16006163

AUTOMATIC FILTER VALVE MANUAL
DISPLAY MODE: LEDM TYPE

FOREWORD

Thank you for choosing the GZ/GA/GB/GC/GD/GE series LEDM display automatic filter valve from CHENGFENG TECHNOLOGY. Our products are mainly using for the intelligent controlling of the filtering process in water treatment system, widely applying to the boiler water softening equipment, softening equipment in the RO treatment system, etc. Using high flatness and corrosion resistance end-face sealing plate, with high on/off and sealing reliability, setting filtering, backwash and fast rinse functions in one.

To protect our product and user’ s safety, please kindly read this manual before using, all the introduction and explanation in the manual without special remarks are applying to all series of our automatic filter valves from CHENGFENG (GB/GC/GD/GE series have no manual now). Any queries which cannot be answered or found in the manual please contact CHENGFENG local distributor or CHENGFENG directly, our career man will supply best service to you. The safely running of our products depends on the correct delivery, assembling, operation and maintenance, please do refer to the introduction of the manual.

Note: All the products referred in the manual if choosing flow type automatic valve, you must adjust with flow meter accordingly.

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1、PURCHASING CHECK

CHENGFENG products had been strictly checked before leaving the factory, but after delivery or other uncertain situations happened, please carefully read the using attention matters in the manual after purchasing our products.

1.1CHECKING ITEMS

Please confirm the following items after you got the product:

CONFIRMING ITEMS	CONFIRMING METHODS
SAME PRODUCT AS PURCHASING OR NOT	PLS CONFIRM DATA PLATE ON THE PRODUCT
ANY PARTS BROKEN OR MISSED	CHECK THE OUTLOOKING AND TOTAL PACKAGING TO AVOID THE BROKEN
SCREW OR ANY OTHER FASTENING PARTS LOOSED OR NOT	CHECK WITH SCREWDRIVER IF NECESSARY
MANUAL, POWER SUPPLY, SPARE PARTS OR ANY OTHER SPARE PARTS	USING THE MANUAL & ACCORDING SPARE PARTS

Please kindly contact with the supplier or CHENGFENG marketing department if any unusual situations were found.

1.2.1、DATA PLATE INFORMATION

Taking GA series automatic valves for instance

GA 全 自 动 过 滤 阀 带 关 闭 工 位
GA Automatic Filter Valve Tape off station
E2系统（时间型）屏显代码：1102（LED显示屏）
E2 Sys(time type)Screen display code:1102(LED Display)
型号（Model）：GA2504-DZ-M-1-EA
电压（Volts）：DC-12V
工作压力（Mpa）：0.15-0.6Mpa

GA 全 自 动 过 滤 阀 带 关 闭 工 位
GA Automatic Filter Valve Tape off station
G2系统（选择型）屏显代码：1102（LED显示屏）
G2 Sys(Selective)Screen display code:1102(LED Display)
型号（Model）：GA2504-DZ-M-1-GA
电压（Volts）：DC-12V
工作压力（Mpa）：0.15-0.6Mpa

GA 全 自 动 过 滤 阀 带 关 闭 工 位
GA Automatic Filter Valve Tape off station
F2系统（流量型）屏显代码：1102（LED显示屏）
F2 Sys(Flow type)Screen display code:1102(LED Display)
型号（Model）：GA2504-DZ-M-1-FA
电压（Volts）：DC-12V
工作压力（Mpa）：0.15-0.6Mpa

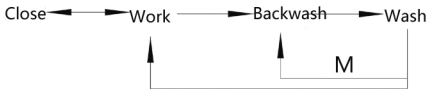
PICTURES INSTANCES

2、ATTENTION MATTERS

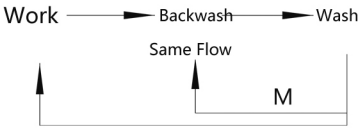
★To make sure the well working of the product after assembling, please ask for the confirmation from the professional assembling & maintenance person before using.
★Any assembling work relate to the pipeline project & electrical equipments must be operated by the professional person.
★This valve installation needs to be away from strong magnetic field. If there is a frequency converter and the water pump, their cables need to be connected by shielded cable.
★ It is strictly prohibited to use the valve in unsafe or unknown water.
★ The parameters of the filtration process should be corrected in time according to the change of working conditions and the water requirements.
★ During use, periodically detect the water quality to ensure the normal operation of the system.
★ Do not close the valve to the environment of heat, high humidity, corrosive, strong magnetic field, strong vibration, also do not expose to outdoor.
★ It is forbidden to lift or handle the system by putting the drain and other joints as support.
★ Please use this product in the water temperature of 5 ~ 50℃, and the water pressure of 0.15 ~ 0.6 MPa. The fault or accident caused by exceeding this range is not in the liability and warranty of our company.
★ If the feed-water pressure is greater than 0.6 MPa, need to install a pressure-reducing valve at the water inlet end. If it is lower than 0.15 MPa, need to install a booster pump.
★ Do not let the children touch or play. Accidentally touching the function key may cause the change of the program.
★ When the power cord or adapter is damaged, must be replaced by the ones produced by our company.

3、PRODUCT DESCRIPTION

1、Filter Valve Working Process



GA(Work/ Backwash/Wash/Stop)



GZ(Work/Backwash/Wash)

Remark: m : Washing Times Of Wash And Backwash,Setting Range0-99.

GA series automatic valve "STOP" station explanation please refer to the item P19—stop station in the special functions.

2、Conditions of Use

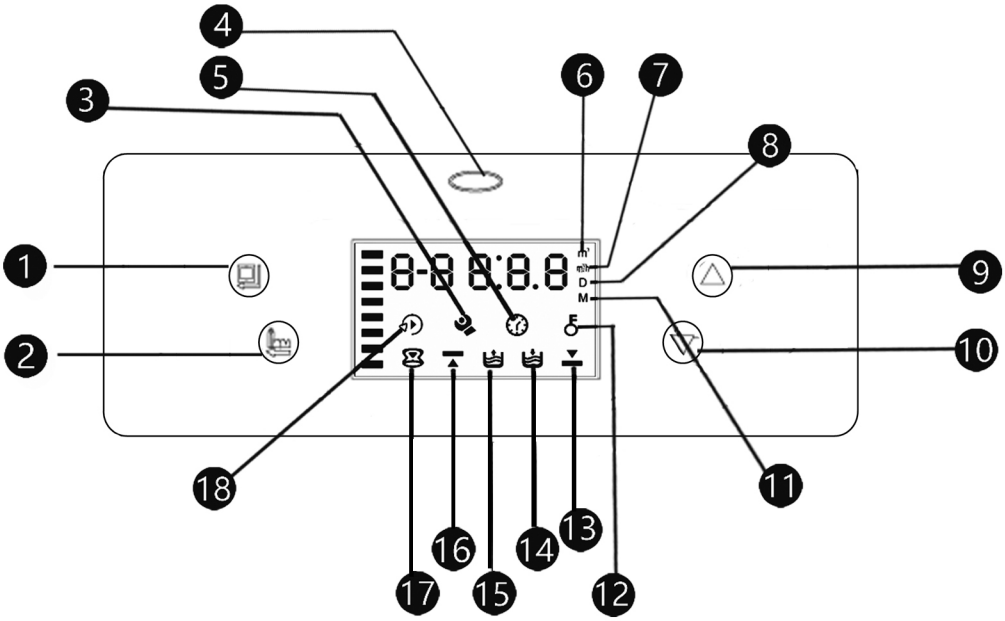
The basic conditions of use for "ChengFeng" Valve should comply with the requirements in the table below:

Item		Requirements
Working Conditions	Working Pressure	0.15MPa~0.6MPa
	Feed-water Temperature	5℃ ~50℃
Working Environment	Ambient Temperature	5℃ ~50℃
	Relative Humidity	<95% (25℃)
	Applicable Power Supply	AC100~240V/50~60Hz
Feed-water Quality	Turbidity	<20FTU

Note: the using conditions in the above table are for the filters matching the control valve.

