

Vacuum Control Valves

Vacuum Control V





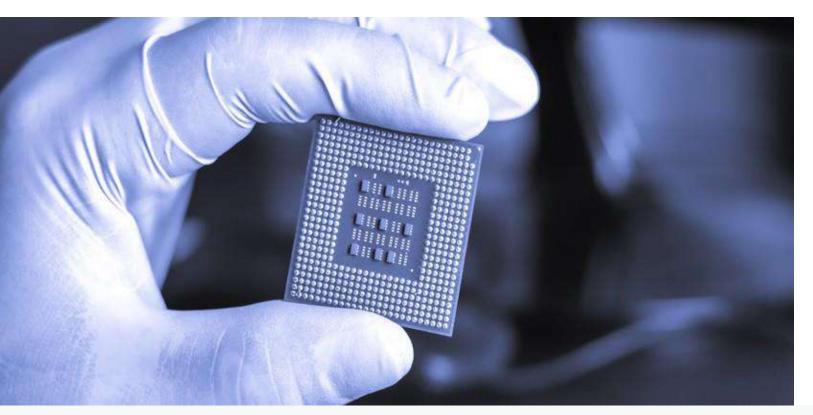
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Make it Best or Not !

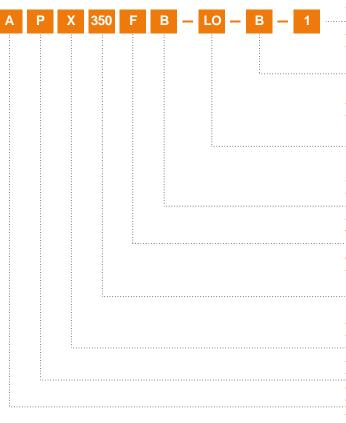
CUSTOMER CREATION HUMANITY



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Product Selection Guide



* SPS = ± 15 V DC Sensor Power Supply PFO = Power Failure Option (Valve closes or opens automatically at power failure)

Product List



1: 1 Sensor	
2:2 Sensor	
B: Basic	S: with SPS
P: with PFO	D: with SPS and PFO
E: Basic with VC master	F: with SPS and VC master
G: with PFO and VC master	r H: with SPS, PFO and VC maste
R2 - RS-232	R3 : RS-232(Analog output)
LO : Logic	DN : DeviceNet®
PB : Profibus	EN : Ethernet
CC: CC-Link	EC: EtherCAT
B · Blank	N : Nickel-Coated
H : Hard-anodized	
1. 119	
100 : DN100	160 : DN160
200 : DN200	250 : DN250
320 : DN320	350 : DN350
400 : DN400	500 : DN500
X : No Heating	
H : Heating	
P: Pendulum	
	2 : 2 Sensor 2 : 2 Sensor B : Basic P : with PFO E : Basic with VC master G : with PFO and VC master G : with PFO and VC master R2 : RS-232 R4 : RS-485 L0 : Logic PB : Profibus CC : CC-Link B : Blank H : Hard-anodized J : JIS F : ISO-F 100 : DN100 200 : DN200 320 : DN200 320 : DN320 400 : DN400 X : No Heating H : Heating

