

JKC Controller

Service Manual

(Version1.1)



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1. Function

JKC volume stager controller is a new product developed on the basis of advanced CMOS chip technology, which can control the regeneration volume of water treatment equipment. It can independently control the filtration, water softening, and desalination of multi-valve systems. JKC has many functions such as volume display, remaining volume display, regeneration program presetting, system working stage display, signal feedback, solenoid valve signal output.

2. Feature:

- password protection
- (1-3 multiple access) testing instantaneous flow and accumulated flow of flowmeter
- K value choice of flowmeter sensor
- system flow rate display (0-999t/h), and batch presetting 1-9999.9t remain volume display
- total service volume display and reset function
- service stage display (servicing, regeneration, standby, feedback)
- alternative manual start
- remote signal control
- regeneration signal output time choice(2-9999 seconds)
- regeneration state feedback display
- service state: free choice of C1,D2, D3, E2, E3
- auxiliary output of regeneration system for controlling solenoid valve
- power cut protection: setting parameter can be memorized for 3 years
- The box is made of plastic, that is resistant to dust, corrosion and water
- can be installed on the wall or on the bracket

3. Technical Specification

- Volume sensor impulse input:
 - A. SIGNENT sensor, sine wave range 0-150Hz; sensor, DC 4-12V
 - B. JM-TT sensor, pulse wave range 0-150Hz; sensor, DC 6-12V
- Sampling cycle: 0.2 second
- batch value setting: 1-9999t
- batch output: relay dry contactor output
- Solenoid dry contactor output: relay dry contactor, capacity, AC220V/2A
- feedback input: feedback from dry contactor
- sensor cable: 5 m
- display: LCD screen. duration of life greater than 10 years
- power source: 100-265V/AC 5W
- temperature: 4-60°C
- humidity: ≤85%RH
- combined with AUTOTROL, FLECK

4. Keyboard Introduction

- ESC : exit/enter system
- ENTER: Confirmation
- ►◀: Cursor moving keys;
- ▼▲: Data change keys.

5. JKC stager controller settings

After reading this manual, connect the external wire according to the controller manual. **Do not connect 220V power to the sensor. Otherwise it will cause irrevocable wire damage.** Turn on the power supply after ensure the accurate wire connection. After 2 seconds working, JKC will display the product information. Then press any key, it will display as below:

E3	Flow rate: t/h	Remaining capacity t	K Value
A:	0.0	1.0	1.0002
B:	0.0	1.0	1.0002
C:	0.0	1.0	1.0002

If you need set the data, please operate the following:

First, go into main menu:

Keep pressing ESC for 5 seconds, it will display:

--setting	password--
please input password: 0000	

Then press ►◀ key to move cursor, press ▼▲ to change password from 0000 to 2008. Press ENTER to confirm. The LCD will display:

--setting	option--
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Mode: E3 Capacity K value

Signal duration

Clear data Manual output

I. Mode

Mode setting:

There are 5 modes available for choices: C1, D2, D3, E2, E3. Press ENTER to choose the mode need to be set. Please be informed that mode C1 and D2 the flowmeter sensor must be connected with channel A. For mode D3, E2, E3, the flowmeter sensor and feedback should be connected accordingly. Each mode have different operation way: C1 means 1 volume controller control 1 tank. It will immediately go into service after regeneration. D2 means in main pipeline 1 volume controller control 2 tanks. One tank is in service, the other in standby. It control batch regeneration and guarantee there is 1 tank in standby (Mode C, D controlled by outlet solenoid valve). D3 means 3 tanks in the system. When 2 tanks are in servicing, 1 tank in standby. The flowmeter must be installed on the corresponding sub-pipeline. There will always be one standby tank in the system. When a tank finished regeneration it will go into standby state. During standby, the outlet solenoid in close state.

When the next tank is started to be regenerated, the solenoid will open and initiate serving stage. E2, E3 means all tanks are simultaneously in service but to be regenerated separately. After regeneration, the tank will go into service immediately. When there are more than 2 tanks need to be regenerated, JKC will control the regeneration sequence accordingly. The tanks will not be regenerate simultaneously. When it appears more than 2 tanks need to be regenerated, only one tank will be regenerated. And the other tanks will continue to work until the first regeneration tank finished. During this stage, it will display a minus value. But it will not change the capacity value. This phenomenon is caused by different output of each tank. We should adjust the system and keep the same output of each tank to avoid this phenomenon. When the system operate for the first time, the tanks should be put into service sequently Do not put all tanks into service at the same time. Otherwise it will appear all tanks need to be regenerated simultaneously. So the system should have 5%-10% remaining capacity to avoid unqualified output caused by tanks regenerated simultaneously.

II. Capacity

Capacity setting: Move cursor to “Capacity”

--Setting	Option--
Mode: E3	Capacity K Value
Signal output duration	
Clear data	Manual

and press ENTER you will get the following display:

--Setting	Capacity--
A: 1t	ENTER
B: 1t	ESC
C: 1t	

Move cursor to “capacity” and press ENTER. Then press ►◀, ▼▲ to input capacity value.

When all settings finished press ENTER to confirm all data you set.

