

RT-PVR6-30

Modular proportional amplifier with 3 - channel independent control, exclusive for bending machines.
Design number 30series
Power supply range: 19~35VDC
Command types: $\pm 10V, 4\sim 20mA$
(confirmed before leaving the factory)
Types of control valves: PSL,PRL,PIL



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Features

- It can be used to replace the Hoerbiger PVR - series controllers. This device has three independent control channels, namely A, B, and C. It is designed to control a combination of two PRL (or PIL) proportional valves with position feedback and one relief valve, or a combination of two PSL proportional valves without position feedback and one relief valve.
- The CPU adopts a powerful 32-bit processor.
- Monitoring of the actual spool position value of a directional valve with position feedback
- Three - channel independent enable input
- The fault diagnosis function can give prompts for abnormal conditions such as broken wires of electromagnets and broken wires of displacement sensor cables.
- The power supply has a reverse polarity protection function.

Ordering Model

RT-PVR6	-	S	-	30	/	A1
01		02		03		04

01	RT-PVR6	Modular proportional amplifie can replace the Hoerbiger PVR series controllers.
02	S	Control open - loop directional valves(PSL)
	R	Control closed - loop directional valves(PRL,PIL)
03	30	The design number is of 30 series
04	A1	The command input of $2*(\pm 10V)+1*(0\sim 10V)$
	F1	The command input of $3*(4\sim 20mA)$

Note: The type of the controlled directional valve and the command type need to be confirmed before the amplifier leaves the factory.
Customers cannot switch the types of the controlled valve and the command on - site.

PVR6

Technical Data

Working Voltage	19~35 VDC
Power Consumption	<150VA
Current Consumption	<6A (24V)
No-load Current	≤300mA (24V)
Signal Input	Type A1: Channels A and B (± 10 V, input impedance $\geq 100\text{K}\Omega$), Channel C (0 - 10 V, input impedance $\geq 100\text{K}\Omega$) Type F1: Channels A, B, and C (4 - 20 mA, input impedance = 100Ω)
Resolution	<1 ‰
Channel Enable Input	When voltage > 11V, corresponding channel activates & green light on. When voltage < 10V (or terminal 3 floating), channel deactivates & green light flashes.
Ramp Time	0.01~5 S (The factory - default value is 0.01S)
Output of Actual Position Value	Type A1: ± 10 V, load impedance $\geq 550\text{K}\Omega$ Type F1: 4~20 mA, load impedance < 300Ω
Connection Type	Plug-in threaded fastening terminals
Operating Temperature	-20~60 °C
Storage Temperature	-25~80 °C

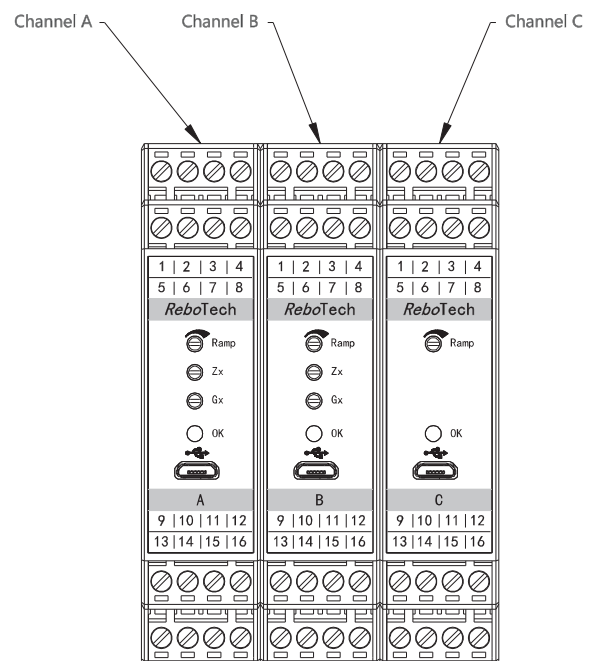
Display and Adjustment

Indicator Light Status

The status of the OK light	Meanings of Channel A and B	Meanings of Channel C
Green light always on	Normal	
Green light flashing	Disabled	
Red light always on	Electromagnet wire breakage	
Red light flashing	Position sensor broken	None

