

DFQA5000 Reserve Manual Controller

Operating Instruction

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Operation Instruction

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1. Application

- DFQA5000 reserve manual controller is used in series of control output channel of the DCS or PLC or PID controller, to realize the no disturbance change between DCS or PLC or PID controller's auto control and DFQA5000 manual control.
- DFQA5000 has two AI inputs. The IN1 is valve position command signal input that comes from the PID control output. The IN2 is the actual valve position feedback input.
- DFQA5000 has two AO outputs. The OUT1 is the valve position command output. The OUT2 is the valve position feedback output.
- DFQA5000 has four DI inputs. The DI1 is force manual control input, that is usually connected to the fail state output of the former PLC or DCS or PID controller. The DI2 is remote manual control input. The DI3 is remote manual open valve command input. The DI4 is remote manual close valve command input. The DI3 and DI4 are effective only as the DI1 or DI2 is effective.
- DFQA5000 has one DO output. That is DFQA5000 manual control mode output.
- DFQA5000 has a RS485 communication port. It can communicate with the upper computer.
- When DFQA5000 works in auto control mode, Its OUT1 is equal to the IN1 in percent ratio.
- When DFQA5000 works in manual control mode, Its OUT1 is not equal to the IN1, but it is setting by panel keys “Δ” and “▽”.
- The OUT2 is always equal to the IN2 whether in auto control mode or in manual control mode.

2. Technique Features

Environment condition: temperature 0~50℃ relative humidity ≤90%

Power supply: 80VAC~260VAC, 50Hz ~60Hz, Power consumption: 4~10W

Accuracy: 0.5%FS+1 digital, Resolution: 1 digital

Outline dimension: 80×160×150mm 160×80×150mm 96×96×112mm

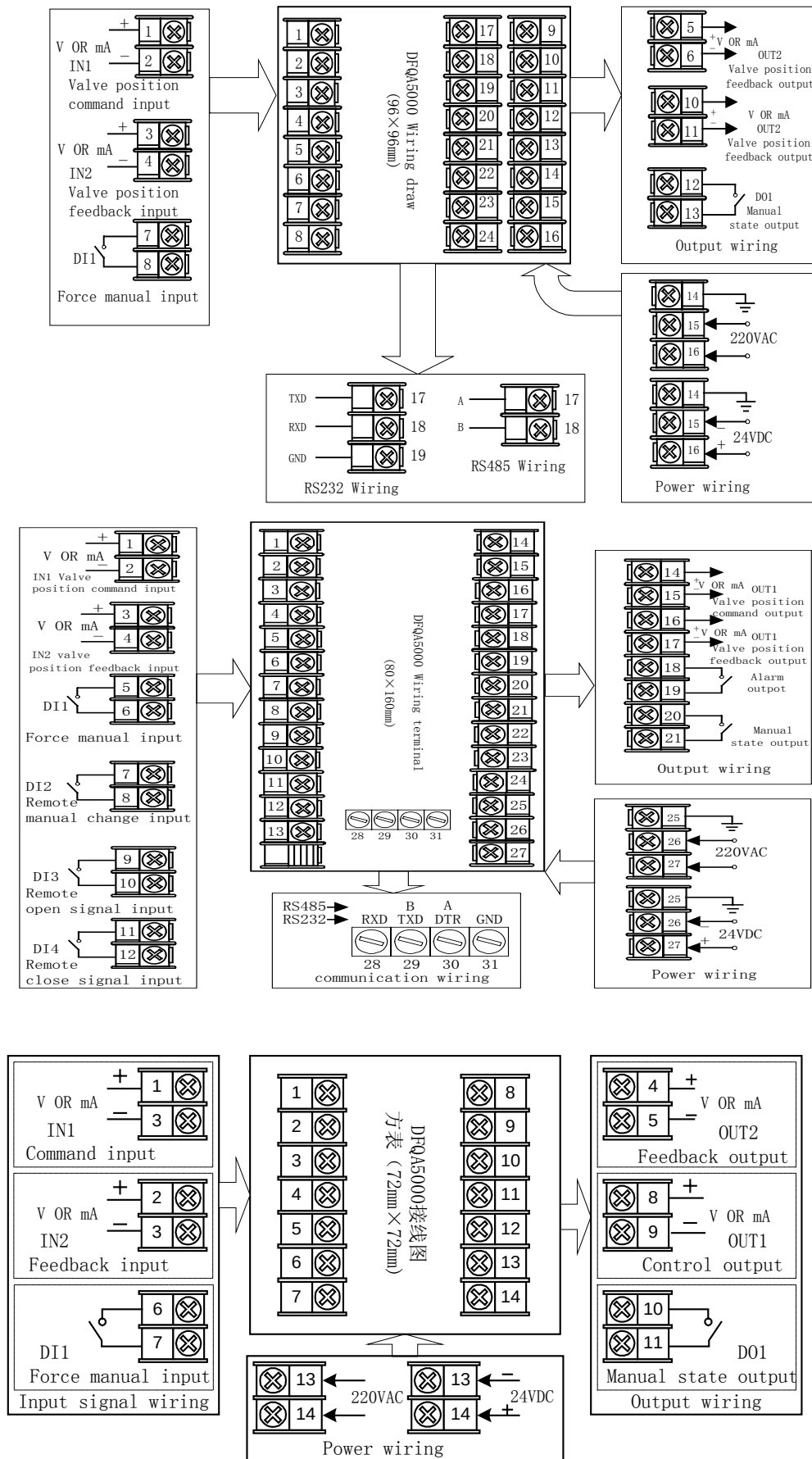
Panel cut-out dimension: 152^{+1.00}×76^{+0.74}mm 92^{+1.00}×92^{+1.00}mm

