

Fig. KIP16

PICV – Pressure Independent Control Valve

Supplied with SS Test Points

PN16

SPECIFICATION

- Pressure Rating: PN16
- Medium Temperature -10 to 120°C
- Ductile iron body
- Stainless steel stem
- PTFE Sealing ring
- EPDM Diaphragm
- Stainless steel test points
- Flanged ends connection ISO7005-2
- Actuator details: Modulating : 24V DC, 0-10V DC.

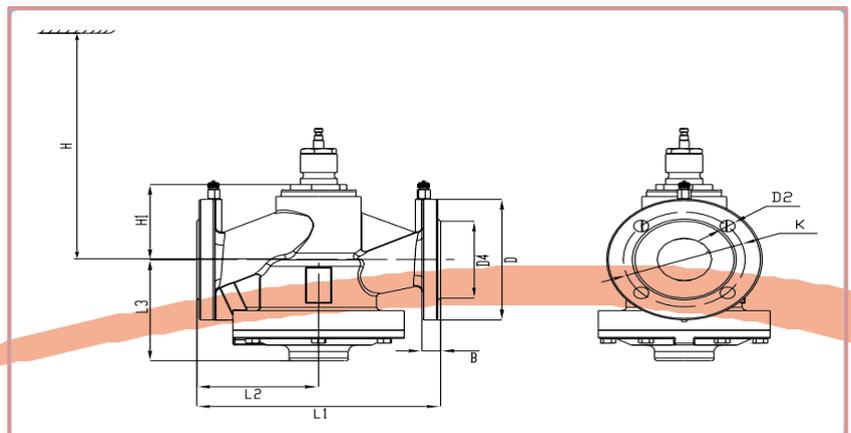


DN (mm)	Opening (%) - Flow (m ³ /h)														
	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
50	1.4	1.9	2.19	2.74	3.18	3.93	4.6	5.5	6.24	7.25	8.35	9.68	11	12.1	13
65	2.55	3.41	4.15	5.26	6.33	7.12	8.9	10.3	11.9	13.4	14.9	16.3	17.6	19.3	21
80	2.76	3.62	4.48	5.57	6.79	7.62	9.33	10.8	12.3	13.9	15.7	17.4	18.9	23.6	28
100	7.91	9.85	11.6	15.7	18.8	21.5	23.8	25.7	27.6	29.4	33.1	38	42.9	46	50
125	8.4	10.5	12.5	16	19.3	24.5	29.8	37.5	46.3	55.6	65.1	72.3	80	84.5	90
150	17	28	41	55	69	80	94	102	112	116	120	124	129	135	145
200	35	43	51	61	71	79	86	96	107	124	140	155	170	190	208
250	42	48	59	65	78	90	101	113	131	150	179	197	216	228	240

PN16											
DN	B mm	D mm	D2 mm	D4 mm	K mm	L1 mm	L2 mm	L3 mm	H1 mm	H mm	
50	20	165	4-19	99	125	230	115	136	95	410	
65	22	185	4-19	118	145	290	145	155	115	430	
80	24	200	8-19	132	160	310	155	167	148	483	
100	22	220	8-19	156	180	350	181	181	150	485	
125	26	250	8-19	184	210	400	200	197	163	498	
150	24	285	8-23	211	240	480	240	222	198	533	
200	24	340	12-23	266	295	500	250	245	180	525	
250	26	405	12-28	319	355	600	300	277	210	555	

TECHNICAL NOTES:

- The valve needs to be installed so that the flow passes in the proper direction through the valve.
- The valve has to be installed upright.
- The valve should be installed in a clean water system (after flushing). In case the valve is installed during flushing or pressure testing, the valve must be fully opened, otherwise the diaphragm insert could get damaged.
- Install the actuator after the pipeline pressure test.



NOTES:

- Accuracy $\pm 10\%$
- Maximum close-off pressure: 4 bar
- Differential pressure range 35 – 400 kPa
- Leakage rate: 0.02% of maximum flow rate