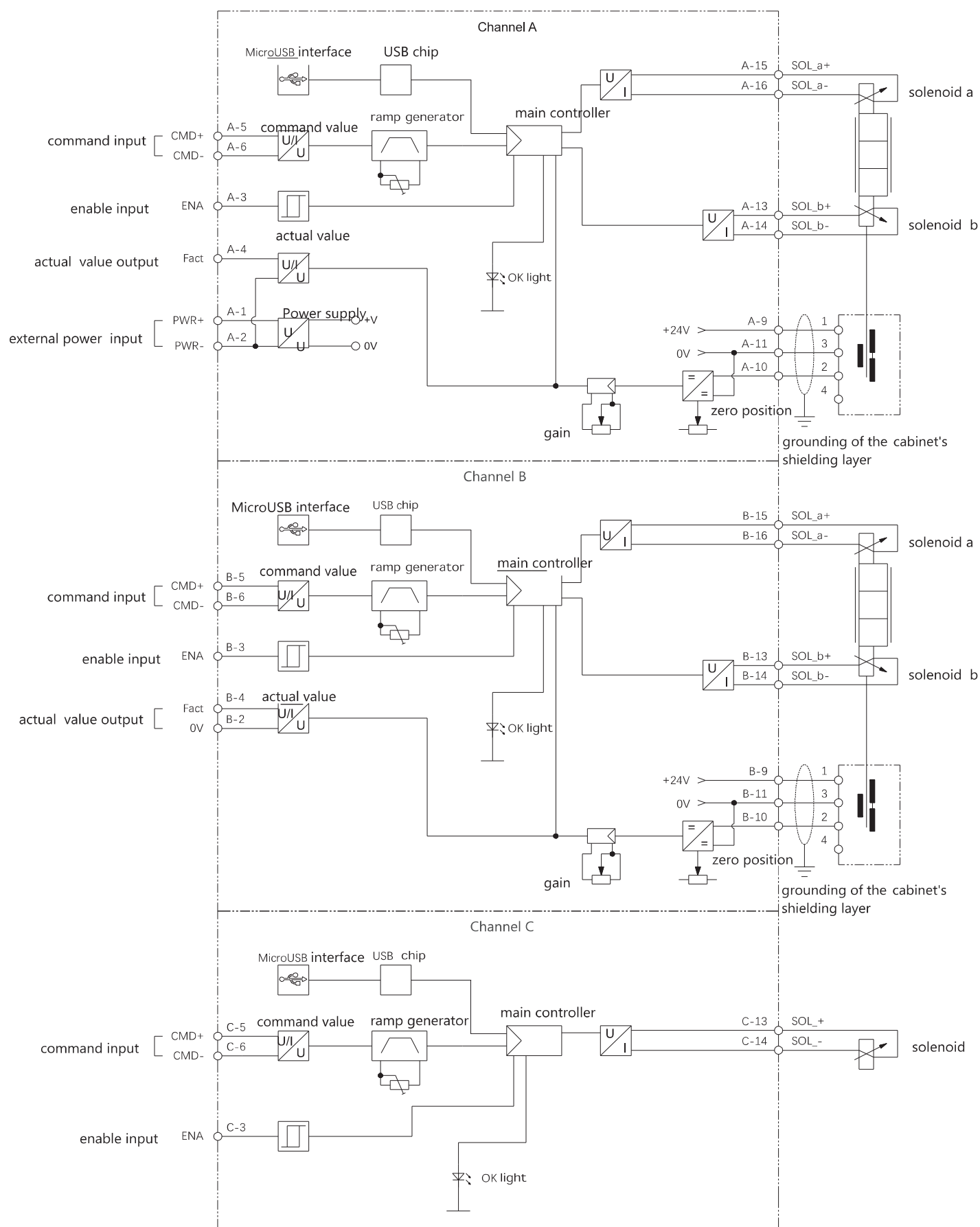
Potentiometer adjustment

Potentiometer name	The functions of Channel A and B	The functions of Channel C
Ramp	Ramp time adjustment: time clockwise, time counterclockwise. Range: 0.01-5s (default 0.01s).	
Zx ①	Zero - position adjustment: It is carried out when the zero - position of the valve is offset.	None
Gx ①	Gain adjustment: It is adjusted when the maximum flow rate of the valve is incorrect.	None

