



# FRC-6000

## Automatic Blowing Controller

### Operating Instruction



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## I. Introduction

The primary detecting element and the instrument tube are frequently blocked by dust on the occasions of measurement of gas flow and pressure where there are more dust impurities, and this has a strong impact on the detection and automatic control of the normal heat engineering process; these problems have not been solved at root for a long time such that the heat engineering staff should perform more maintenance.

FRC-6000 Automatic Blowing Controller has the function for regularly and manually blowing the primary detecting element and the instrument tube; the controller can automatically keep the value of and reset the on-line detected data signal during the blowing process and can remotely control the time and frequency of the blowing through DCS to ensure the smoothness of the instrument tube and the detecting element and improve the reliability, stability and accuracy for the detection of the instrument. The controller is applied to being used in coordination with the instrument measuring the gas flow or pressure containing more dust, and it is especially applied to match with the Bar-type flow meter and widely applied to the businesses such as thermal power generation, petroleum, metallurgy and steel mill and the like.

## II. Operating principle

The logic on-off control of the electromagnetic valve system is carried out through internal PLC program; the pressure guide tube and the measuring element are blown reversely with compressed air of high pressure to blow out all the dust impurities in the detecting tube so as to solve the blockage problem of the dust impurity to the flow or pressure measuring element. The blowing device can show the effect of two functions as for the real-time detected signal data: one is the capability of keeping value of the on-line measured data signal during the blowing process and releasing data after the blowing, and the other is that no such value keeping function is available.

The logic running step of the blowing device is as follows: (taking the situation used in coordination with the Bar-type flow meter flow meter as instance):

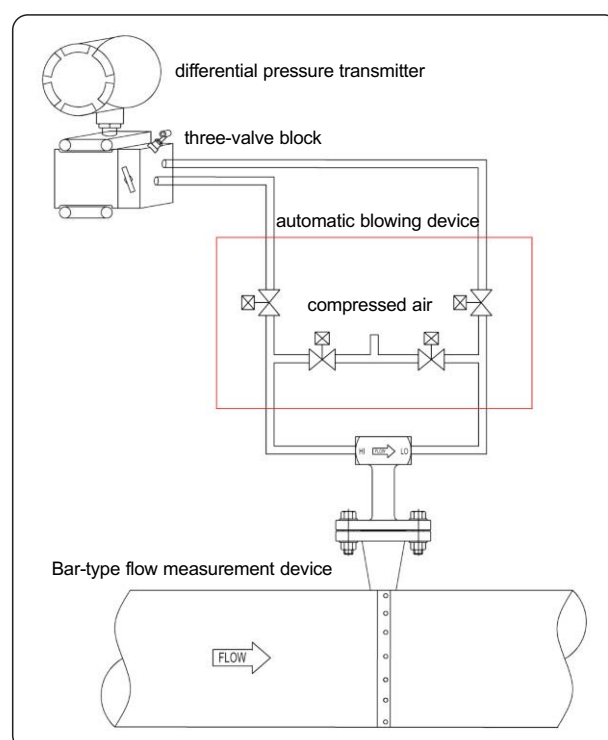
During blowing process:

Turn off the valves F1 and F2, cut off the pressure guide tube of the transmitter to keep the blown compressed air from entering the transmitter. The operating state indicator lamp on the surface of the control box is turned off, and the blowing state indicator lamp is turned on.

The electromagnetic valves F3 and F4 are opened after a delay of 2 seconds; the compressed air starts to blow the Bar-type flow meter.

The electromagnetic valves F3 and F4 are closed to disconnect the compressed air and the Bar-type flow meter after a blowing of 20 seconds.

The electromagnetic valves F1 and F2 are opened after 2 seconds, the blowing state indicator lamp on the surface of the control box is turned off and the working state lamp is turned on. In this way, a blowing period is ended.





### III. Parameters

Pressure of blowing air source: 0.6MPa  
Ambient temperature for use: -20~65°  
Level of protection: Ip65  
Working power supply: 220VAC 100VA  
Blowing period: 3、6、12h/manual at any time  
Blowing time: 20S  
Weight: 22 kg  
Size: 500mm × 600mm × 250mm (H × W × D)

### IV. Operation and use

The blowing controller is simple to use and convenient to operate; it can be independently controlled to run or used in coordination with other operating systems.

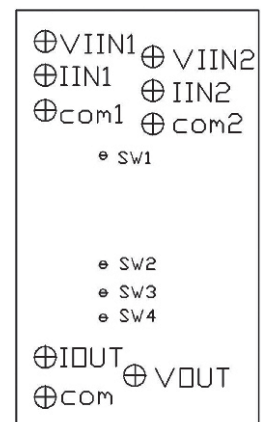
When the blowing device separately controls the blowing system, it needs to set the blowing mode to be on the spot state and select the blowing period to be 3, 6 or 12 hours as required. If an instantaneous blowing is required, the blowing mode can be set at manual state; thus the blowing device can be kept in blowing state until it is changed to other states; then it can carry out other operating states.

