

VPI SERIES

Pressure Independent Control Valves and Actuators

VPI series PICV and actuators makes it simple to achieve 100% control of the water flow in the building, while creating high comfort and energy savings at the same time. An additional benefit is that no balancing is required if further stages are added to the system, or even if the dimensioned capacity is changed. VPI series provides modulating control with full authority regardless of pressure fluctuations in the system.



APPLICATION

Designed to use in heating and cooling systems such as Air Handling Units, Fan Coil Units, and other central plant applications.

EASY SETTING & FIELD ADJUSTABLE

Flow setting is stepless and can easily be set to any design flow in the flow range. Setting can be done before or after installation and flow may be changed on demand without removing the valve from the installation.

COMPACT DESIGN

Compact one-unit PICV, including modulating control valve, dynamic flow limiter and differential pressure control valve in one body.

ALL-IN-ONE

It combines an externally adjustable automatic balancing valve, a differential pressure control valve and a full authority modulating control valve in single unit. It combine 3 functions into one valve body:

- Control valve
- Differential pressure controller that protects against pressure fluctuations.
- Presetting scale to set the desired maximum flow.

SEALED SETTING

Actuator will cover the setting and protect against tampering.

FLEXIBLE SETTINGS

Higher presetting precision due to step less analogue scale with 41 Maximum flow setting through dial on valve body.

APPROVALS

Shut-off leakage as per ANSI / FCI 70-2 206 / IEC 60534-4 - Class IV/ 0.01% leakage of full open valve capacity. Tested as per BSRIA standards. UL & CE approved actuators.

FLEXIBLE

Two-way, modulating to accept digital or analog input signals. The valves accept 0(2)-10V, 3-point floating or ON/OFF input signals.

HIGHER PRESSURE RANGE

- Differential pressure operating range up to 800 kPaD.
- Close-off pressure range up to 800 kPa.

STEADY FLOW

Flow balancing in valve body through diaphragm.

FEATURES AND BENEFITS

Available in DN female threaded (ISO) sizes varying from DN15-50 with or without pressure test ports.

Energy saving due to optimal control, lower flow and pump pressure. Maximized ΔT due to faster response and increased system stability.

Simple Maintenance – Internal parts can be accessed without removing the valve housing from the piping lines

Controls chilled or hot water in closed loop systems with up to 50% glycol.

Electrical actuators with selectable control modes, Linear or Equal percentage settings.

TECHNICAL SPECIFICATIONS

VALVE SPECIFICATION

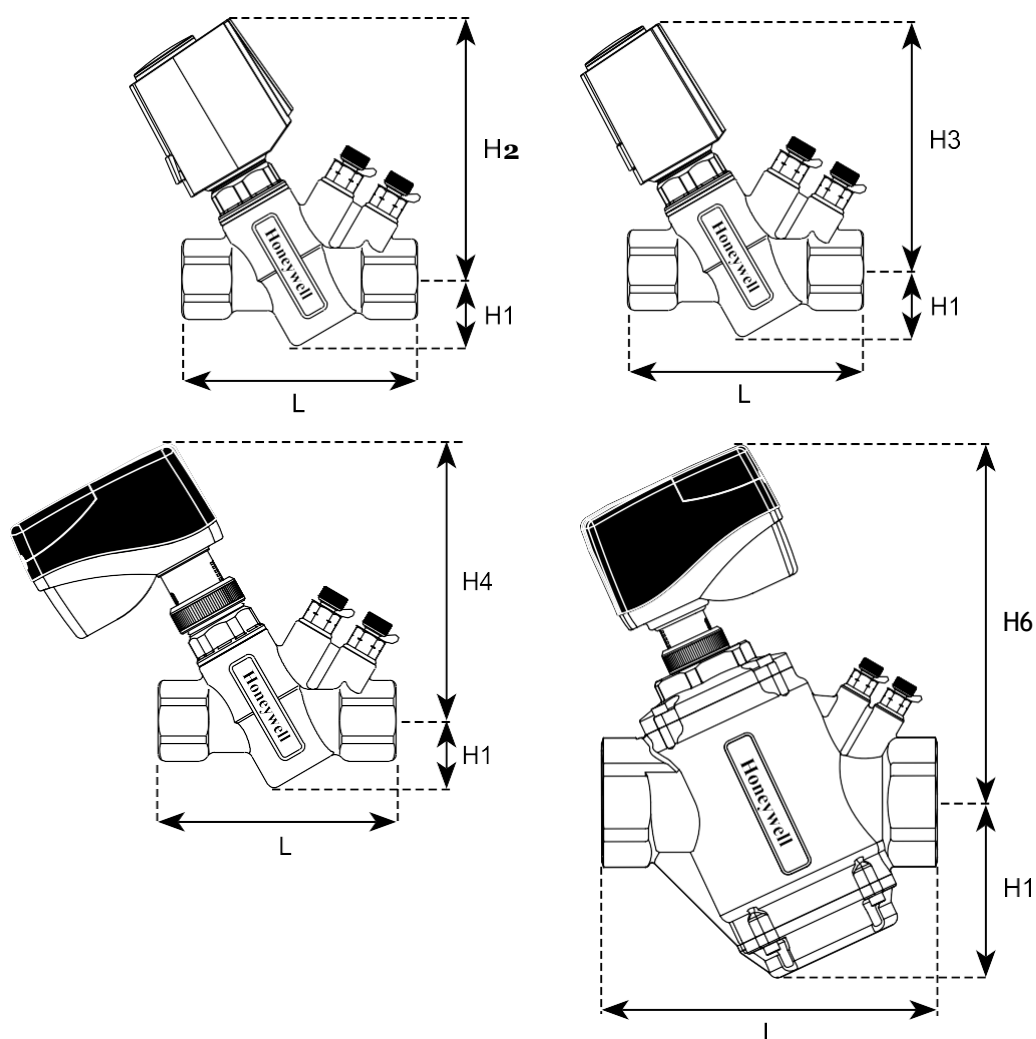
PARAMETER	SPECIFICATIONS	
Valve Type:	Pressure Independent Control Valve	
Body Style:	Globe / Linear	
Size Range:	DN15 - DN50 (1/2" - 2")	
PN Pressure Rating:	PN25	
Static Pressure:	2500 kPa / 360 psi	
Ambient Temperature:	+1°C to +50°C / +34°F to +122°F	
Medium Temperature:	-20°C to +120°C / -4°F to +248°F	
Maximum Close-Off Pressure:	800 kPa / 116 psi	
Maximum Operational ΔP :	DN15 - DN32: 800 kPaD / 116 psid DN40 - DN50: 600 kPaD / 87 psid	
Flow Characteristic:	Linear, can be converted to equal percentage in the actuator	
Shut-Off Leakage:	ANSI / FCI 70-2 206 / IEC 60534-4 - Class IV/ 0.01% leakage of full open valve capacity	
Control Range:	1:1000 / IEC 60534	
Rangeability:	100:1	
Turn Down Ratio:	100:1	
Stroke:	DN15 - DN25: 3.4 mm (0.13") DN32: 5.2 mm (0.2") DN40 - DN50: 6.2 mm (0.24")	
Maximum Flow Rate Setting:	DN15LF - DN20LF: 64 to 1110 l/hr DN15HF - DN25HF: 620 to 2650 l/hr DN32: 865 to 4630 l/hr DN40 - DN50: 1900 to 13647 l/hr	

