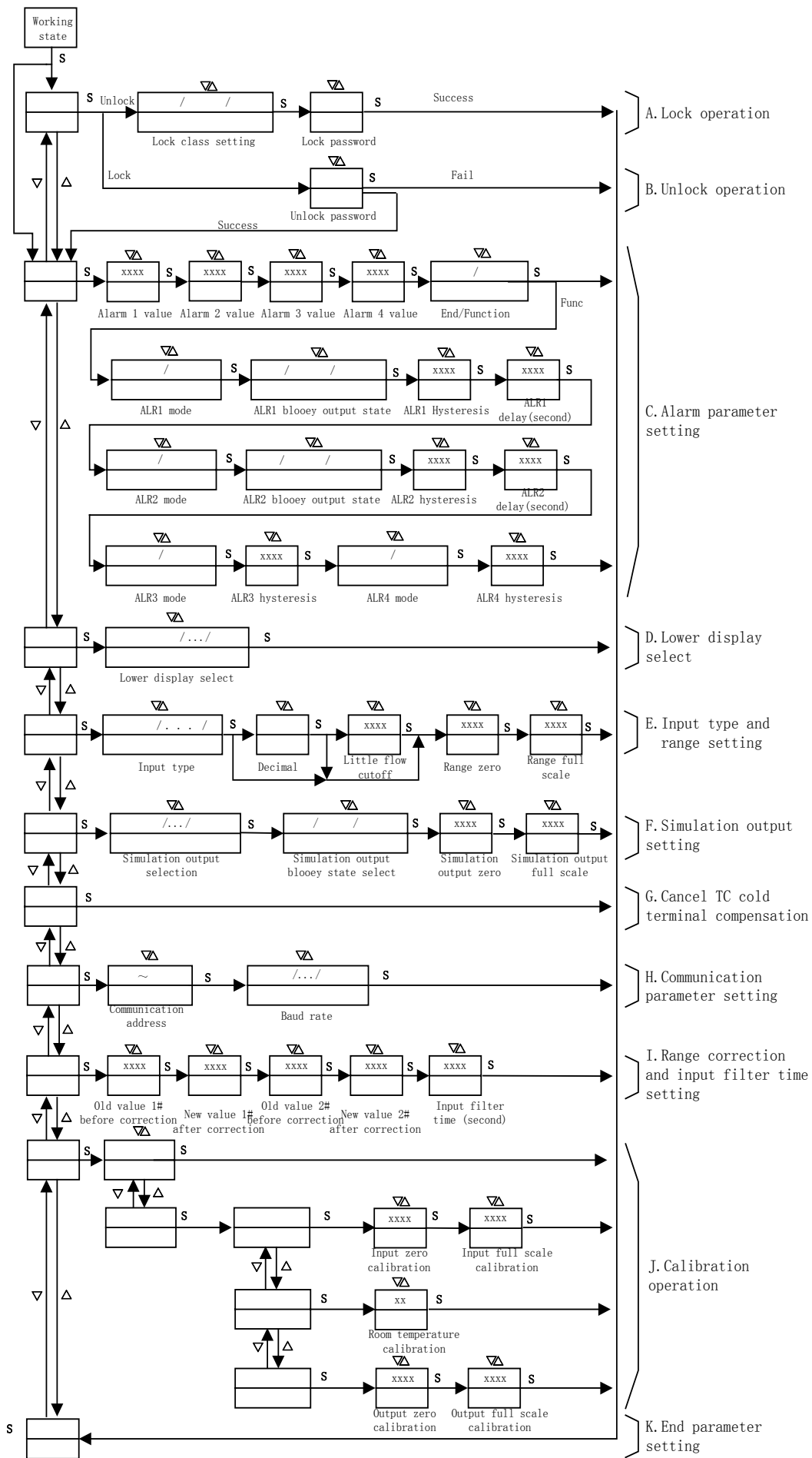
7. 2. Parameter setting explanation

7.2.1. Operation diagram

7.2.1.1. **Note:** ①Keeping no key operate 40 seconds in setting state, it will return to working state automatically;

②If some menu can not be seen, it may be locked or have not the function

7.2.1.2. The symbol ▽, S, △ in the drawing means pressing the key ▽, SET, △, the content in the pane is display message in upper and lower display.