Weights: about 0.5Kg, structure: plug in

3. Ordering number

Ordering number				Explain
DFQA				Intelligent reserve manual controller
Series	5			Electrical transformer power supply
Valve position command signal input		5		Suitable for DC 0~10mA signal input
		6		Suitable for DC 4~20mA signal input
		7		Suitable for DC 0~5V signal input
		8		Suitable for DC 1~5V signal input
Valve position command signal output		5		0~10mA Control output
		6		4~20mA Control output
		7		0~5V Control output
		8		1~5V Control output
Actual valve position signal input		5		Suitable for DC 0~10mA signal input
		6		Suitable for DC 4~20mA signal input
		7		Suitable for DC 0~5V signal input
		8		Suitable for DC 1~5V signal input
Actual valve position signal output		5		0~10mA Transmitter output
		6		4~20mA Transmitter output
		7		0~5V Transmitter output
		8		1~5V Transmitter output
Outline type		V		80×160×150mm Upright type
		F		96×96×112mm Square type
		GV		80×160×150mm LED bar upright type
Power supply				AC220V
		D		DC24V
Communication port				Without communication port
		RS232		With RS232 isolation port
		RS485		With RS485 isolation port

4. Wiring terminal



Note: If there are difference between the operation instruction and case back wiring, the case back wiring is the right.