CONSTRUCTION

COMPONENT	SPECIFICATIONS	
	DN15-DN32	DN40-DN50
Valve Housing:	DZR Brass ASTM CuZn36Pb2As	Ductile iron ASTM A395 Grade 60-40-18
Flow Regulator:	Glass-reinforced PSU/POM/PPS	Glass-reinforced PSU/POM/PPS
Cone:	PPS	Stainless Steel
Diaphragm:	EPDM/Hydrogenated acrylonitrile-butadiene-rubber	Hydrogenated acrylonitrile-butadiene-rubber
O-rings and Seat:	EPDM	EPDM
Head Nut:	Forged brass ASTM CuZn40Pb2	--
Thread Connection:	Fixed female ISO	Fixed female ISO
Housing Taps:	1/4" ISO	1/4" ISO

MEASUREMENTS AND DIMENSIONS

DN15-DN32 SIZE VALVES



MODEL NO.	VALVE SIZE	L MM (IN)	H1 MM (IN)	H2 MM (IN)	H3 MM (IN)	H4 MM (IN)	H6 MM (IN)	WEIGHT ¹ KG (LB)
				MLP71TNA	MLP41TNA	MLP71MAA, MLP71MNA, & MLE71MAA	MLE75MAB & MLP75MAB	
VPI015TWL2	15 (1/2)	81 (3.19)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.50 (1.11)
VPI015TPL2	15 (1/2)	81 (3.19)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.50 (1.11)
VPI015TWH2	15 (1/2)	81 (3.19)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.50 (1.11)
VPI015TPH2	15 (1/2)	81 (3.19)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.50 (1.11)
VPI020TWL2	20 (3/4)	85 (3.35)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.52 (1.14)
VPI020TPL2	20 (3/4)	85 (3.35)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.52 (1.14)
VPI020TWH2	20 (3/4)	85 (3.35)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.52 (1.14)
VPI020TPH2	20 (3/4)	85 (3.35)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.52 (1.14)
VPI025TWH2	25 (1)	102 (4.02)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.72 (1.59)
VPI025TPH2	25 (1)	102 (4.02)	31 (1.22)	118 (4.65)	116 (4.57)	124 (4.88)	-	0.72 (1.59)
VPI032TWH2	32 (1 1/4)	128 (5.04)	47 (1.85)	138 (5.43)	137 (5.39)	144 (5.67)	-	1.70 (3.75)
VPI032TPH2	32 (1 1/4)	128 (5.04)	47 (1.85)	138 (5.43)	137 (5.39)	144 (5.67)	-	1.70 (3.75)
VPI040TPH2	40 (1 1/2)	191.0 (7.5)	100.2 (3.9)	-	-	-	194.7 (7.7)	4.3 (9.5)
VPI050TPL2	50 (2)	191.0 (7.5)	100.2 (3.9)	-	-	-	194.7 (7.7)	3.8 (8.4)

Note 1: Weight does not include actuator.

MLP71MAA ACTUATORS (FAIL-IN-PLACE)

It is critical to select and use the best possible actuators to achieve optimum indoor climate control with PICVs. Faster and more accurate actuators respond better to the control signal, for better results and higher comfort.

impressive MLP series actuators, which have been designed for use with the threaded VPI PICV series. They enable a new dimension of benefits to HVAC control, offering designers, system integrators, and building owners.

