

The operation manual for VT-3013S30

Proportional amplifier VT-3014S30 is used in the control of proportional directional valve 4WRA6... --30/24.

I. Technical data:

1. Power supply: 24V +10%-5%
2. Power: 40W
3. Control voltage: $\pm 9V \pm 2\%$
4. Max. output current: 1500mA
5. Pilot current: no more than 50mA
6. Load resistant: 10Ω
7. Ramp time: 0.02S-5S
8. Ambient temperature: 0-40°C
9. Stability: $\pm 8mA/8h$
10. Temperature drift: $0.5\text{‰}(I_{max.})^{\circ}C$

Remark: if you have special requirement, please clarify when ordering

II. Output Characteristic: Refer to (Scheme 1)

III. How to use: Refer to connecting diagram

- Amplifier and external wiring connection

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

The point 32A or 32C connected to the positive pole of the electrical supply.

26A or 26C 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 30A and 24 A separately.

The two ports of the proportional solenoid B should be connected to 28A and 22A separately.

Remark: there is no directionality in the wire connecting.

3. 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, 10C is signal input end, Switch on relay K1. It means short-circuit 28C(+24V) and 8C.

- b. When you use preset potentiometer P2 to input $\pm 9V$ electric signal, 10A is signal input end, Switch on relay K2. It means short-circuit 28C(+24V) and 4A.

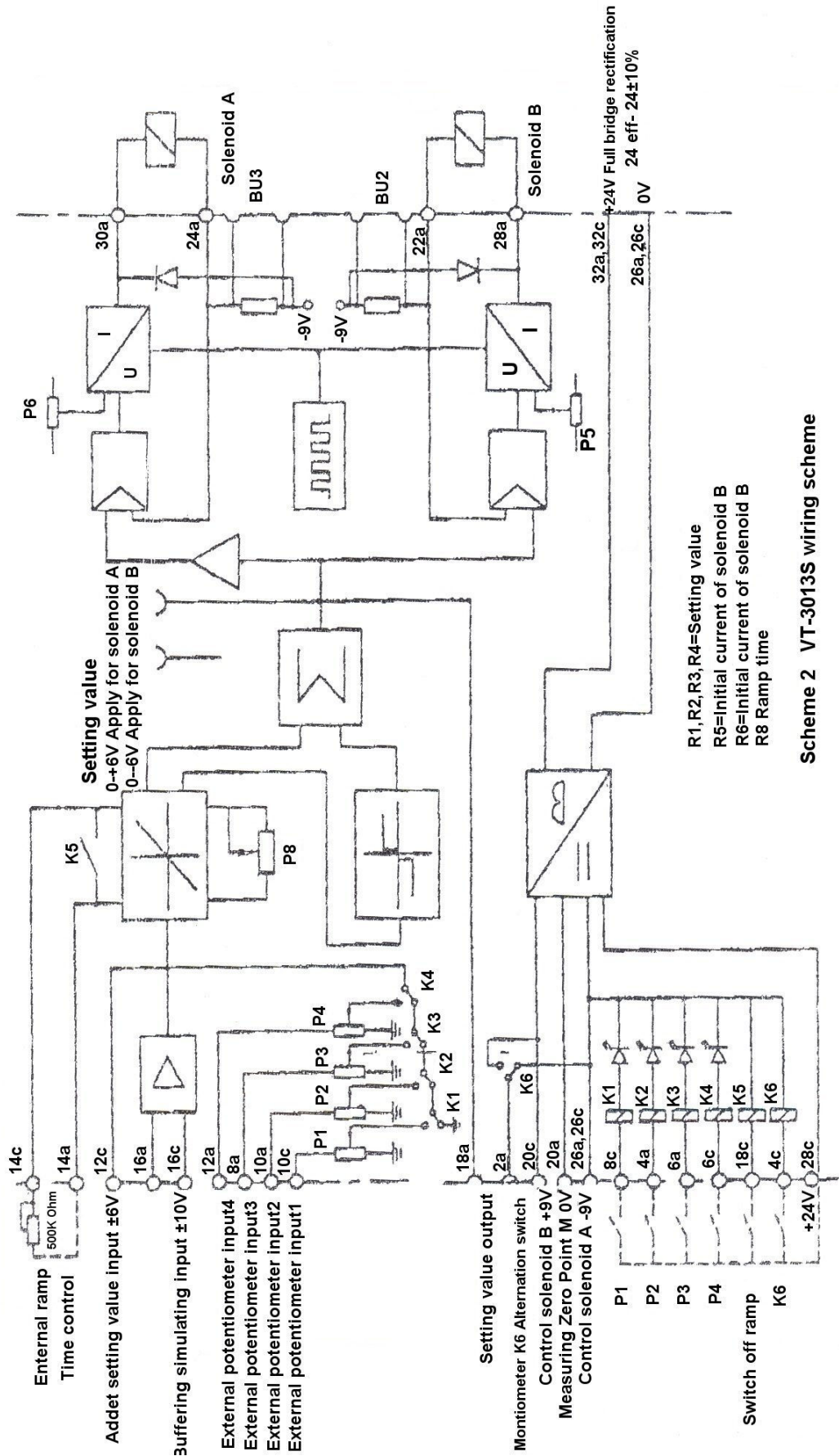
- c. When you use preset potentiometer P3 to input $\pm 9V$ electric signal, 8A is signal input end, Switch on relay K3. It means short-circuit 28C(+24V) and 6A.

- d. When you use preset potentiometer P4 to input $\pm 9V$ electric signal 4, 12A is signal input end, Switch on relay K4. It means short-circuit 28C(+24V) and 6C.

The four input end is optional, while P4(12A) 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.

4. 0 - $\pm 10V$ differential motion voltage input end wire connection.
Select 0- $\pm 10V$ differential motion voltage signal from PLC, input the signal from 16A and 16C. The amplifier can automatically control the current of the proportional solenoid. In order to attain the maximum current 1600mA, differential motion voltage value should up to $\pm 10V$
Remark: All the input cable should be shield wire, if possible.

- The usage of the amplifier
1. There are 9V(20C) and -9V(26A or 26C) voltage for manual input signal. Positive signal control solenoid B, negative signal control A. There are two control patterns:
 - a. To preset one -four potentiometer (P1-P4), choose the different circuit according to the programming.
 - b. Manual regulated (Refer scheme 3 and scheme 4), use K6 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 $\pm 10V$ differential motion signal from program controller (PLC) and function generator input from 16A and 16C, when the electric potential of 16A higher than 16C, the solenoid B working; when the electric potential of 16A lower than 16C, solenoid A working. When the differential motion signal change from 0 to $\pm 10V$, the proportional valve accordingly have the current from 0-1500mA to drive solenoid. The current can be regulated smoothly and convenient.
Caution: never connect 16A or 16C to 20A(MO) or the negative port of the 24VDC power 26A, 26C. It means the program controller and the proportional amplifier can not use the one power.
 3. The current value of the solenoid can be measured from the instrument connection BU2 and BU3. The voltage value measured from the DC voltage meter (mV) is approximate the 1/2 of the current value of the solenoid (mA).
 4. The potentiometer P9 is use for to adjust the ramp time. If the system do not need the delay time, you can counterclockwise rotate the potentiometer to the end, or short circuit 14A and 14C, or switch on K5
- This amplifier is European standard 32 pin (5.08X5.08mm). VT-3002B and VT1516B holder can match with this amplifier



R1,R2,R3,R4=Setting value
 R5=Initial current of solenoid B
 R6=Initial current of solenoid B
 R8 Ramp time

Scheme 2 VT-3013S wiring scheme