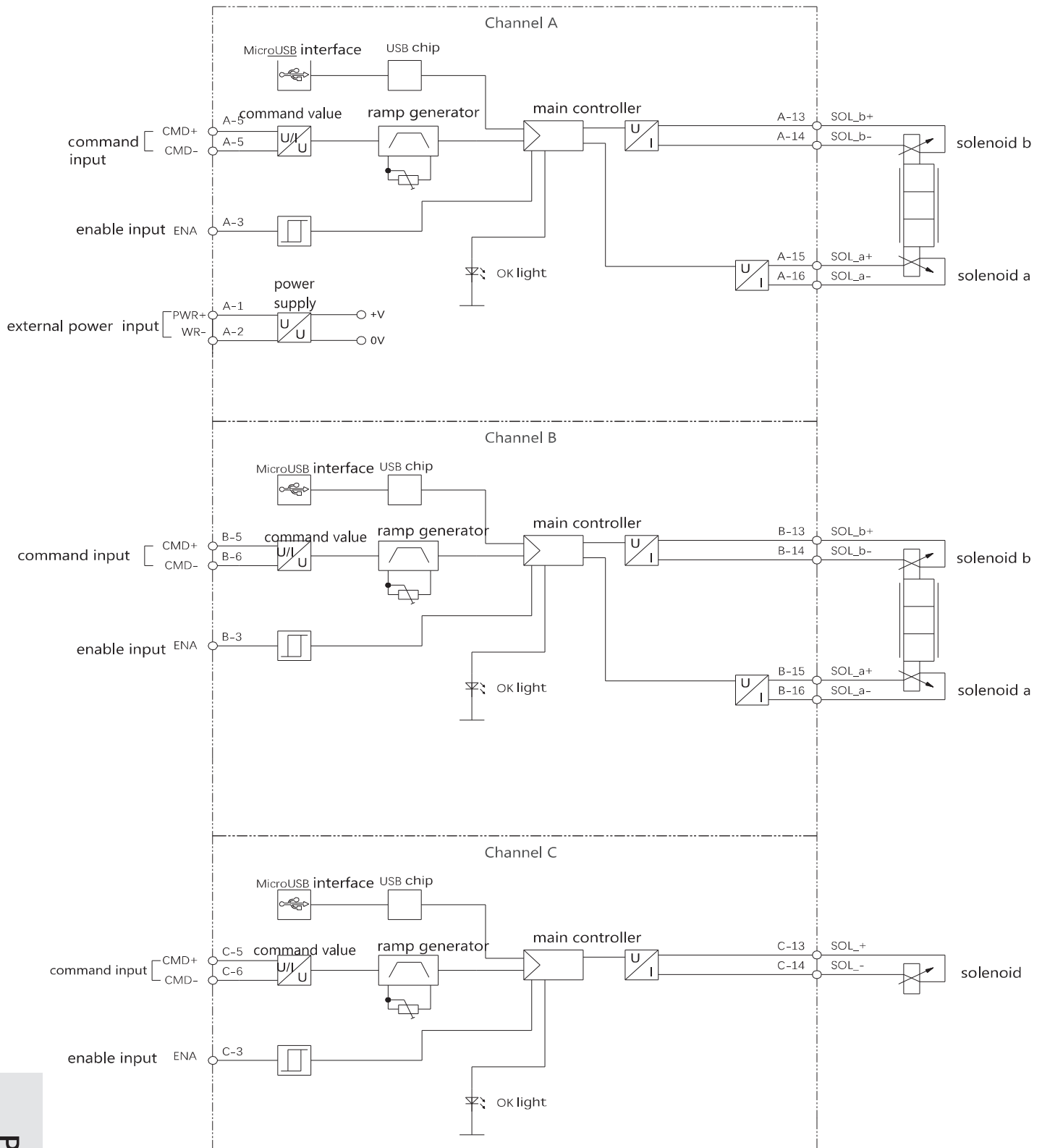


① The PVR - R - 30 model is equipped with zero - position and gain adjustment potentiometers, while the PVR - S - 30 model does not have these two potentiometers. The Micro USB interface can be used to connect to a host computer for setting channel parameters. For specific methods, please consult Rebo Tech Company.