TECHNICAL SPECIFICATIONS

Operation: Modulating

Supply Voltage: 24V AC/DC $\pm 10\%$, 50/60 Hz

Failsafe Function: No

Control Signal: Analog 0(2)-10V DC, $<0.5\text{mA}$

Feedback: Yes, control signal

Actuating Force: High (250N -30N/+70N)

Stroke: 5.8 mm / 0.23 in (compensated)

Operation Time: 22 sec/mm

Power Consumption:

24V AC: 2.5VA operating (4.7VA max.)

24V DC: 1.2W operating (2.2W max.)

Ambient Temperature: 0°C to +50°C (+32°F to +122°F)

Media temperature: 0°C to +120°C (+32°F to +248°F)

Humidity rating: 0-85% RH, no condensation

Position Indicator: Yes



Wire Connection:

Fixed, 5 wires x 0.50 mm², 1.5 meter cable

CE Conformity: EN 60730

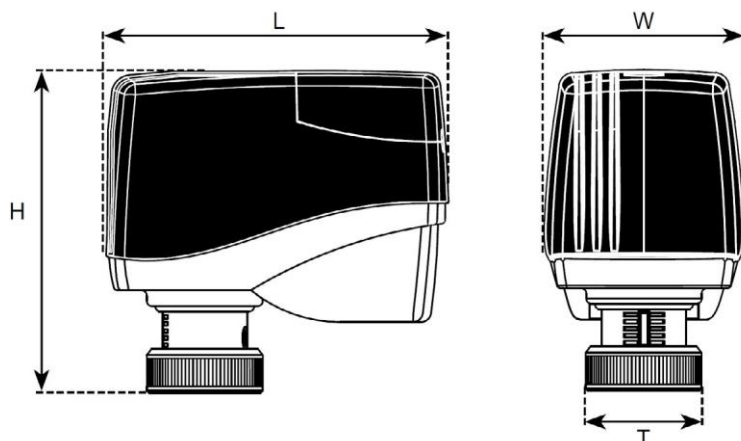
Protection Rating: IP54 incl. upside-down, class III, indoor use only

Weight: 0.25 kg / 0.55 lb

Valve Size Compatibility: DN15 - DN32

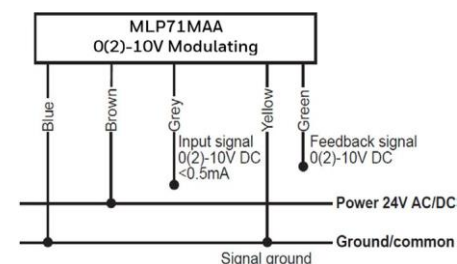
Override: Yes, Electrical

MEASUREMENTS & DIMENSIONS



ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	T	WEIGHT KG (LB)
MLP71MAA	86.5 (3.41)	48.5 (1.91)	80 (3.15)	M30x1.5	0.25 (0.55)

WIRING CONNECTIONS



ACTUATOR SWITCH FUNCTIONS

SWITCH NUMBER	SWITCH FUNCTION	FACTORY SETTINGS
Switch 1	Auto cycle ON/OFF If the plant specifications permit it, the auto cycle can be activated during commissioning. Auto cycle prevents the valve from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating systems during the summer. When the auto cycle is activated, the actuator will perform 50% stroke cycle if no stroke movement has occurred during a 3-week period.	OFF
Switch 2	Analog 2-10V DC / 0-10V DC Setting control range by the continuous actuating signal 0-10V DC or 2-10V DC.	0-10V DC
Switch 3	Normally open / Normally closed Setting actuating direction with 10V DC control signal to "valve open" or "valve closed" as well as the position feedback.	Normally closed; 0V DC = valve closed
Switch 4	Equal % control / Linear control Setting of actuating control curve to either equal percentage or linear control.	Linear control
Switch 5	No function.	Close
Switch 6	Electrical override Setting override function to ON and the actuator will open valve fully. When set to OFF again, the actuator will re-calibrate and thereafter go into normal operation mode.	Off



Actuator Switch Function

The valve functions are adjusted with the DIP switches under the connection cover.

MLP71MNA ACTUATORS (FAIL-IN-PLACE)

It is critical to select and use the best possible actuators to achieve optimum indoor climate control with PICVs. Faster and more accurate actuators respond better to the control signal, for better results and higher comfort.

the impressive MLP series actuators, which have been designed for use with the threaded VPI PICV series. They enable a new dimension of benefits to HVAC control, offering designers, system integrators, and building owners.

TECHNICAL SPECIFICATIONS

Operation: Modulating

Supply Voltage: 24V AC/DC $\pm 15\%$, 50/60 Hz

Failsafe Function: No

Control Signal: Analog 0(2)-10V DC, $<0.5\text{mA}$

Feedback: No

Actuating Force: 160N -10N/+70N

Stroke: 5.8 mm / 0.23 in (compensated)

Operation Time: 22 sec/mm

Power Consumption:

24V AC: 2.5VA operating (4.7VA max.)

24V DC: 1.2W operating (2.2W max.)

