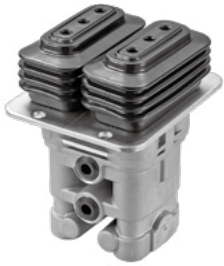
2.4

PILOT CONTROL DEVICE IN PEDAL DESIGN

Type：PVH1,PVH2, PVH3,PVH4,PVH5



PVH1
Hydraulic control

PVH2
Electro-hydraulic control

PVH4
Hydraulic control

PVH3
Electric control

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Features

1. Function:

· Precise linear control
· Perfect adjustment characteristic
· Easy and flexible operation
· Built-in buffering
· Ergonomic shape
· Diverse modular design
· Reliable dustproof and waterproof performance

2. Applications

Excavator

Tractor loader backhoes

Wheel loaders

Drilling rigs

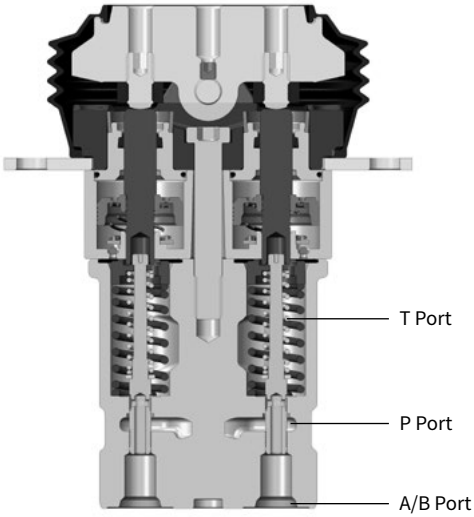
Function description, section view

· Working principle of proportional pressure reducing function:

The hydraulic pressure acting on the lower end of the spool (A/B port) can reach a dynamic balance with the force of the pressure regulating spring to achieve a proportional pressure reducing function.

· Working principle of buffer function:

When a force suddenly works on the pedal, the steel ball inside the buffer will seal the oil return port, thus the hydraulic oil can only flow from the orifice into the upper chamber. With this kind of design, the operation force can be increased and also the manual misoperation for travelling due to bumps can be effectively reduced and finally realizes a buffer function.



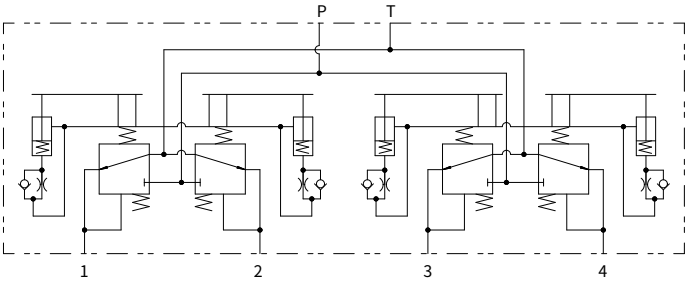
·PVH1、PVH4 Hydraulic control
PVH2 Electro-hydraulic control

Technical data

Type			PVH1 Hydraulic control	PVH2 Electro-hydraulic control	PVH4 Hydraulic control
Inlet pressure		bar	Up to 60		Up to 80
Back pressure at port T		bar	Up to 3		
Control fluid flow (P to 1-2)		L/min	Up to 20		
Hysteresis		bar	Up to 1		
Pressure fluid	[1] suitable for NBR seals [2] suitable for FKM seals		Mineral oil (HL, HLP)[1] to DIN 51524 Phosphate ester (HFD-R)[2]		
Pressure fluid temperature range		°C	-20 to +80		
Viscosity range		cSt	10 to 380		
Degree of pressure fluid contamination			The maximum permissible contamination level of the hydraulic fluid complies with NAS1638 Class 9. Therefore, it is recommended to use a filter with the following minimum retention rate: $ß_{10} \geqslant 75$.		
Max. permissible operating torque at lever		N·m	10 in operation		
Weight		kg	3.8	1.5	4.7

