

RT-PSGM

Plug-in proportional Amplifier without electrical position feedback, single electromagnet

Power supply range: 8~32VDC

Command types 0~5V, 0~10V, 4~20mA
(switchable on-site)

Maximum output current 0.2~3A
(settable on-site)



PSGM

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Features

- Convenient installation: install directly onto the electromagnet, saving space.
- Easy operation: set various parameters through the amplifier's integrated buttons and digital tubes.
- Rich parameter configuration: configurable with multiple input command types, maximum and minimum currents, ramp-up and ramp-down times, dither frequency, and command dead zone.
- Wide voltage and current range: 8~32VDC wide voltage input, 0~3A wide current output, meeting the requirements of various single-solenoid proportional valves without position feedback.
- Fault diagnosis: real-time monitoring of command wire breakage, overload, solenoid wire breakage, and overcurrent, and displaying the current fault code on the digital tube for easy fault location
- RS485 communication interface: with the PC software EHC-Manager, it enables functions like batch parameter modification and remote monitoring.
- Support for Modbus RTU protocol: enables multi-machine communication control
- IP65 protection rating: easily handle harsh working environments and meet the requirements for high reliability.

Ordering Model

RT-PSGM	/	M12	S
01		02	03

01	RT-PSGM	Plug-in single electromagnet proportional amplifier
02	M12	With M12 connector (standard)
	Wxx	With cable (xx represents cable length, unit: meter)
03	S	M12 straight female connector
	B	M12 bent female connector
	None	With cable