Ambient Temperature: 0°C to +50°C
(+32°F to +122°F)

Media temperature: 0°C to +120°C
(+32°F to +248°F)

Humidity Rating: 0-85% RH, no condensation

Position Indicator: Yes



Wire Connection: Fixed, 3 wires x 0.50 mm², 1.5 meter cable

CE Conformity: EN 60730

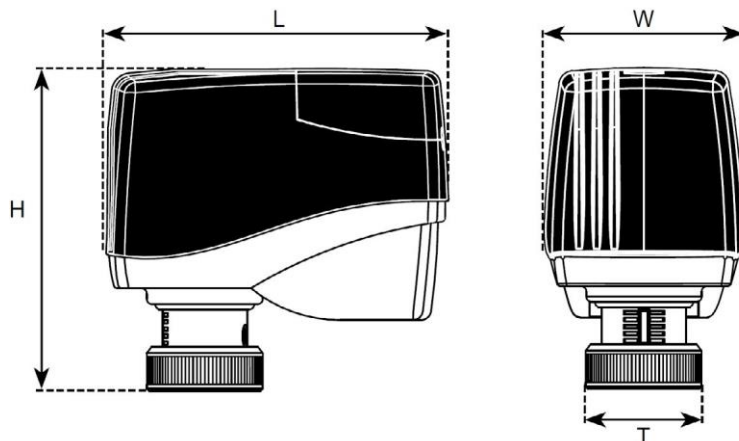
Protection Rating: IP54 incl. upside-down, class III, indoor use only

Weight: 0.25 kg / 0.55 lb

Valve Size Compatibility: DN15 - DN32

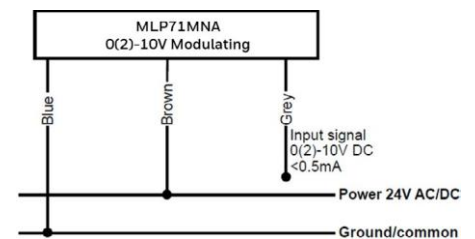
Override: Yes, Electrical

MEASUREMENTS & DIMENSIONS



ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	T	WEIGHT KG (LB)
MLP71MNA	86.5 (3.41)	48.5 (1.91)	80 (3.15)	M30x1.5	0.25 (0.55)

WIRING CONNECTIONS



MLP41MNA-NU ACTUATORS

It is critical to select and use the best possible actuators to achieve optimum indoor climate control with PICVs. Faster and more accurate actuators respond better to the control signal, for better results and higher comfort.

the impressive MLP series actuators, which have been designed for use with the threaded VPI PICV series. They enable a new dimension of benefits to HVAC control, offering designers, system integrators, and building owners.

TECHNICAL SPECIFICATIONS

Supply Voltage: 110/230V AC $\pm 10\%$, 50/60 Hz

Type: Bi-directional Step Motor

Failsafe Function: No

Manual Override: Yes (5 mm Allen Key)

Position Indication: Yes

Control Signal: Digital (2-position / 3-point-floating)

Feedback: No

Actuating Force: 200 N

Stroke: 1-8.5 mm / 0.04-0.33 in (auto adjusting)

Operation Time: 27.2 sec/mm

Power Consumption: 8 VA

Ambient Temperature: 0°C to +50°C (+32°F to +122°F)

Humidity Rating: 0-80% RH, no condensation

Wire Connection: Fixed, 3 wires x 0.80 mm², 1.5 meter cable

Protection Rating: IP54, class II

CE Conformity: EN60730

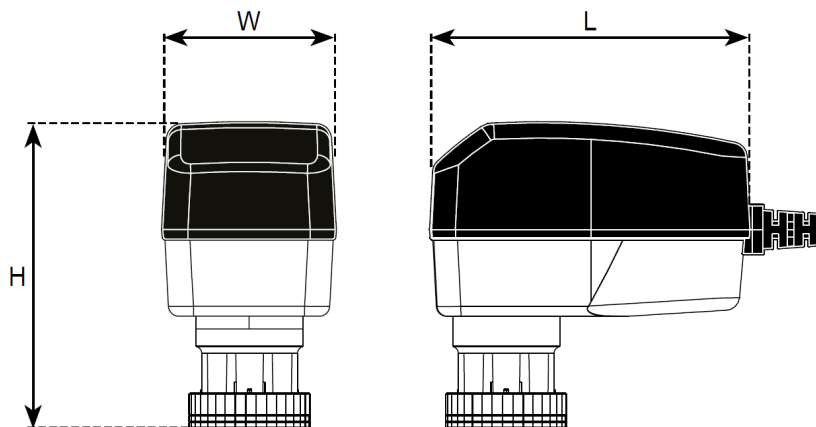
Weight: 0.25 kg / 0.55 lb

Valve Size Compatibility: DN15 - DN32

Closing Point Adjustment: During operation the actuator will self-adjust according to the closing point of the valve.

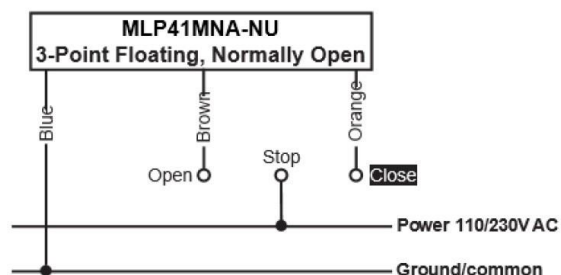
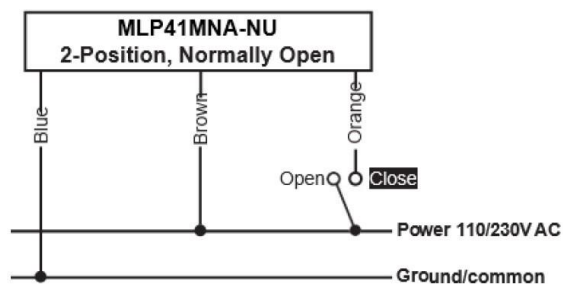


MEASUREMENTS & DIMENSIONS



ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	T	WEIGHT KG (LB)
MLP41MNA-NU	93.0 (3.66)	50.0 (1.97)	88 (3.46)	M30x1.5	0.23 (0.51)

WIRING CONNECTIONS



MLP75MAB ACTUATORS

It is critical to select and use the best possible actuators to achieve optimum indoor climate control with PICVs. Faster and more accurate actuators respond better to the control signal, for better results and higher comfort.

the impressive MLP series actuators, which have been designed for use with the threaded VPI PICV series. They enable a new dimension of benefits to HVAC control, offering designers, system integrators, and building owners.

