

VN SERIES ZONE VALVES

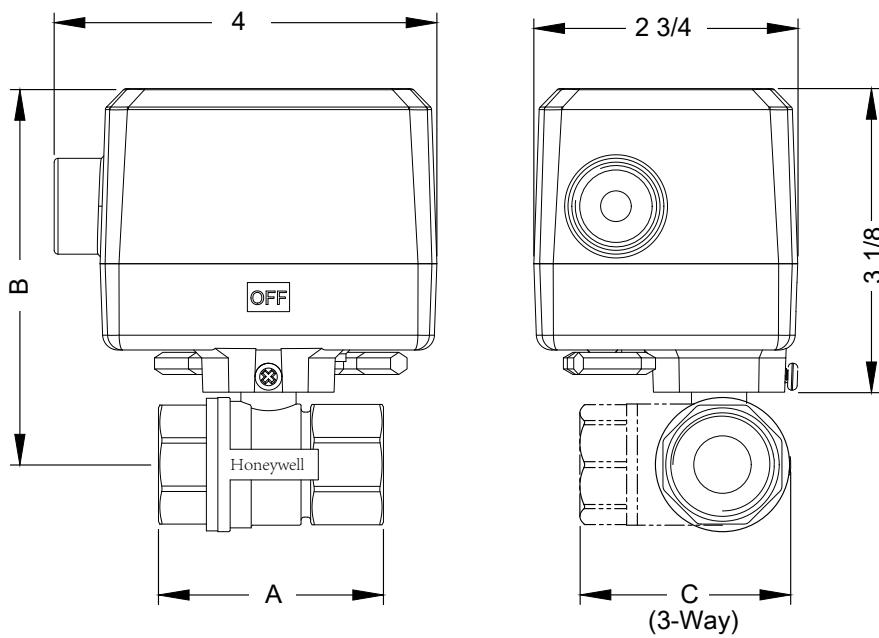
The VN series zone valves and actuators are space-saving compact 2 or 3-way ball valves, factory assembled and tested with electronic rotary fail-in-place or electronic-fail-safe actuators.

Actuators provide 2-position or modulating control (with position feedback) of hot or chilled water with up to 50 % glycol in residential and commercial HVAC equipment. Optimized for cooling and heating in Fan coil units (FCU), Variable air volume (VAV), Unit heaters, Reheat coils, Radiators, and Chilled beam.

FEATURES AND BENEFITS

- 2 or 3-way valve configurations
- Available in 1/2, 3/4, and 1 inch sizes with internal (female) NPT connections
- Position feedback (0-10 VDC) on modulating models
- Fail-in-place & Electronic Fail-Safe actuators
- IP 54, electric shock protection II class structure
- Factory-fitted & tested valve and actuator assemblies
- Modulating (VN3) & 2-Position (VN8) (24 VAC/DC, 220 VAC, 110 VAC)
- Open/Close time: < 40 Sec, E-fail Safe: < 15 Sec
- Suitable Medium - Closed Loop Hot or Chilled Water, up to 50 % glycol

DIMENSIONS



PATTERN	SIZE	DIMENSIONS (IN)		
		A	B	C
2-way	1/2 inch	2	3.9	-
	3/4 inch	2.4	3.9	-
	1 inch	2.6	4.1	-
3-way	1/2 inch	2.2	3.9	1.7
	3/4 inch	2.6	3.9	1.7
	1 inch	3.3	4.1	2.4

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PRODUCT SPECIFICATION - ACTUATOR

ELECTRICAL

MODEL	PARAMETER	SPECIFICATION	
Modulating Actuators (VN3)	Operating Voltage	Fail-in-place	24 VAC/DC \pm 10%, 50/60 Hz, 3.5 VA
	Operating Voltage	Electronic Fail-safe (2-wire)	24 VAC/DC \pm 10%, 50/60 Hz, 7.5 VA
	Control Mode		Modulating, Non-spring return
	Control Signal		0(2)-10 VDC (Input impedance 200 Ω) 0(4)-20 mA DC (Input impedance 500 Ω) 2-wire (Two wire one control)
	Feedback Signal		0(2)-10 VDC (1 mA Max.)
Two-Position Actuators (VN8)	Operating Voltage	Fail-in-place (3-wire)	24 VAC \pm 10%, 50/60 Hz, 3.5 VA 110 VAC \pm 10%, 50/60 Hz, 3 VA 230 VAC \pm 10%, 50/60 Hz, 7.5 VA
	Operating Voltage	Electronic Fail-safe (2-wire)	24 VAC/DC \pm 10%, 50/60 Hz, 5.5 VA 100-240 VAC, 50/60 Hz, 9 VA
	Control Mode		On/Off type, Non-spring return
	Control Signal		3-wire (Three wire two control) 2-wire (Two wire one control)

OTHER SPECIFICATIONS

PARAMETER	DESCRIPTION
Wire specifications	18 AWG, flexible stranded
Operating Time	Open or close: \leq 40 s
Electronic Fail-Return	Intervals: \geq 40 s
Electric Shock Protection	Class II
Operating Torque	22 lb-in (2.5 Nm)
Protection Rating	IP54
Electrical Insulation	Class 2