4、BASIC INSTRUCTION

1.Operating Interface



1.ENTER
2. RETURN
3.SETTING STATE SIGNAL LIGHT
4.POWER SIGNAL LIGHT
5.CLOCK SIGNAL LIGHT
6.CUBIC METER SIGNAL LIGHT
7.FLOW RATE SIGNAL LIGHT
8.NUMBER OF DAY SIGNAL LIGHT
9.SELECTION BUTTON UP
10.SELECTION BUTTON DOWN
11.NUMBER OF MINUTES SIGNAL LIGHT
12.LOCKING SIGNAL LIGHT
13.FAST RINSE SIGNAL LIGHT
14.REFILL SIGNAL LIGHT
15.BRINE ABSORPTION SIGNAL LIGHT
16.BACKWASH SIGNAL LIGHT
17. WORKING SIGNAL LIGHT
18.MOTOR WORKING SIGNAL LIGHT

No. 6、7、14、15 are not used in this manual, so the signal light won't on.
The double-color lights on the interface: green light means well working, red light means alarm for faults.

2、Use of Key-presses

2. Use of Key-presses

2.1 Key-press

1)Press key during working condition. When lights up, the program is in query status, and users can query each parameter value.

2)Press key during the query status. When is flashing, the program is in setting modifying status, and users can set each parameter value.

3)Press key after setting. The beeping means the set has been saved successfully and the program returns to the query status.

2.2 Key-press

1) Press key 1)during working condition. The current working state can be stopped ahead of schedule and turn to the next working position.

2) For Valves with "Stop Position", hold key for 3 seconds during working status, it turns to "Stop Position"; After press and release once, it returns to previous position and continue running.

3) Press key during the query status can return to working status. Press key during the working state can return to query status.

4) When setting the modify parameters, press key .

2.3 Key-presses ▼ & ▲

1) In the query status, continuously press ▼or ▲ can up or down display the parameter values.

2) In the setting status, continuously press ▼ or ▲ can up or down adjust the parameter values.

3) In the running status, press ▼ or ▲ can change the display contents. Above four independent key-presses come into effect after pressing and releasing.

"Query Status" represents the condition of the number not flashing when editing parameters. Under this status, press ▼or ▲can up or down display the parameter values.

"Setting Status" represents the condition of the number flashing when editing parameters. Under this status, press ▼or ▲ can up or down adjust the parameter values.

2.4 Key-presses Combination

1)Hold the two keys of ▼and ▲ for 5 seconds at the same time, the locked keyboard can be unlocked.

2)Press four keys at the same time with power-on, all settings can be reset to the factory settings.

2.5 Dial Switch

The Dial switch can be used to choose the trigger conditions that can switch from working position to regeneration: working time or working flow. Toggling back panel appears corresponding reminder.

2.6 Buzzer

Beeping appears only in the following three conditions:

1) Start up with power
2) Settings saved successfully
3) Error alarm occurred

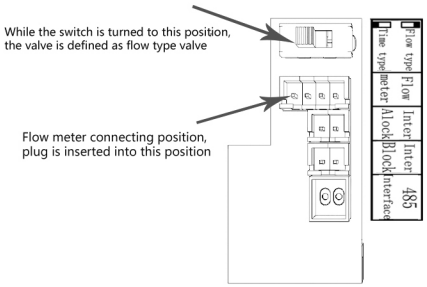
3、Display on the screen after power on:

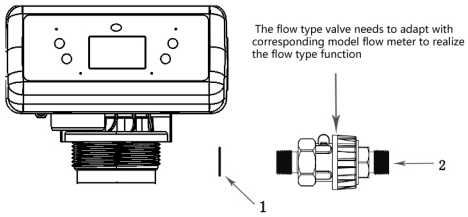
3.1 After power on and automatic valve working, all the symbol lights on, GZ series automatic valves LEDM screen display "3101" signal, as picture shows; GA series automatic valves LEDM screen display "3102" signal; (GB,GC series have no explanation in this manual).

picture A

picture B

3.2 After switching on, if the screen flashes and displays the clock, such as "12:12", it means the outage time is too long, which is to remind the user must check the current time to continue the normal use of the valve.





1.Sealing Ring

2.Flow Meter

4.1Time Type Parameter

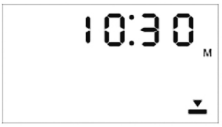
4.1.1Factory Default Parameter

NO.	FUNCTION	SIGNAL	FACTORY SETTING	PARAMETER SETTING RANGE	EXPLANATION
1	WORKING DAYS WORKING HOURS	and "1-"	03D 20H	0~99 days 0~23 hours	WORKING STATION RUNNING DAYS REMAINING WORKING STATION RUNNING HOURS REMAINING
2	BACKWASH	and "2-"	10min	0~99:59	BACKWASH TIME (MINUTE), ACCURATE TO SECOND
3	FAST RINSE	and "3-"	10min	0~99:59	FAST RINSE TIME (MINUTE), ACCURATE TO SECOND
4	SYSTEM TIME	and "4-"	12 : 12	0~23 : 59	WHILE LEAVING FACTORY, THE BATTERY INSIDE HAD ALREADY POWER OFF, IT WILL KEEP ON SHINING "12:12" WHICH MEANS YOU NEED TO ADJUST THE SYSTEM TIME AGAIN
5	m	5-	0	0~99	FAST RINSE/BACKWASH CYCLE INDEX
6	RELAY MODE	6-	1	0/1	00 MODE: NORMAL OPEN CONNECTOR IS ON AND NORMAL CLOSE CONNECTOR IS OFF WHILE "REGENERATION" , THEN THE NORMAL OPEN CONNECTOR IS OFF AND NORMAL CLOSE CONNECTOR IS ON WHILE THE STATION GOES TO "WORKING" STATION. 01 MODE: NORMAL OPEN CONNECTOR IS ON AND NORMAL CLOSE CONNECTOR IS OFF WHILE "REGENERATION" , THEN THE NORMAL OPEN CONNECTOR IS OFF AND NORMAL CLOSE CONNECTOR IS ON WHILE THE STATION GOES TO ANY OTHER STATION.
7	DELAY REGENERATION	7-	0	0/1 0 ~23:59	DELAY REGENERATION FUNCTION DEFAULT CLOSING,

					IF OPENING MEANS THE VALVE CANNOT REGENERATE BEFORE THIS TIME POINT
8	485 PORT SETTING	8-	1/0/0	0~255/0 ~3/0~3	DEFAULT ADDRESS: 1 SPEED: 19200 CHECK: NO

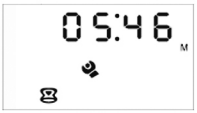
4.1.2、Operation interface display

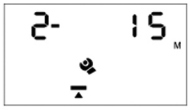
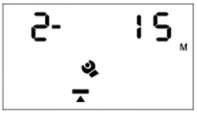
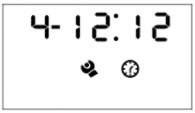
Item	Display	
1.working station operation interface display		Take working position for example, the left three pictures switch one after another to present the current working To work station for example, on the left side of the three images will switch in turn, to show the current working status; On the left side of the case diagram, said: Running a time: 10 days 2 hours and 30 minutes; The current time at 10:30 Work station said it was in the water..
2.The backwashing station running interface display		With the backwashing location, for example, on the left side of the two images will switch in turn, to show the current working status; On the left side of the case diagram, said: The remaining backwashing time: 11 minutes and 22 seconds The current time at 10:30 Backwashing location represent the backwashing water filter material.
3.Wash station running interface display		Wash station for example, is to be on the left side of the two images will switch in turn, to show the current working status;

		On the left side of the case diagram, said:
4. Stop station running interface display	 	The current time at 11:30 Stop location to suspend, all running state only before you press the ESC key to return to the location and status.

The parameters of every process can be adjusted according to the exact situation of the water quality and configures.