TECHNICAL SPECIFICATIONS

Operation: Floating / Modulating (universal)

Supply Voltage: 24V AC/DC $\pm 10\%$, 50/60 Hz

Failsafe Function: No

Control Signal: Analog 0(2)-10V DC, <0.5mA or digital 3-point floating and ON/OFF

Feedback: Yes, control signal (analog) or 0-10V DC (digital ON/OFF)

Actuating Force: 600N -50N/+100N

Stroke: 7 mm / 0.276 in

Operation Time: 22 sec/mm

Power Consumption:

24V AC: 6VA operating (8.5VA max.)

24V DC: 2.6W operating (4.1W max.)

Ambient Temperature: 0°C to +50°C (+32°F to +122°F)

Media Temperature: 0°C to +120°C (+32°F to +248°F)

Humidity Rating: 0-85% RH, no condensation



Position Indicator: Yes

Wire Connection: Fixed, 5 wires x 0.50 mm², 1.5 meter cable

CE Conformity: EN 60730

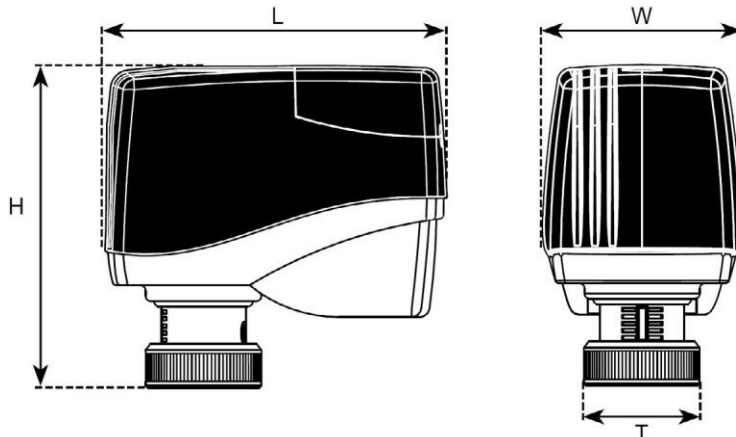
Protection Rating: IP54 incl. upside-down, class III, indoor use only

Weight: 0.30 kg / 0.67 lb

Valve Size Compatibility: DN40 - DN50

Override: Manual

MEASUREMENTS & DIMENSIONS

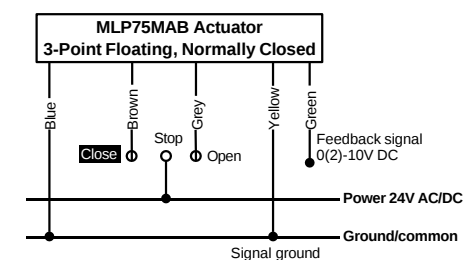
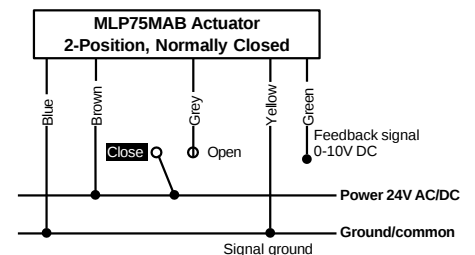
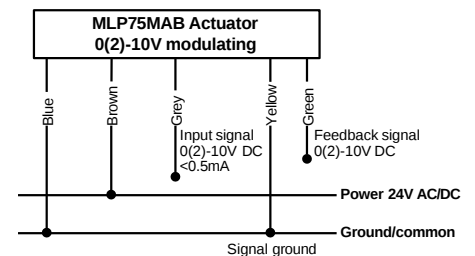


ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	T	WEIGHT KG (LB)
MLP75MAB	96.0 (3.78)	56 (2.20)	91 (3.58)	M30x1.5	0.30 (0.67)

ACTUATOR SWITCH FUNCTIONS

SWITCH NUMBER	SWITCH FUNCTION	FACTORY SETTINGS
Switch 1	Auto cycle ON/OFF If the plant specifications permit it, the auto cycle can be activated during commissioning. Auto cycle prevents the valve from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating systems during the summer. When the auto cycle is activated, the actuator will perform 50% stroke cycle if no stroke movement has occurred during a 3-weeks period.	OFF
Switch 2	Analog 2-10V DC / 0-10V DC Setting control range by the continuous actuating signal 0-10V DC or 2-10V DC.	0-10V DC
Switch 3	Normally open / Normally closed Setting actuating direction with 10V DC control signal to "valve open" or "valve closed" as well as the position feedback.	Normally closed; 0V DC = valve closed
Switch 4	Equal % control / Linear control Setting of actuating control curve to either equal percentage or linear control.	Linear control
Switch 5	No function.	Close
Switch 6	Re-calibration Setting is in different but flipping the switch will start re-calibration. After re-calibration the actuator will automatically go into normal operation.	Off

WIRING CONNECTIONS



Actuator Switch Function

The valve functions are adjusted with the DIP switches under the connection cover.