7. 2. 2. Parameter setting operation

A. Lock operation

B. Unlock operation

Menu and operation		Factory setting	Parameter explain
● Entry of the lock and unlock menu group ● Press key SET to confirm ● Press key Δ、▽ to exit		Entry of the lock and unlock menu group	
A.			
/ / ● Lock class setting ● Press key Δ、▽ to modify ● Press key SET to confirm		: Lock all menu : Lock all menu except alarm menu : Lock calibration menu only	
● Setting lock password ● Press key Δ、▽ to modify ● Press key SET to confirm		Password Note: “00”is a invalid password	
B.			
● Input unlock password ● Press key Δ、▽ to modify ● Press key SET to confirm		Unlock password	

C. Alarm parameter setting

Menu and operation		Factory setting	Explain
● Entry of alarm menu group ● Press key SET to confirm ● Press key △、▽ to exit		Entry of alarm menu group	
xxxx ● Alarm1 alarm value setting ● Press key △、▽ to modify ● Press key SET to confirm	20%*FS	ALR1 value	
xxxx ● Alarm2 alarm value setting ● Press key △、▽ to modify ● Press key SET to confirm	80%FS	ALR2 value	
xxxx ● Alarm3 alarm value setting ● Press key △、▽ to modify ● Press key SET to confirm	10%*FS	ALR3 value (Point out when ordering)	
xxxx ● Alarm4 alarm value setting ● Press key △、▽ to modify ● Press key SET to confirm	90%*FS	ALR4 value (Point out when ordering)	
/ ● Alarm setting select ● Press key △、▽ to modify ● Press key SET to confirm		:End alarm setting :Enter advanced setting	
/ ● Alarm1 mode setting ● Press key △、▽ to modify ● Press key SET to confirm		Alarm1 mode :low alarm :high alarm	
Menu and operation		Factory setting	Explain
/ / ● Alarm1 blooey output state setting ● Press key △、▽ to modify ● Press key SET to confirm		Alarm1 blooey output state :alarm action : alarm unchain : alarm keep	
xxxx ● Alarm1 hysteresis setting ● Press key △、▽ to modify ● Press key SET to confirm	01 or 0.1 or 0.01	Alarm1 hysteresis	
xxxx ● Alarm1 delay setting ● Press key △、▽ to modify ● Press key SET to confirm	00 second	Alarm1 delay	
/ ● Alarm2 mode setting ● Press key △、▽ to modify ● Press key SET to confirm		Alarm2 mode :low alarm :high alarm	

/ /	- Alarm2 blooey output state setting - Press key △、▽ to modify - Press key SET to confirm		:alarm action : alarm unchain : alarm keep
XXXX	- Alarm2 hysteresis setting - Press key △、▽ to modify - Press key SET to confirm	01 or 0.1 or 0.01	Alarm2 hysteresis
XXXX	- Alarm2 delay setting - Press key △、▽ to modify - Press key SET to confirm	00 second	Alarm2 delay
Menu and operation		Factory setting	Explain
/	- Alarm3 mode setting - Press key △、▽ to modify - Press key SET to confirm		Alarm3 mode :low alarm :high alarm
XXXX	- Alarm3 hysteresis setting - Press key △、▽ to modify - Press key SET to confirm	01 or 0.1 or 0.01	Alarm3 hysteresis
/	- Alarm4 mode setting - Press key △、▽ to modify - Press key SET to confirm		Alarm4 mode :low alarm :high alarm
XXXX	- Alarm4 hysteresis setting - Press key △、▽ to modify - Press key SET to confirm	01 or 0.1 or 0.01	Alarm4 hysteresis

D. Lower display content setting

Menu and operation		Factory setting	Explain
	- Entry of the lower display menu group - Press key SET to confirm - Press key △、▽ to exit		Entry of the lower display menu
/.../	- Lower display content setting - Press key △、▽ to modify - Press key SET to confirm		: Alarm1 value : Alarm2 value : Alarm3 value : Alarm4 value :Simulation output :Room temperature

E. Input signal type and range setting

Menu and operation		Factory setting	Explain
	- Entry of the range menu group - Press key SET to confirm - Press key △、▽ to exit		Entry of input signal type and range
/.../	- Input signal type setting - Press key △、▽ to modify - Press key SET to confirm	As ordering	Reference to input signal type selection
	- Input decimal position setting - Press key △、▽ to modify - Press key SET to confirm	As ordering	Decimal position
XXXX	- Little flow cutoff setting - Press key △、▽ to modify - Press key SET to confirm	00	Little flow cutoff setting (Engineering units)
XXXX	- Range zero setting - Press key △、▽ to modify - Press key SET to confirm	As ordering	Range zero
XXXX	- Range full scale setting - Press key △、▽ to modify - Press key SET to confirm	As ordering	Range full scale

F. Simulation output setting

Menu and operation	Factory setting	Explain
--------------------	-----------------	---------

	- Entry of simulation output menu - Press key SET to confirm - Press key △、▽ to exit		Entry of simulation output
/.../	- Output mode selection menu - Press key △、▽ to modify - Press key SET to confirm	As ordering	:0-10mA output :4-20mA output :0-5v output :1-5v output :other output
/ /	- Output blooey state selection menu - Press key △、▽ to modify - Press key SET to confirm		Output blooey state: :full scale output :zero output :keep output
XXXX	- Output zero setting - Press key △、▽ to modify - Press key SET to confirm	As ordering	Output zero (the same as)
XXXX	- Output full scale setting - Press key △、▽ to modify - Press key SET to confirm	As ordering	Output full scale (the same as)