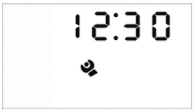
4.1.3、General parameter setting:

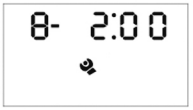
Item	Steps	Display	
1. Work time setting and modification	1. Under operation interface 回 button, light up, first enter the job location query set. 2. In the condition of the query, query to ' work time when press 回, digital start flashing, enter into the state of editing. 3. Press ▼and ▲modify the 'day'. 4. Press the 回 , at the sound of a "drop", said the changes day successful, when startedflashing. 5. Press ▼ and ▲modify the 'time'. 6. Press 回 again, at the sound of a "drop", said the changes' working hours' success, return the query condition.	 	On the left side of the case diagram said set of water making time for three days at 5 46 minutes

Item	Steps	Display	
2. Backwashing time setting and modification	1. In the condition of the query, query to ' backwashing time when press, digital start flashing, enter into the state of editing. 2. Press ▼and ▲ modification time. 3.Press again, at the sound of a "drop", modify the 'backwashing time' success, return the query condition.		On the left side of the said case diagram sets the backwashing time is 15 minutes
3.Washing Time Setting & Modification	Same set as "Backwashing Time" .		On the left side of the said case diagram Settings is washed for 10 minutes
4.Current Time Setting & Modification	1.Press , entering the query condition, and light up at the same time. 2. Press again , enteringthe state of current timesetting. The Hour Value flashes. Modify the Hour Value by pressing ▼and ▲ ; 3. Press again , the minute value flashes. Modify the Minute Value by pressing ▼and ▲; 4.Press again , a sound of "click" can be heard. The modification of "current time" is successful. Return by pressing .		On the left side of the case diagram said 12 minutes set the current time is 12 o 'clock

Note: According to water quality and actual usage condition of configuration, users can set and modify parameters in each process.

4.1.4、Special parameter settings:

project	operating steps	Display interface	
1.Loop m setting and modification	1. In the condition of the query, query to m when press 回, m value began to flicker, enter into the state of editing.		On the left side of the case diagram said set 3 m for circulation
	1. In the condition of the query, query to m when press 回, m value began to flicker, enter into the state of editing. 2. Press ▼ and ▲ modify m value. 3. Press 回 again, at the sound of a "drop", modify m success, according to the return.		
2. Relay mode setting and modification	1. In the condition of the query, query to 'relay mode when press, digital start flash回ing, enter into the state of editing. 2. Press▼and▲ modify 'relay mode. 3. Press回again, at the sound of a "drop", modify the 'relay mode' success, according to the return.		On the left side of the case diagram said 01 mode is set to the relay.
3. Delay regeneration setup and modify	1. In the condition of the query, query to 'delay regeneration when press 回 , digital start flashing, enter into the state of editing. 2. Press▼and▲modify 'delay regeneration opened or closed. 3. If turned off, press again, return to the query.	 	On the left side of the said case diagram is set to open delay regeneration, regeneration time is 12 :30 minutes After opening, at set time PM will not enter the regeneration, only over the set point may be renewable.

Item	operating steps	Display interface	
	4. If you choose to open, need to continue to set the delay the timing of the regeneration 00:00 - 23:59. 5. Set up complete press ↵, return query condition.		On the left side of the said case diagram is set to parallel interlock pattern, address 01.
4.SERIAL PORT SETTING & REVISING	:1. Pressing ↵"Interlock Setting" under inquiry status, the number starts to blink and inter editing status. 2. Pressing▼and▲ modifying the "serial port address" 0-255.: 3. Pressing↵, "serial port address" revising successful after alarm sound, the number after 9-1: starts to blink.: 4. Pressing▼and▲to modify "serial port speed" 0-3, stands for 19200, 38400, 57600, 115200.: 5. Pressing ↵, "serial port speed" modifying successful after alarm sound, the number after 9-2: starts to blink.: 6. Pressing▼and ▲ to modify "serial port verify " 0-3, stands for NONE, SPACE, ODD, EVEN.	 	LEFT PICTURE MEANS SERIAL PORT SETTING: ADDRESS 01, SPEED 19200, VERIFY MODE: NONE.

4.2、Flow parameter:

4.2.1、the factory default parameters

No	Function	Indication	Factory Settings	Parameter Setting Range	Explanation
1	Work flow		5.5 m3	0~999.9	Work station into the living water system
2	backwashing	and"2-"	10min	0~99:59	Backwashing time (minutes), accurate to seconds.
3	washing	and"3-"	10min	0~99:59	Are washing time (minutes), accurate to seconds
4	The current time	and"4-"	12 : 12	0~23 : 59	When leaving the factory, generally have put the battery built-in, would have been flashing "12:12" when, need to reset the current time.
5	Maximum time interval	"5-"	99	0~99	In the work station after stay longer than the set time, will be forced into regeneration.
6	m	6-	0	0~99	Repeated washig times of wash and backwash.
7	Relay Mode	7-	1	0/1	Mode-00: The signal opens when the program starts to leave " WORKING" station, closes when the signal reach " WORKING" station. Mode-01: The signal opens when the motor starts turning, and close when it reaches position.
8	Delayed regeneration	8-	0	0/1 0~23:59	The default delay closed regeneration. If open, said can't enter the regeneration before this point in time.
9	SERIAL PORT SETTING	9-	1/0/0	0~255/0 ~3/0~3	ADDRESS 01, SPEED 19200, VERIFY MODE: NONE.

4.2.2、Operation interface display:

Item	Display	
1working station operation interface display		To work station for example, on the left side of the three images will switch in turn, to show the current working status; On the left side of the case diagram, said: Work flow remaining: 126.8 cubic meters; The current water speed: 0.89 m3 / h The current time at 10:30 Work station said it was in the water.
2.The backwashing station running interface display		With the backwashing location, for example, on the left side of the two images will switch in turn, to show the current working status; On the left side of the case diagram, said: The remaining backwashing time: 11 minutes and 22 seconds The current time at 10:30 Backwashing location represent the backwashing water filter material.
3.Wash station running interface display		Wash station for example, is to be on the left side of the two images will switch in turn, to show the current working status; On the left side of the case diagram, said:

4. Stop station running interface display		The current time at 11:30 Stop location to suspend, all running state only before you press the ESC key to return to the location and status.

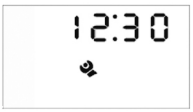
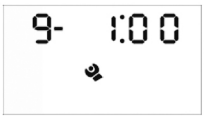
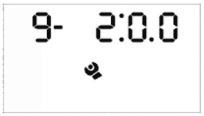
4.2.3、General parameter setting:

Project	operating steps	Display interface	
1. The work flow setting and modification	1. In the condition of the query, query to 'work flow when press 回 , digital start flashing, enter into the state of editing. 2. Press▼and▲ modifying the flow. 3.Press回again, modify the traffic success, return the query ondition.		On the left side of the case diagram said set of work flow of 100.0 m3.
2. Backwashing time setting and modification	1. In the condition of the query, query to 'backwashing time when press回, digital start flashing, enter into the state of editing. 2. Press ▼and ▲ modification time. 3. Press 回 again, at the sound of a "drop", modify the 'backwashing time' success, return the query condition.		On the left side of the said case diagram sets the backwashing time is 15 minutes
3. Wash time setting and modification	With 'backwashing time Settings		On the left side of the case diagram said set is wash to 12 minutes

Project	operating steps	Display interface	
4. The current time setting and modification	1. Press enter a state of the query, and lights up at the same time. 2. Press again, the state of current time Settings, hour value flashing, according to the values ▼and ▲ modify the hours; 3. Then press , minutes, according to the values ▼ and ▲ modify the minutes; 4. Press again, at the sound of a "drop", modify the "current time" success. according to the return.		The left side of the picture shows that the current time is 12:12
5.Maximum regeneration interval	1. In the condition of the query, the query to the press , "the biggest regeneration interval" numerical start flashing, enter into the state of editing. 2. Press▼and▲modify the value. 3. Press again, change the "largest regeneration interval" success, according to the return. Note: the right side of the case diagram set 12 days without regeneration, is a compulsory regeneration		On the left side of the case diagram said set the maximum time interval for 12 days. Said if the duration of the work station system water more than 12 days, will