MLE71MAA ACTUATORS

It is critical to select and use the best possible actuators to achieve optimum indoor climate control with PICVs. Faster and more accurate actuators respond better to the control signal, for better results and higher comfort.

impressive MLE series actuators, which have been designed for use with the threaded VPI PICV series. They enable a new dimension of benefits to HVAC control, offering designers, system integrators, and building owners.

TECHNICAL SPECIFICATIONS

Operation: Modulating

Supply Voltage: 24V AC/DC $\pm 10\%$, 50/60 Hz

Failsafe Function: Yes, optional open or close

Control Signal: Analog 0(2)-10V DC or digital 2-position with constant power supply

Feedback: Yes, control signal (analog) or 0-10V DC (digital)

Actuating Force: High (250N -30N/+70N)

Stroke: 5.8 mm / 0.23 in (compensated)

Operation Time: 22 sec/mm (failsafe mode: 5 sec/mm)

Power Consumption:

24V AC: 5.8VA operating (6.8VA max.)

24V DC: 2.9W operating (3.3W max.)

Ambient Temperature: 0°C to +50°C (+32°F to +122°F)

Media temperature: 0°C to +120°C (+32°F to +248°F)

Humidity rating: 0-85% RH, no condensation

Position Indicator: Yes



Wire Connection: Fixed,

5 wires x 0.50 mm², 1.5 meter cable

CE Conformity: EN 60730

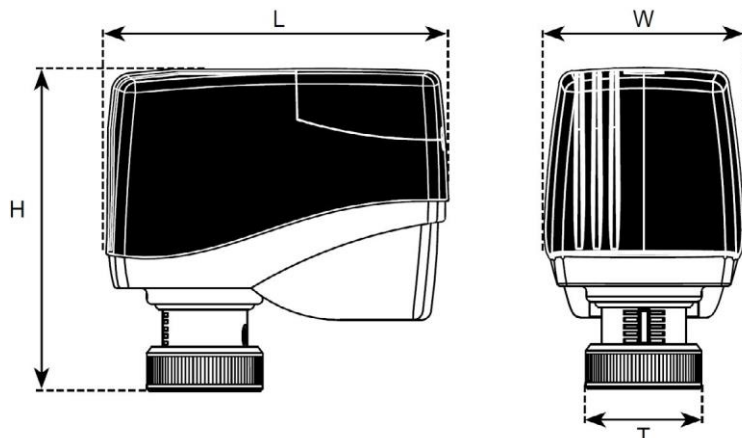
Protection Rating: IP54 incl. upside-down, class III, indoor use only

Weight: 0.27 kg / 0.60 lb

Valve Size Compatibility: DN15 - DN32

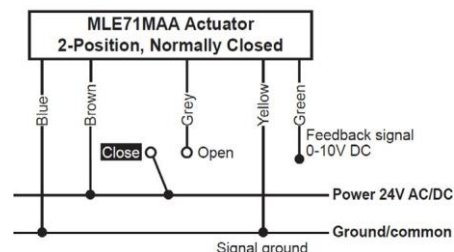
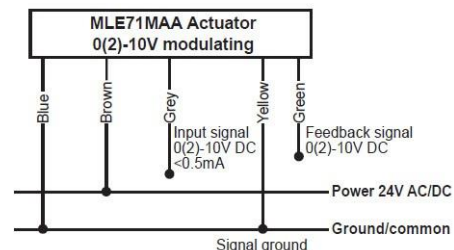
Override: Yes, Electrical

MEASUREMENTS & DIMENSIONS



ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	T	WEIGHT KG (LB)
MLE71MAA	86.5 (3.41)	48.5 (1.91)	80 (3.15)	M30x1.5	0.27 (0.60)

WIRING CONNECTIONS



ACTUATOR SWITCH FUNCTIONS

SWITCH NUMBER	SWITCH FUNCTION	FACTORY SETTINGS
Switch 1	Auto cycle ON/OFF If the plant specifications permit it, the auto cycle can be activated during commissioning. Auto cycle prevents the valve from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating systems during the summer. When the auto cycle is activated, the actuator will perform 50% stroke cycle if no stroke movement has occurred during a 3-weeks period.	OFF
Switch 2	Analog 2-10V DC / 0-10V DC Setting actuating range by the continuous actuating signal 0-10V DC or 2-10V DC.	0-10V DC
Switch 3	Normally open / Normally closed Setting actuating direction with 10V DC control signal to "valve open" or "valve closed" as well as the position feedback.	Normally closed; 0V DC = valve closed
Switch 4	Equal % control / Linear control Setting of actuating control curve to either equal percentage or linear control.	Linear control
Switch 5	Failsafe open/close Setting actuator direction at power failure to "valve open" or "valve closed".	Close
Switch 6	Electrical override Setting override function to ON and the actuator will open valve fully. When set to OFF again, the actuator will re-calibrate and thereafter go into normal operation mode.	Off



Actuator Switch Function

The valve functions are adjusted with the DIP switches under the connection cover.

MLE75MAB ACTUATORS

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TECHNICAL SPECIFICATIONS

Operation: Floating / Modulating (universal)

Supply Voltage: 24V AC/DC $\pm 10\%$, 50/60 Hz

Failsafe Function: Yes, optional open or close

Control Signal: Analog 0(2)-10V DC or digital 2-position with constant power supply

Feedback: Yes, control signal (analog) or 0-10V DC (digital)

Actuating Force: 600N -50N/+100N

Stroke: 7 mm / 0.276 in

Operation Time: 22 sec/mm (failsafe mode: 5 sec/mm)

Power Consumption:

24V AC: 7.9VA operating (9VA max.)