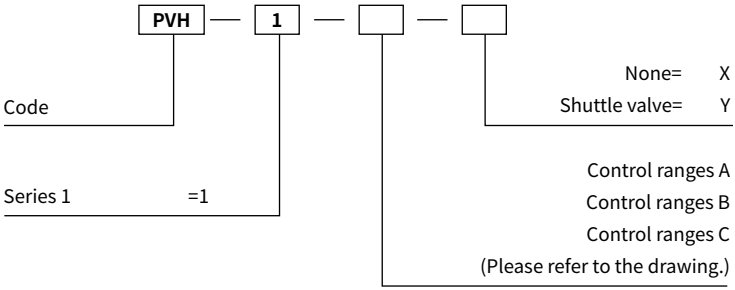
Hydraulic operating diagram

· PVH1 Hydraulic control



Ordering code

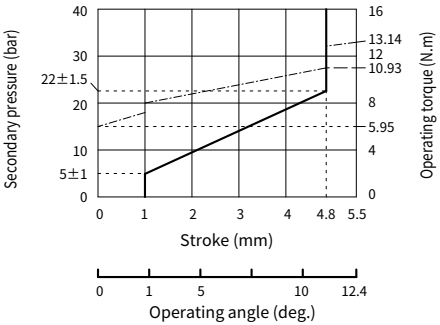
· PVH1 Hydraulic control



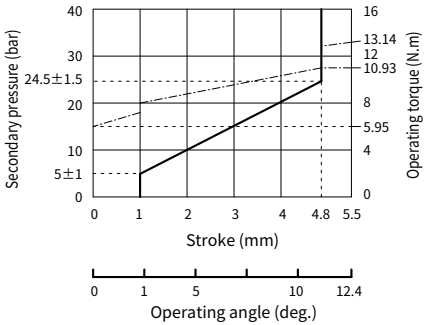
Control curves

· PVH1 Hydraulic control

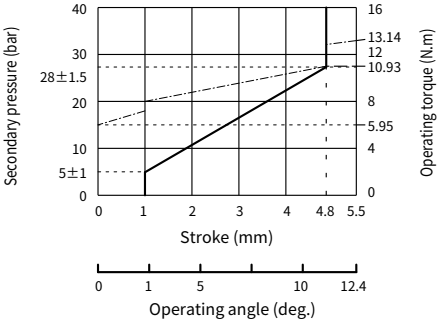
Control ranges A (Port 1, 2, 3, 4)



Control ranges B (Port 1, 2, 3, 4)



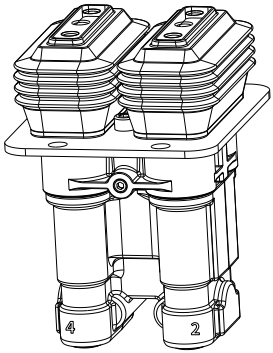
Control ranges C (Port 1, 2, 3, 4)

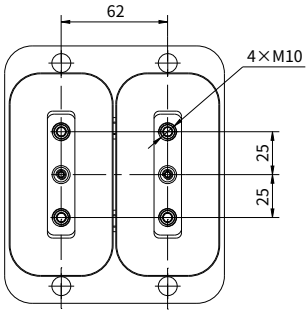


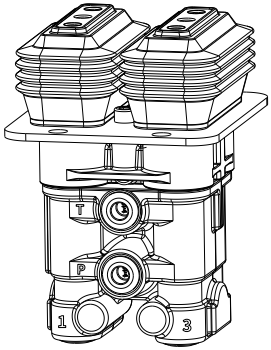
Unit dimensions

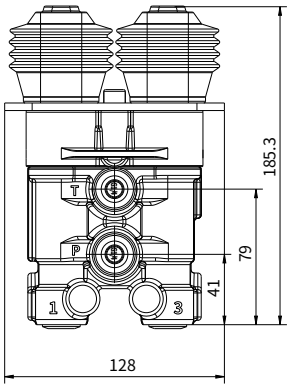
(dimensions in mm)