ENVIRONMENT

PARAMETER	SPECIFICATION
Operating Temperature	32 °F - 150 °F (0 °C - 65 °C)
Operating Relative Humidity	10 % - 95 % RH, non-condensing
Storage Temperature	-40 °F - 150 °F (-40 °C - 65 °C)
Storage Humidity	10 % - 95 % RH, non-condensing

PRODUCT SPECIFICATION - VALVE BODY

PARAMETER	DESCRIPTION	
Applicable Medium	Closed Loop Hot or Chilled Water, up to 50 % glycol	
Medium Temperature	32 °F - 200 °F (0 °C - 94 °C)	
Nominal Pressure	PN20, 290 psi	
Leakage Rate	0.05 % of Cv	
Materials	Valve Body	Forged brass (HPb59-1)
	Valve Stem	Stainless steel (OCr18Ni9)
	Ball Sealing	PTFE
	O-ring Seal	EPDM
	Valve Ball	Nickel plated brass (HPb59-1)

CALIFORNIA PROPOSITION 65 WARNING

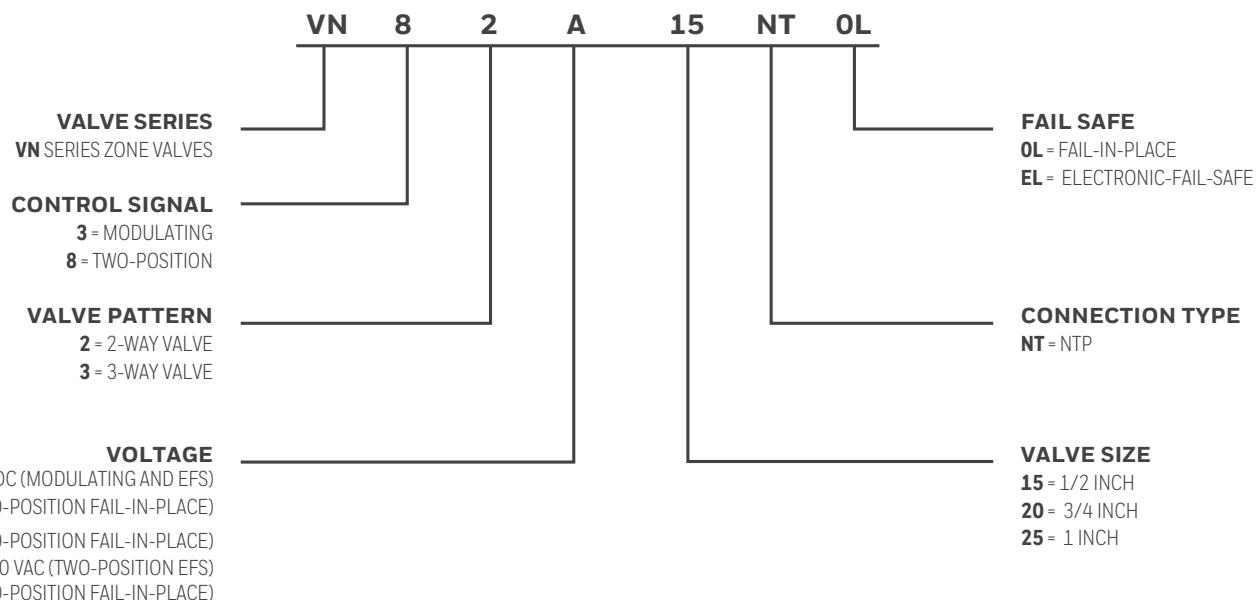


This product can expose you to chemicals including lead, which is known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov

ORDERING INFORMATION

CONTROL SIGNAL	VALVE PATTERN	VALVE CONNECTION	FLOW COEFFICIENT	RETURN	VOLTAGE	MODEL NUMBER	CLOSE-OFF
Modulating	2-way	1/2 inch, NPT	2.3	Fail-in-place	24 VAC/DC	VN32A15NTOL	87 psi
				Electronic Fail-Safe		VN32A15NTEL	
		3/4 inch, NPT	3.7	Fail-in-place		VN32A20NTOL	
				Electronic Fail-Safe		VN32A20NTEL	
		1 inch, NPT	6.6	Fail-in-place		VN32A25NTOL	
				Electronic Fail-Safe		VN32A25NTEL	
	3-way	1/2 inch, NPT	3.7	Fail-in-place	24 VAC/DC	VN33A15NTOL	
				Electronic Fail-Safe		VN33A15NTEL	
		3/4 inch, NPT	5.3	Fail-in-place		VN33A20NTOL	
				Electronic Fail-Safe		VN33A20NTEL	
		1 inch, NPT	7.7	Fail-in-place		VN33A25NTOL	
				Electronic Fail-Safe		VN33A25NTEL	
Two-Position	2-way	1/2 inch, NPT	4.6	Fail-in-place	24 VAC	VN82A15NTOL	87 psi
					110 VAC	VN82B15NTOL	
				Electronic Fail-Safe	230 VAC	VN82C15NTOL	
					24 VAC/DC	VN82A15NTEL	
					100-240 VAC	VN82B15NTEL	
		3/4 inch, NPT	8.1	Fail-in-place	24 VAC	VN82A20NTOL	
					110 VAC	VN82B20NTOL	
				Electronic Fail-Safe	230 VAC	VN82C20NTOL	
					24 VAC/DC	VN82A20NTEL	
					100-240 VAC	VN82B20NTEL	
	3-way	1 inch, NPT	9.2	Fail-in-place	24 VAC	VN82A25NTOL	
					110 VAC	VN82B25NTOL	
				Electronic Fail-Safe	230 VAC	VN82C25NTOL	
					24 VAC/DC	VN82A25NTEL	
				Fail-in-place	100-240 VAC	VN82B25NTEL	
					24 VAC	VN83A15NTOL	
		1/2 inch, NPT	4.9	Fail-in-place	110 VAC	VN83B15NTOL	
					230 VAC	VN83C15NTOL	
				Electronic Fail-Safe	24 VAC/DC	VN83A15NTEL	
					100-240 VAC	VN83B15NTEL	
	3-way	3/4 inch, NPT	9.2	Fail-in-place	24 VAC	VN83A20NTOL	
					110 VAC	VN83B20NTOL	
				Electronic Fail-Safe	230 VAC	VN83C20NTOL	
					24 VAC/DC	VN83A20NTEL	
		1 inch, NPT	16.2	Fail-in-place	100-240 VAC	VN83B20NTEL	
					24 VAC	VN83A25NTOL	
				Electronic Fail-Safe	110 VAC	VN83B25NTOL	
					230 VAC	VN83C25NTOL	
				Fail-in-place	24 VAC/DC	VN83A25NTEL	
					100-240 VAC	VN83B25NTEL	

PART NUMBER NOMENCLATURE

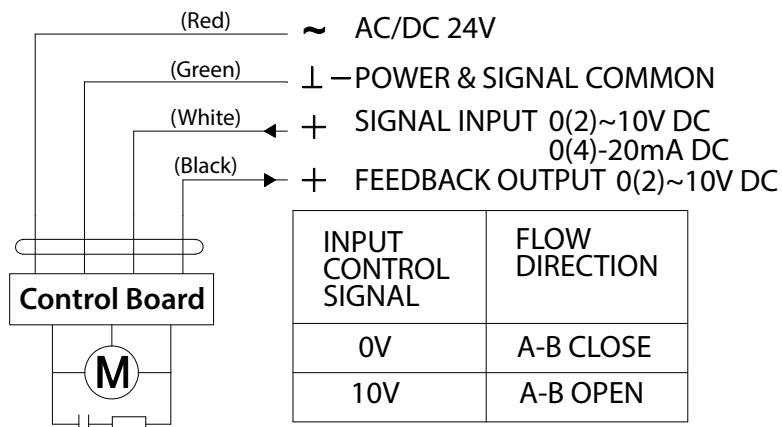


REPLACEMENT ACTUATOR

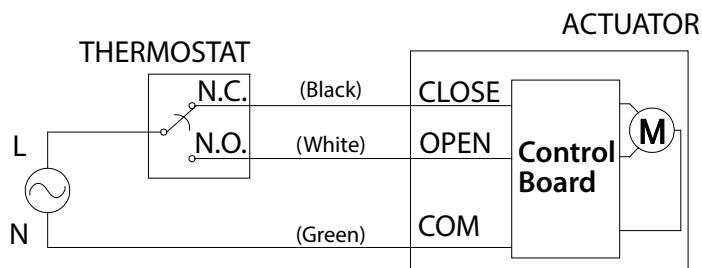
MODEL NUMBER	CONTROL SIGNAL	VOLTAGE	RETURN
VN3ZZA00TOL	Modulating	24 VAC/DC	Fail-in-place
VN3ZZA00TEL			Electronic Fail-Safe
VN8ZZA00TOL		24 VAC	Fail-in-place
VN8ZZA00TEL		24 VAC/DC	Electronic Fail-Safe
VN8ZZBOOTOL	Two-position	110 VAC	Fail-in-place
VN8ZZBOOTEL		100-240 VAC	Electronic Fail-Safe
VN8ZZCOOTOL		230 VAC	Fail-in-place

WIRING DIAGRAMS

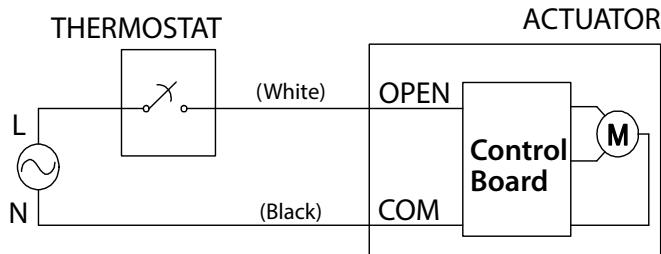
MODULATING FAIL-IN-PLACE AND ELECTRONIC FAIL-SAFE



TWO-POSITION FAIL-IN-PLACE



TWO-POSITION ELECTRONIC FAIL-SAFE



Find more information on VN series zone valves at <https://hwll.co/l2s8lv>



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