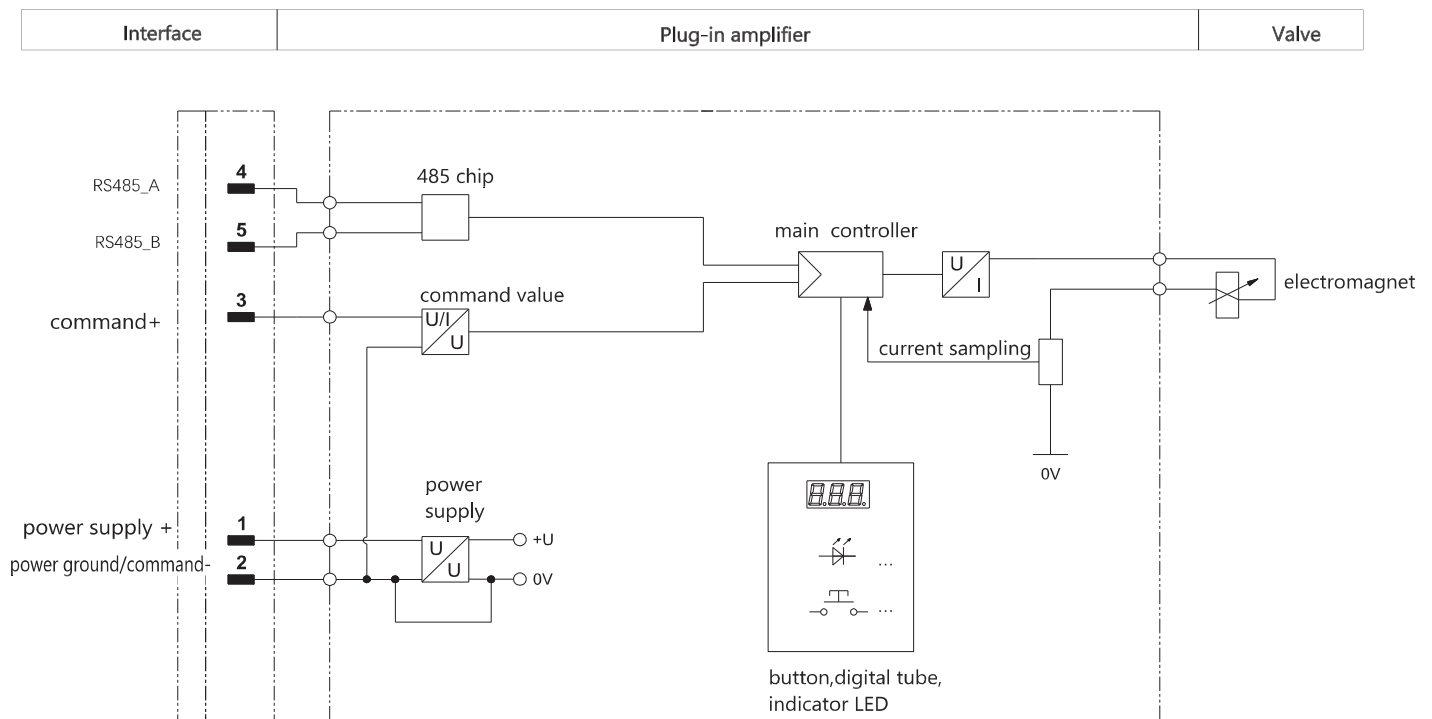
Technical Data

PSGM

Working Voltage	8~32 VDC
No-load Current	≤40mA
Command input	0~5 V, RE≥100KΩ 0~10 V, RE≥100KΩ 4~20 mA, RE=250Ω (signal type switchable on-site)
Resolution	≤1 ‰
Nonlinearity	≤1 ‰
Maximum Output Current	0.2~3 A (settable)
Dither Frequency	50~450Hz (settable)
Ramp Time	0~99.9 S
Communication Interface	RS485
Communication Protocol	ModBus-RTU
Baud Rate	4800~57600 Baud (default 9600)
Protection Rating	IP65
Operating Temperature	-20~70 °C
Storage Temperature	-25~85 °C
Operating and Storage Humidity	0 %~90 %
Connectors	M12, 5-Pole (straight) M12, 5-Pole (bent)
Electromagnet Interface	Compliant with DIN 43650-A/ISO 4400
PC Software	EHC_Manager ①

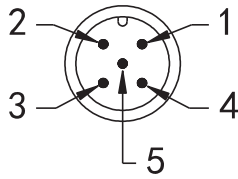
① For more information about the EHC-Manager software, please refer to the "EHC_Manager Software User Manual".

Principle Block Diagram



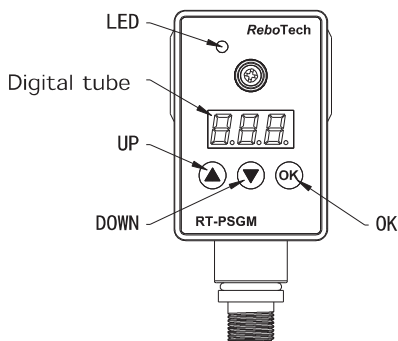
Terminal Definition

Male Connector Terminal Diagram

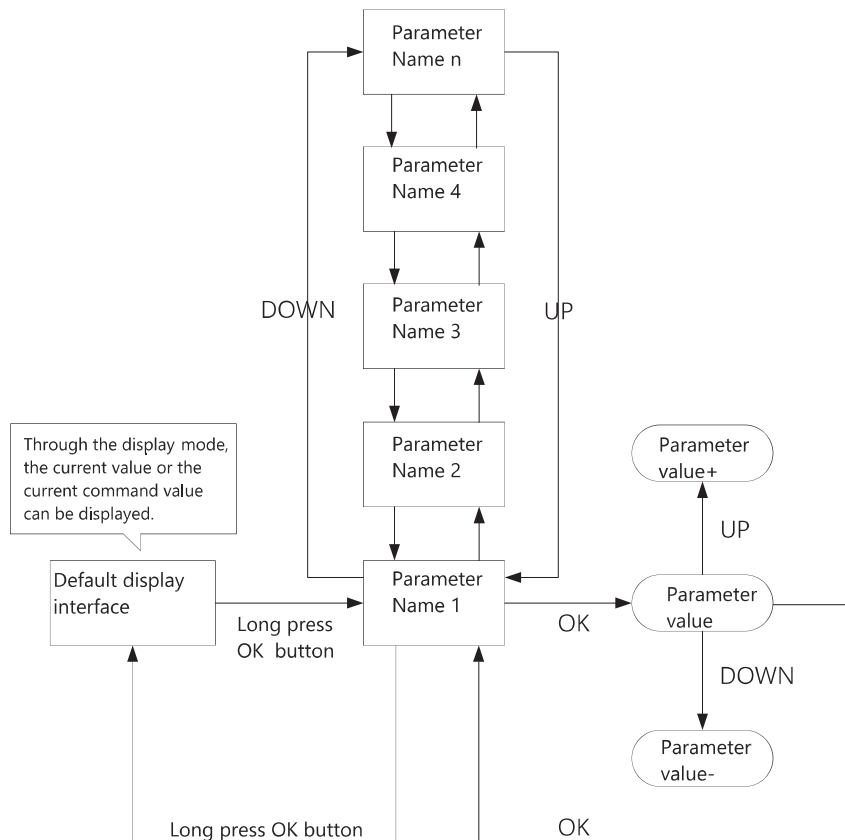


Terminals		Function Descriptions
1	+UB	power supply +
2	0V/CMD-	power ground/command-
3	CMD+	command+
4	485_A	485 interface
5	485_B	

