NENUTEC®

INNOVATIVE MEMBER OF SWISSTEC

NSVA – VAV smart damper actuator

5 Nm| MODULATING CONTROL



The appearance of the product may differ from the illustration. Technical specifications are subject to change.

NSVA SERIES

NSVA VAV smart damper actuators provides with high performance DDC (direct digital control) of pressure-independent, VAV (variable-air-volume) function are designed and produced for extended functionalities in HVAC systems, VAV and laboratory applications.

- Torque 5 Nm
- Damper size 1.0 m^2
- BACNET MS/TP interface for building automation system
- 128 binary values (BV), 128 analog values (AV)
- Compact actuator with controller, communication interface
- Actuator with pluggable terminal block and RJ11 connector
- Direction of rotation selectable by reversing actuator during installation.
- Adjustable angle of rotation (mechanical end stop).
- Direction of rotation selectable by switch.
- Baud rate selectable by switch

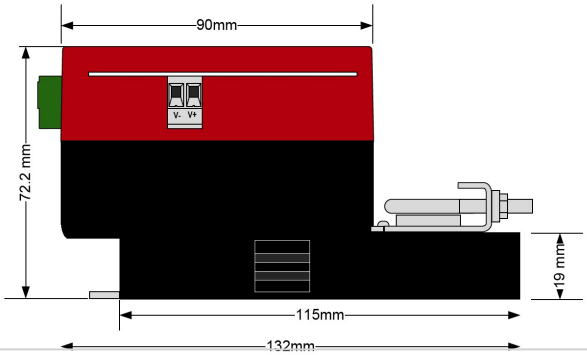
MODEL SELECTION TABLE

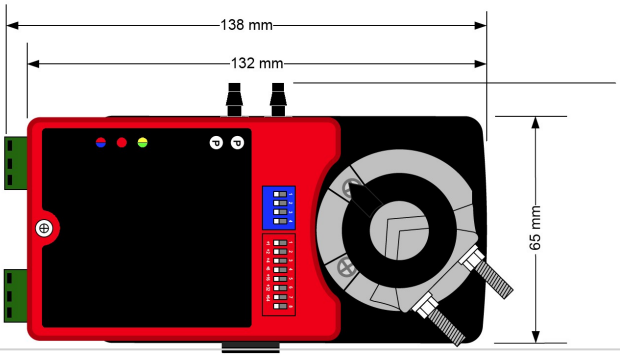
Model/type	Torque	Power supply	Differential pressure	Input/Output Ai0, 1		Do0, 1	Ao0, 1
NSVA 0000BL	5 Nm	AC 100-277 ± 10%	0...500 Pa	0		0	0
NSVA 0000B	5 Nm	24 V_{AC} ± 10%	0...500 Pa	0		0	0
NSVA 0200BL	5 Nm	AC 100-277 ± 10%	0...500 Pa			0	0
NSVA 0200B	5 Nm	24 V_{AC} ± 10%	0...500 Pa	Ai0 10 kΩ	Ai1 0-10 V_{DC}	0	0,
NSVA 0222B	5 Nm	24 V_{AC} ± 10%	0...500 Pa			2 (24 V_{AC})	2 (0-10 V_{DC})

NSVA – VAV smart damper actuator

5 Nm| MODULATING CONTROL

ACTUATOR DIMENSIONS [mm]





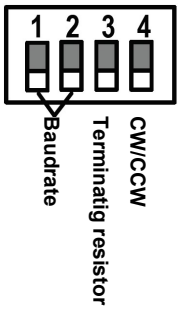
TECHNICAL SPECIFICATION

	NSVA
Torque	5 Nm
Damper size	1.0 m^2
Shaft dimensions	Ø 10 to 16 mm round / □ 10 to 12 mm square
Control signal	Modulating control
Running time	75...85 s
Power supply	
NSVA XXXXBL	AC 100-277VAC - 50/60Hz ± 10%
NSVA XXXXB	AC 24V - 50/60Hz ± 10%
Power consumption	
• In operation	1.5 W
• End position	0.5 W
Connection	
• actuator	Pluggable terminal 5.0
• HMI (positioner)	RJ11
• flow	Outside diameter 3.175 mm(0.125”)
Protection class	Class II
Angle of rotation	90° (95° mechanical limitation)
Direction of rotation	Selectable direction of rotation by DIP switch
Manual operation	Manual of rotation by push button in the side
Angle of rotation limiting max. 95°	Can be limited at both ends with adjustable mechanical end stops
DIP switch	
• SW1	Baud rate & Terminating Resistor & Rotation select
• SW2	MAC address setting
Sound level – motor / EFS	42 dB (A)
IP protection class	IP 30
Maintenance	Maintenance-free