Fig. KIP16

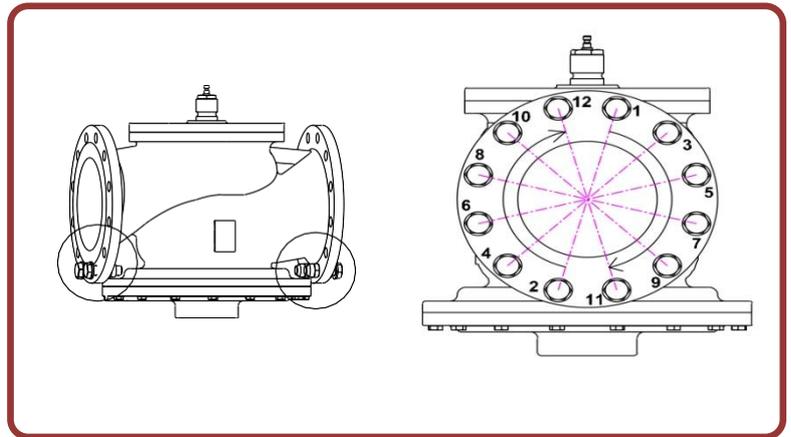
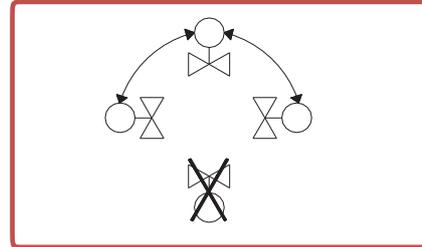
PICV – Pressure Independent Control Valve

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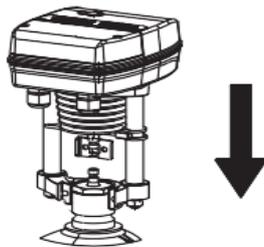
Installation Guide:

1. Downward installation is forbidden, when the medium is chilled water / hot water.
2. The flow direction of medium through the valve should be consistent with medium of the pipeline.
3. After installing the valve, ensure that bolts and nuts are tightened in proper sequence / order (as show in the drawing below).
4. The DN200 valve must be installed with the equipped 4 sets of bolts, nuts and washers !

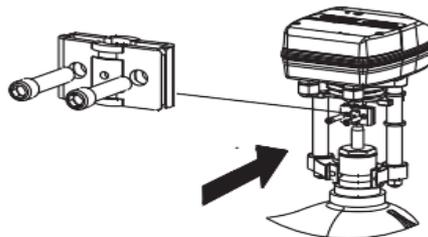


Actuator Assembly Instructions

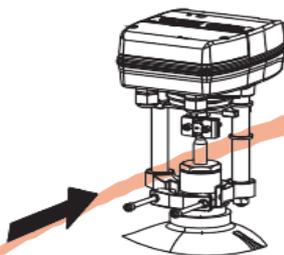
1. Take down the fixed fitting, and disentangle the clip.



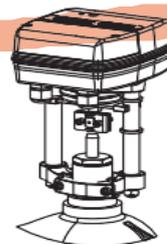
2. Make sure the actuator shaft is concentric with the valve stem (which can be observed from the hole) then tighten the two screws on the clip.



3. Pull the fixed fitting to the groove and lock it by tightening the two screws.



4. This is how the valve and actuator should look after correct assembly..



Electrical Actuator for PICV

Modulating Type (24V)

For KIDS PICV DN32 – DN250

Specification

- DC Brushless Electric Motor
- Power Supply: 24V AC/DC $\pm 15\%$, 50Hz
- Power Consumption: Run 14VA; Max. 25VA
- Control Signal: 0(2)~10VDC, 0(4)~20mA
- Feedback Signal: : 0(2)~10VDC, 0(4)~20mA
- Stainless steel bracket
- Aluminum die casting base
- IP54 Protection Class



Type Summary

500N Actuator



Size (DN)	Type Description	Rating Force	Stroke	Operating Voltage	Control Signal	Feedback Signal	Running Time (50Hz)
DN32-DN40 (Modulating)	Proportional & 3 Position Type	500N	30mm	24VAC 24VDC	0(2)~10VDC 0(4)~20mA	0(2)~10VDC 0(4)~20mA	high speed: 1s/mm medium speed: 2s/mm

1000N Actuator



Size (DN)	Type Description	Rating Force	Stroke	Operating Voltage	Control Signal	Feedback Signal	Running Time (50Hz)
DN50-DN65 (Modulating)	Proportional & 3 Position Type	1000N	30mm	24VAC 24VDC	0(2)~10VDC 0(4)~20mA	0(2)~10VDC 0(4)~20mA	high speed: 1s/mm medium speed: 2s/mm

1000N Actuator



Size (DN)	Type Description	Rating Force	Stroke	Operating Voltage	Control Signal	Feedback Signal	Running Time (50Hz)
DN80-DN150 (Modulating)	Proportional & 3 Position Type	1000N	50mm	24VAC 24VDC	0(2)~10VDC 0(4)~20mA	0(2)~10VDC 0(4)~20mA	high speed: 1s/mm medium speed: 2s/mm