· PVH1 Hydraulic control

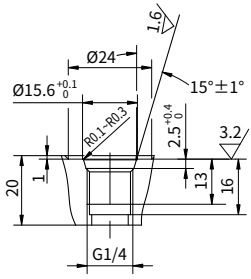




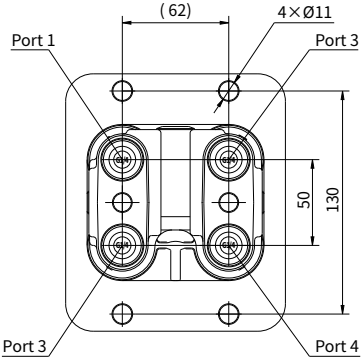




3D Reference Picture

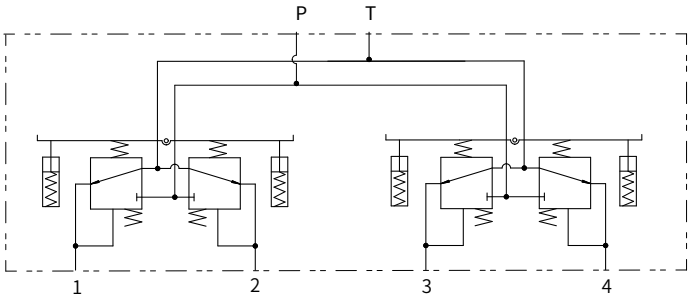


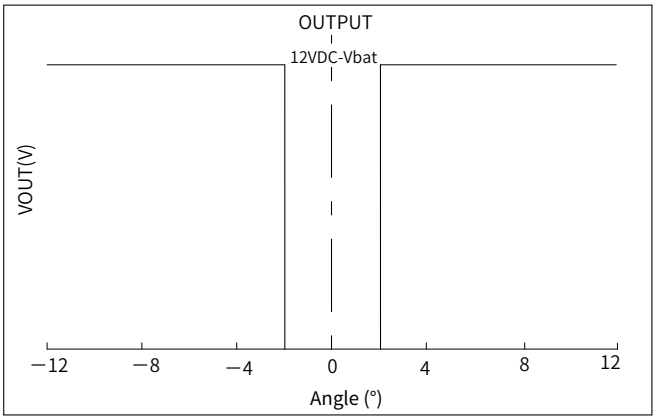
Port: P, T, 1, 2, 3, 4



Hydraulic operating diagram

· PVH2 Electro-hydraulic control

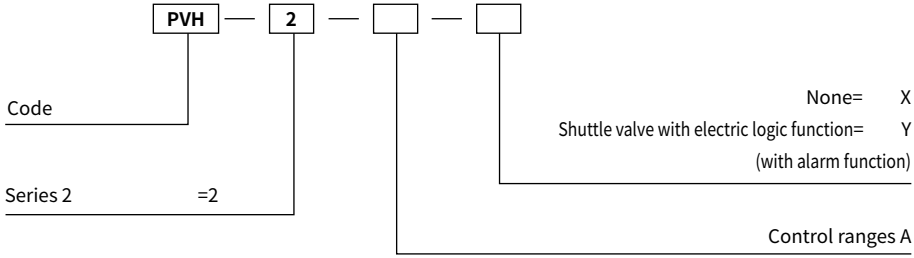




Electrical parameters
1.Rated voltage：12VDC
2.Maximum current：1500mA

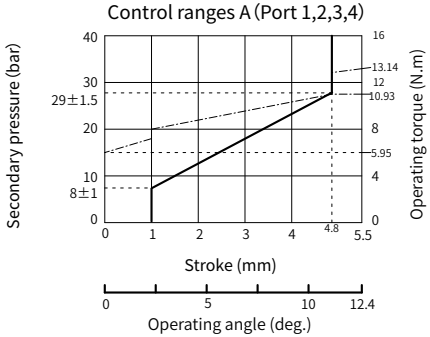
Ordering code

· PVH2 Electro-hydraulic control



Control curves

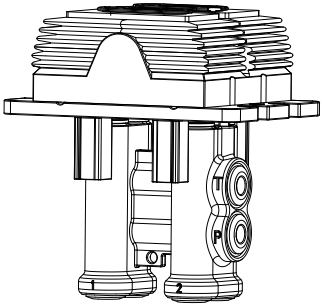
· PVH2 Electro-hydraulic control

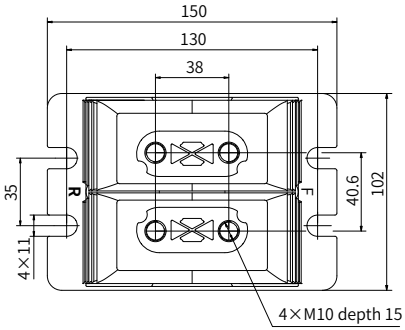


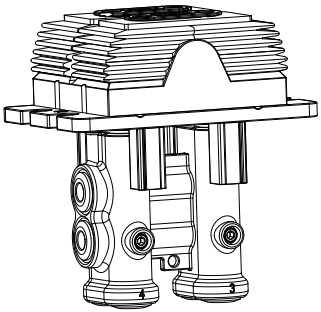
Unit dimensions

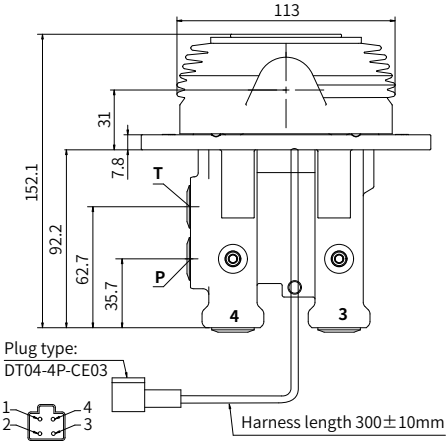
(dimensions in mm)