5. Panel message



Outline: 80×160×150mm

80×160×150mm

96×96×110mm

72×72×110mm

Panel cutoff: $76^{+0.74} \times 152^{+1.00}$ mm

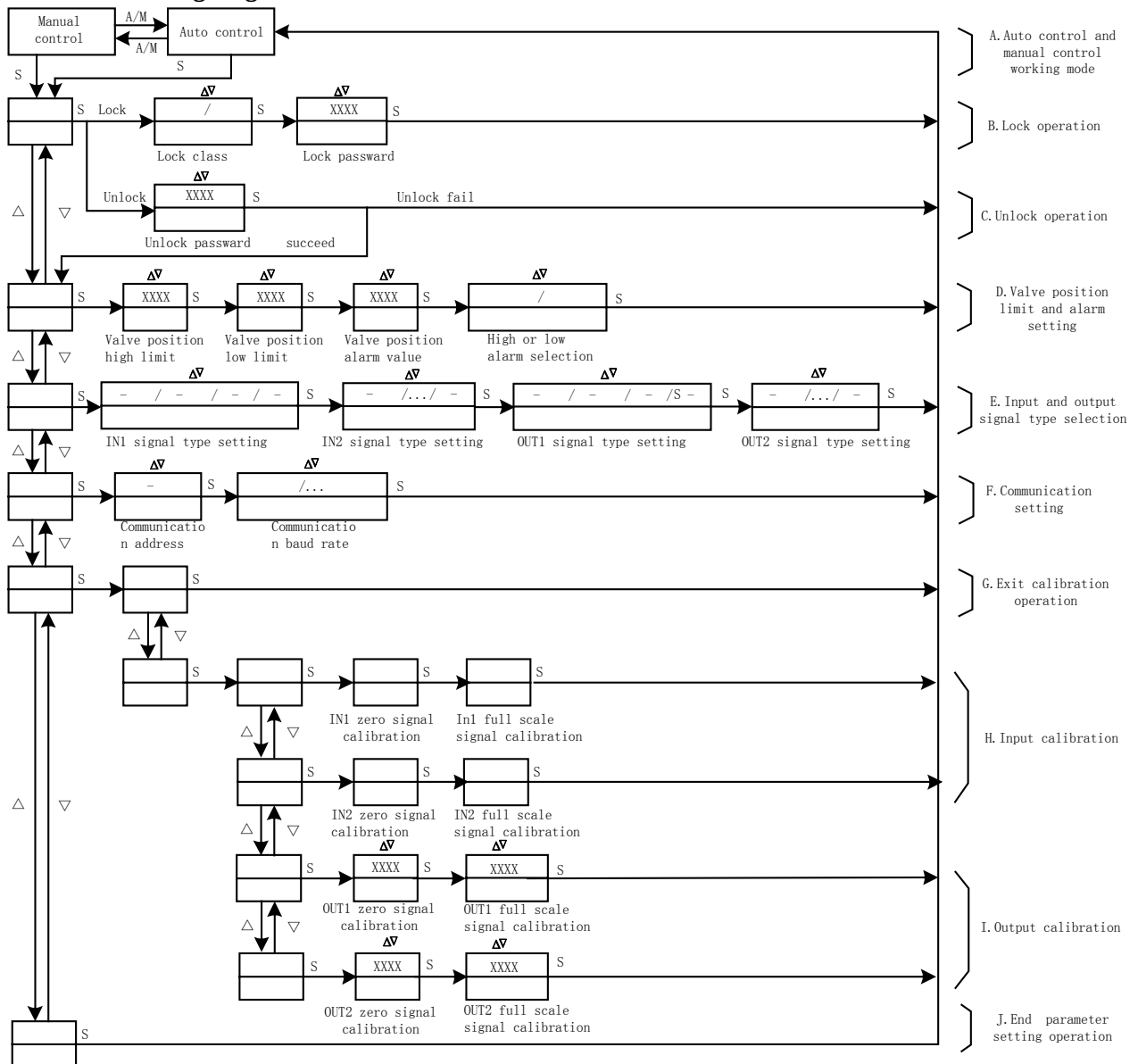
$76^{+0.74} \times 152^{+1.00}$ mm

$92^{+0.87} \times 92^{+0.87}$ mm

$68^{+0.74} \times 68^{+1.00}$ mm

Name		Contents
Display	Up display	● In auto control mode, it indicates the valve position command output value ● In manual control mode, it indicates the valve position command output value ● In initial state, it indicates (DFQA) ● In parameter setting mode, it indicates parameter name or value ● It indicates , if IN1 or IN2 input line is break out
	SV bar graph	● It indicates the valve position command output value.
	Lower display	● In auto control mode, it indicates the actual valve position feedback value ● In manual control mode, it indicates the actual valve position feedback value ● In initial state, it indicates ● In parameter setting mode it indicates or parameter name ● It indicate if IN2 input line is break out
	MV bar graph	● It indicate actual valve position feedback value
Operation		● In manual control mode, press it will close the valve ● In parameter setting mode, press it will decrease the parameter valve
		● In working mode, press it will enter the parameter setting mode ● In parameter setting mode, press it to confirm the setting value
		● In manual control mode, press it will open the valve ● In parameter setting mode, press it will increase the parameter valve
		● Press it will change the working mode between auto and manual control e
LED lamp	MAN	● In manual control mode, it lights
	ALARM	● If the valve position alarm is active, it lights

6. Parameter setting diagram



7. Parameter setting menu explain

A. Auto control and manual control

- Press key A/M can change between auto control mode and manual control mode
Manual control mode: A/M LED=light Auto control mode: A/M LED=no light
- In manual control mode, press key Δ or ∇ can change the control output OUT1.

B. Menu lock operation C. Menu unlock operation

Menu and operation	Factory setting	Parameter explain
● Entry of the lock menu group ● Press key SET to confirm ● Press key Δ、∇ to exit		Entry of the lock menu group
/ / ● Lock class setting ● Press key Δ、∇ to modify ● Press key SET to confirm		: Lock all menu : lock all menu besides SP/ / P : Lock calibration menu only
● Lock password setting ● Press key Δ、∇ to modify ● Press key SET to confirm		Lock password setting Note: "00" is invalid password
● Unlock password setting ● Press key Δ、∇ to modify ● Press key SET to confirm		Unlock password setting

D. Valve position limit, alarm setting

Menu and operation	Factory setting	Parameter explain
● Entry of the Valve position limit and alarm menu group ● Press key SET to confirm ● Press key Δ、∇ to exit		Entry of the Valve position limit and alarm menu group
XXXX ● Valve position high limit setting ● Press key Δ、∇ to modify ● Press key SET to confirm		Valve position high limit setting
XXXX ● Valve position low limit setting ● Press key Δ、∇ to modify ● Press key SET to confirm		Valve position low limit setting
XXXX ● Valve position alarm setting ● Press key Δ、∇ to modify ● Press key SET to confirm		Valve position alarm setting
/ ● high or low alarm selection ● Press key Δ、∇ to modify ● Press key SET to confirm		: high alarm : low alarm