4.2.4SPECIAL PARAMETER SETTING

Project	operating steps	Display interface	
1.Loop m setting and modification	1. In the condition of the query, query to m when press , m value began to flicker, enter into the state of editing. 2. Press ▼ and ▲modify m value. 3. Press again, at the sound of a "drop", modify m success, according to the return.		On the left side of the case diagram said set 1 m for circulation

Project	operating steps	Display interface	
2. Relay mode setting and modification	1. In the condition of the query, query to 'relay mode when press, digital start flashing, enter into the state of editing. 2. Press ▼and ▲ modify 'relay mode. 3. Press again, at the sound of a "drop", modify the 'relay mode' success, according to the return.		On the left side of the case diagram said 01 mode is set to the relay.
3. Delay regeneration setup and modify	1. In the condition of the query, query to delay regeneration when press , digital start flashing, enter into the state of editing. 2. Press ▼and ▲modify 'delay regeneration opened or closed. 3. If turned off, press again, return to the query. 4. If you choose to open, need to continue to set the delay the timing of the regeneration 00:00 - 23:59. 5. Set up complete press , return query condition.	 	On the left side of the said case diagram is set to open delay regeneration, regeneration time is 12 :30 minutes After opening, at set time PM will not enter the regeneration, only over the set point may be renewable.On the left side of the said case diagram is set to parallel interlock pattern, address 01.
4.SERIAL PORT SETTING & REVISING	1. Pressing "Interlock Setting" under inquiry status, the number starts to blink and inter editing status. 2. Pressing and modifying the "serial port address" 0-255.: 3. Pressing "serial port address " modifying successful after alarm sound, the number after 9-1: starts to blink.: 4. Pressing▼and▲to modify "serial port speed" 0-3, stands for 19200, 38400, 57600, 115200. 5. Pressing , "serial port speed" modifying successful after alarm sound, the number after 9-2: starts to blink. 6. Pressing▼and▲to modify " serial port verify" 0-3, stands for NONE, SPACE, ODD, EVEN.	  	LEFT PICTURE MEANS SERIAL PORT SETTING: ADDRESS 01, SPEED 19200, VERIFY MODE: NONE.

5.1 When there is a system failure, the display shows fault code, such as "- E1 -". See <Common Failures & Elimination Method> for details.

5.2 Power Failure (Power Down) Protection Parameters & Prompt

When the power failure exceeds 3 days, the build-in battery may be completely discharged. After electrifying, the clock data "12:12" will continue to flash. Need to reset the current time. The other parameters set can be preserved for a long-term after power failure, and not need to be reset. The program will continue after electrifying. Saved time accurate to around 1 second.

5.3 Keyboard Locking Function

The keyboard will be locked automatically if no button operation within one minute. Press "▼" and "▲" at the same time for five seconds, the keyboard will be unlocked. This function can effectively prevent wrong operation.

5.4 Interlock Function

In the interlocking system of multi-valve series, parallel or series-parallel (for example in the reverse osmosis pretreatment system), can realize only one valve in the regeneration and ensure the normal operation in the regeneration process.

The differences between series interlocking and parallel interlocking:

1)The wire for series interlocking is attached with the valve, and is around 2 meters long;

The wire for parallel is twisted-pair cable, and should be prepared by user itself. According to the ambient conditions, the length can reach around 100 meters. Recommend to use wire cable with shield layer to get better effect.

2)Series interlocking should plug wire according to series method, plug A into port B and plug B into port A;

Parallel interlocking needs unified port, which means all port A connected to one wire, and all port B connected to one wire; Detailed installation refer to the following diagram.

3)Series interlocking doesn't need to set the local address, and just need to set as series interlocking mode; After setting as parallel interlocking mode, parallel interlocking needs to continue to set the local address. Parallel interlocking needs all valves connected have different address, and have one and only one address of 0.

4)The operation of series interlocking is simple, but can only interlock between valves; Parallel interlocking can transfer to long distance, and can connect with PC and PLC to conduct remote control.

6、SPECIAL FUNCTIONS

6.1 、STOP STATION

The valve will turn to "STOP" station automatically while the "L" and "L1" connecting with 6.2—remote control box equal or more than 5 seconds; The valve will go back from the "STOP" station to the previous station after "L" and "L1" separating equal or more than 5 seconds.

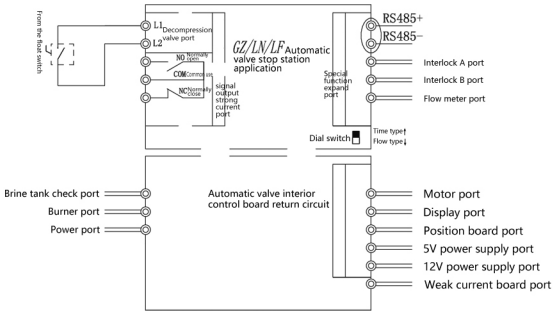


CHART 1

The on/off of the water level control valve controlling the on/off of the pump in the meanwhile (Top/Side mount in common). As chart 1 shows.

6.2 REMOTE CONTROL BOX

Connecting with the remote control box through 485 communication mode, you can check all the parameters of the valve and set the parameter if need to totally control the valve, and on the valve only display the data but cannot operate in the meanwhile.

After cutting off the 485 communication, user can control the valve again through the buttons and display on the valve. As chart 2.

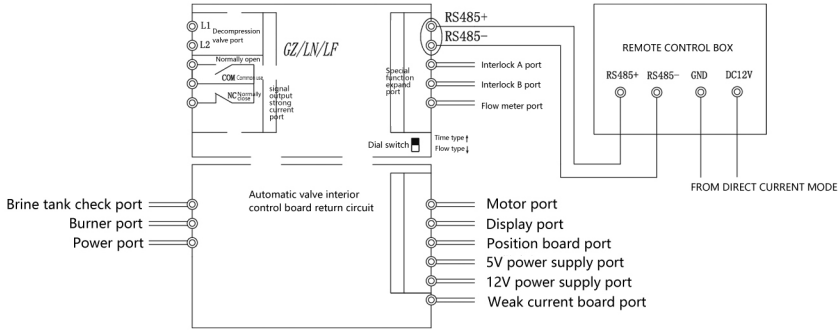
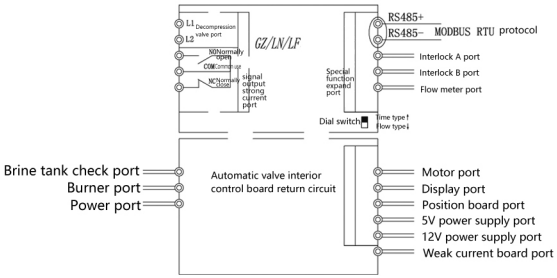


CHART 2

6.3、Remote control port（485）



Automatic valve 485 port connects PLC, PC to communicate through MODBUS RTU communicating technical, realizing the RS485 communication through the communicating port of PLC, PC. It can communicate through MODBUS-RTU or MODBUS ASCⅡ standard agreement, also can do the user-defined free communication through the communicating port.

The communication between PLC and automatic valve needs to manual set the baud rate, address code and parity check bit, etc on the automatic valve board, and while programming the PLC communication, the communication instructions of PLC should be same as all the parameters of the automatic valve. Through shielding the twisted-pair or specified data communicating line to realize the remote communication. The communicating distance refers to the requirement of 485 communication protocol, if need to exceed the communicating distance, additional repeater, wireless or optical fiber communication equipment are needed.

PLC remote control the automatic valve to do the marching type job through specified communication instruction, the jobs include automatic working mode and user-defined working mode which need to set on the automatic valve.