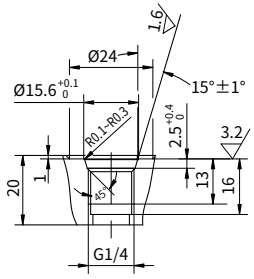
· PVH2 Electro-hydraulic control



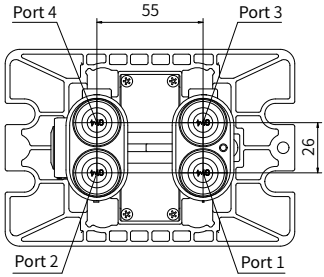






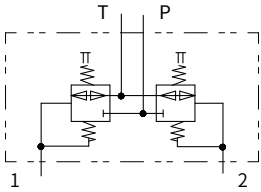


Port: P, T, 1, 2, 3, 4



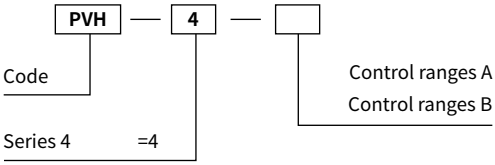
Hydraulic operating diagram

· **PVH4 Hydraulic control**



Ordering code

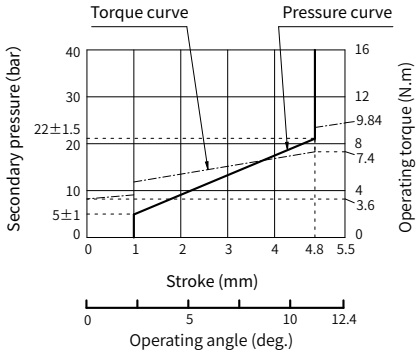
· **PVH4 Hydraulic control**



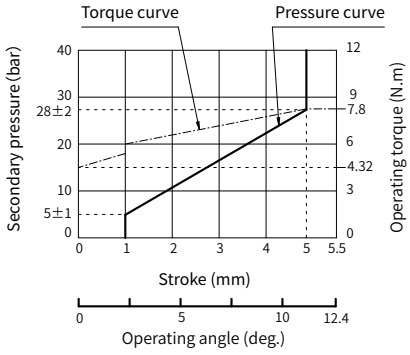
Control curves

· **PVH4 Hydraulic control**

Control ranges A (Port 1,2)