NSVA – VAV smart damper actuator

5 Nm| MODULATING CONTROL

WEIGHT	
• NSVA 0000B, NSVA 0200B	600 g
• NSVA 0200BL, NSVA 0200BL	680 g
• NSVA 0222B	700 g
Life cycle actuator	100'000 full cycles
Rated power	14 VA
MCU	32 bit MCU
Memory	384K Flash, 8K FRAM & 1M Flash memory
Communication protocol	
• actuator	BACNET MS/TP RTU RS-485, 9600-76800 BPS, 1200 m
• HMI (positioner)	MODBUS RTU RS-485, 9600 BPS, 30 m
Flow sensor	
• type	Differential sensor, I2C, 16BIT
• Pressure range	0...500 Pa
• Measurement range	(0 to 23 m/s)
• Accuracy	± 5% reading
Input	Dry contact for any kind input, include occupy sensor for energy saving
• Analog input (AI0)	Thermistor 10k (type II)
• Analog output (AO0,1)	0-10 VDC , 4-20mA ,12 bits resolution ,Select by plug inside actuator
Power output	24VDC 80mA for sensor, NSVA0200BL,NSVA0200BL only
	RJ11: 12 V_{DC} / 100 mA, for HMI/thermostat connected.
LED indicators	
• HMI	Red & green LED – type (upper)
• power supply	Green LED (middle)
• BACNET MS/TP	Red & blue led – type (lower)
Working conditions	0...50°C, 20...90% rH, non condensing
SHIPPING AND STORAGE	-4°F to 158°F (-20°C to 70°C), 5% to 95% RH non-condensing
BACNET	BACnet Application Specific Controller (B-ASC)
Electromagnetic compatibility	CE according to 2004/108/EC



■ SW4(S1,2) --> SW4(S1,2) --> set baud rate of communication

Factory-set 38.4k, The baud rate of communication can be changed by the baud rate switch (Slide 1, 2 of SW1) on the actuator's housing.

■ SW4(S4) --> changing direction of rotation

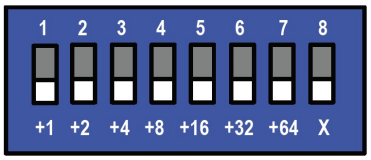
Factory-set CW, The direction of rotation can be changed by the CW/CCW switch (Slide 4 of SW4) on the actuator's housing.

NENUTEC®

INNOVATIVE MEMBER OF SWISTEC

NSVA – VAV smart damper actuator

5 Nm| MODULATING CONTROL



SW8 --> set MAC address of actuator

Factory-set NO.1, The MAC address of actuator can be changed by the MAC address switch (Slide 1-7 of SW8) on the actuator's housing, Slide 8 of SW8 no use.

Connections

Power supply: NSVA0000BL, NSVA0200BL

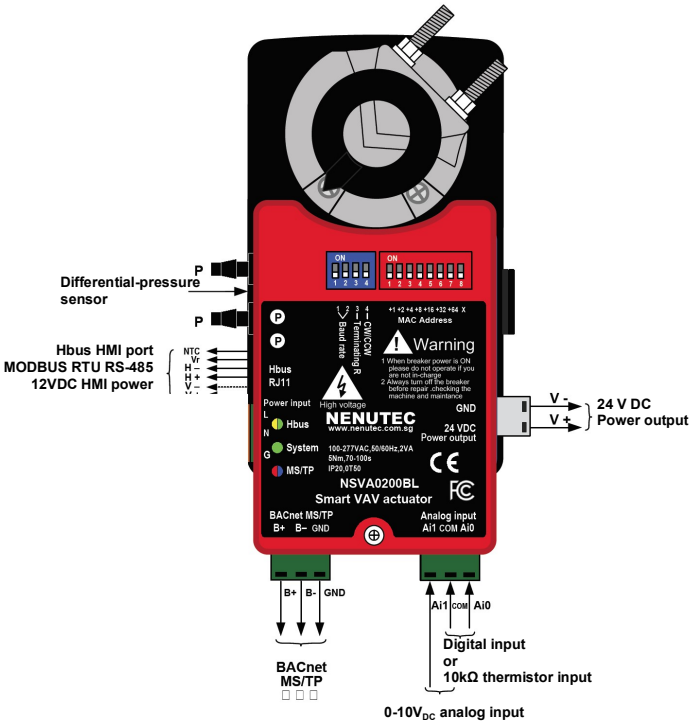
NSVAxxxxBL actuators are designed for 100-277 V_{AC} power supply only. The power cable is to be connected to two screw terminals on controller, marked L and N. Ground connection is required.