Parameter Setting Navigation



By pressing the "OK", "UP", and "DOWN" buttons to set parameters. Long press the "OK" button (>2S) to enter the "parameter name" interface. Press the "UP" and "DOWN" buttons to select the parameter, and short press the "OK" button to enter the "parameter value" interface. After entering a parameter value interface, change the parameter value by pressing the "UP" and "DOWN" . In the "parameter name" interface, long press the "OK" button (>2S) to return to the "default display interface". In the "parameter name" or "parameter value" interface, if there is no input for more than 60S, it will automatically return to the default display interface.



Parameter Table

PSGM

Serial Number	Item	Tube Display	Factory-set Value	Value Range	Unit	Descriptions
1	Maximum Current	<i>P IH</i>	1.00	0.20~3.00	A	Adjustment step length: 0.01A ④
2	Minimum Current	<i>P iL</i>	0.00	0.00~1.00	A	Adjustment step length: 0.01A ④
3	Ramp-up Time	<i>P rU</i>	0.0	0.0~99.9	S	Adjustment step length: 0.1S
4	Ramp-down Time	<i>P rD</i>	0.0	0.0~99.9	S	Adjustment step length: 0.1S
5	Input Signal	<i>PR I</i>	10	5/10/420/485		5: 0~5V 10: 0~10V 420: 4~20mA 485: RS485 bus
6	Dither Frequency	<i>P dF</i>	140	50~450	Hz	Adjustment step length: 10Hz
7	Command Dead Zone	<i>P cD</i>	2	0~5	%	Adjustment step length: 1%
8	Display Mode	<i>P dS</i>	0	0~1		0 Output current (unit: A) 1 Input command (unit: V or mA)
9	Parameter Save	<i>PSR</i>	0	0~5		When the value is over 5, save the parameters ①
10	Restore Factory Parameters	<i>P rF</i>	0	0~5		When the value is over 5, restore the factory parameters ②
11	Fault Clear	<i>P cL</i>	0	0~5		When the value is over 5, clear the overcurrent fault code ③
12	Device Address	<i>PRd</i>	2	1~127		Adjustment step length: 1
13	Baud Rate	<i>P bD</i>	9.6	4.8/9.6/19.2/38.4/57.6	K	⑤

① The values of parameters 1 to 8 will take effect immediately during the setting process and will remain unchanged until the power is cut off. If you want to save the parameter values permanently, after setting parameters 1 to 8, you need to enter parameter 9 "PSA". By pressing the "UP" key to make the setting value of "PSA" greater than 5, the parameter values will be saved permanently. Meanwhile, the amplifier will return to the "default display interface". If you want to abandon the changes, turn off the power and then turn it on again without operating parameter 9, and the parameters will revert to the previously saved values.

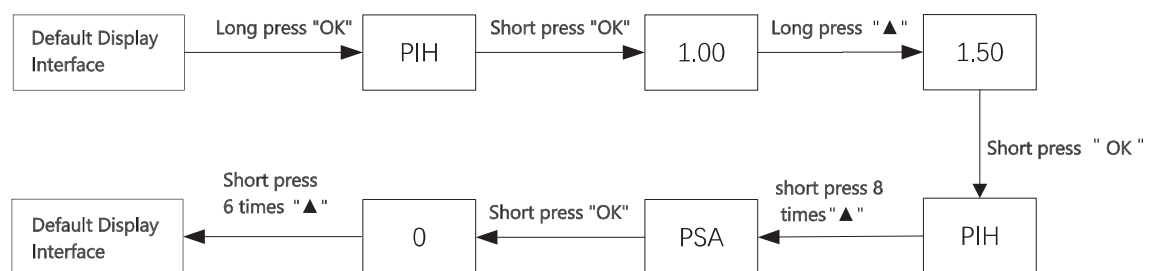
② Enter parameter 10 "PrF". By pressing the "UP" key to make the setting value of "PrF" greater than 5, all parameters will be restored to their factory default values. Meanwhile, the amplifier will return to the "default display interface".