Principle Block Diagram(RT-PVR6-R-30)



Principle Block Diagram(RT-PVR6-S-30)



Terminal Definition

Terminal of Channel A		Function Descriptions
A-1	PWR+	External power input, 24VDC
A-2	PWR-	
A-3	A_ENA	Channel A Enable: If voltage > 11V, Channel A operates; if voltage < 10V (or terminal floats), Channel A doesn't operate.
A-4	A_Fact	Actual Position Value (with the reference point as Terminal A - 2)① Type A1: ± 10 V, load impedance $\geq 550\text{K}\Omega$; Type F1: 4 - 20 mA, load impedance < 300 Ω
A-5	A_CMD+	Command Input: Type A1: ± 10 V, input impedance $\geq 100\text{K}\Omega$; Type F1: 4 - 20 mA, input impedance = 100 Ω
A-6	A_CMD-	
A-7	N.C.	Not connected
A-8	N.C.	
A-9	A_S1	Sensor terminal 1 ①
A-10	A_S2	Sensor terminal 2 ①
A-11	A_S3	Sensor terminal 3 ①
A-12	N.C.	Not connected
A-13	A_b+	Channel A solenoid b ②
A-14	A_b-	
A-15	A_a+	Channel A solenoid a ②
A-16	A_a-	

Terminal of Channel B		Function Descriptions
B-1	N.C.	Not connected
B-2	N.C.	
B-3	B_ENA	Channel B Enable: If voltage > 11V, Channel B operates; if voltage < 10V (or terminal floats), Channel B doesn't operate.
B-4	B_Fact①	Actual position value (With reference point being terminal a-No. 2) Type A1: ± 10 V, load impedance $\geq 550\text{K}\Omega$ Type F1: 4 - 20 mA, load impedance < 300 Ω
B-5	B_CMD+	Command input Type A1: ± 10 V, with input impedance $\geq 100\text{K}\Omega$. Type F1: 4 - 20 mA, with input impedance = 100 Ω
B-6	B_CMD-	
B-7	N.C.	Not connected
B-8	N.C.	
B-9	B_S1	Sensor terminal 1 ①
B-10	B_S2	Sensor terminal 2 ①
B-11	B_S3	Sensor terminal 3 ①
B-12	N.C.	Not connected
B-13	B_b+	Channel B solenoid b ②
B-14	B_b-	
B-15	B_a+	Channel B solenoid a ②
B-16	B_a-	

① If the controlled directional valve is of the PSL type, the sensor terminal and the actual position value terminal are unavailable.

② If the controlled directional valve is of the PSL type and the control - direction logic of the valve is reversed, please swap the positions of the plugs of solenoid A and solenoid B.

Terminal of Channel C		Function Descriptions
C-1	N.C.	Not connected
C-2	N.C.	
C-3	C_ENA	Channel C Enable: If voltage > 11V, Channel C operates; if voltage < 10V (or terminal floats), Channel C doesn't operate.
C-4	N.C.	Not connected
C-5	C_CMD+	Command input Type A1: 0~10 V, with input impedance $\geq 100\text{ K}\Omega$. Type F1: 4 - 20 mA, with input impedance = 100 Ω
C-6	C_CMD-	
C-7	N.C.	Not connected
C-8	N.C.	
C-9	N.C.	
C-10	N.C.	
C-11	N.C.	
C-12	N.C.	Channel C solenoid
C-13	C_+	
C-14	C_-	Not connected
C-15	N.C.	
C-16	N.C.	