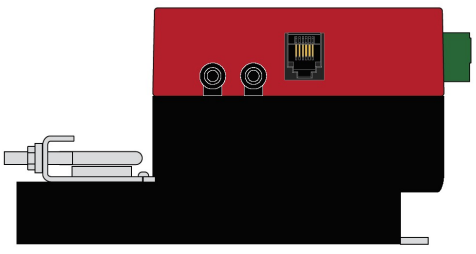
- **POWER SUPPLY INPUT, ANALOGUE INPUT, MS/TP**
  Pluggable terminal block.

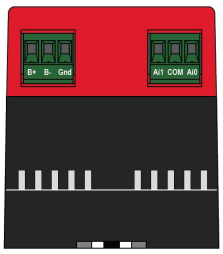
- **HBUS (HMI communication port)**
  RJ11 connector.

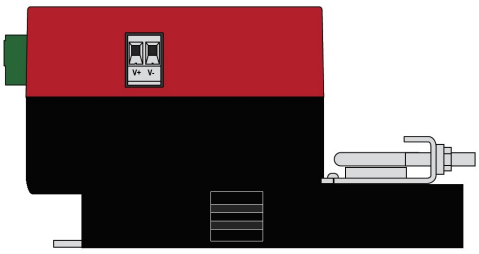
- **PRESSURE SENSOR**
  PE tube -> No direction
  Upper flow -> P, Lower flow -> P
  Outside diameter 3.175mm(0.125")

- **INDICATORS**
  Upper (Yellow & blue LED)
  -> HMI
  Middle (Red LED)
  -> Power
  Lower (Yellow & blue LED)
  -> BACNET MS/TP









NENUTEC®

INNOVATIVE MEMBER OF SWISTEC

NSVA – VAV smart damper actuator

5 Nm| MODULATING CONTROL

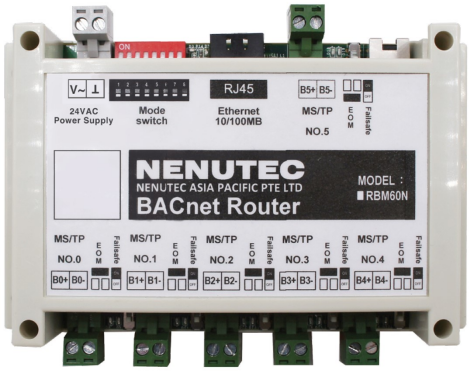
■ USB tool for VAV actuators

VAV actuator firmware update by USB tool

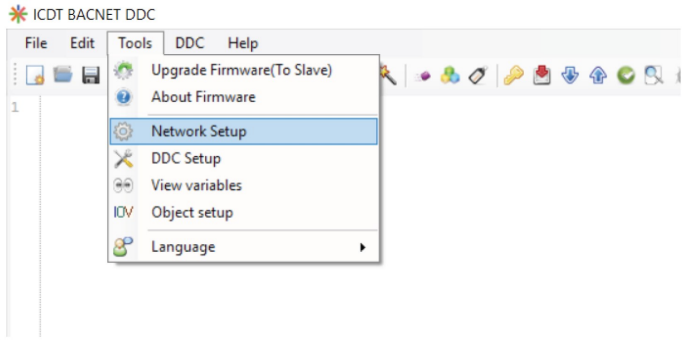


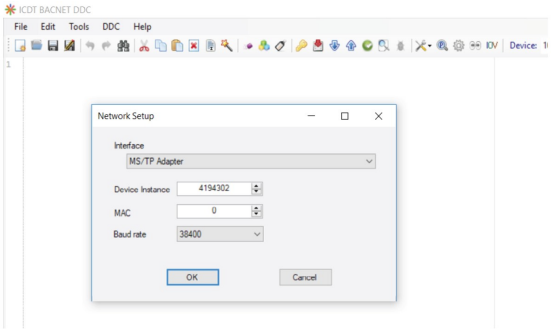
■ Changing direction of rotation NEAA24/230…(S)