③ When the overcurrent fault code "E31" appears, after the fault is eliminated, the fault code needs to be manually cleared before the amplifier can work properly. Enter parameter 11 "PcL". By pressing the "UP" key to make the setting value of "PcL" greater than 5, the fault code will be cleared. Meanwhile, the amplifier will return to the "default display interface". (The "E31" fault code can also be cleared by turning off the power and then turning it on again.)

④ When setting the maximum current "PIH" and the minimum current "PiL", the amplifier forces "PIH" to be greater than "PiL" by 0.10A or more (for example: when "PiL" is set to 0.20A, then "PIH" can only be set to greater than or equal to 0.30A).

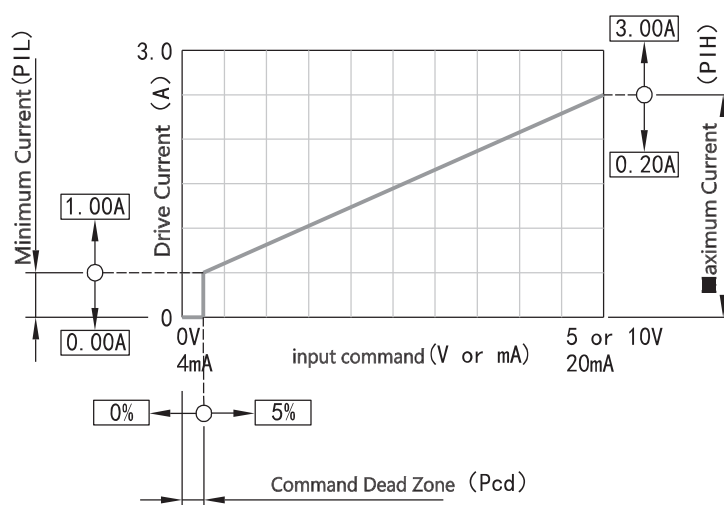
⑤ After setting the baud rate (Pbd), you need to operate "PSA" to permanently save this parameter. After saving, you need to power on again for the new baud rate to take effect.

Parameter Setting Example: When you need to adjust the maximum current from 1A to 1.5A, follow the process shown in the figure below. Other parameter adjustments are similar. If multiple parameters need to be adjusted at once, adjust the other parameters first, and then perform the PSA parameter save operation only once at the end.

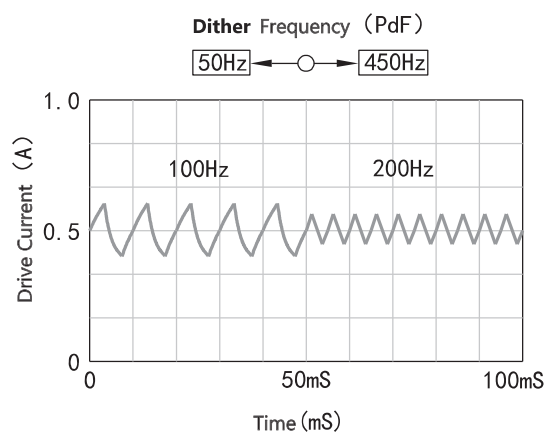


Parameter Meaning Diagram

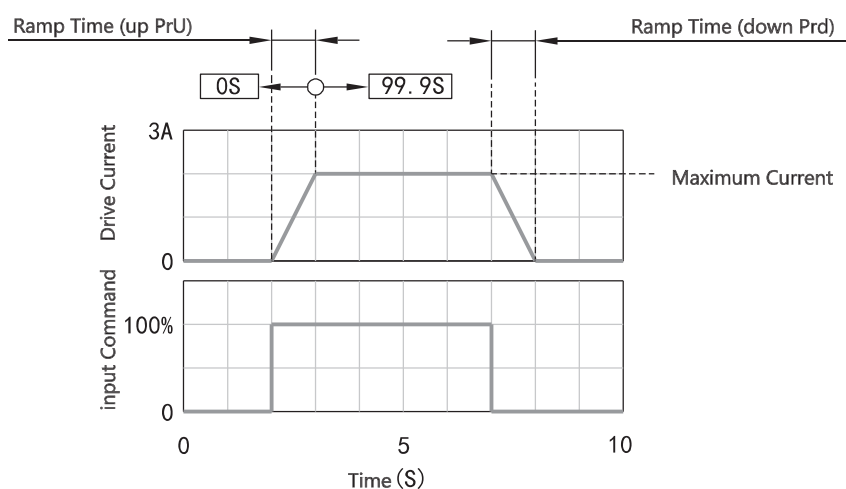
Maximum Current (PIH)
Minimum Current (PIL)
Command Dead Zone (Pcd)