Setup & Management S/W



Pendulum

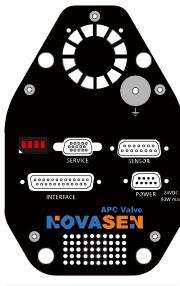
Product Specifications

Pressure rand	ie at 20°C¹⁾	Blanka	aluminum	1×10 E-8 mbar to 1.2 bar (abs)		
T TOODUIC TUNG		Hard anodi	zed aluminum	1×10 E-6 mbar to 1.2 bar (abs)		
		Valve body :	Blank aluminum	1×10 E-9 mbar l/s		
Feedthrough neated on delivery. ximum values : depending on operating conducts in the state of t		valve body .	Hard anodized aluminum	1×10 E-5 mbar l/s		
Leak rate to out	side at 20°C"	Value Cost :	Blank aluminum	1×10E-9 mbar l/s		
		Valve Seat :	Hard anodized aluminum	1×10E-4 mbar l/s		
O alea sustil fir	et comicol)	Pressu	re control	1 million		
Cycles until fir	St Service"	Closing	/ Opening	200,000 (unheated and under clean conditions)		
A designible as section	2)	Valv	e body	≤120°C		
Admissible operatin	ig temperature ² /	Cor	ıtroller	max. 50°C (≤ 35°C recommended)		
		DN10	0 ~250	Any ³⁾		
Mounting	position	DN32	20 ~500	horizontal only ³⁾		
		Valve b	ody, plate	6061-T6		
Mater	rial	Seal	ing ring	6061-T6		
		Othe	er parts	SUS 316L		
	Seal (Bonnet, plate, bo	dy, feedthrough)		FKM(Viton®)		
		Ac	tuator	rotary feedthrough		
Feedthr	ough	Sea	ing ring	shaft feedthrough		
Jnheated on delivery. Naximum values : depending						
Jnheated on delivery. Vlaximum values : depending Valve seat on chamber side re	ecommended.		+24 VDC (±10%) @ 0.5V pk-p			
Unheated on delivery. Vlaximum values : depending Valve seat on chamber side re Power in	put ¹⁾			k max.[connector: POWER]		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons	sumption		+24 VDC (±10%) @ 0.5V pk-p	k max.[connector: POWER]		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe	r supply ²⁾		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m	k max.[connector: POWER] vith max. load) without PFO ⁴⁾ ax. [connector : POWER]		
Inheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu	ecommended.		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v	k max.[connector: POWER] vith max. load) without PFO ⁴⁾ ax. [connector : POWER]		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp	ecommended.		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max.	k max.[connector: POWER] vith max. load) without PFO ⁴⁾ ax. [connector : POWER] [connector : SENSOR]		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in	ecommended. nput ¹⁾ sumption r supply ²⁾ it ut nput nput		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100	k max.[connector: POWER] with max. load) without PFO ⁴⁾ ax. [connector : POWER] [connector : SENSOR] /DC kΩ		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi	ecommended. nput ¹⁾ sumption r supply ²⁾ it ut nput nput istance		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 V	k max.[connector: POWER] vith max. load) without PFO ⁴) ax. [connector : POWER] [connector : SENSOR] /DC kΩ mV		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi ADC reso	ecommended. put ¹⁾ sumption r supply ²⁾ It Ut Ut Input Input Istance		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100 0.23	k max.[connector: POWER] vith max. load) without PFO ⁴) ax. [connector : POWER] [connector : SENSOR] /DC kΩ mV		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi ADC reso Sampling	ecommended.		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100 0.23	k max.[connector: POWER] vith max. load) without PFO ⁴⁾ ax. [connector : POWER] [connector : SENSOR] /DC kQ mV ns		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi ADC reso Sampling Digital in	ecommended. apput ¹⁾ sumption r supply ²⁾ it ut ut nput nput istance olution g time puts ³⁾ tputs ³⁾		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100 0.23 10 r ±24 VDC	k max.