3000N Actuator



Size (DN)	Type Description	Rating Force	Stroke	Operating Voltage	Control Signal	Feedback Signal	Running Time (50Hz)
DN200-DN250 (Modulating)	Proportional & 3 Position Type	3000N	50mm	24VAC 24VDC	0(2)~10VDC 0(4)~20mA	0(2)~10VDC 0(4)~20mA	high speed: 1s/mm medium speed: 2s/mm

Electrical Actuator for PICV

Modulating Type (24V)

For KIDS PICV DN32 – DN250

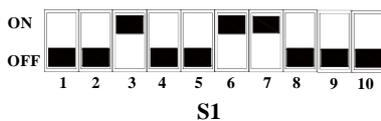
DIP Switch Instruction

Switch	Function	Description
S1-1	Starting of control/feedback signal	ON 20%:the starting of control/feedback signal is 20%(namely 4~20mA or 0~10VDC)
		OFF 0:the starting of control/feedback signal is 0(namely 0~20mA or 0~10VDC)
S1-2	Type of control signal	ON II:current signal
		OFF UI:voltage signal
S1-3	Impedence match of control signal	ON UI:voltage signal
		OFF II:current signal
S1-4	Type of feedback signal	ON IO:current signal
		OFF UO:voltage signal
S1-5	Operating mode	ON DA:When the control signal increase, actuator shaft extends;When the control signal decrease, actuator shaft retracts.
		OFF RA:When the control signal increase, actuator shaft retracts;When the control signal decrease, actuator shaft extends.
S1-6	Losing control signal mode	ON DW:When lose control signal (voltage type or current type), actuator will provide a min. control signal internally.
		OFF UP: 1)When lose control signal (voltage type),actuator will provide a max. control signal internally. 2)When lose control signal (current type),actuator will provide a min. control signal internally.
S1-7	Self-stroking mode	ON DF:Power on each time, self-stroking starts automatically.
		OFF RF:Self-stroking starts only when press the red self-stroking button manually.
S1-8	Control mode (when S1-9 is OFF)	ON 3-position type
		OFF Proportional type
S1-9	Control type	ON RS485 interface control (Modbus protocol)
		OFF Proportional type and 3-position type
S1-10	Speed	ON high speed: 1s/mm
		OFF medium speed: 2s/mm

Function Introduction

Proportional Type

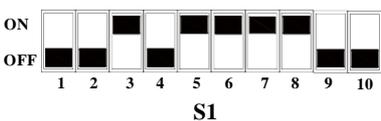
Control signal/feedback signal: 0~10VDC



S1

3-position Type

(the terminal O,E,Y doesn't work)



S1

RS485 Bus Communication



S1

When the Actuator is proportional type, terminal B,O is power input, actuator can be controlled by connecting terminal O,E

As shown in the left, when equipped with Pressure Independent Control Valve, DIP Switch S1-5 is DA mode:

Control signal at terminal O,E increasing: actuator shaft retracts, valve stem extends, valve tends to open.

Control signal at terminal O,E decreasing, actuator shaft extends, valve stem retracts, valve tends to close.

Control signal at terminal O,E has no changing, actuator shaft and valve stem stay in present position.

When voltage (or current) signal is disconnected, this is equivalent to input a min. control signal, actuator shaft extends, valve closed.

When the Actuator is 3-position type, terminal B,O is power input, control the actuator by the switch O, UP, DOWN:

O, UP connected: actuator shaft extends, and valve stem retracts

O, DOWN connected: actuator shaft retracts, and valve stem extends

Notes: Terminal E, Y doesn't work by this time!

When the Actuator is RS485 bus communication, terminal B,O is power input, remote control by terminal 8,9:

Actuator can be controlled remotely by RS485 bus communication, actuator supports ModBus protocol.

Notes: Terminal O,E,Y,UP,DOWN doesn't work by this time!

Electrical Actuator for PICV

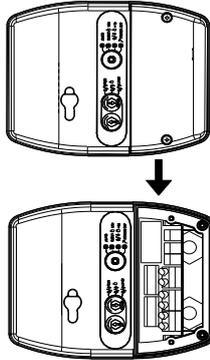
Modulating Type (24V)