GATEWAY for VAV actuator connect with Building Management System

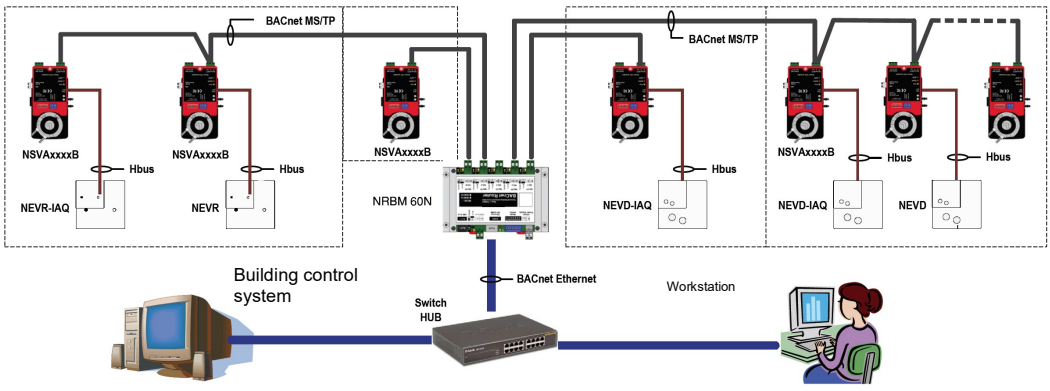


■ ICDT BACNET DDC free progrmmer





■ VAV system

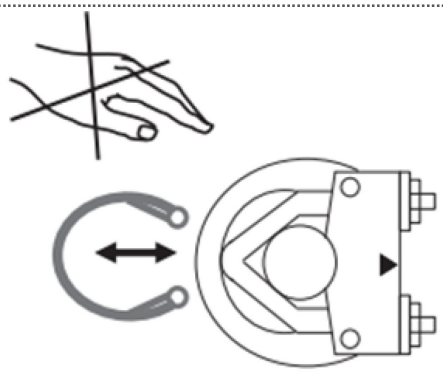


NSVA – VAV smart damper actuator

5 Nm| MODULATING CONTROL

Installation instruction

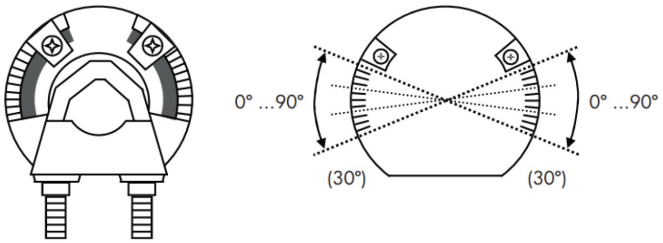
Releasing the adapter is not required.



Mechanical angle of rotation limitation

Adjustment of mechanical limiter
1. Loosen the screw of mechanical limiter
2. Move the limiter to appropriate position *
3. Tighten the screw.

* Working range of 90º can be reduced up to 30º from each end position.



IMPORTANT REMARKS

This actuator includes electrical and electronic components and may not be disposed as household garbage. Please consider the local valid legislation.

24 $V_{AC/DC}$: Connect via safety isolating transformer.

AC 230 V: To isolate from the main power supply, the system must incorporate a device which disconnects the phase conductor (with at least a 3mm contact gap.)

Consult NENUTEC representatives for specific requirements and material selections for your intended application.
The entire content of this technical datasheet is protected by copyright. All rights are reserved ©.

The performance specifications are nominal and conform to acceptable industry standards. Nenutec shall not be liable for damages resulting from misapplication or misuse of its products.

CUSTOMISED VERSION

NENUTEC offers you actuators in customised versions, e.g. with your own brand name, with colour-coordinated applications and with your particular demand on request.

For further information please contact us or our local representative.

Nenutec Polska

00-236 Warszawa
ul. Świętojerska 5/7
tel.: +48-(0)-504-050225
nenutec@nenutec.pl