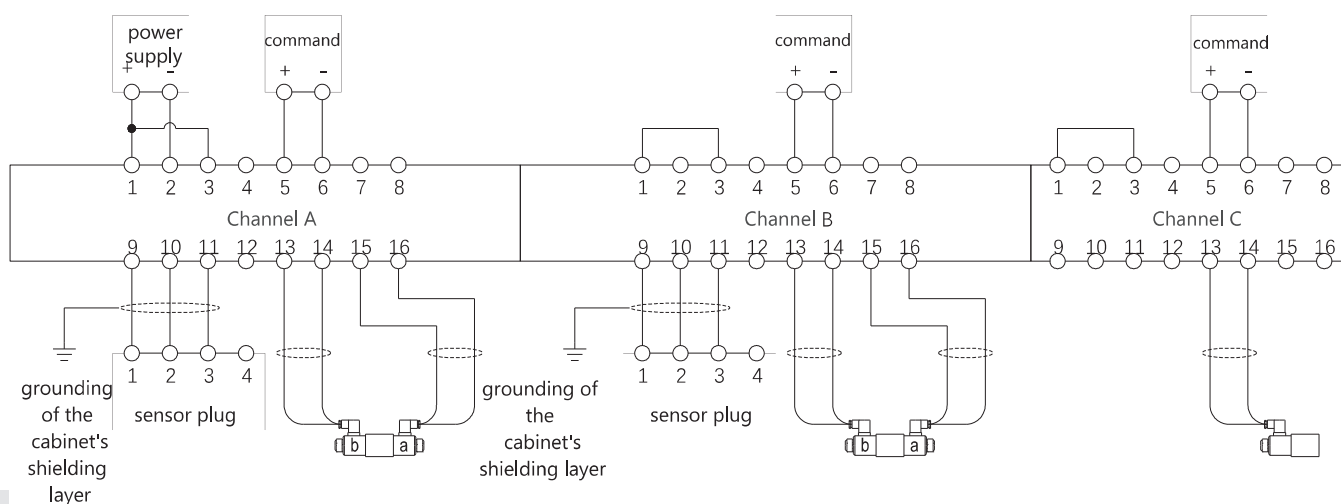
Wiring Examples

Example 1 (applicable to RT-PVR-R-30):

Give an analog commands through PLC, CNC, acquisition card, etc.

The analog commands can be any signal of $\pm 10\text{V}$, 4~20mA.

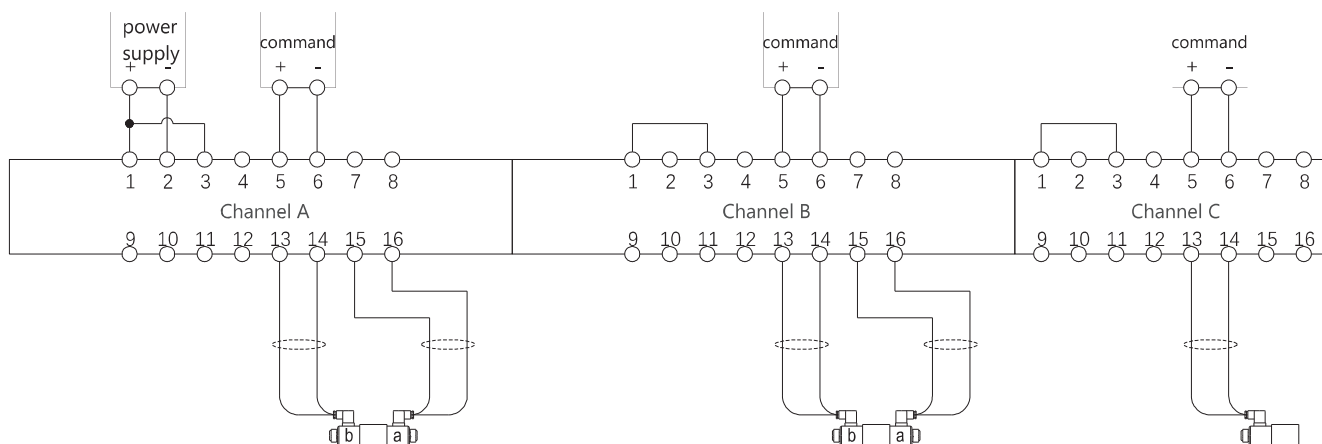
Note: The command type has been determined at the factory and cannot be changed on site.



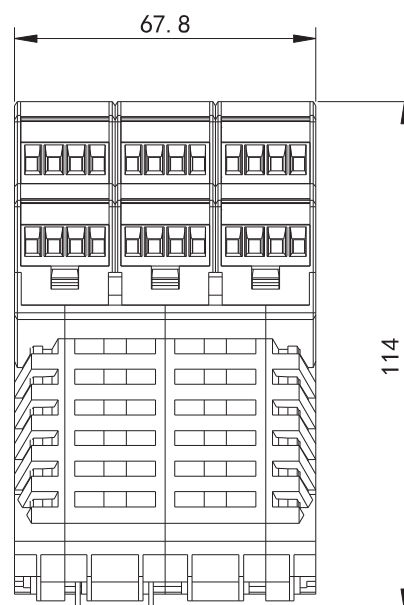
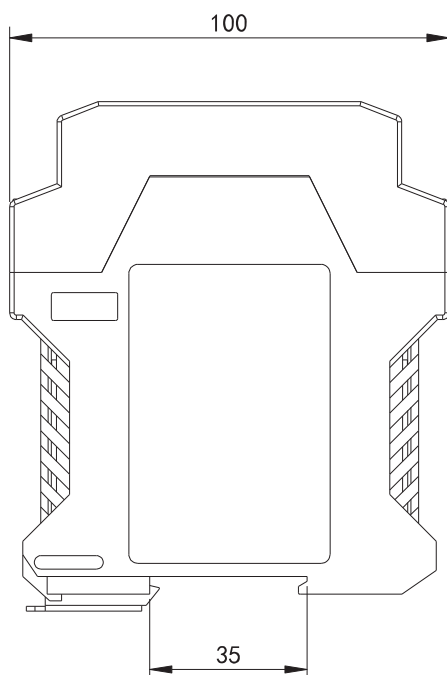
Example 2 :(Applicable to RT - PVR - S - 30):

