

Wenzhou Runde Mechanical And Electrical Equipment Co., Ltd

Operation Instruction Manual

Proportional Remote Control Valve



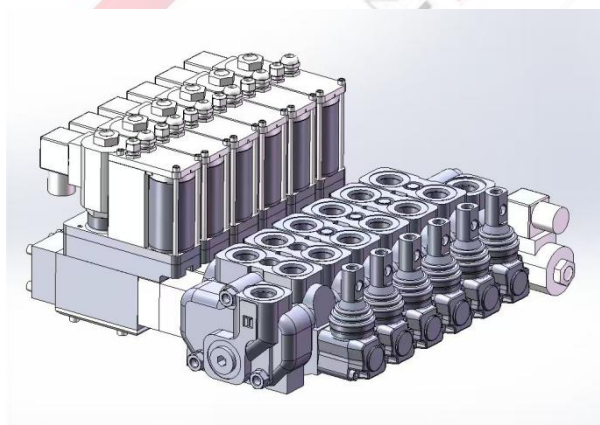
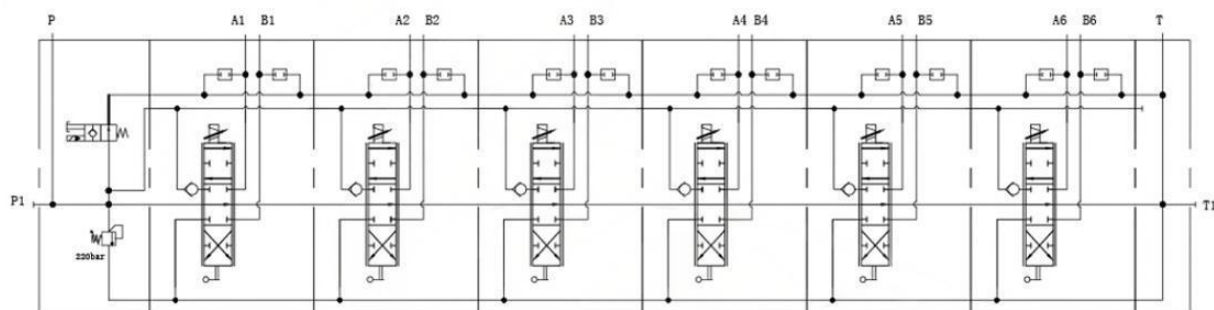
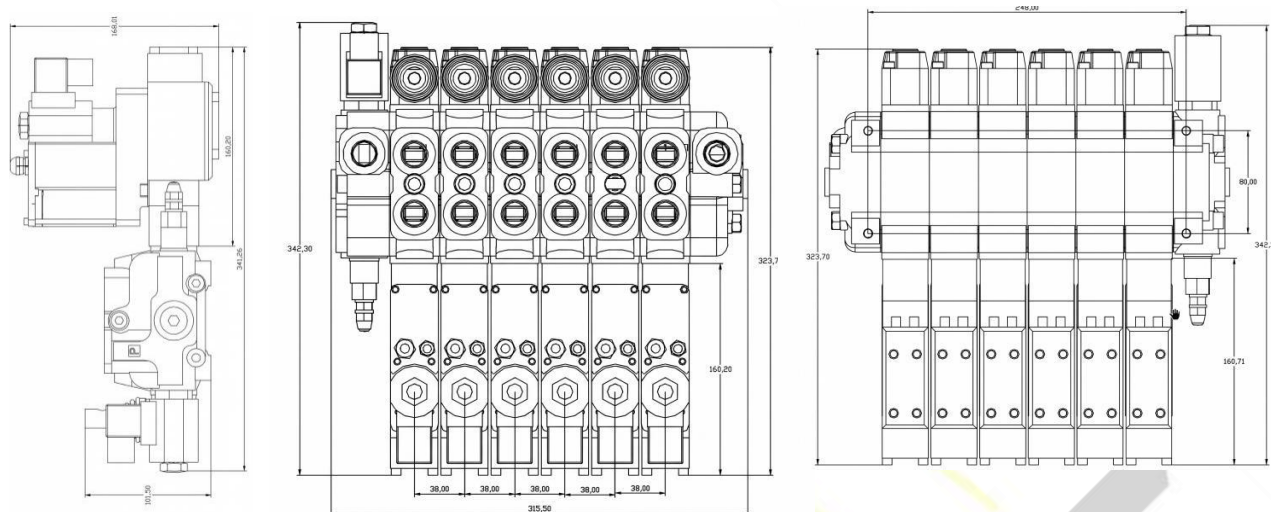
Product Manual - Remote Control Hydraulic Valve System

Designed installation, operation and maintenance reference

1.T-Pro's Features

- This hydraulic valve system is equipped with a safety lock; in the event of an emergency, the hydraulic oil output can be remotely cut off to halt all operations and ensure safety.
- The motor drives the spool directly with strong torque, so the spool still can work smoothly even with the severely contaminated hydraulic oil.
- The motor is easier to be fitted with the hydraulic control valves, less than 3 mins for 1 spool.
- The dead band can be eliminated and limit movement speed by programming.
- The fast and slow working speed of the cylinders can be programmed by the end user according to the working condition.
- The motor actuator can work 24 hours continuously without burning or high temperature.
- The electronic throttle is for optional according to your machine conditions.
- It can exchange the cylinder's extension way by programming the radio control.
- Widely control range with different frequencies, max 1000m.
- The motor has a width of only 36 mm and can be mounted on various types of hydraulic valve bodies to enable remote proportional control.