For KIDS PICV DN32 – DN250

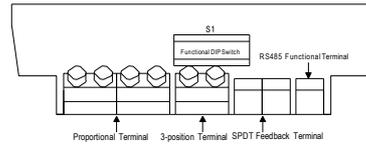
Wiring Instruction

1. Open the cover and prepare to wire.

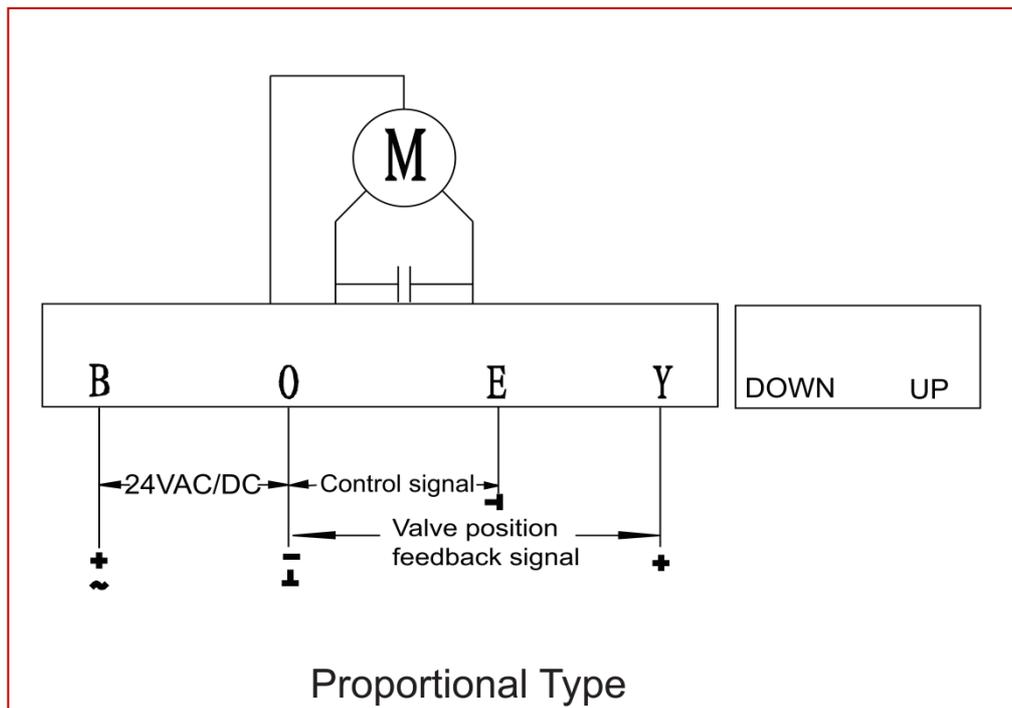
2. Wire correctly according to the wiring diagram.



24V Terminal Diagram



Wiring Diagram



Electrical Actuator for PICV

Modulating Type (24V)

For KIDS PICV DN32 – DN250

Indicating Light



❖ Reset Light

Reset	Status	Description
Green	Always	Normalmode
Red	Always	Local mode
Yellow	Flickering (1Hz)	Self-stroking

❖ Retractive Light-UP

UP	Status	Description
Green	Always	Normalmode
Yellow	Always	Reach upper limit position
Red	Flickering (1Hz)	Alarming
Red	Always	Local mode

❖ Extended Light-DOWN

DOWN	Status	Description
Green	Always	Normalmode
Yellow	Always	Reach down limit position
Red	Flickering (1Hz)	Alarming
Red	Always	Local mode

Debugging Instruction

A. Connect actuator and valve body.

B. Wiring power and control signal wires.

C. Set DIP Switch to needed position. After the setting, turn on power of actuator, pre-setting function will come into effect. (DIP Switch can be set with power)

D. Turn on the actuator power.

E. Actuator Self-stroking: this step is for matching stroke of actuator and valve.

1) Actuator shaft extends to down limited position firstly and the Reset yellow indicating light will keep flickering (frequency is 1Hz). And then, it retracts to upper limited position and the Reset yellow indicating light will keep flickering (frequency is 1Hz). (Actuator will not be controlled by signal now).

2) Indicating light stops flickering after about 3 minutes and the Reset indicating light stop flickering. Self-stroking stops and the matching modulating of the valve and actuator is finished. By then, actuator running direction can be controlled by control signal.

Remarks: If self-stroking is needed in a power-on state, press down the Reset button on PCB over 5 seconds, and then the actuator start self-stroking. Self-stroking phenomenon are the same as step (1), (2) above.

F. Local mode: press the button UP and DOWN at the same time over 5s, loosen the buttons and actuator enter into local mode, at that time the UP, DOWN and Reset light will always be on red. If you need actuator shaft retracts, long press UP, the UP light will always be on green; If you need actuator shaft extends, long press DOWN, the DOWN light will always be on green. After reach to the expected position, repress UP and DOWN at the same time over 5s, and then loosen the buttons, it will exit the local mode.

Note:

1. The factory default setting is automatic self-stroking, it means that actuator will repeat automatic self-stroking when power on each time!