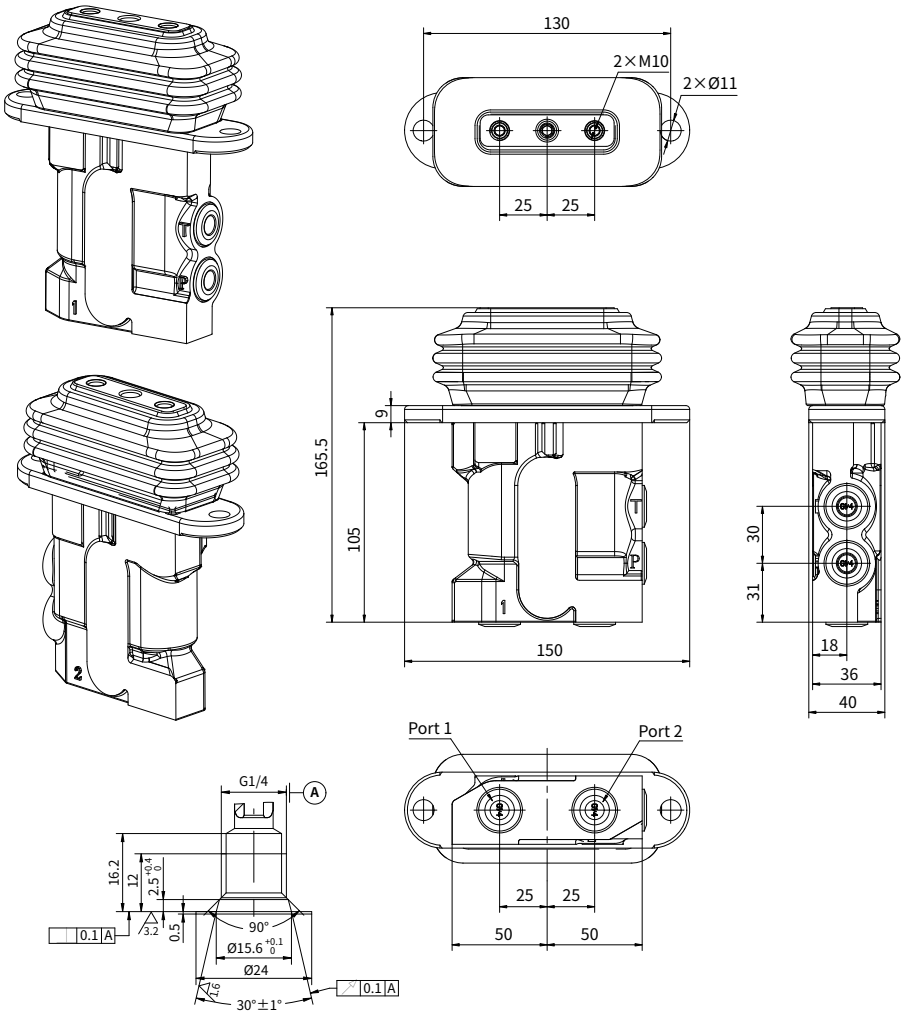
Control ranges B (Port 1,2)



Unit dimensions

(dimensions in mm)

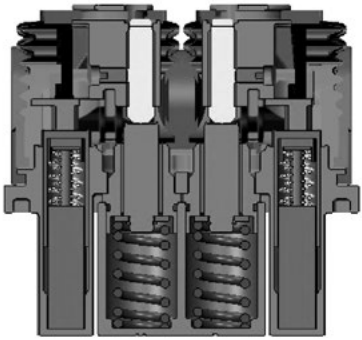
· PVH4 Hydraulic control



Function description, section view

Working principle:

When there is no operation, the electric pedal is kept in the middle position by the return spring, and there is no signal output; During operation, the Hall angle sensor generates an angle signal and outputs it through the CAN loop.



· **PVH3 Electric control**

Function:

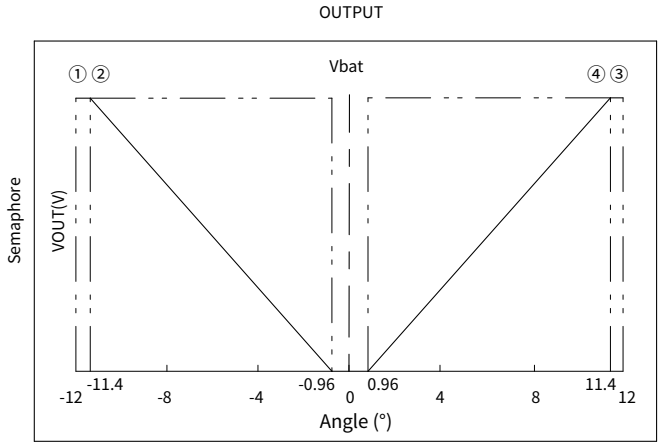
1. Hall angle sensor is adopted;
2. The output is proportional to the angle, and the overall control accuracy is 2% FS;
3. Angle sensor has more than 10 million cycles, with protection grade of IP67;
4. One PCB core board is integrated to realize CAN bus output;
5. Two CAN signals can be output to improve reliability

Technical data

Type		**PVH3** Electric control
Supply voltage	VDC	7-36
Baud rate	KBds	250
Operating angle	°	±12
Degree of protection		IP67 below mounting plate
		IP65 below mounting plate
Temperature	℃	-20 to 65
Weight	kg	1.2