Automatic working mode: After the PLC sends the start control signal, the automatic valve will start to work according to the settled working steps and mode, every time the valve goes to next station, the time remaining to next station or the working flow or hardness and pressure, the automatic valve will pass back all the information to PLC to realize the remote control purpose. PLC control and check the real-time and realness of the information from automatic valve.

User-defined working mode: Under this mode, all the parameters including data, flow time and hardness, etc which need to be set are opened to the user, user can set any working program on the PLC according to his requirement, the automatic valve now turns to a executor of the PLC' s control instructions.

7.SIGNAL OUTPUT & CONTROL FUNCTION

7.1CONTROL SIGNAL OUTPUT

Our valve has signal output port, which can be used to control the outer circuit, and there are 2 kinds of output control mode.

Mode-00: The signal opens when the program starts to leave "WORK-ING" station, closes when the signal reach "WORKING" station.

Mode-01: The signal opens when the motor starts turning, and close when it reaches position.

7.2REMOTE CONTROL

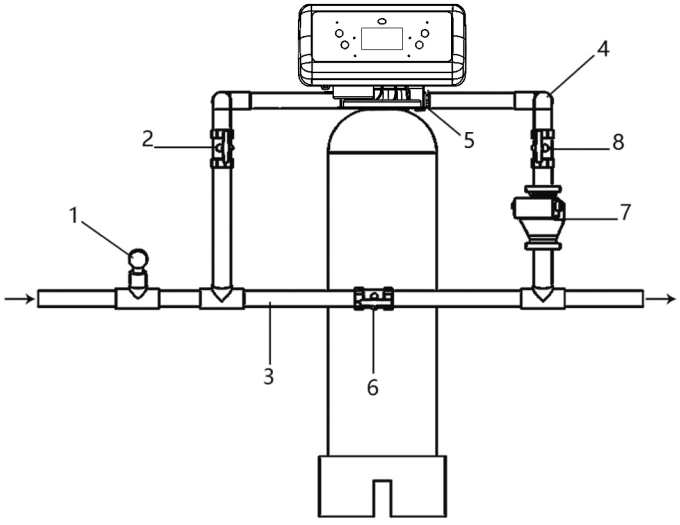
The port receives active signals, matching with PLC, computers, in order to remote control the valve, meantime it is parallel interlocking port.

7.3PORT WITH RELIEF VALVE

In the process of switching station, the signal turns on, the signal will turn off after reaching the station (equivalent to the signal output port -02). The system is mainly used for water supply system using pressure pump, while motor switching, to relieve pressure between the water inlet pipe and control valve, and to ensure the safe operation of the pump and control valve during the switching process.

8.PIPELINE INSTALLATION AND WATERWAY TEST RUN

The control valve install on the tank, connect the corresponding pipe fittings. Switching on power supply, after setting the response time parameters of control valve, close the valve B and C, open the bypass valve A, rinse the impurities in the pipeline, then close the bypass valve and open the valve B and valve C. (As picture 3 showed)



1.PRESSURE GAGE

2.VALVE C

3.PIPELINE

4.ELBOW

5.LOOSE JOINT

6.VALVE A

7.CHECK VALVE

8.VALVE B

The flow type automatic valve need to use adaptive flow meter

picture 3

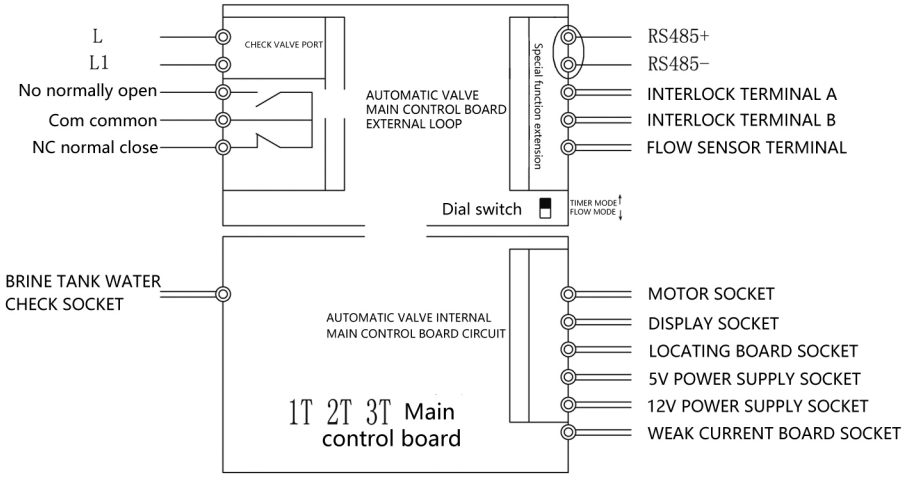
ATTENTION WHILE INSTALLATION:

The medium inside the tank will lost if the water inlet too quick, you can hear the sound of air exhaust from the outlet pipe while the water goes in slowly. Operating as step B to exhaust the air inside the filter material after change it. Checking the water outlet situation in every station and the filter material must not lost while test run.
The duration of "BACKWASH" and "FAST RINSE" should operate under the system equipment supplier' s suggestion.

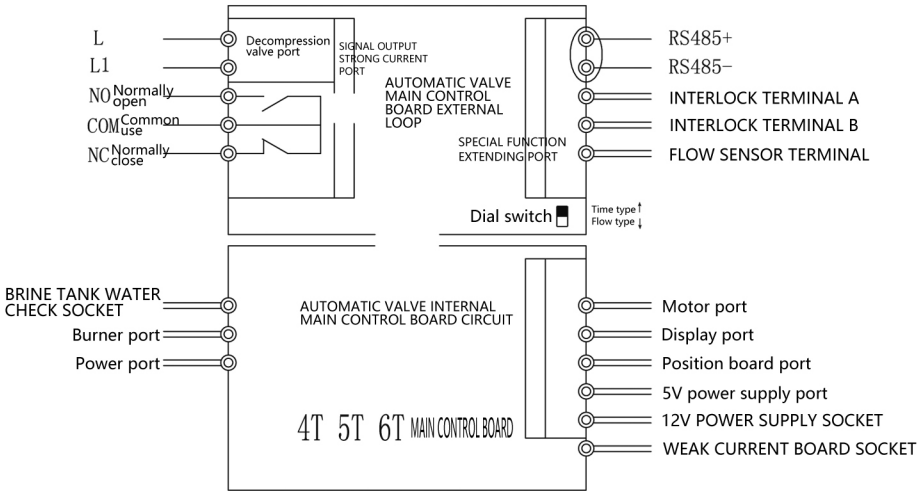
9.TEST RUN WITH POWER ON

Switching the valve station to inlet the water into the tank, now you can hear the sound of air exhaust from the water outlet. After the air exhaust totally, full open the inlet valve B to clean up the impurity, then fully drain the waste water until the outlet water is clean, around 8-10 minutes.
Press button to end the backwash, switch the control valve into fast rinse station, signal light up, rinse for 10-15 minutes then test the outlet water, press after up to standard to finish the fast rinse. Then the control valve will go to work station, light up, start to produce water. Instruction: after step to wash process, the system can finish automatically in settled time. If you need to finish one of the wash process ahead of time, just press button.