24V DC: 3.7W operating (4.5W max.)

Ambient Temperature: 0°C to +50°C (+32°F to +122°F)

Media temperature: 0°C to +120°C (+32°F to +248°F)



Humidity rating: 0-85% RH, no condensation

Position Indicator: Yes

Wire Connection: Fixed, 5 wires x 0.50 mm², 1.5 meter cable

CE Conformity: EN 60730

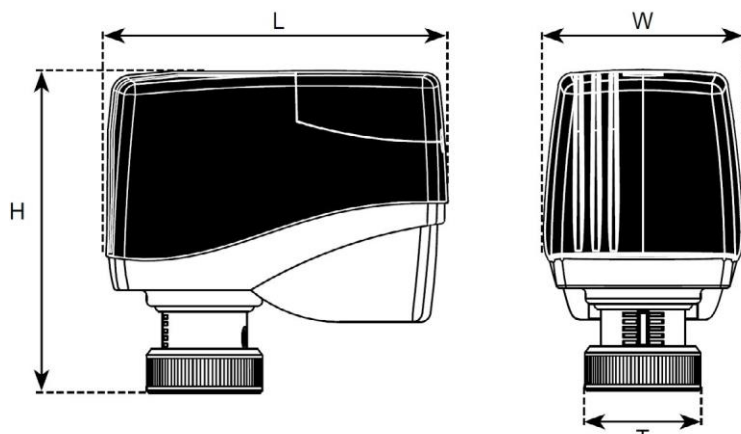
Protection Rating: IP54 incl. upside-down, class III, indoor use only

Weight: 0.34 kg / 0.75 lb

Valve Size Compatibility: DN40 - DN50

Override: Electrical

MEASUREMENTS & DIMENSIONS

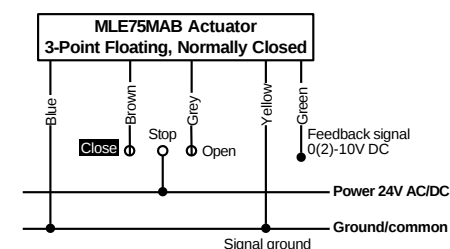
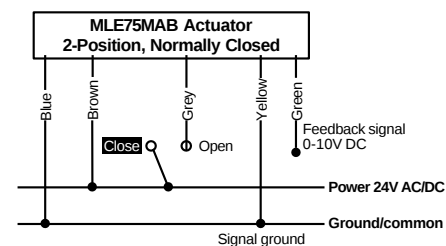
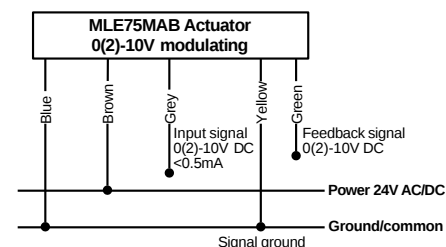


ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	T	WEIGHT KG (LB)
MLE75MAB	96.0 (3.78)	56 (2.20)	91 (3.58)	M30x1.5	0.34 (0.75)

ACTUATOR SWITCH FUNCTIONS

SWITCH NUMBER	SWITCH FUNCTION	FACTORY SETTINGS
Switch 1	Auto cycle ON/OFF If the plant specifications permit it, the auto cycle can be activated during commissioning. Auto cycle prevents the valve from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating systems during the summer. When the auto cycle is activated, the actuator will perform 50% stroke cycle if no stroke movement has occurred during a 3-weeks period.	OFF
Switch 2	Analog 2-10V DC / 0-10V DC Setting control range by the continuous actuating signal 0-10V DC or 2-10V DC.	0-10V DC
Switch 3	Normally open / Normally closed Setting actuating direction with 10V DC control signal to "valve open" or "valve closed" as well as the position feedback.	Normally closed; 0V DC = valve closed
Switch 4	Equal % control / Linear control Setting of actuating control curve to either equal percentage or linear control.	Linear control
Switch 5	Failsafe open/close Setting actuator direction at power failure to "valve open" or "valve closed".	Close
Switch 6	Electrical override Setting override function to ON and the actuator will open valve fully. When set to OFF again, the actuator will re-calibrate and thereafter go into normal operation mode.	Off

WIRING CONNECTIONS



Actuator Switch Function

The valve functions are adjusted with the DIP switches under the connection cover.

MLP41TNA ACTUATORS (THERMOELECTRIC ACTUATORS)

It is critical to select and use the best possible actuators to achieve optimum indoor climate control with PICVs. Faster and more accurate actuators respond better to the control signal, for better results and higher comfort.

the impressive MLP series thermoelectric actuators, which have been designed for use with the threaded VPI PICV series. They enable a new dimension of benefits to HVAC control, offering designers, system integrators, and building owners.