2.1 HS2-4 Banks

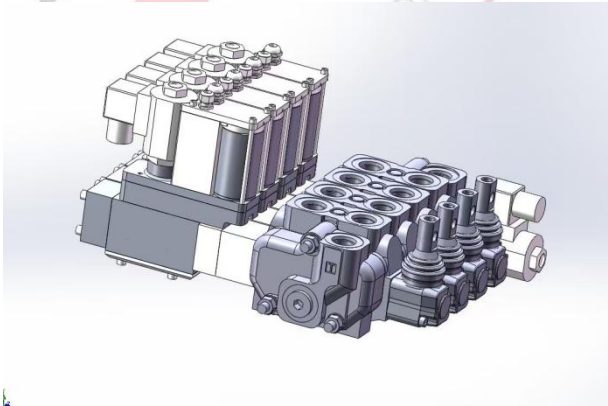
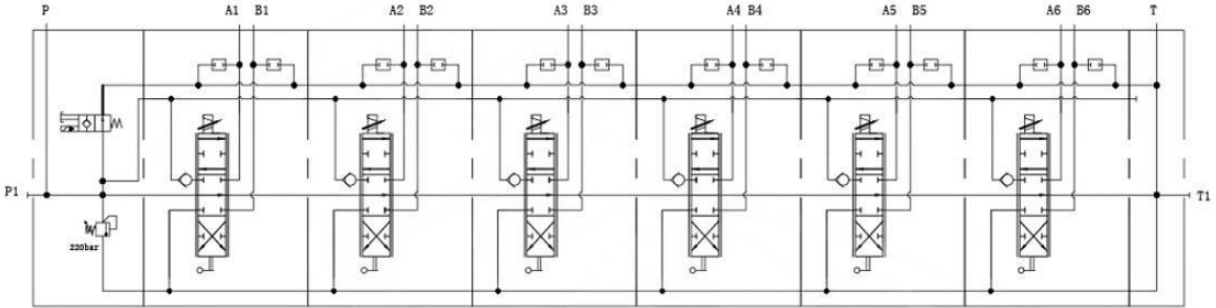
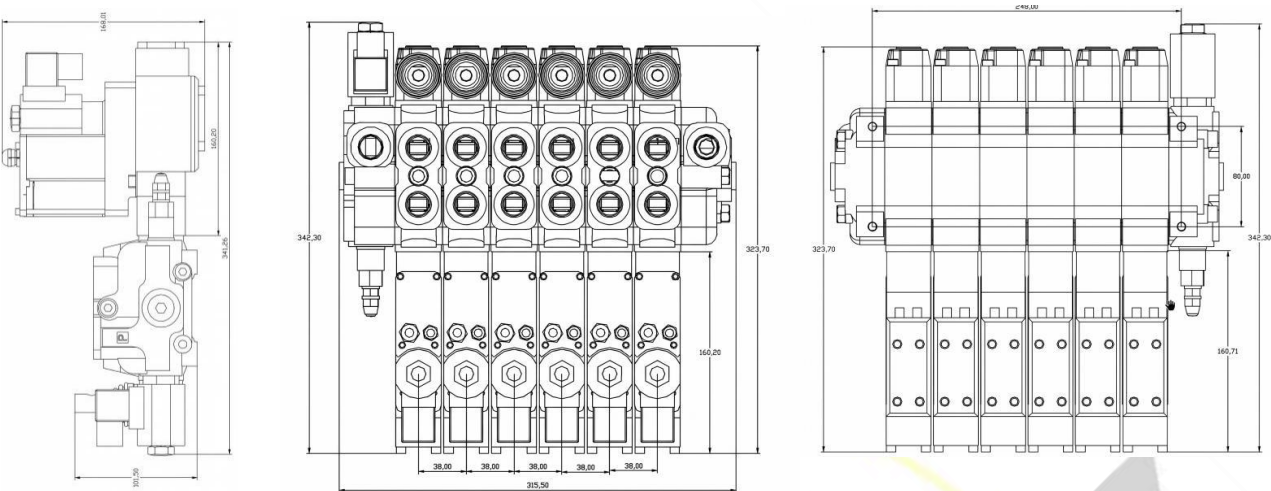


HS2 technical parameters		
Basic parameters	Model	HS2 / 4 - AC (YG4 - 220) / ELP (NO - 24V) / 1CS8L*4 / RC / G / ALO1+D.PRA - DAS / 4 - ET - ELT - SO - 24VDC - *
	Sections	4 sections
	Thread	PAB-G3/8,T-G1/2
	Nominal flow	45 L/min
	Set pressure	200 bar
	Rated voltage	24 V
	Max backpressure	25 bar
	Internal leakage (A - T, B - T)	5 cm ³ /min At 100 Bar, 40 °C and 46 mm ² /s
	Seal material	NBR
	Remote control model	DAS/4-ET-ELT-24VDC - *
Environmental parameters	Viscosity	15-75mm ² /s
	fluid temperature range	-20~+80 °C
	Operating temperature	-20~+60 °C
	Max. contamination level	19/16-ISO 4406

NOTE: For different conditions or applications, please contact with Sales Dept.