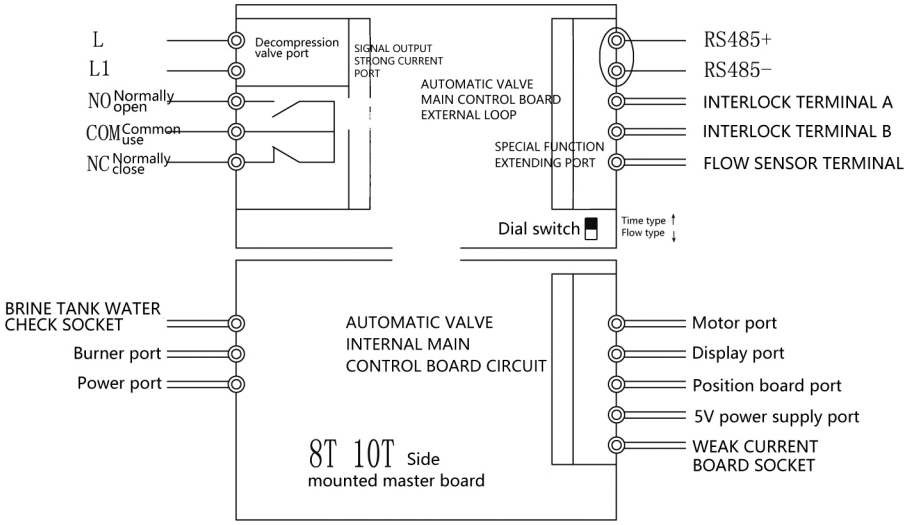
10、CONTROL CIRCUIT FUNCTION AND CONNECTION



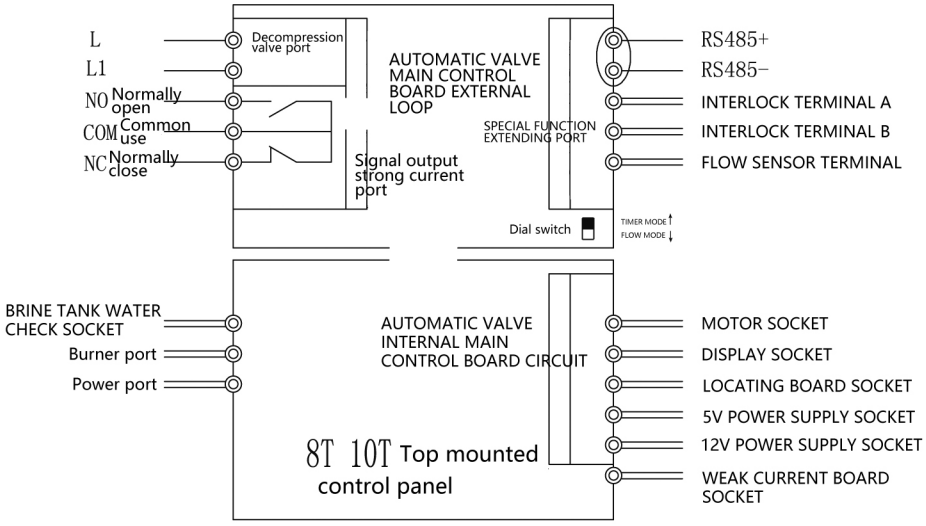
1T 2T 3T Main control board



4T 5T 6T MAIN CONTROL BOARD



8T 10T Side mounted master board



8T 10T Top mounted control panel

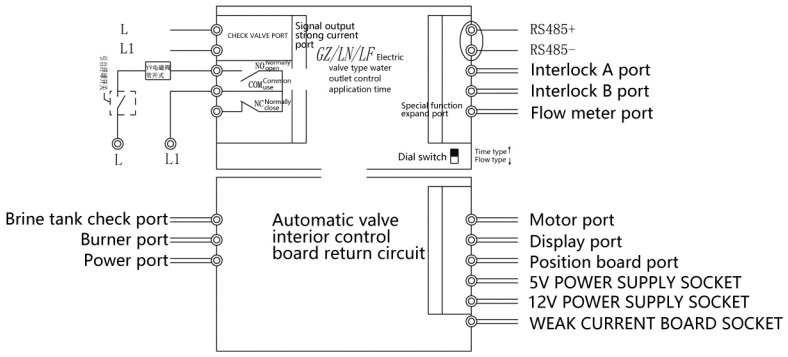
A Signal output port

1) To control the solenoid valve in the outlet

Function	Application	Specification
Signal output port-01	To control the solenoid valve in the outlet	To ensure raw not flow out out or to control the water level in the tank
	To control the inlet pump	To increase pressure during regeneration or fast rinse, by using storage tank level controller, to control pump and ensure there is water in the tank.

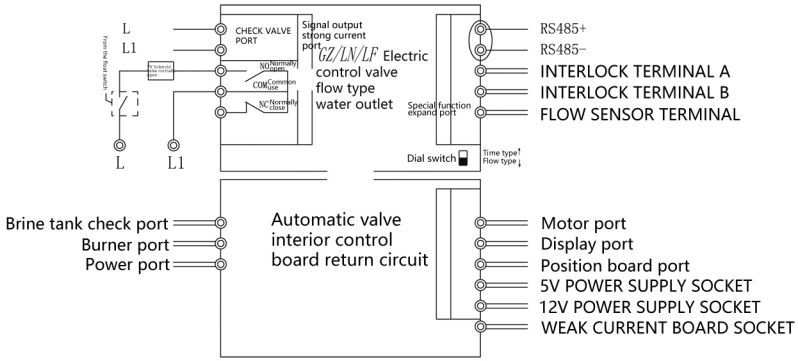
1. Through outlet solenoid valve to control the fluid level in the tank(setting number -00)
This function is applied to GZ valves, and other valves with stop station
Instructions:

Time type



picture 4

Flow type



picture 5

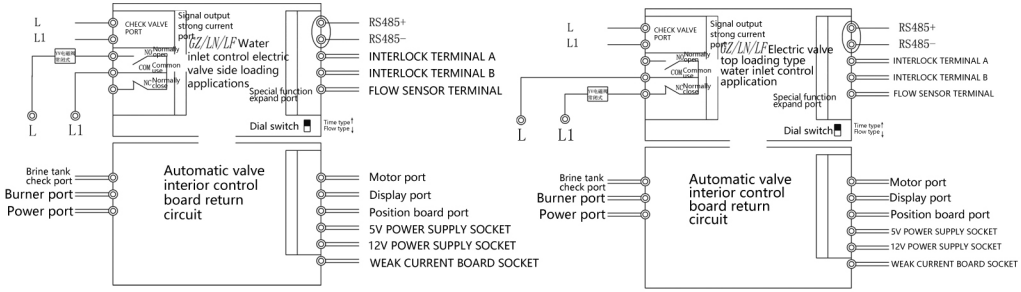
Function specification:

when the valve is on working station, if the water level in the tank is too low, the solenoid valve will be powered and started, and then refilling water into the tank; if the water lever in the tank arrive at the high level, the solenoid valve will be powered off and stopped, then water refilling into the tank will also be stopped.

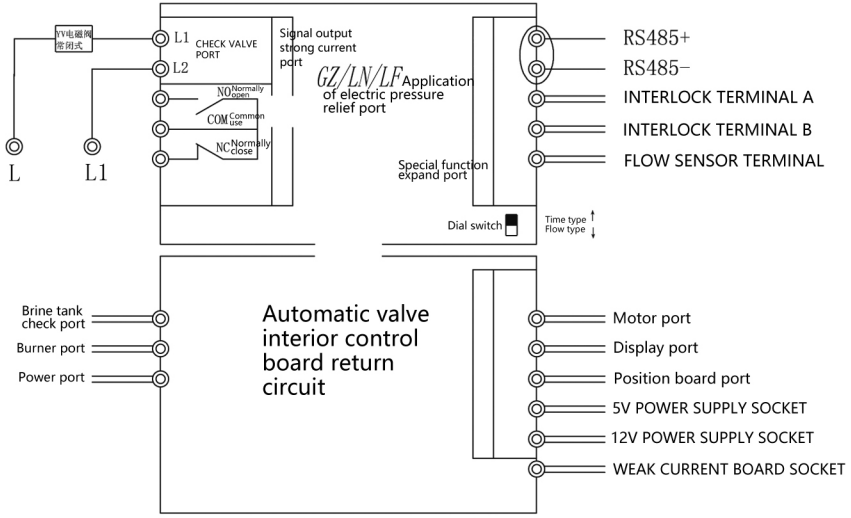
When the valve is on wash station like backwash, the outlet signal of the multi-port valve will be cut off and the solenoid valve will be powered off and stopped. The water will be stopped, raw water without purification will not be refilled into the tank.