When the blowing device control system is used in coordination with other control systems, the blowing device, taking the DCS system as instance, should be set to be remote state; thus the blowing device will enter blowing state as long as the DCS sends a closing signal to the blowing device; and the blowing time and the blowing period can be set randomly on DCS in case of need.

### V. Adjustment and maintenance

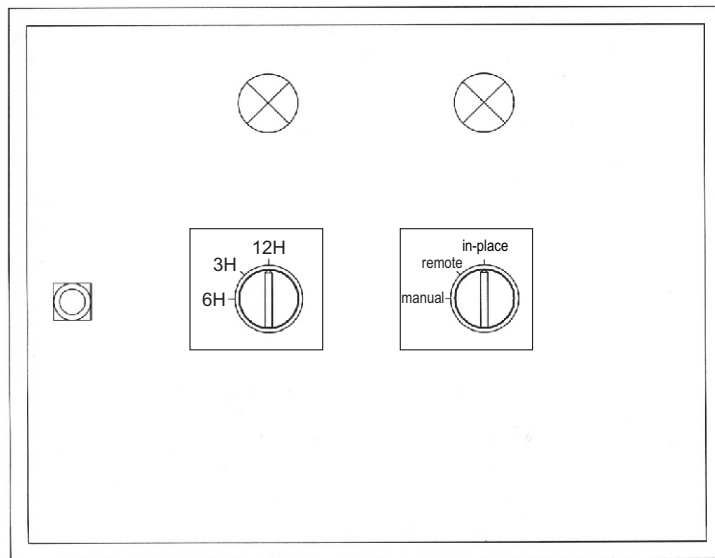
The main parts in the box of the blowing controller are PLC and four electromagnetic valves; the program in the PLC needs no amendment generally, so the non-professional engineer should not amend the program lightly. If the blowing controller is one with value keeping function of on-line detected data signal, a fine adjustment can be made in accordance with the following method when the current output by the extension module is slightly different from the input of the detection (Don't touch if you are non-professional engineer.)

Short-circuit VIIN1 and IIN1, then apply a DC signal of 4~20Ma between IIN1 and COM1; measure the milliampere values at the IOOUT and COM ends with a standard universal meter; if the input milliampere value is the same with the output milliampere value, the module outputs normally and needs no adjustment (a complete adjustment is made before delivery). SW1 is zero point coarse adjustment, SW3 is zero point fine adjustment, SW2 is full scale coarse adjustment and SW4 is full scale fine adjustment. If there is a deviation, SW1 and SW3 should be adjusted at the current of 4 mA, SW2 and SW4 should be adjusted at the current of 20 mA; firstly, 4 mA and 20 mA are correspondingly adjusted, then sectional adjustment is carried out correspondingly; the adjustment is based on zero point between 4 and 12 mA and based on full scale between 12 and 20 mA.