2.Standard valve series for proportional remote control valve

2.2 HS2-6 Banks

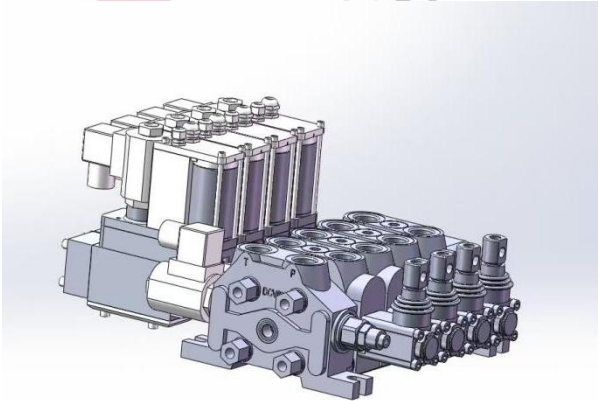
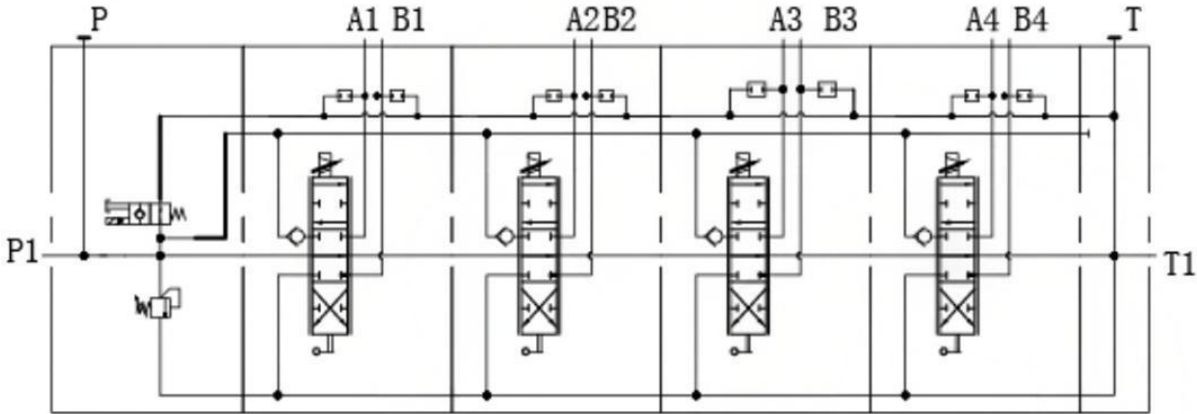
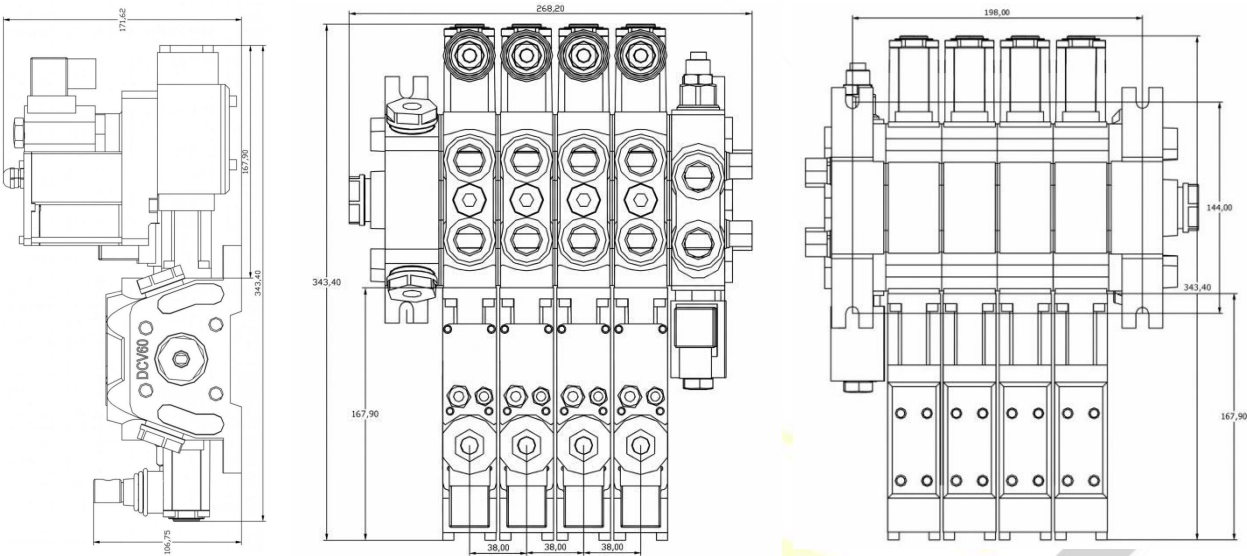


HS2 technical parameters		
Basic parameters	Model	HS2 / 6 - AC (YG4 - 220) /ELP (NO - 24V) / 1CS8L*6 / RC / G / ALO1+D.PRA - DAS / 4 - ET - ELT - SO - 24VDC - *
	Sections	6 sections
	Thread	PAB-G3/8,T-G1/2
	Nominal flow	45 L/min
	Set pressure	220 bar
	Rated voltage	24 V
	Max backpressure	25 bar
	Internal leakage (A - T, B - T)	5 cm ³ /min At 100 Bar, 40 °C and 46 mm ² /s
	Seal material	NBR
	Remote control model	DAS/6-ET-ELT-24VDC - *
Environmental parameters	Viscosity	15-75 mm ² /s
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2.Standard valve series for proportional remote control valve