Press ESC back to main menu. The cursor will return to “capacity” and move the cursor to “K Value” to set. It will display as below:

--Setting	K value--
A: 1.0002	ENTER
B: 1.0002	ESC
C: 1.0002	

III. K Value

The K value should be set according to the K value setting list attached to the book. For example, if the flowmeter sensor is mounted in a diameter 80 mm PVC water outlet pipe you will find in the list that K value must be 1.6. Then set 1.6 and press ENTER to confirm. Press ESC back to main menu. Then move cursor to “signal output duration” position to set. Press ENTER it will display:

--setting	Duration--
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Signal output duration: 0015 seconds

IV. Regeneration signal output

This function is to set regeneration initiate signal sending duration (1---9999 second). If for JMA the duration can be set 10 seconds. Press ENTER to confirm and ESC to exit when finished setting.

V. Clear data:

Choose “Clear data” in the main menu and press ENTER to confirm. It will request password. Technical consultation is suggested before clear data operation.

VI. Manual Start:

This function is to manually initiate regeneration. After the regeneration signal is sent the remaining capacity return to the original capacity value you set. Manual Start can be controlled locally or remotely.

Local control can be finished on the controller:

After choose manual regeneration in the main menu, press ENTER and the LCD will display:

--setting	Manual--
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- A Manual
- B Manual
- C Manual

When Choose Channel “A” and press ENTER the LCD will display:

A	Flow rate: XX.X (t/h) Remaining Capacity: X.X (t)	MS
A Manually initiate regeneration ! Remain capacity: XXXX S (Cancel: ESC+ENTER)		

After confirm all the aboved data, the system will go into service immediately. If you want to know other data during service, you can use ►◀ to change into different display. If there is a tolerance of less than 5%, which is caused by the change of installation position and pipe diameter, it can be corrected by change K Value (less than 10%).

Remote control signal:

The remote signal can be from wireless signal of other equipment. When use remote manual signal to control the regeneration, the system will be reset. If you want to know the data during service, please press ◀, the LCD will display:

E3	Capacity: t	Accumulated capacity t	State
A:	1.0	1.0	Service M S
B:	1.0	1.0	Service M S
C:	1.0	1.0	Service M S

Continue to press ◀:

A	Service flowrate: 0.0 (t/h)	M	S
	Remain Capacity: 1.0 (t)		
Accumulated volume		(t)	
Capacity:	t	K Value:	

Then continue to press ◀:

B	Service flowrate: 0.0 (t/h)	M	S
	Remain Capacity: 1.0 (t)		
Accumulated volume		(t)	
Capacity:	t	K Value:	

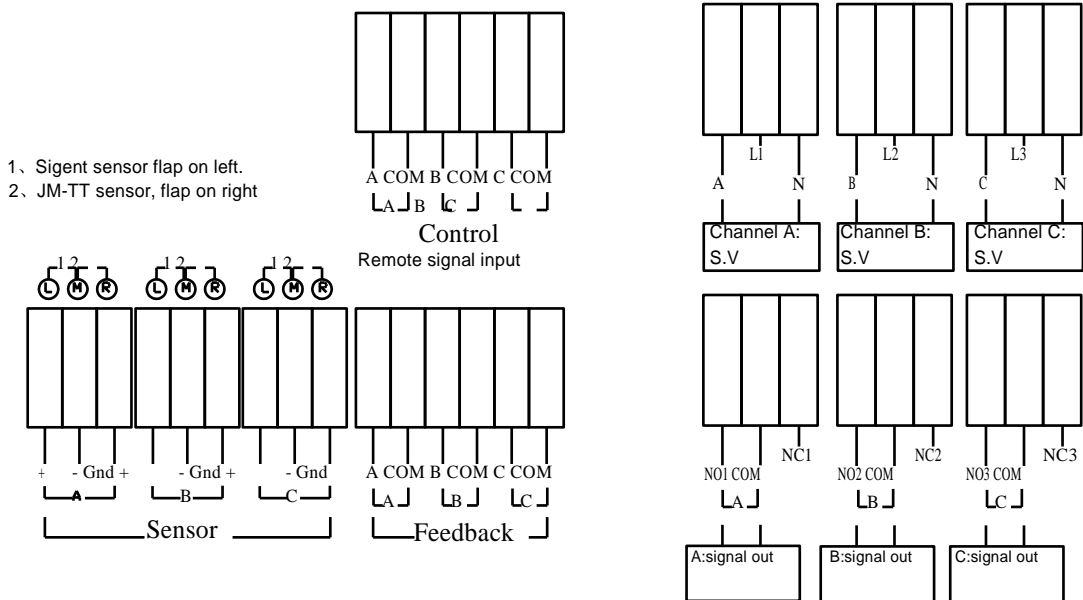
Then continue to press ◀:

C	Service flowrate: 0.0 (t/h)	M	S
	Remain Capacity: 1.0 (t)		
Accumulated volume		(t)	
Capacity:	t	K Value:	

Continue to press ◀ back to main menu.

6. Contactor wiring diagram

JKC Controller Wiring Diagram



7. K value setting list

PVC pipe	DN40	DN50	DN65	DN80	DN100
K Value	5.8	3.2	2.9	1.6	1