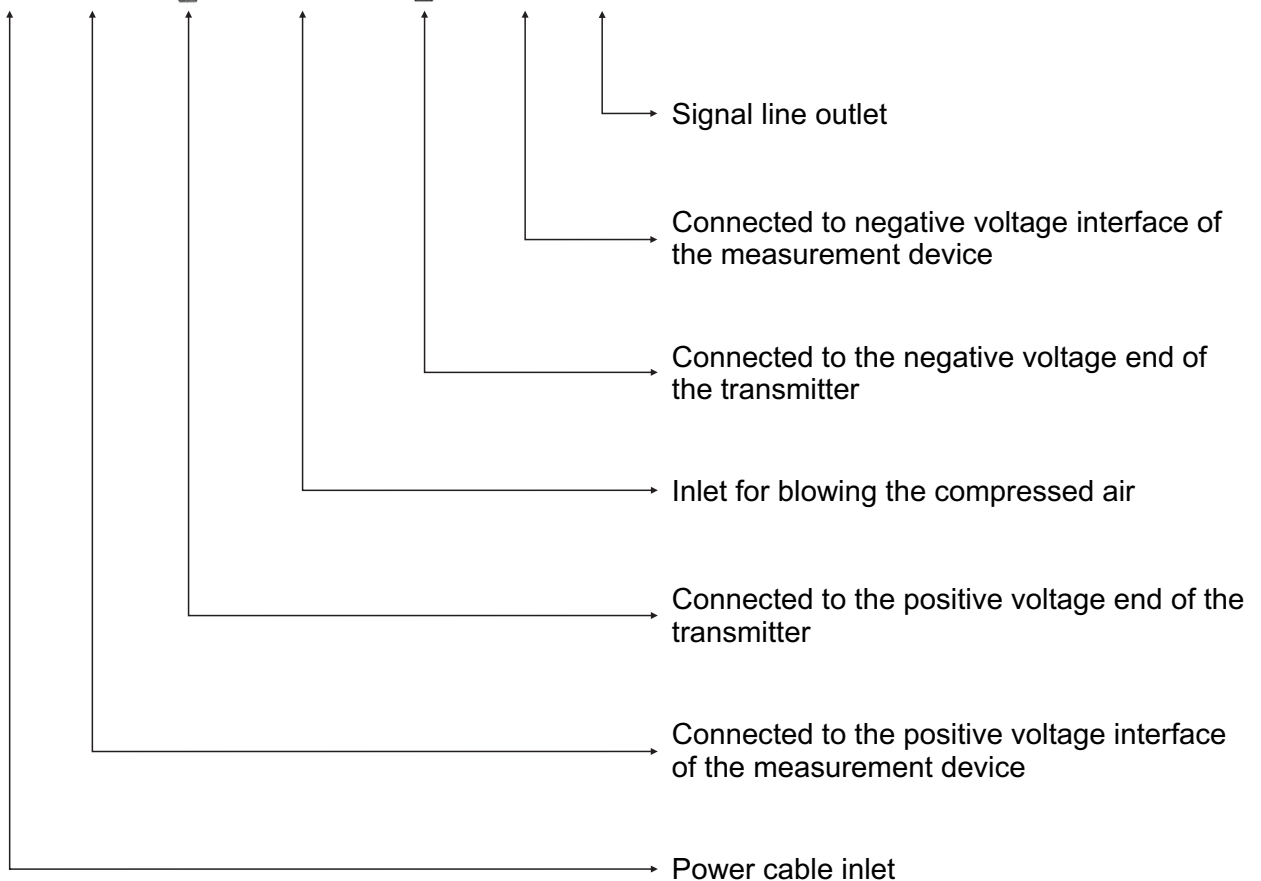


## V. External strucutre



Size of external interface:

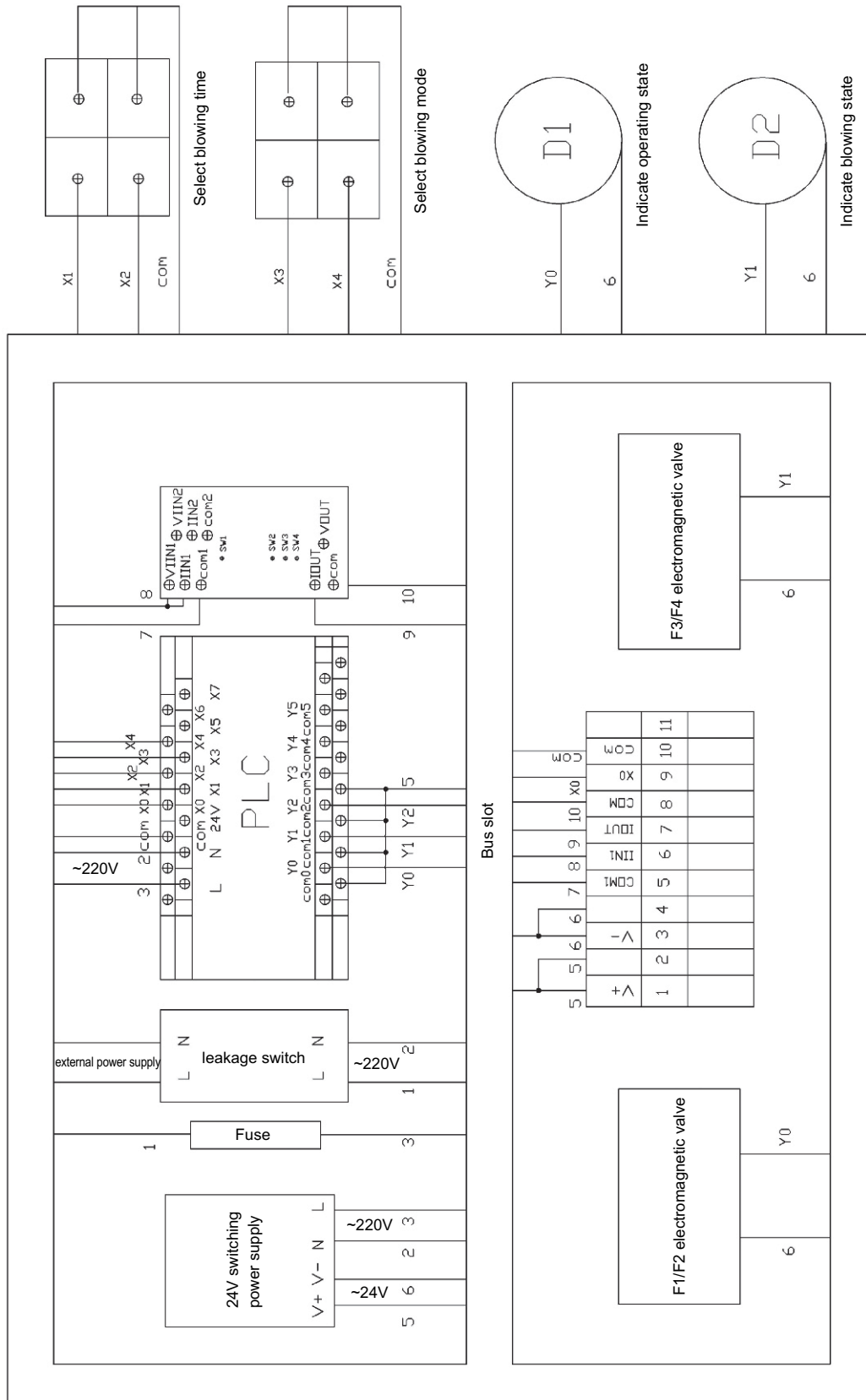
1. Inlet for blowing compressed air: G1" internal thread
2. Measure the positive and negative voltage interfaces of the sensor: G1" internal thread
3. Positive and negative voltage outlets of transmitter:  $\phi 14 \times 2$  welded tube
4. Cable inlet:  $\phi 25$





