

## The operation manual for VT-5005BS 2X

Proportional amplifier VT-5005S 2X are suitable for controlling direct actuated proportional directional control valves with the spool position feedback 4WRE6...-10/24

### I Technical data:

1. Power supply: full bridge rectification 24V +10%-5%
2. Power: 50W
3. Control voltage:  $\pm 9V \pm 2\%$
4. Min.Load of the control voltage:  $500\Omega$
5. Max. output current: 1800mA
6. Load resistance:  $5.4\Omega$
7. Oscillating frequency: 2.5KHZ
8. Ramp time: 0.02S-5S
9. Ambient temperature: 0-40°C
10. Stability:  $\pm 8mA/8h$
11.  $0.5\%/I_{max.}/^{\circ}C$

Remark: Abovementioned technical data has been preset. if you have special requirement, please clarify when ordering

### II. How to use: Refer to connecting diagram

- Amplifier and external wiring connection

1. The electrical supply should be D.C.24V

The point 22A or 22C connected to the positive pole of the electrical supply. 28A

or 28C connected to the negative pole of the electrical supply.

2. The connection of between the amplifier and solenoid.

The two ports of the proportional solenoid A should be connected to 2A and 32A separately.

The two ports of the proportional solenoid B should be connected to 2C and 32C separately.

Remark: (1).there is no directionality in the wire connecting.

(2). Solenoid A is the one with a shift sensor, Solenoid B is the one without shift sensor.

3. The connection with the bit shift sensor: the amplifier should be connected to the bit shift sensor with the shield cable.

10c should connect to the port 1 of the bit shift sensor.

30c should connect to the port 2 of the bit shift sensor.

8c should connect to the port  $\perp$  of the bit shift sensor.

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Screen all the input lines. Leave one end of the screen open. Connect one end to 28A or 28C

4. The input of the control voltage signal

5. (1). 4 manual input ports for the input of voltage can be preset
  - a. When you use preset potentiometer P1 to input  $\pm 9V$  electric signal, 14C is signal input end, Switch on relay K1. It means short-circuit 24C(+24V) and 12C.
  - b. When you use preset potentiometer P2 to input  $\pm 9V$  electric signal, 14A is signal input end, Switch on relay K2. It means short-circuit 24C(+24V) and 12A.
  - c. When you use preset potentiometer P3 to input  $\pm 9V$  electric signal, 20A is signal input end, Switch on relay K3. It means short-circuit 24C(+24V) and 16A.
  - d. When you use preset potentiometer P4 to input  $\pm 9V$  electric signal 4, 20C is signal input end, Switch on relay K4. It means short-circuit 24C(+24V) and 16C.

The four input end is optional, while P4(20C) is preferential

Remark: when you choose one of the input port, the relevant red LED will light to indicate it is the currently input port.

- (2). 0 -  $\pm 10V$  differential motion voltage input end.  
If the control voltage signal from PLC, input 0- $\pm 10V$  signal from 6A and 6C.

- The usage of the amplifier

1. The amplifier have stable +9V(26A) and -9V(24A) voltage signal as the input level, which can be applied for the 4 optional manual input signal. Positive signal control solenoid B, negative signal control A.

There are two control patterns:

- a. To preset one -four potentiometer, choose the different circuit according to the programming. Directly input +9V(26A) or -9V(24A) voltage
- b. External potentiometer, one port connect MO (26C), one port connect +9V or -9V, the sliding port connect to input port, it can be manual regulated.

Remark: you can gain +9V voltage or -9V voltage from K6, the automatic conversion of the polarity of the voltage can be realized, and the two solenoids can be controlled.

2. The 0 $\pm 10V$  differential motion signal from program controller (PLC) or the computer input from 6A and 6C, the solenoid A or solenoid B can be controlled.

Caution: never connect 6A or 6C any port of the amplifier. It means the program controller and the proportional amplifier can not use the one power or have the same ground point.

3. There is two pair of testing hole for nominal value (0-+6V) and real value (0- -6V), through voltage value of the testing hole for the nominal value, the monitoring for the input voltage can be realized. When the input

voltage is 0-+9V, the nominal value is 0--6V. When the input voltage is 0—9V, the nominal value should be 0-+6V. The position of the spool can be monitored according to real value. When the real value is