Dither Frequency (PdF)



Ramp-up Time (ArU,brU)
Ramp-down Time (Ard,brd)



Alarm and Indications

Digital Tube Displays	Fault Descriptions
E10	4~20mA signal wire break (command signal is much less than 4mA) ①
E11	4~20mA signal overload (command signal is much greater than 20mA) ①
E30	The wire of electromagnet is broken (the coil of electromagnet is open or the plug is loose) ①
E31	Overcurrent occurs in electromagnet (the coil of electromagnet is short-circuited). ②
E80	EEPROM malfunction. ③

When the above faults occur in the amplifier, the LED digital display tube will display the fault codes and flash at a frequency of 2Hz.

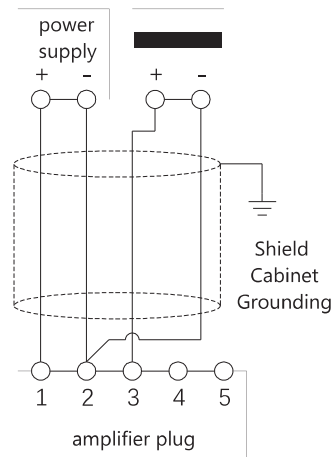
- ① When the fault codes "E10", "E11" and "E30" appear, after the faults are eliminated, the amplifier will automatically clear the fault codes and return to the normal working state.
- ② When the "E31" fault code appears, after the overcurrent fault has been eliminated, it is necessary to enter the parameter "PcL" to clear the fault code (or power on again after powering off), and then the amplifier can resume working.
- ③ When the "E80" fault code appears, please power off and then power on again to restart the amplifier. If the fault code is still not cleared, please contact ReboTech.

LED Indications	Descriptions
Green Light Always On	Normal
Red Light Flashing	Fault

Wiring Examples

Example 1

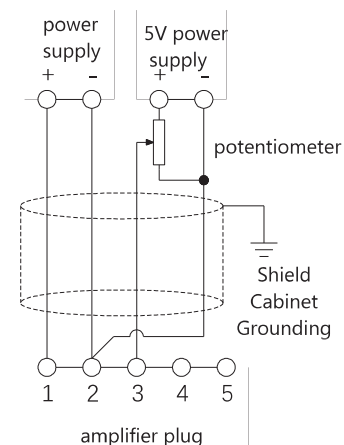
Give an analog command through PLC, CNC, acquisition card, etc.
The analog command can be any signal of 0~5V, 0~10V or 4~20mA .
(Note that the parameter "PAI" should be modified into the corresponding command type.)



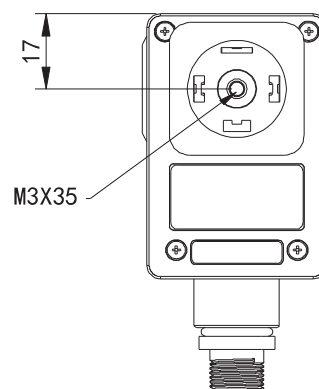
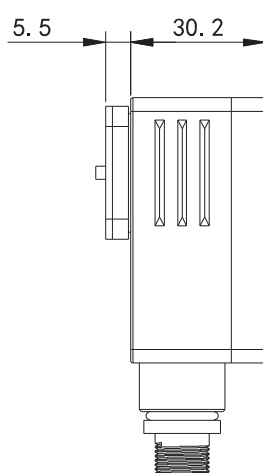
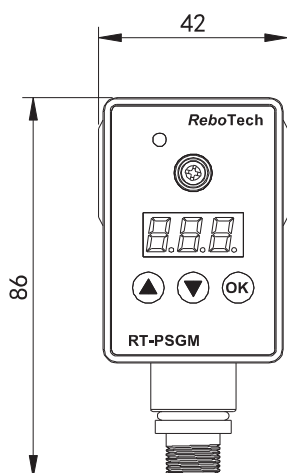
Example 2

Give an analog command through a potentiometer, and the potentiometer is connected to an external 5V power supply (this power supply needs to be prepared by yourself). (Set the parameter "PAI" to 5, and the recommended resistance value of the potentiometer is 5KΩ or 10KΩ.)