2. To control the inlet solenoid valve (setting number-01)

When the inlet water pressure is bigger than 0.6MPa, series connecting the solenoid valve in the inlet port. The output control mode sets to 01. Stopping the solenoid valve while the control process changing. Also can using the pressure relief port to relief the pressure, paralleling the solenoid valve in the inlet port bypass channel as Picture 6 shows.



picture 6

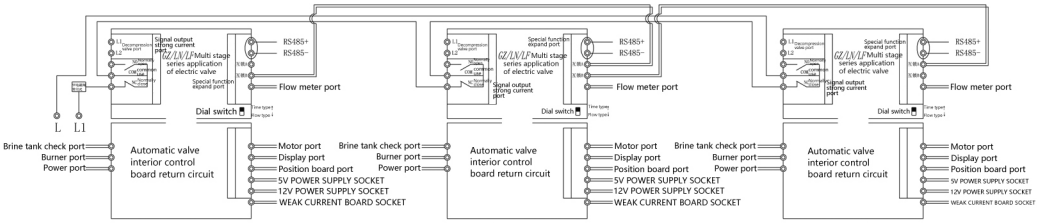


picture 7

While the inlet water pressure is high, installing solenoid valve in the water inlet port to ensure the normal stations switching. While the multiport valve is on “Service”,” Backwash”,” Fast rinse” stations and power on, the system work properly. While the multiport valve is switching the stations, solenoid valve power off and cutting off the water inlet port, the multiport valve will switch the stations under non-pressure condition. This method can solve the mixed flow and water hammer situation while the multiport valve switching the stations.

Through connecting the interlock line to realize the multi grades series, using in reverse osmosis pretreatment or second level sodium.

The wire connection as following picture shows.

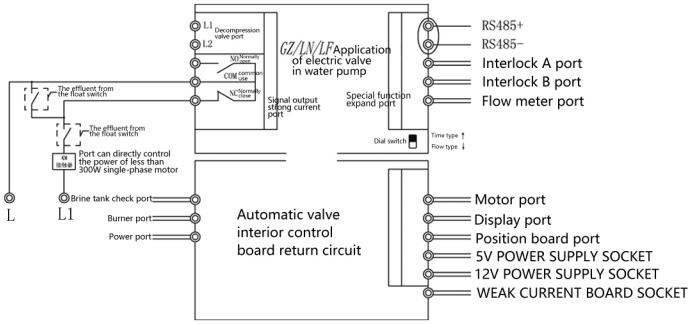


picture8

2.Controlling the water pump through the liquid level switch in the water tank (two phase motor) (setting to -00)

Warning: The terminal can only load the electric power no bigger than 300W.

Application Specification: For the systems which supplying water from underground water or middle water tank, can control the on/off of the water pump through the liquid level switch and control valve. The connection as Picture 9 shows.



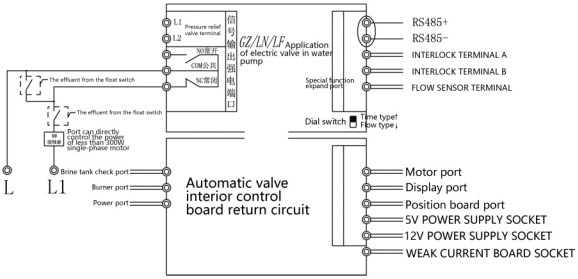
picture9

While the multiport valve is under “Service” station, start the water pump if the water level of tank is low. If the water level in the tank rise to high level, the liquid level switch off, and the water pump power off, stop working.

While the multiport valve is under the regeneration stations such as “Backwash”, the water pump will keep on power on to guarantee the inlet water supplying while flushing. In the mean time, even there is no water supply while flushing, there is no water refilling into the water tank also.

The liquid on/off in the well mouth(or middle water tank in the RO), can protect the water pump from broken because the lack of raw water.

3.Controlling the inlet water pump through the liquid level switch (three phase electric machine) (setting to -00)

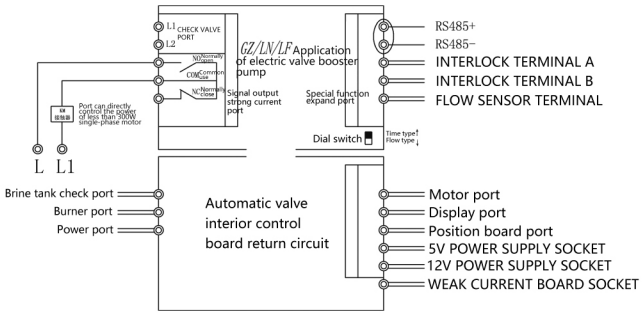


picture 10

This application of the principle is same as the two phase electric ma
chine, only changing the single phase machine to three phase machine through one A.C. Contractor as picture 10 shows.

4.Controlling the inlet port boost pump (Setting to -00)

Application Specification: When the inlet water pressure is smaller than 0.15MPa, cannot do good backwash or brine absorption, need to connect boost pump from inlet port. The output control mode sets to -01. Connecting the control circuit to start the boost pump while regeneration, the A.C. Contractor is indispensably while the boost pump current is bigger than 5A, as picture 11 shows.

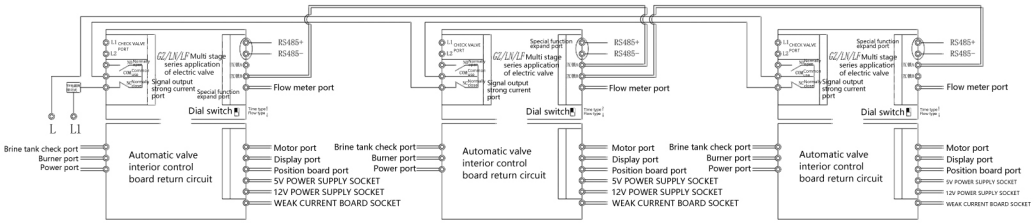


picture 11

B. Interlock

Using in parallel water outlet system to realize there is only one valve can do the regeneration or flush in the same time, to guarantee (n-1) team water supplying, to realize regeneration while supplying the water.

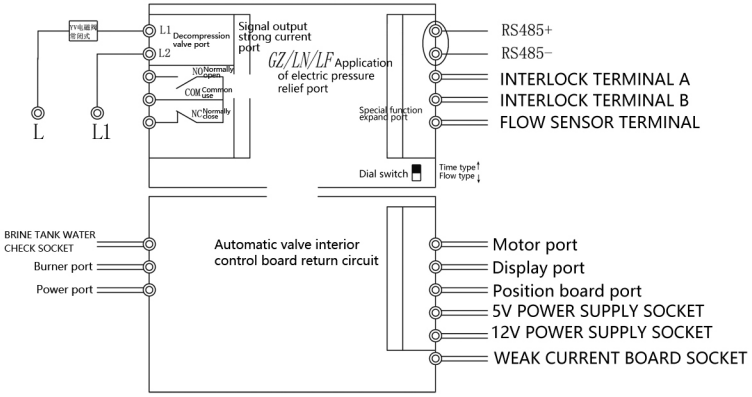
Using in series water supply (reverse osmosis pretreatment or second level sodium) system, to realize there is only one valve can do the regeneration or flush in the same time, to guarantee that the system supplying water in every grade regeneration or flush. The wire connection mode as following picture shows.



C. Pressure relief port

While the valve is switching, may result in the pressure on multiport valve too big for motor to drive. Through adding solenoid valve in the water inlet pipeline and connecting with outlet port, while the valve switching, pressure relief solenoid valve is on, system start to supply water to the drain port, to prevent the system off and inlet pressure jumped sharply to break the valve. The wire connection as picture shows.