2.3 HS3-4 Banks

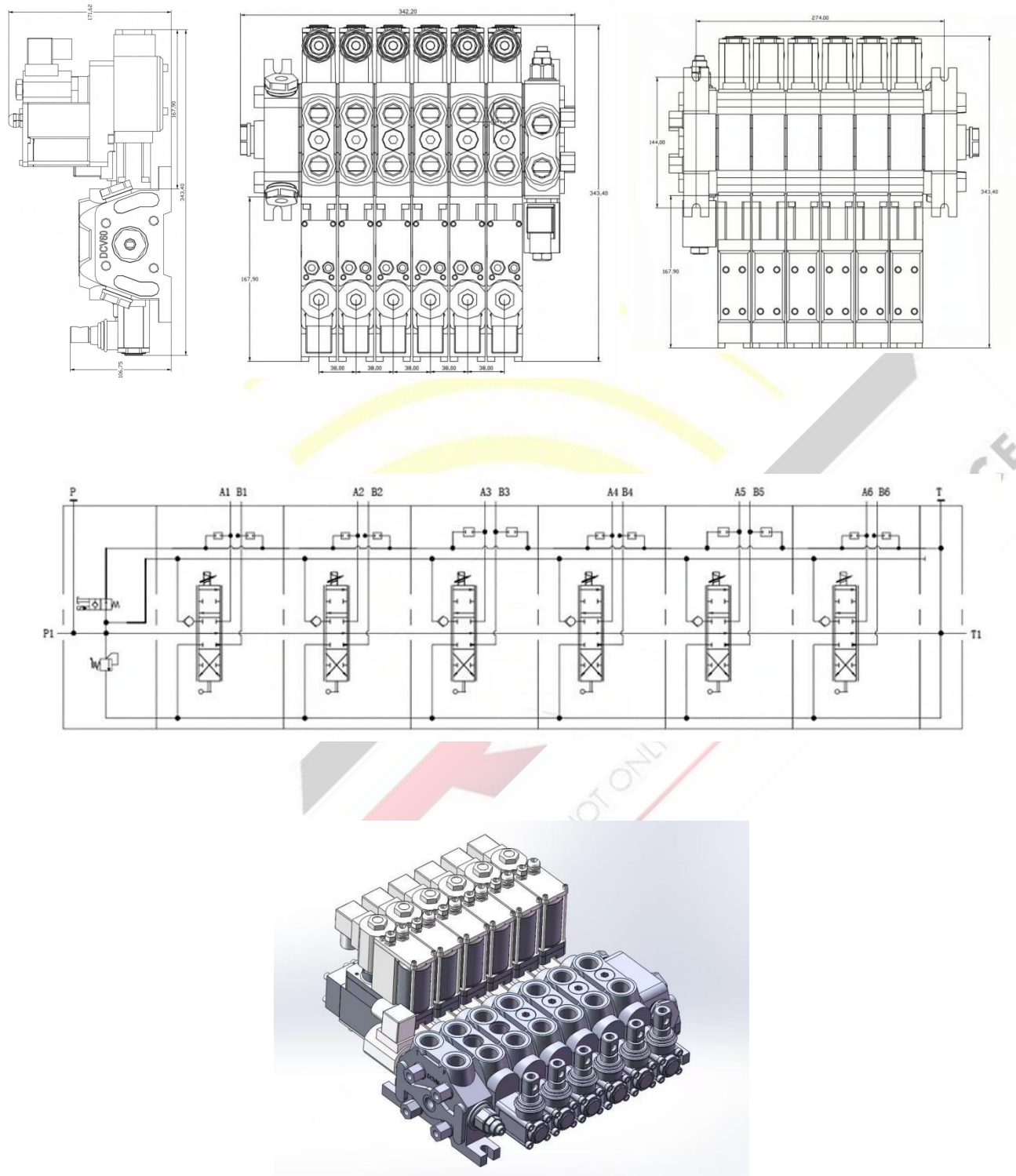


HS3 technical parameters		
Basic parameters	Model	HS4 / 4 - AC (YG4 - 220) / ELP (NO - 24V) / 1CS8L*4 / RC / G / ALO1+D.PRA - DAS / 4 - ET - ELT - SO - 24VDC - *
	Sections	4 sections
	Thread	PAB - G1 / 2, T - G3 / 4
	Nominal flow	60 L / min
	Set pressure	220 bar
	Rated voltage	24 V
	Max backpressure	25 bar
	Internal leakage (A - T, B - T)	5 cm ³ / min At 100 Bar, 40°C and 46 mm ² / s
	Seal material	NBR
	Remote control model	DAS / 4 - ET - ELT - 24VDC - *
Environmental parameters	Viscosity	15 - 75 mm ² / s
	fluid temperature range	- 20 ~ + 80 °C
	Operating temperature	- 20 ~ + 60 °C
	Max. contamination level	19 / 16 - ISO4406

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2.Standard valve series for proportional remote control valve