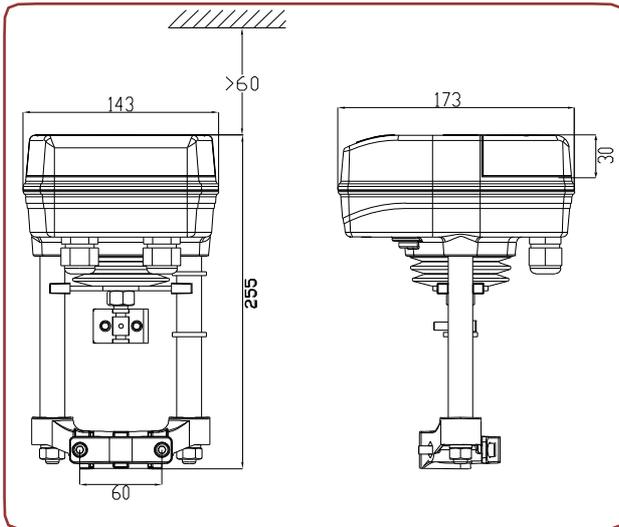
2. If you don't need automatic self-stroking function, you can set the 7th switch to OFF, it will change into manual self-stroking (Phenomenon as same with (1), (2)).

Electrical Actuator for PICV

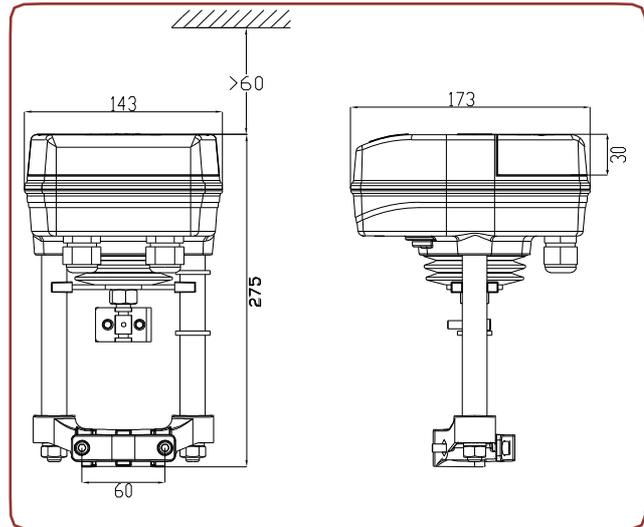
Modulating Type (24V)

For KIDS PICV DN32 – DN250

Dimension

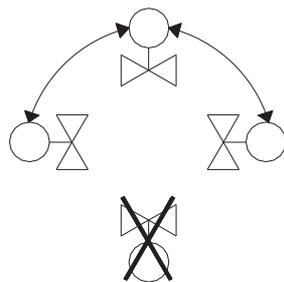


DN32-DN65



DN80-DN250

Installation Orientation



Note: Do not install the actuator in Downward position.

Electrical Actuator for PICV

Modulating Type (24V)

For KIDS PICV DN32 – DN250

Technical Parameters

Operating Parameters	
Electric Motor	DC Brushless Motor
Operating Voltage DN32 to DN150	24VAC± 15%, 24VDC+ 15%
Frequency	50Hz / 60Hz
Power consumption	Run : 14VA ; Max. : 25 VA
Running speed	High speed : 1s/mm; Medium speed : 2s/mm
Sensitivity	Proportional type: 0.8% (factory setting)
Dead zone	2% (factory setting)
Impedance(only for proportional type)	
Voltage input impedance	> 100K
Current input impedance	< 0.125K
Load requirements(only for proportional type)	
Voltage output load requirement	> 1K
Current output load requirement	< 0.5K
Control signal	0(2)~10VDC, 0(4)~20mA
Feedback signal	0(2)~10VDC, 0(4)~20mA
Lifetime	100 000 times full open and close

Material

Cover	PC
Bracket	Stainless steel
Base	Aluminum die casting

Environment Parameter

Protection Level	IP54
*Permissible medium temperature	
Water valve	-25~+150°C
Running	
Ambient temperature:	-10~+55°C
Ambient humidity:	≤95%RH
Transportation Ambient temperature: Ambient humidity:	-30~+65°C ≤95%RH
Storage	
Ambient temperature:	-15~+50°C
Ambient humidity:	≤95%RH
*Remark: when medium temperature in valve is below 0°C, such as: refrigerant(R12,R22,R134a ,R202) glycol and so on, valve stem should be protected by stem heater(Type:THOT...) to avoid the connection parts of valve body and valve stem frosting and icing.	
Weight : 3.0 Kg (DN32-DN150) Weight : 3.8Kg (DN200-DN250)	