PLC send controlling command.



picture 12

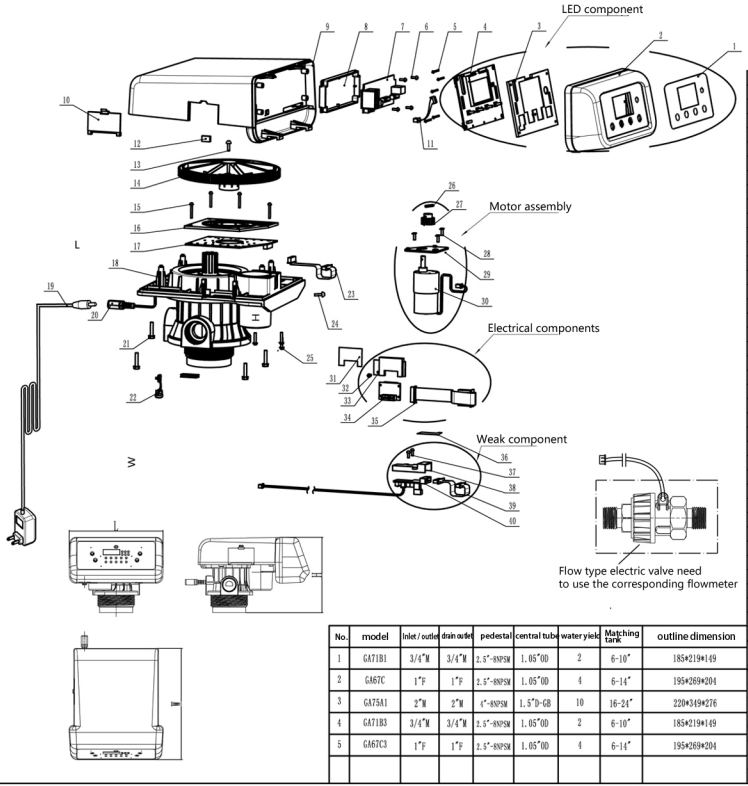
5、Common Failures & Elimination Method

A.Control Valve Parts

Problem	Reason	Solution
1. The filter does not do backwashing	A. The power supply of the device is interrupted. B. Backwashing time setting is not correct. C. The control valve is damaged.	A. Check whether the power supply (fuse, plug, switch, etc.) is normal. B. Reset time. C. Check or replace the controller.
2. The filter transports raw water.	A. Bypass ball valve is opened. B. The center pipe is leaking. C. Internal leakage of the valve body.	A. Close the bypass ball valve. B. Ensure that the center pipe and O-ring was not broken. Check, repair or replace the valve body.
3. The water pressure loss	A. Impurity accumulation in the pipe leading to the filter. B. Impurity accumulation in the filter.	A. Clean the filter pipe. Clean the control valve, add cleaning agent to the filter material, and increase the backwashing frequency.
4. The filter material is discharged through the drain.	A. There is air in the system. B. The backwashing intensity is too strong. C. The water distributor is damaged.	A. Ensure the air exhaust control in the system is normal. B. Reduce the backwashing intensity. C. Replace the water distributor.
5. The control valve keeps continuous circulations.	A. The connection of the positioning circuit is disconnected. B. The controller’ s failure. C. The gear got stuck by a foreign body.	A. Reconnect the signal lines. B. Replace the controller. C. Remove the foreign body.
6. Continuous drainage at the outfall.	A. Internal leakage in the valve body. B. Power down during backwashing or washing.	A. Check, repair or replace the valve body. B. Close the bypass valve, and open it when the power supply is normal.

B、Controller Parts

Error Display	Reason	Solution
E1	Motor turns a timeout for 1 minute.	Replace Hall positioning board.
E2	Damage of clock chip on the main control board.	Replace main control board.
E3	Exceed the allowable deadline for use, stop working.	Reset the deadline for use.
E4	Damage of memory chip for power-fail on the main control board.	Replace main control board.
E5	The number of the arrived working positions >1.	Replace Hall positioning board or small magnet.



No.	code name	name	Qty	material			remarks
40	27013044	Weak plate	1				
39	16016012	Weak color cable	1				
38	14001464	Weak plate protective shell	1				
37	13001025	Cross recessed pan head tapping screws	2	M3*13			
36	16004093	Strong English label silver plate	1				
35	16016009	Electric connecting line	1				
34	27013030	Strong panels	1				
33	14001394	Electrical protection box	1				
32	13001020	round head tapping screw	1	M3*10			
31	16004094	Strong English label silver plate	1				
30	16013001	electrical machinery	1				
29	27007002	Motor fixing plate	1				
28	13001023	Electric valve motor plate fixing screw	3	M3*5			
27	14004010	Electric valve gear	1				
26	13001022	Motor gear pin	1	M2.5*12			
25	13001024	Electric valve motor fixing screw	3	M4*20			
24	13001038	locking screw	1	M3*30			
23	16016011	Cable positioning plate	1				
22	16016005	The power line card buckle	1				
21	13001024	Bottom fixing screw	4				
20	16016029	Power cord	1	L=440mm			
19	16004004	power pack	1				
18	12013027	Electric valve body	1	GA67C(FRX)			
17	27013046	Filter positioning plate	1				
16	14001468	Locating plate protective shell	1				
15	13001039	screw	4	M3*10			
14	14004011	big gear wheel	1				
13	13001006	screw	1	ST2.9*16			
12	16017001	Electric valve gear positioning magnet	1	12*7*3			
11	16016018	Display panel cable	1				
10	14001452	Strong cover	1				
9	14001467	Electric valve rear shell	1				
8	14001396	Electric valve main control board protection box	1				
7	27013041	main control panel	1				
6	13001045	screw	4	M3*8			
5	13001020	screw	5	M3*10			
4	27013048	display board	1				
3	14001447	Display panel housing	1	4-10T LEDW			
2	14001466	Display front shell	1				
1	16004130	Display plate film	1				

No.	model	Inlet / outlet	drain outlet	pedestal	central tube	water yield	Matching tank	outline dimension
1	GA71B1	3/4"M	3/4"M	2.5"-8NPSM	1.05"OD	2	6-10"	185*219*149
2	GA67C	1"F	1"F	2.5"-8NPSM	1.05"OD	4	6-14"	195*269*204
3	GA75A1	2"M	2"M	4"-8NPSM	1.5"D-GB	10	16-24"	220*349*276
4	GA71B3	3/4"M	3/4"M	2.5"-8NPSM	1.05"OD	2	6-10"	185*219*149
5	GA67C3	1"F	1"F	2.5"-8NPSM	1.05"OD	4	6-14"	195*269*204

2T/H 4T/H 10T/H Electric filter valve structure

7、Warranty

Dear users:

This warranty card is the warranty certificate for the multi-channel control valve, and shall be kept by the users yourselves. With this card you will enjoy the product maintenance services for you provided by the supplier . Please keep it well, if lost it will not be reissued. All of the following situations will not enjoy the free warranty:

1. Exceed the validity of the warranty (1 year);
2. Damage caused due to use, maintenance and storage not according to the requirements of the product' s specification;
3. Damage caused due to the repair or disassembly yourself, but not by the specified maintenance provider.
4. The content of the warranty certificate does not accord with the mark of the product, or the content is altered;
5. The damage caused due to force majeure natural factors.

Name of mmodity	Multi-channel Control Valve for Water Treatment System				
Product Model			Valve Body No.		
Buyer			Telephone/ Mobile Phone		
Fault State					
Fault Handling Result					
Maintenance Date		Inspection Date		Maintenance Signatures	

If the control valve needs to be returned for repair, please contact with your supplier to consult the relevant matters. After receiving the certain answer, accurately, truly and completely fill in the contents of the table. Send the table along with the control valve to be repaired to your supplier or Company for repair.

User	Telephone/Mobile Phone		
Buyer	Telephone/Mobile Phone		
Product Model:	Valve Body No.:		
Equipped Tank Size Φ x	Filter Material Loaded Kg	Water Supply: Groundwater □ Tap Water □	
Running D or h	Backwashing Time min	Washing Time min	
Fault Description			