2.4 HS3-6 Banks

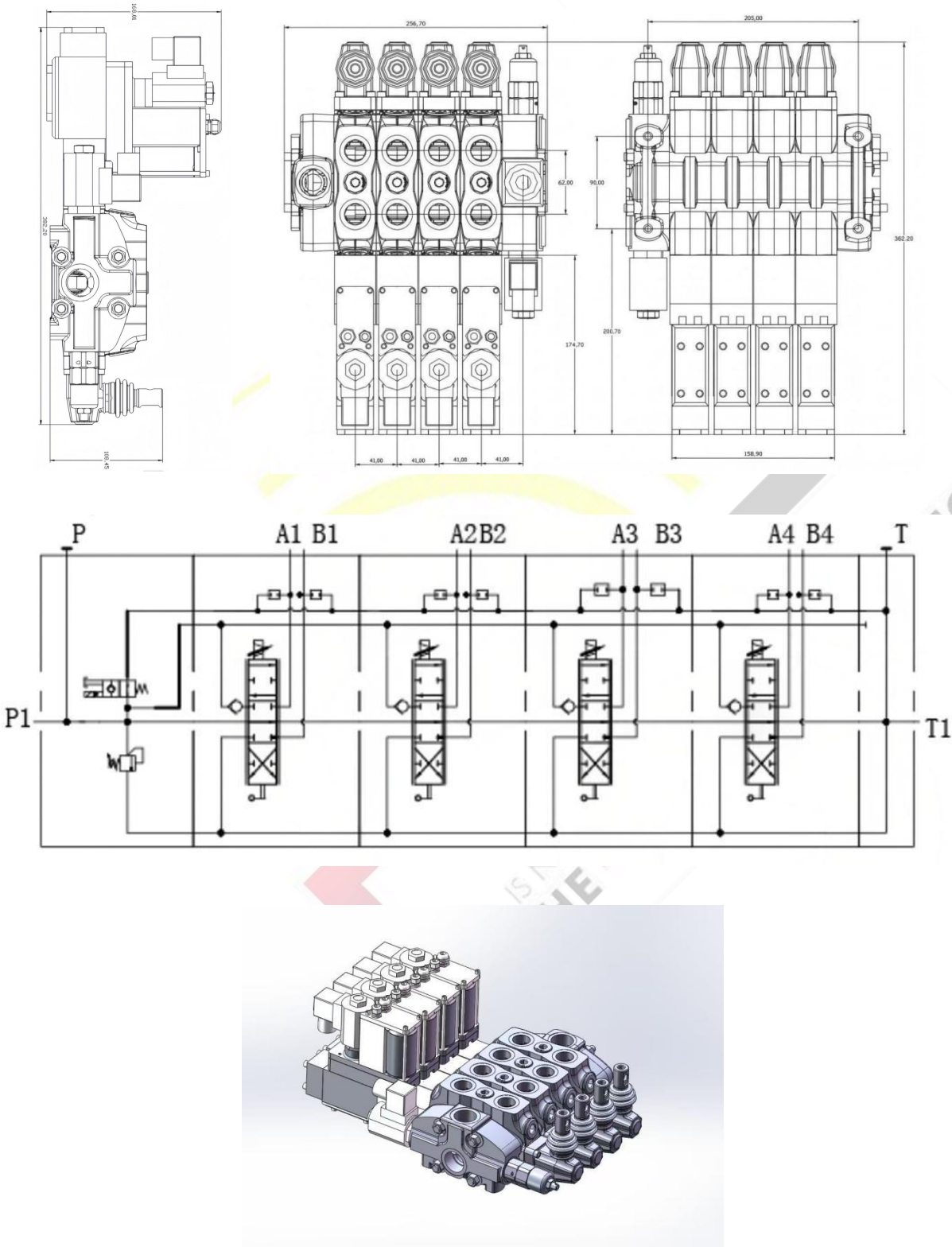


HS3 technical parameters		
Basic parameters	Model	HS4 / 4 - AC (YG4 - 220) / ELP (NO - 24V) / 1CS8L*4 / RC / G / ALO1+D.PRA - DAS / 4 - ET - ELT - SO - 24VDC - *
	Sections	6 sections
	Thread	PAB - G1 / 2,T - G3 / 4
	Nominal flow	60 L / min
	Set pressure	220 bar
	Rated voltage	24 V
	Max backpressure	25 bar
	Internal leakage (A - T,B - T)	5 cm ³ / min At 100 Bar, 40 °C and 46 mm ² / s
	Seal material	NBR
	Remote control model	DAS / 4 - ET - ELT - 24VDC - *
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2.Standard valve series for proportional remote control valve