G. Cancel TC cold terminal compensation

Menu and operation	Factory setting	Explain
- Cancel TC cold terminal compensation - Press key SET to confirm - Press key △、▽ to exit Note: Cold terminal temperature compensation function will be recovered ,if the meter's power is turned off and turned on again.		Turn on the power again, the TC cold terminal compensation will be recovered Compensation range: 0~50℃

H. Communication setting

Menu and operation	Factory setting	Explain
- Entry of the communication setting menu group - Press key △、▽ to exit - Press key SET to confirm		
~ - Communication address setting - Press key △、▽ to modify - Press key SET to confirm		Communication address: 01~254
/.../ - Communication baud rate setting - Press key △、▽ to modify - Press key SET to confirm		:1200bps; :2400bps; :4800bps; :9600bps

I. Error correction

Menu and operation	Factory setting	Explain
- Entry of error correction menu group - Press key SET to confirm - Press key △、▽ to exit		Entry of error correction menu group
XXXX - Old value1# before correction - Press key △、▽ to modify - Press key SET to confirm	00 or 0.0 or 0.00 or 0.000	Old value1# before correction
XXXX - New value1# after correction - Press key △、▽ to modify - Press key SET to confirm	00 or 0.0 or 0.00 or 0.000	New value1# after correction
XXXX - Old value2# before correction - Press key △、▽ to modify - Press key SET to confirm	1000 or 100.0 or 10.00 or 1.000	Old value2# before correction
XXXX - New value2# after correction - Press key △、▽ to modify - Press key SET to confirm	1000 or 100.0 or 10.00 or 1.000	New value2# after correction

XXXX	- Filter time setting - Press key $\triangle$、∇ to modify - Press key SET to confirm	0 second	Filter time: -
- If the input sensor is a standard sensor, please do not change the factory setting of the correction menu. - If there is display error exist, you can correct the error with correction menu, but need not to calibrate the device again. - If the input signal is a special signal, you may regard it a standard input that it's measurement range is 0-5000 first, then get the true measurement range with correction menu. And need not to calibrate the device with the true "zero" and full range signal. It is very convenient. Be caution: The correction value 1# and correction value 2# must be far away, and can not be the same value, or else the device will go wrong.			

J. Calibration operation

Menu and operation		Explain
XXXX - Entry of the calibration menu group - Press key SET to confirm - Press key $\triangle$、∇ to exit		Entry of the calibration menu group
XXXX - Exit the calibration operation - Press key SET to confirm - Press key $\triangle$、∇ to exit		Exit the calibration operation
XXXX - Entry of input calibration menu - Press key SET to confirm - Press key $\triangle$、∇ to exit		
XXXX - Input signal zero calibration - Input a zero signal to the input terminal, keep steady for 10 seconds, press key SET to confirm 0~10mA/4~20mA zero signal is 0.000mA 0~5V/1~5V zero signal is 0.000V - RTD zero signal is 100.00 Ω - TC zero signal is 0.000mV - Other input zero signal is actual zero		Input signal zero calibration Current signal:0.00Ma Voltage signal:0.000V
Menu and operation		Explain
XXXX - Input signal full scale calibration - Input a full scale signal to the input terminal, keep steady for 10 seconds, press key SET to confirm 0~10mA/4~20mA full scale is 20.00mA 0~5V/1~5V full scale is 5.000V - RTD full scale is 350.000 Ω - TC full scale is 60.000mV		Input signal full scale calibration Current signal:20.00mA Voltage signal:5.000V
XXXX - Entry of the room temperature calibration - Press key SET to confirm - Press key $\triangle$、∇ to exit		
XXXX - Room temperature calibration menu - Press key $\triangle$、∇ to input room temperature ($^{\circ}\text{C}$) - Press key SET to confirm		Room temperature
XXXX - Entry of the output calibration menu - Press key SET to confirm - Press key $\triangle$、∇ to exit		
XXXX - Output zero calibration menu - Press key $\triangle$、∇ to modify - Press key SET to confirm 0~10mA/4~20mA zero signal is 4.00mA 0~5V/1~5V zero signal is 1.000V		Output zero calibration Current output:4.00mA Voltage output:1.000V
Menu and operation		Explain
XXXX - Output full scale calibration menu - Press key $\triangle$、∇ to modify - Press key SET to confirm 0~10mA/4~20mA zero signal is 20.00mA 0~5V/1~5V zero signal is 5.000V		Output full scale calibration Current output:20.00mA Voltage output:5.000V

K. End setting operation

Menu and operation		Explain
XXXX - End parameter setting operation - Press key SET to confirm - Press key $\triangle$、∇ to exit		End parameter setting operation