[connector: POWER] with max. load) without PFO ⁴⁾ ax. [connector : POWER] [connector : SENSOR] /DC kΩ mV ns C max.		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi ADC reso Sampling Digital in Digital out	ecommended. apput ¹⁾ sumption r supply ²⁾ it ut ut nput nput istance blution g time puts ³⁾ tputs ³⁾		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100 0.23 10 r ±24 VDC 70 VDC or 70 0.5 ADC or 0.5	k max.[connector: POWER] vith max. load) without PFO ⁴⁾ ax. [connector : POWER] [connector : SENSOR] /DC kΩ mV ns C max. V peak max. A peak max.		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi ADC reso Sampling Digital in Digital out	ecommended. apput ¹⁾ sumption r supply ²⁾ it ut ut nput nput istance olution g time puts ³⁾ itage irrent		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100 0.23 10 r ±24 VDC 70 VDC or 70	k max.[connector: POWER] vith max. load) without PFO ⁴⁾ ax. [connector : POWER] [connector : SENSOR] /DC kΩ mV ns C max. V peak max. A peak max.		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi ADC reso Sampling Digital in Digital out	ecommended. put ¹⁾ sumption r supply ²⁾ It Ut Ut Input Input Istance Solution g time puts ³⁾ Itage Irrent Sapacity		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100 0.23 10 r ±24 VDC 70 VDC or 70 0.5 ADC or 0.5	k max.[connector: POWER] vith max. load) without PFO ⁴) ax. [connector : POWER] [connector : SENSOR] /DC kΩ mV ns C max. V peak max. A peak max. nax.		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi ADC reso Sampling Digital out Input vo Input cu Breaking o	ecommended. put ¹⁾ sumption r supply ²⁾ It ut ut nput nput stance olution g time puts ³⁾ Itage Irrent sapacity nperature		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100 0.23 10 r ±24 VDC 70 VDC or 70 0.5 ADC or 0.5 10 W t	k max.[connector: POWER] vith max. load) without PFO ⁴⁾ ax. [connector : POWER] [connector : SENSOR] /DC KΩ mV ns C max. V peak max. A peak max. A peak max. max. Crecommended)		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi ADC resio Sampling Digital in Digital out Input vo Input cu Breaking of Ambient ten	ecommended. apput ¹⁾ sumption r supply ²⁾ it ut ut nput nput stance blution g time puts ³⁾ ttage irrent sapacity nperature ol accuracy		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100 0.23 10 r ±24 VDC 70 VDC or 70 0.5 ADC or 0.5 10 W t +50 °Cmax. (<35 °	k max.[connector: POWER] vith max. load) without PFO ⁴⁾ ax. [connector : POWER] [connector : SENSOR] /DC kΩ mV ns C max. V peak max. A peak max. A peak max. nax. Crecommended) or full scale		
Unheated on delivery. Vaximum values : depending Valve seat on chamber side re Power in Power Cons Sensor powe Inpu Outp Sensor i Signal in Input resi ADC reso Sampling Digital out Input vo Input cu Breaking of Ambient ten Pressure contr	ecommended. apput ¹⁾ sumption r supply ²⁾ it ut ut nput nput stance blution g time puts ³⁾ ttage irrent sapacity nperature ol accuracy		+24 VDC (±10%) @ 0.5V pk-p 60 W max. (operation of valve v +24 VDC (±10%) / 36 W m ±15 VDC (±5%) / 1A max. 0-10 v 100 0.23 10 r ±24 VDC 70 VDC or 70 0.5 ADC or 0.5 10 W n +50 °Cmax. (<35 ° 0.1% of sense	k max.[connector: POWER] vith max. load) without PFO ⁴) ax. [connector : POWER] [connector : SENSOR] //DC kΩ mV ns C max. V peak max. A peak max. A peak max. nax. Crecommended) or full scale (full stroke)		