E. Input and output signal type and measurement range setting

Menu and operation	Factory setting	Parameter explain
● Entry of the range menu group ● Press key SET to confirm ● Press key Δ、∇ to exit		Entry of the range menu group
- /--/ - ● IN1 signal type selection ● Press key Δ、∇ to modify ● Press key SET to confirm	As order or4-20mA	- : 0-10mA input - : 4-20mA input
- /--/ - . ● IN2 signal type selection ● Press key Δ、∇ to modify ● Press key SET to confirm	As order or4-20mA	- : 0-5V input - : 1-5V input
- /.../ - ● OUT1 signal type selection ● Press key Δ、∇ to modify ● Press key SET to confirm	As order or4-20mA	- : 0-10mA output - : 4-20mA output
- /.../ - ● OUT2 signal type selection ● Press key Δ、∇ to modify ● Press key SET to confirm	As order or4-20mA	- : 0-5V output - : 1-5V output

F. Communication parameter setting

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

G. Exit the calibration operation

H. Input signal zero and full-scale calibration

I. Output signal zero and full scale calibration

Note: Input signal calibration need a correct input signal connect to the input terminal, otherwise it will causes the controller fail working

Menu and operation		Parameter explain
	- Entry of the calibration menu group - Press key SET to confirm - Press key Δ、∇ to exit	Entry of the calibration menu group
/	- Exit or sure to enter selection - Press key Δ、∇ to modify - Press key SET to confirm	: exit calibration : Enter to calibrate
/	- IN1 or IN2 calibration selection - Press key Δ、∇ to modify - Press key SET to confirm	: IN1 calibration . : IN2 calibration
	- Input zero signal calibration - / - input's zero signal is 0.00mA - / - input's zero signal is 0.00V - Press key SET to confirm	Need to input a zero signal to the input terminal and keep it constant for 10 sec.
	- Input full scale signal calibration - / - Input's full scale signal is 20.00mA - / - Input's full scale signal is 5.000V - Press key SET to confirm	Need to input a full scale signal to the input terminal and keep it constant for 10 sec.
/	- OUT1 or OUT2 calibration selection - Press key SET to confirm - Press key Δ、∇ to exit	OUT1 or OUT2 calibration selection
XXXX	- Output zero signal calibration - Press key Δ、∇ to modify the output until reach zero value - Press key SET to confirm - / - output's zero signal is 4.00mA - / - output's zero signal is 1.000V	Connect a monitor meter to the output terminal
XXXX .	- Output full scale signal calibration - Press key Δ、∇ to modify the output until reach full scale value - Press key SET to confirm - / - Output's full scale signal is 20.00mA - / - Output's full scale signal is 5.000V	Connect a monitor meter to the output terminal

J. End parameter setting operation

Menu and operation		Parameter explain
	- End parameter setting operation - Press key SET to confirm - Press key Δ、∇ to exit	End parameter setting operation

K. Remote manual control

- Local manual control takes precedence over remote control.
- When remote manual control is active (DI2=ON), the remote valve open (DI3) and close (DI4) is effective to the local Δ and ∇ keys.

8. Trouble elimination

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
LED display		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
		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		Have not the menu	Contact to the distribute or manufacture
		Lose the unlock code	Contact to the distribute or manufacture
Display change suddenly		Electro-magnetic contactor spark influence	Remove the spark with a spark absorber
		Signal disturbance too strong	Depart the input signal cable from the power line
		Power disturbance too strong	Depart the device power from the power motor/transducer.
		Field cable confusion	VDC load connect a parallel reverse diode
			Signal cable depart from power cable
			Using shield signal cable, the shield connect to the earth
		Power pollution	Depart the device power supply from other power supply
			Depart the device power from the SCR device/transducer
		Add a on line power supply	
Power unit fail		Power supply wrong	Check the power supply cleaner
Relay action wrong		Power supply pollution	Instead of a independent power supply ; Add a power supply cleaner
		Contactor spark influence	Add a spark absorber to the AC contactor Add a parallel reverse diode to the DC load

8.1 Overcoming the severe field disturbance

- Signal cable should depart from the power supply, and mast be the shield cable, and the shield mast be connected to the signal earth, to avoid the signal influence
- The device power should be an independent power, a cleaning power, and should not be connected to other polluted power
- If the field disturbance is severe and method listing in table 4.1is be of no effect, please add a EMC-filter to the power, to the input, to the relay output

8.2 Accessories

- An operation instruction
- A QC certificate

9. Special declare:

- The all products has been calibrated well, the user need not to calibrate again.
- If the products quality is poor, to replace a new one is permission until three months.
- We provide free fee repair in 18 months and need fee repair forever.
- We keep the rights to promote the products, if there are some wiring difference between the operation instruction and the product's back, the product's back wiring is always effective. If there are some function difference between operation instruction and product, please contact to the local supplier, or contact to our manufacture.