2.5 HS4-4Banks

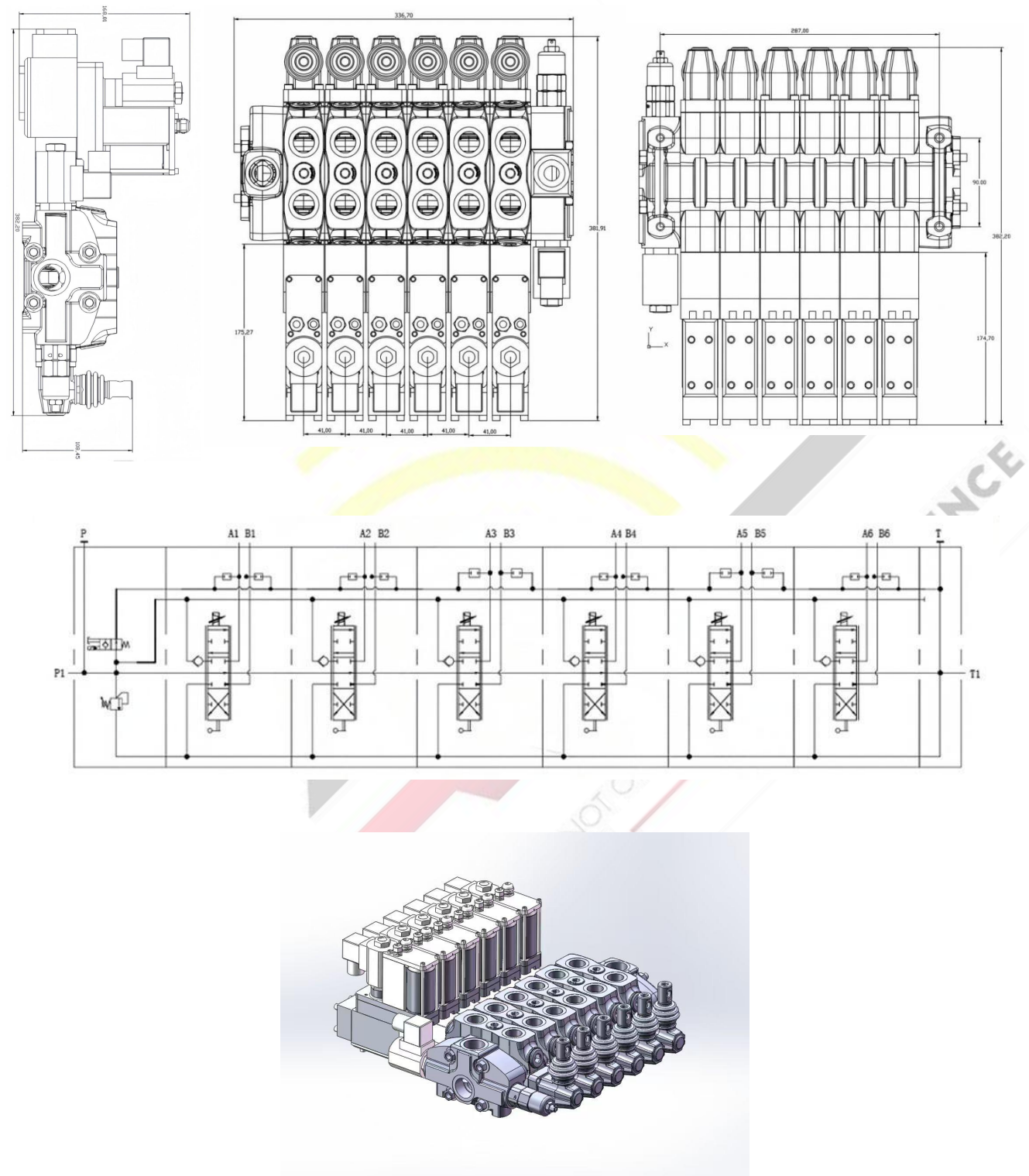


HS4 technical parameters		
Basic parameters	Model	HS4 / 4 - AC (YG4 - 220) / ELP (NO - 24V) / 1CS8L*4 / RC / G / ALO1+D.PRA - DAS / 4 - ET - ELT - SO - 24VDC - *
	Sections	4 sections
	Thread	PAB - G1 / 2,T - G3 / 4
	Nominal flow	80 L / min
	Set pressure	220 bar
	Rated voltage	24 V
	Max backpressure	25 bar
	Internal leakage (A - T, B - T)	5 cm ³ / min At 100 Bar, 40 °C and 46 mm ² / s
	Seal material	NBR
	Remote control model	DAS / 4 - ET - ELT - 24VDC - *
Environmental parameters	Viscosity	15 - 75 mm ² / s
	fluid temperature range	- 20~+ 80 °C
	Operating temperature	- 20~+ 60 °C
	Max. contamination level	19 / 16 - ISO 4406

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2.Standard valve series for proportional remote control valve

2.6 HS4-6 Banks



HS4 technical parameters		
Basic parameters	Model	HS4 / 6 - AC (YG4 - 220) / ELP (NO - 24V) / 1CS8L*6 / RC / G / ALO1+D.PRA - DAS / 4 - ET - ELT - SO - 24VDC - *
	Sections	4 sections
	Thread	PAB - G1 / 2,T - G3 / 4
	Nominal flow	80 L / min
	Set pressure	220 bar
	Rated voltage	24 V
	Max backpressure	25 bar
	Internal leakage (A - T, B - T)	5 cm ³ / min At 100 Bar, 40°C and 46 mm ² / s
	Seal material	NBR
	Remote control model	DAS / 6 - ET - ELT - 24VDC - *
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NOTE: For different conditions or applications, please contact with Sales Dept.

3. Proportional Remote Control Valve Ordering Code

•T-Pro- DAS / 4 - ET - ELT - S1 - 12V/24V - EU
 1 2 3 4 5 6 7

- 1) DAS: DAS: The motors are assembled at A end (Spring cap side).
- 2) DAH: The motors are connected with the handle levers by rod.
- 3) Motor quantity: 4 is 4 motors connecting on the hydraulic control valves. If 5 motors, here should be 5
- 4) ET: Electronic Throttle. NO: No electronic throttle.
- 5) ELT: ON / OFF switch on the radio control panel for turn on / off the solenoid unloading valves on the valve's inlet section. If no ELT, here is no letters.
- 6) S1: S is switch, 1 is the quantity of switch. S1: 1pc ON / OFF switch
- 7) The voltage of the motor: 12V or 24VDC.
- 8) The charger's type. EU for European Standard.

4. The components list of T-Pro

T - Pro Type	Number	Items	Qty	Picture	Remarks
DAS type	1	valve body	1SET		
	2	Signal Receiver	1SET		
	3	Remote control	1SET		Can customize the logo
	4	Throttle motor	1SET		Control engine speed

	5	Switching power supply cord	1SET		
	6	Antenna	1PC		
	7	Charger	1PC		
	8	Car charger	1PC		For charging in the truck cabin
	9	Battery	2PCS		
	10	Strap	1SET		
	11	Start / stop wiring and light / horn wiring	2PCS		

5.Introduction to Remote Control

5.1 Appearance



5.Introduction to Remote Control

5.2 Remote Control Panel Buttons' functions

Buttons' Names	Buttons' Functions
Battery Indicator	Displays the battery percentage through a series of bars on the screen.
Signal Indicator	Displays the signal strength through bars on the screen.
Fast / Slow	Fast / Slow switch the fast control and the slow control immediately.
ETC (electric throttle control)	adjust and control the throttle opening electronically
Engine Start	Engine start is for programming the radio control.
Engine Stop	Engine stop is for confirming the program.
Power ON/OFF	It's for turn on or turn off the radio control.
Emergency Stop	It's for stopping the whole hydraulic system working with one button immediately for safety.
Horn switch	Control the horn to start and stop
Lighting control	Control the lights to turn on and off

5.3 The Signal Receiver's Technical Specifications

- 1) Working voltage: 12V / 24VDC
- 2) Radio control distance: less than 1000m
- 3) Working Temperature: - 20℃~80℃
- 4) Waterproof rating: IP65