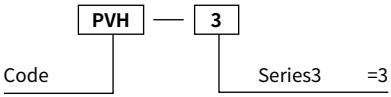
Hydraulic operating diagram

· PVH3 Electric control



Ordering code

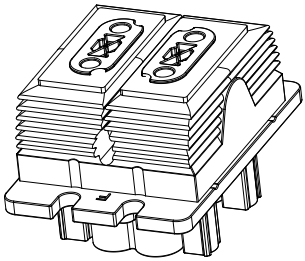
· PVH3 Electric control

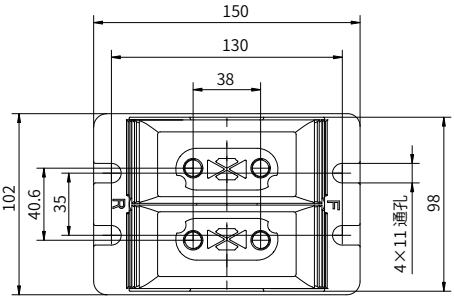


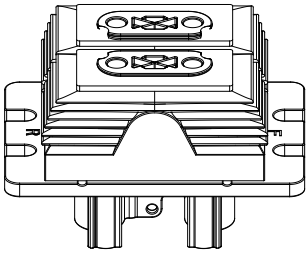
Unit dimensions

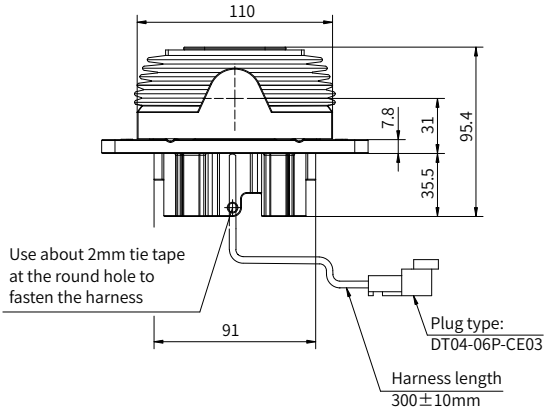
(dimensions in mm)

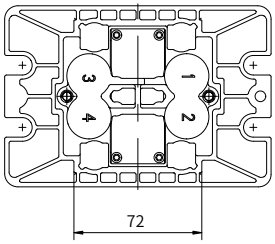
·PVH3 Electric control





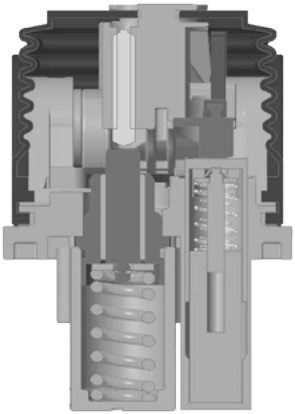






Function description, section view

·PVH5



Working Principle:

When there is no operation, the electric foot pedal is held in the neutral position by the return spring, and no signal is output.

When operating, the Hall angle sensor generates an angle signal and outputs it via the CAN bus.

Features of the Electric Foot Pedal:

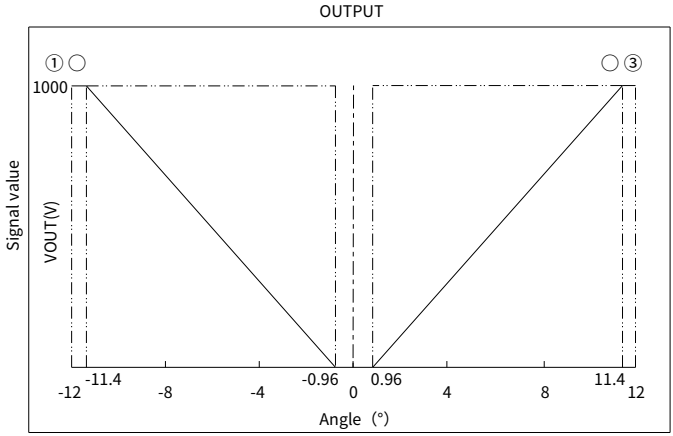
1. Uses a Hall angle sensor.
2. Output is proportional to the angle, with an overall control accuracy of 2% FS.
3. The angle sensor withstands over 3 million cycles, protection class IP67.
4. Integrates one PCB core board, enabling CAN bus output.

Technical data

Type		**PVH5**
Supply voltage	VDC	10~32
Baud rate	KBds	250
Operating angle	°	±12
Degree of protection		IP67 below mounting plate
		IP65 below mounting plate
Temperature	℃	-40~85°
Weight	kg	1.2

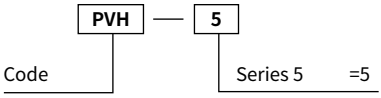
Hydraulic operating diagram

·PVH5



Ordering code

·PVH5



Unit dimensions

(dimensions in mm)

·PVH5 Electro-hydraulic control