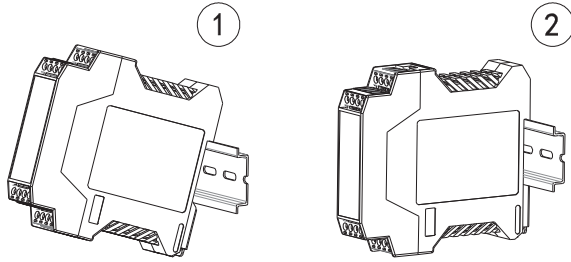
Analog commands are sent via PLC, CNC, data acquisition card, etc. The analog commands can be either $\pm 10V$ or 4 - 20mA signals.

(Note: The command type is determined at the factory and cannot be changed on - site.)



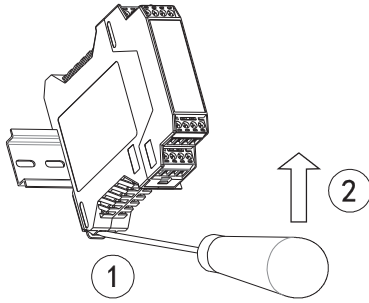
Overall Dimensions (Unit: mm)





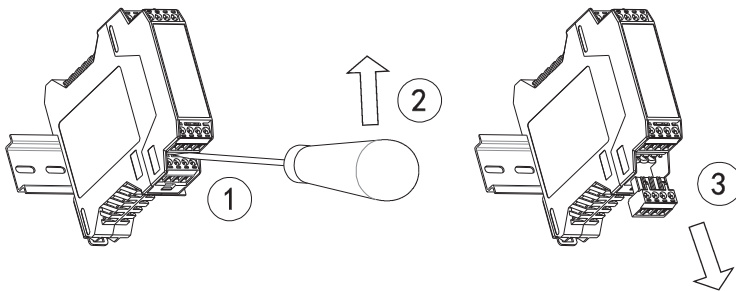
Amplifier Installation:

1. Clip the upper end of the back bayonet of the amplifier onto the guide rail.
2. Press the lower front of the amplifier by hand until you hear a *click*, meaning it's installed properly.



Amplifier Removal:

Insert a flathead screwdriver into the bottom latch. Push the handle of the screwdriver in the direction shown in the illustration to remove the amplifier from the guide rail.



Terminal Disassembly:

1. Insert a flathead screwdriver into the gap between the terminal and the housing.
 2. Push the handle of the screwdriver in the direction shown in the illustration to separate the terminal from the socket.
 3. Pull out the terminal in the direction shown in the illustration.
- Instruction: If it is necessary to replace the amplifier on site, the terminals can be directly disassembled and then a new amplifier can be inserted. There is no need to repeatedly disassemble and assemble the wires. This effectively avoids amplifier failures caused by incorrect wiring.

Precautions

- The amplifier can only be plugged in or unplugged when the power is off!
- When connecting to the electromagnet, do not use plugs with freewheeling diodes or LED displays!
- When measuring the amplifier, instruments with $R_i > 100k\Omega$ must be used!
- Use relays with gold contacts to switch the command values (low voltage, low current)!
- When using external control, the maximum fluctuation of the control voltage should not exceed 10%!
- The distance from antennas, wireless power sources and radar equipment must be greater than 1m!
- Don't lay the electromagnet and the command value cables near the power cables!
- For coil cables with a length within 50 m, wires with a wire diameter of 1.5 mm^2 are applicable. If longer cables are needed, please contact us.
Suggestion: The connections of the electromagnet should also be shielded!
- The electrical signals generated by the amplifier (such as the reference voltage +10V) are not allowed to be used as functional signals related to equipment safety! Please refer to the European standard "BS EN 982:1996 Safety of machinery - Safety requirements for fluid power systems and their components - Hydraulic power transmission devices"!