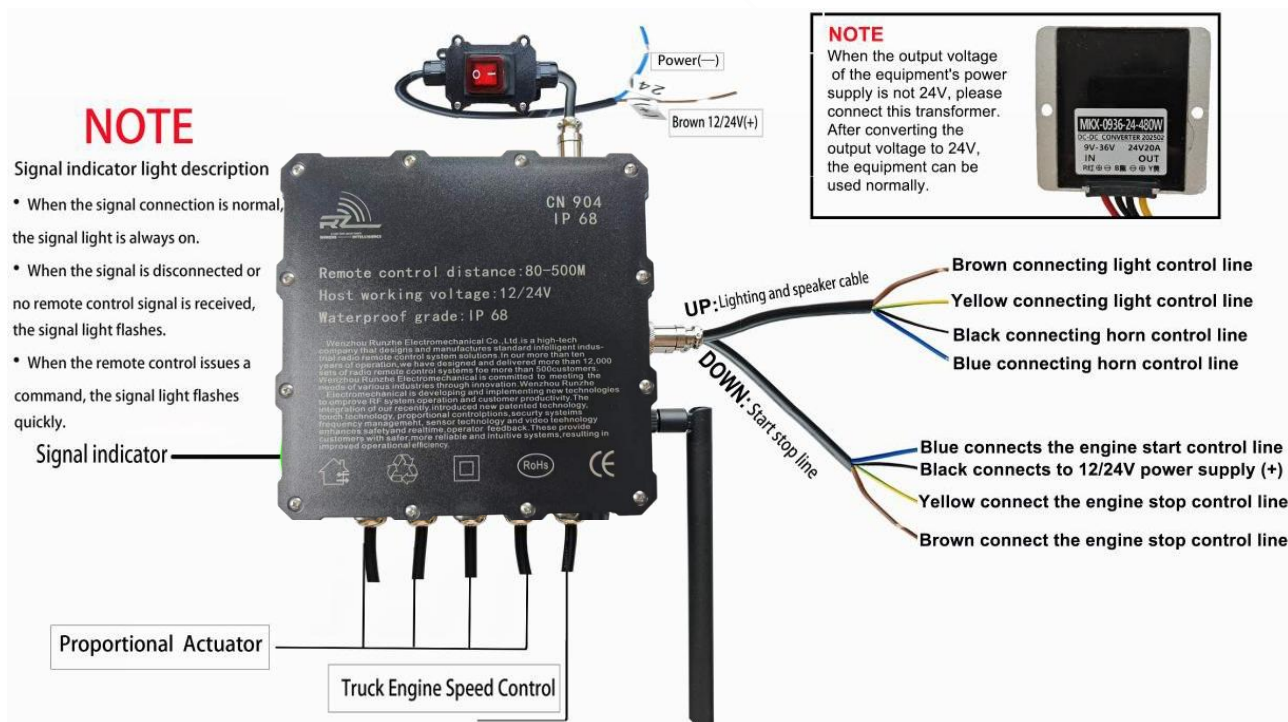
The signal receiver

6. Installation Instructions

- 1) The signal receiver's wire is the emergency stop wire and must be connected in series to the hydraulic lock switch wire or the engine stop wire. The emergency stop wire must be firmly connected and cannot be removed without permission (if the emergency stop wire is not installed according to the regulations or removed without permission, the consequences will be borne by oneself).
- 2) All the connection ports of the signal receiver must be installed downward to prevent rainwater from flowing into the host along the wires.
- 3) The signal receiver's switch instructions: Before use, turn on the power switch of the remote control first, and then turn on the signal receiver's remote switch. After the machine's job is finished or the remote control will not be used for a long time, the remote switch must be turned off.
- 4) When connecting the cable plugs between the signal receiver and the motor, the arrows on the male and female plugs must be aligned. There are corresponding holes in the plugs, and they should be aligned before insertion. It is strictly prohibited to insert them violently or unplug them with power on.

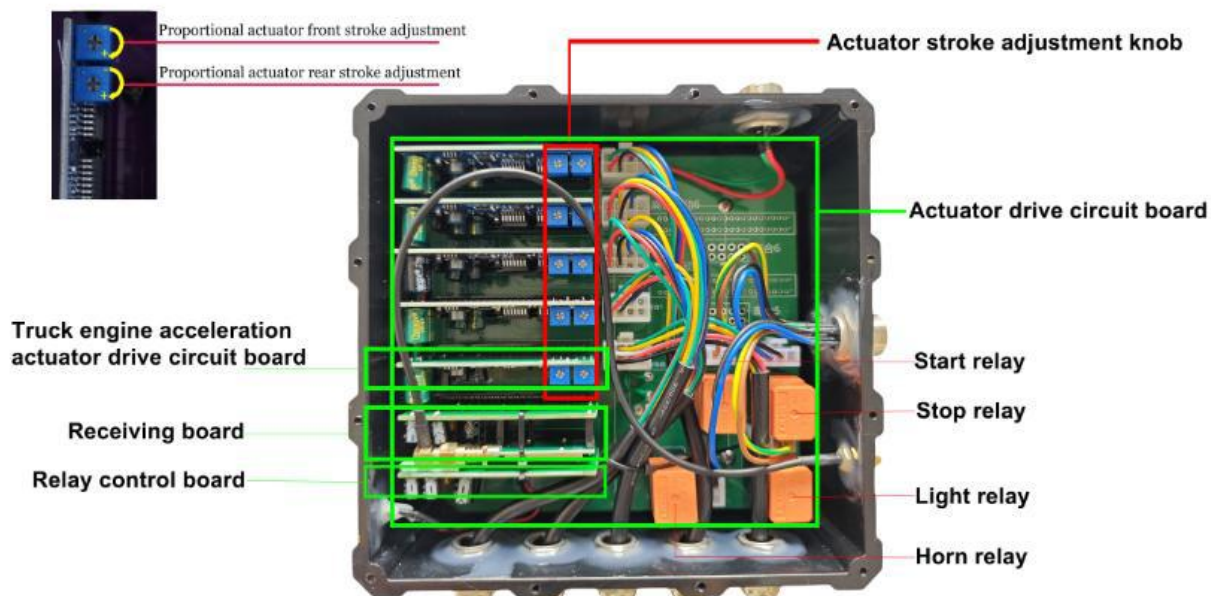
7. Electronic Throttle Wireless Control System

7.1 Electric drive wireless control system



7. Electronic Throttle Wireless Control System

7.1 Electric drive wireless control system



Instruction for program settings:

1. Press and hold the STOP button while turning on the power switch to enter the program setting mode. The signal and power indicator lights will flash simultaneously, indicating that you have entered the program setting mode.