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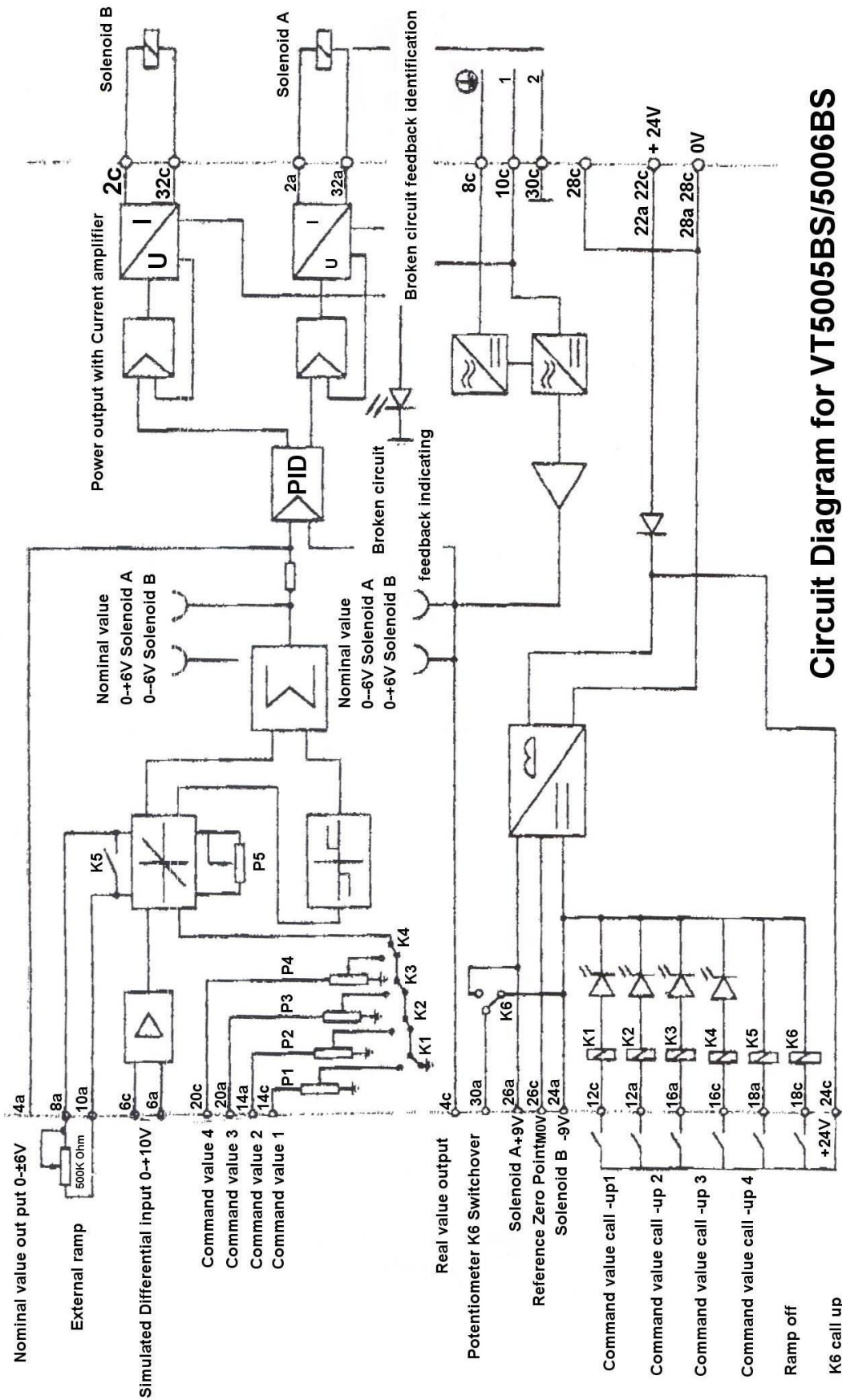
zero, the spool should be zero position. When the real value is +6V, the spool should be at the Max.strock. . The absolute value of the nominal value and real value should be equivalence. It is also the way to test if the amplifier is work or not.

4. There potentiometer on the amplifier used for adjusting the ramp time. If the system do not need the delay time, you can counterclockwise rotate the potentiometer to the end, or short circuit 8A and 10C, or switch on K5
5. If the amplifier and bit shift shut down or improper connection. The feedback shut down led light, the cable failure identification will key off the current in the two solenoids.

### III. Caution

1. If there is spool vibration, it is caused because there is air in the valve usually. You can pulse on the hydraulic circuit, open the air bleed screw, let the spool alternating motion till the air was exhausted.
2. The voltage of zero reference( MO, 26C) compared with the input voltage 0V increase +9V, never short- circle them.

IV. This amplifier is European standard 32 pin (5.08X5.08mm). VT-3002B and VT1516B holder can match with this amplifier



**Circuit Diagram for VT5005BS/5006BS**