1) Internal overcurrent protection by a PTC device. 2) Refer to chapter «Sensor supply concepts» for details.

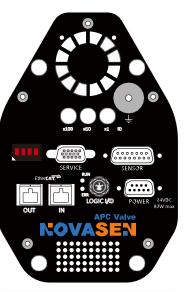
4) PFO = Power Failure Option. Refer to «3.4 Behaviour in case of power failure» for details.

Electrical connections

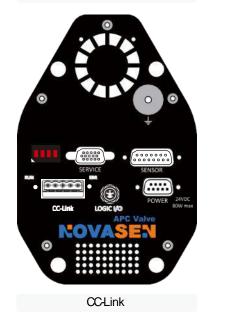


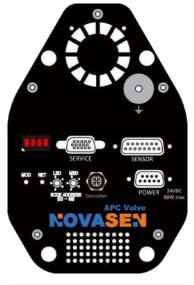
Logic, RS232, RS422, RS485



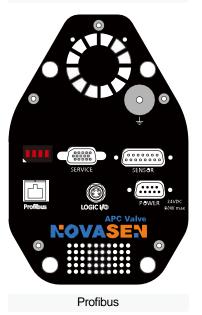


EtherCAT





DeviceNet



DN100(4")



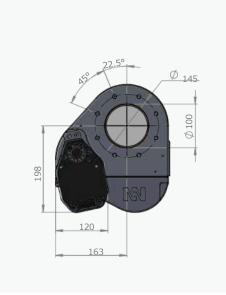
Product Specification

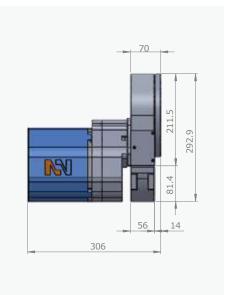
	DN nal I.D.)	Conductance in open position (molecular flow)	Minimum controllable conductance (molecular flow)	Max. differential pressure on the plate	Max. differential pressure during operation	Compressed air min max. overpressure		Operating time for throttling	Typical closing / opening time open -> closed	Typical closing / opening time closed -> open		eight prox.)
mm	inch	ls-1	ls-1	mbar	mbar	bar	psi	S	S	S	kg	lbs
100	4	1,700	3	1,200	30	4-7	58-102	0.7	3	4	12	27

ELECTRICAL CONNECTIONS

	CONNECTION	TYPE
POWER	Power input	DB-9 male
SENSOR	Sensor input Sensor power supply	DB-15 female
	RS232, Logic, RS422, RS485	DB-25 female
INTERFACE	DeviceNet®	Micro-style male
	Ethernet	RJ-45
	Profibus	DB-9 female
BUS Mudules	CCLink	5-pole terminal screw
	EtherCAT	RJ-45 x 2







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APC PENDULUM VALVE



Product Specification

	DN nal I.D.)	Conductance in open position (molecular flow)	Minimum controllable conductance (molecular flow)	Max. differential pressure on the plate	Max. differential pressure during operation	Compressed air min max. overpressure		min max.		Operating time for throttling	Typical closing / opening time open -> closed	Typical closing / opening time closed -> open	Wei (appi	0
mm	inch	ls-1	ls-1	mbar	mbar	bar	psi	S	S	S	kg	lbs		
160	6	5,000	5	1,200	10	4-7	58-102	0.8	3	4	18	40		

Product Specification

	DN nal I.D.)	Conductance in open position (molecular flow)	Minimum controllable conductance (molecular flow)	Max. differential pressure on the plate	Max. differential pressure during operation	min.	essed air - max. pressure	Operating time for throttling	Typical closing / opening time open -> closed	Typical closing / opening time closed -> open		eight prox.)
mm	inch	ls-1	ls-1	mbar	mbar	bar	psi	S	S	S	kg	lbs
250	10	22,000	15	1,200	5	4-7	58-102	0.9	3	4	29	64



PENDULUM

DN160(6")



Ø 395 276 0 120

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APC PENDULUM VALVE



Product Specification

	DN nal I.D.)	Conductance in open position (molecular flow)	Minimum controllable conductance (molecular flow)	Max. differential pressure on the plate	Max. differential pressure during operation	Compressed air min max. overpressure		Operating time for throttling	Typical closing / opening time open -> closed	Typical closing / opening time closed -> open	We (app	0
mm	inch	ls-1	ls-1	mbar	mbar	bar	psi	S	S	S	kg	lbs
320	12	30,000	22	1,200	5	4-7	58-102	1.1	5	6	48	106

Product Specification

D (nomin		Conductance in open position (molecular flow)	Minimum controllable conductance (molecular flow)	Max. differential pressure on the plate	Max. differential pressure during operation	min.	essed air - max. pressure	Operating time for throttling	Typical closing / opening time open -> closed	Typical closing / opening time closed -> open		eight prox.)
mm	inch	ls-1	ls-1	mbar	mbar	bar	psi	S	S	S	kg	lbs
350	14	43,000	25	1,200	5	4-7	58-102	1.3	5	6	59	130

PENDULUM

DN320(12")

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