## VII. Connection of blowing control box

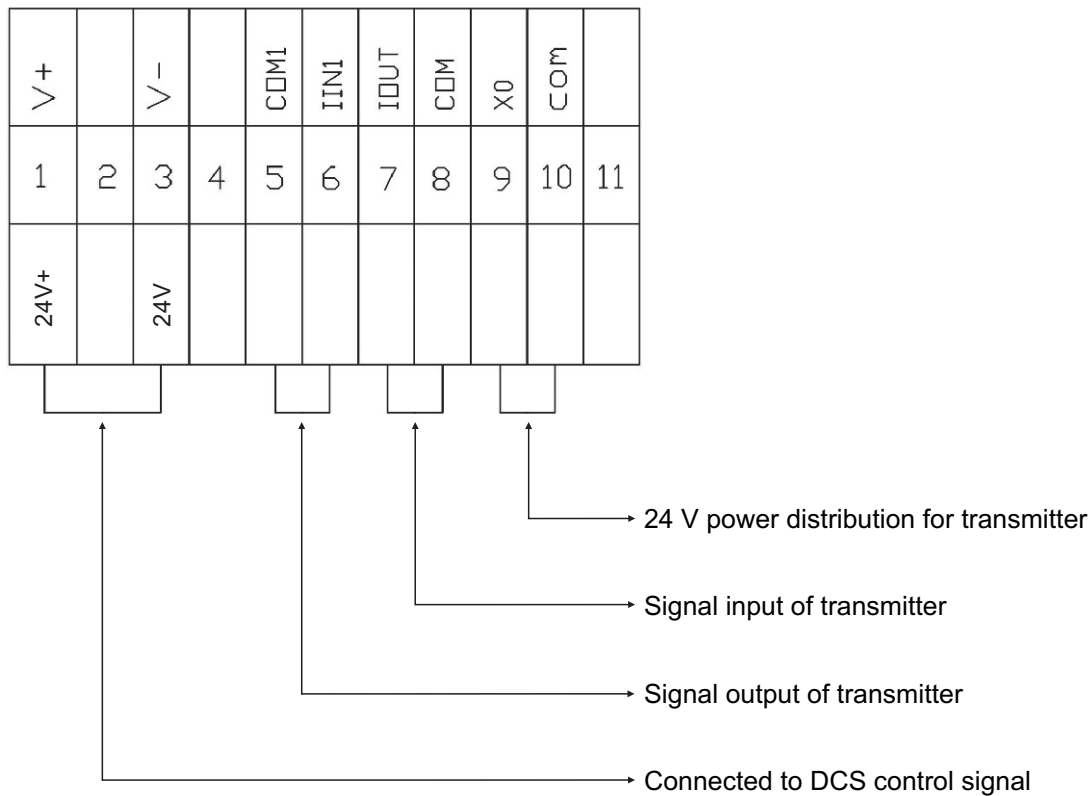
### Internal connection of control box





## External connection drawing

The device without signal value keeping function needs to be only connected to the power line. If the device has the signal value keeping function, the overall connection is made in accordance with the terminals in the picture blow.



with signal value keeping functio

1. positive input of transmitter
3. short-circuited with end 5
5. short-circuited with end 3
6. negative input of transmitter
7. transmitter outputs to positive end of DCS
8. transmitter outputs to negative end of DCS
9. DCS control input
10. DCS control input



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