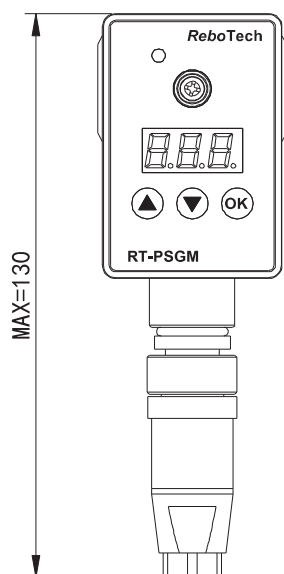
Note: The negative terminal of the power supply and the negative terminal of the command need to be short-circuited at the amplifier terminal, not in the control cabinet. Otherwise, there may be a command attenuation phenomenon.



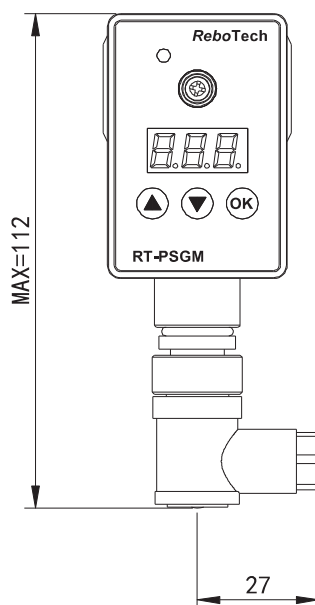
Overall Dimensions (Unit: mm)



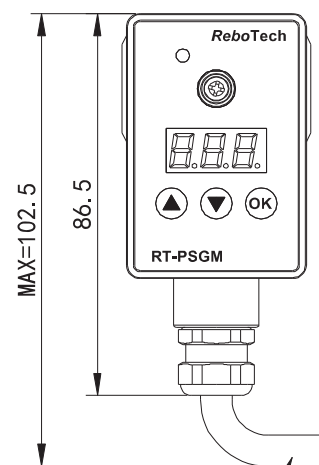
RT-PSGM/M12S



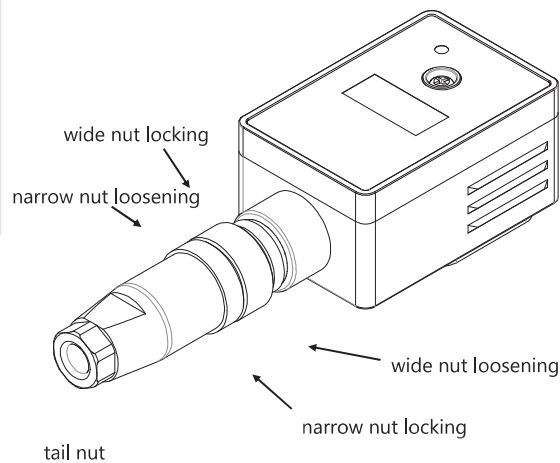
RT-PSGM/M12B



RT-PSGM/Wxx



UL2464-6*20AWG
The length of the cable can be customized according to customers' requirements.



The matching connectors come in straight and bent types. Here, the straight connector is taken as the object for description. The structure of the bent connector is identical to that of the straight connector nut.

Narrow Nut: Rotate the narrow nut in the direction indicated as "narrow nut loosening", and then the rear housing of the connector can be removed, exposing the terminal. After the wiring is completed, rotate the narrow nut in the opposite direction to lock it.

Wide Nut: Rotate the wide nut in the direction of "wide nut loosening", and the connector and the amplifier can be separated. Rotating it in the opposite direction can lock the connector and the amplifier tightly.

Connector Thread	M12*1
The Number of Connector Terminals	5-pole
Connector Tail Nut	PG7 (It can pass through sheathed cables with a diameter not exceeding 7mm.)
Recommended Cable	4*0.5mm ² or 6*0.5mm ² shielded cables, The shielding layer should be grounded at the control cabinet end. It is recommended that the length of the cable should not exceed 50 meters.

Precautions

- The amplifier can only be plugged in or unplugged when the power is off!
- When measuring the amplifier, instruments with a input resistance greater than 100kΩ ($R_i > 100k\Omega$) must be used!
- The distance from antennas, wireless power sources and radar equipment must be greater than 1 meter!
- Do not lay the command value cables near the power cables!