2. Travel setting: Select the joystick to be adjusted.

(1) Push the joystick on the remote control forward to a suitable position, then press the STOP button to confirm. The power indicator light will flash once, indicating that the forward travel setting is successful.

(2) Push the joystick on the remote control backward to a suitable position, then press the STOP button to confirm. The power indicator light will flash once, indicating that the backward travel setting is successful.

3. Joystick direction setting: Select the joystick to be adjusted.

Push the joystick on the remote control forward, then press the START UP button. The power indicator light will flash once, and the actuator will immediately change its working direction, indicating that the direction setting is successful.

4. Program saving: After completing the travel setting or joystick direction setting, press and hold the START UP button.

The signal light will flash three times, indicating that the program has been successfully saved.

NOTE

- The stroke gradually becomes shorter from (+) to (-)
- Stroke Adjustment (-) to (+) Stroke Extension
- When adjusting the travel, push the remote control stick to the maximum angle and keep it there, then adjust the travel to the corresponding angle.
- The controller stroke must be less than or equal to the actual hydraulic valve stroke. It is strictly forbidden to exceed the actual hydraulic valve stroke. Exceeding this range will cause damage to the proportional actuator.
- El trazo se acorta gradualmente de (+) a (-)
- Ajuste de carrera (-) a (+) Extensión de carrera
- Al ajustar el recorrido, empuje la palanca del control remoto hasta el ángulo máximo y manténgala allí, luego ajuste el recorrido al ángulo correspondiente.
- La carrera del controlador debe ser menor o igual a la carrera real de la válvula hidráulica. Está estrictamente prohibido exceder la carrera real de la válvula hidráulica. Exceder este rango causará daños al actuador proporcional.

7. Electronic Throttle Wireless Control System

7.2 Calibrating the ETC signal

- Step 1: Unplug the pedal plug. After the system is powered off, step on the pedal to the bottom.
- Step 2: Connect the pedal plug. After powering on, start counting for about 5 seconds. Then release the pedal and keep the pedal at the minimum throttle for about 10 seconds. The matching is completed.

7.3 Notes

- The positive and negative poles of the red and black wires must not be reversed. The throttle must be at the minimum position before startup. This system is only used for crane lifting operations.



8. Remote Control Safety Operation Specifications

In order to use proportional remote control more safely and effectively for remote control operation, the following operation specifications must be strictly observed, and illegal operation is strictly prohibited:

- The emergency stop cut - off wire must be connected to the engine stop wire or the power take - off wire to ensure that the engine or power take - off can be effectively shut down and all movements can be stopped when the emergency stop is pressed. If the emergency stop cut - off wire is not connected as required or the emergency stop is ineffective, it is strictly prohibited to continue using it!
- In an emergency, press the emergency stop button. The engine or hydraulic lock switch will automatically turn off, the actuator motor will automatically reset to the neutral position, the joystick will be automatically locked, and all movements will stop.
- Before each operation using the proportional remote control, it is necessary to check whether each actuator motor stops at the middle safe position. The engine or power take - off can be started only after the startup test shows that each motor can work normally.
- During the operation using the proportional remote control, the operator's line of sight must not leave the range of movement of the boom. No one is allowed to stand under the boom. When it is necessary for personnel to approach the crane to load or unload goods during lifting or when pausing the lifting, the locking key must be pressed or the host power must be turned off to prevent accidents.
- After the proportional remote control is turned on, it must not be out of the user's control range. Otherwise, in an emergency, the remote control cannot be found and cannot be operated in time. If the remote control is not carried with you, the host remote switch and the remote control power must be turned off.
- After the operation is completed, the host remote switch and the remote control power can be turned off only after ensuring that the motor actuator returns to the middle safe position.

9. Conventional fault analysis

The problem	Probable cause	The Solution
The launcher has no response and neither the signal light nor the power light is on.	The launcher is not powered.	Please check if the battery charge is sufficient. If not, replace the battery or charge it. Inspect whether the contacts of the battery and the remote control are damaged or corroded. Check if the power switch or the switch connection plug has poor contact.
The red power indicator of the launcher flashes twice per second and there is no output from the remote control operation.	Low battery power, remote control system forced lock.	Please check if the battery charge is sufficient. If not, replace the battery or charge it.
The green signal light and the red power light of the launcher flash synchronously.	Before starting up, it was detected that the remote control was not in the locked state or there was poor power supply contact between the host and the remote control during use, so the system is forcibly locked, the system will be forced to	Please check if the lock switch is in the locked position. Reset it to the locked position and then unlock it. Or check if the lock switch has poor contact.
The green signal light of the launcher does not light up, and the working light of the receiving host does not light up	There is no power supply inside the host.	Please check the power supply line of the host and check whether the internal voltage of the host is normal and

		reenergize it.
The green signal light of the launcher is not on while the working light of the receiving host is flashing.	Communication failure.	Please check whether the antenna of the receiving host is damaged or has poor contact, or whether the internal antenna of the remote control is poorly soldered and detached.
When the green signal light and the red power light of the launcher are on simultaneously, the host light is not on and the remote control has no response.	The communication is locked without being unlocked.	Please check if the lock switch is not set to the unlocked position or check if the lock switch has poor contact.
The working lights of the launcher and the receiving host are in normal condition but there is no output work.	The main power relay has poor contact or the power supply voltage is too low.	Please replace the main power relay or restore the normal power supply voltage.
A certain group of actuators has no action.	The actuator is damaged or the drive card of this channel is damaged.	First, turn off the power of the host, pull out the plug of the faulty actuator motor, insert a good actuator from another channel into the faulty channel. If it works normally, it means that the drive card of this channel is okay and just replace the motor. If there is no response, it means that the drive card is faulty and replace the drive card.



With innovative strength, RUNZHE ushers in a new era of precise proportional radio control valve, leading the industry towards a new journey of high efficiency.

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