TECHNICAL SPECIFICATIONS

Operation: On/Off

Supply Voltage: 230V AC $\pm 10\%$, 50/60 Hz

Failsafe Function: Yes, normally closed³

Control Signal: ON/OFF, normally closed

Actuating Force: 140 N

Stroke: 6.5 mm / 0.256 in

Operation Time: Approximately 4.5 minutes⁴

Power Consumption: 1.2W

Ambient Temperature: 0°C to +60°C (+32°F to +140°F)

Wire Connection: Fixed, 2 wires x 0.75 mm², 1 meter cable

Protection Rating: IP54 including upside-down, class II

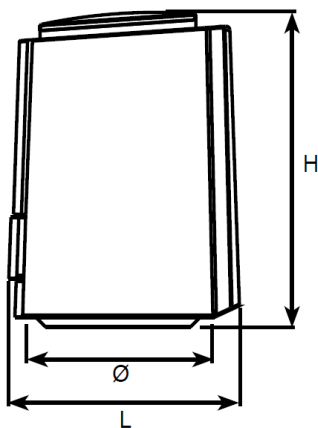
Weight: 0.11 kg / 0.24 lb

Valve Size Compatibility: DN15-DN32

Note 3: To ensure that the valve is in an open position during commissioning of the system, the actuator will be delivered in open position and remain in this position until it is electrically operated first time.

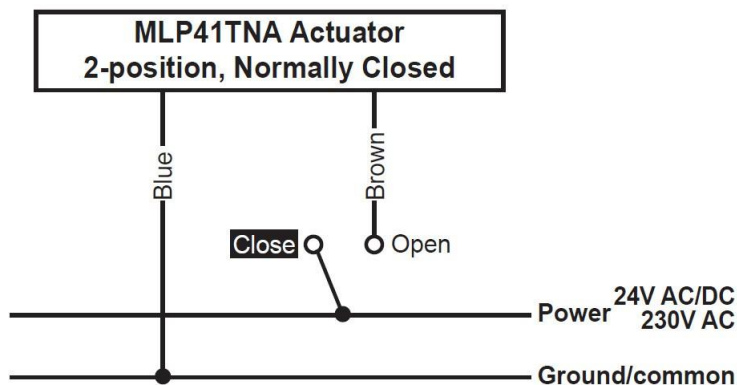
Note 4: Closing time is approximately the double dependent on ambient temperature.

MEASUREMENTS & DIMENSIONS



ACTUATOR	L MM (IN)	Ø MM (IN)	W MM (IN)	H MINIMUM	H MAXIMUM	WEIGHT KG (LB)
MLP41TNA	48.4 (1.91)	38.0 (1.50)	44.1 (1.74)	61.0 (2.40)	69.3 (2.73)	0.11 (0.24)

WIRING CONNECTIONS



MLP71TNA ACTUATORS (THERMOELECTRIC ACTUATORS)

It is critical to select and use the best possible actuators to achieve optimum indoor climate control with PICVs. Faster and more accurate actuators respond better to the control signal, for better results and higher comfort.

the impressive MLP series thermoelectric actuators, which have been designed for use with the threaded VPI PICV series. They enable a new dimension of benefits to HVAC control, offering designers, system integrators, and building owners.



TECHNICAL SPECIFICATIONS

Operation: Modulating

Supply Voltage: 24V AC -10%...+20%, 50/60 Hz

Failsafe Function: Yes, normally closed⁵

Control Signal: Analog 0-10V, normally closed

Actuating Force: 140 N

Stroke: 6.5 mm /0.256 in

Operation Time: Approximately 3.5 minutes⁶

Power Consumption: 1.2W

Ambient Temperature: 0°C to +60°C / +32°F to +140°F

Wire Connection: Plug-in, 3 wires x 0.22 mm², 1 meter cable

Protection Rating: IP54 including upside-down, class III

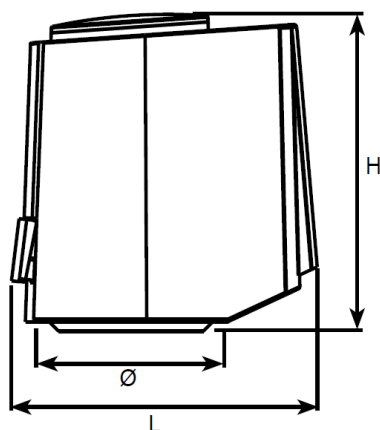
Weight: 0.12 kg / 0.27 lb

Valve Size Compatibility: DN15-DN32

Note 5: To ensure that the valve is in an open position during commissioning of the system, the actuator will be delivered in open position and remain in this position until it is electrically operated first time.

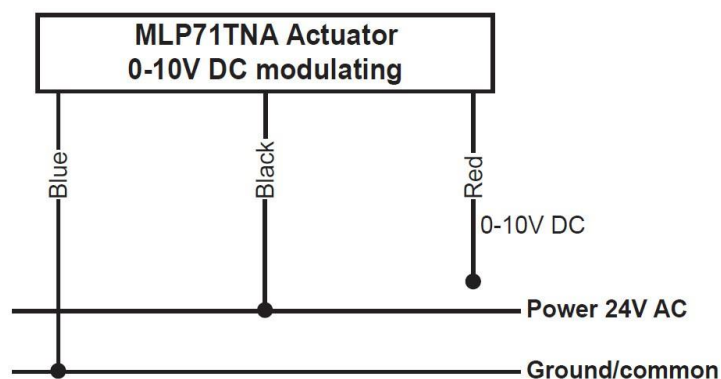
Note 6: Closing time is approximately the double dependent on ambient temperature.

MEASUREMENTS & DIMENSIONS



ACTUATOR	L MM (IN)	Ø MM (IN)	W MM (IN)	H MINIMUM	H MAXIMUM	WEIGHT KG (LB)
MLP71TNA	63.5 (2.5)	38.0 (1.50)	44.1 (1.74)	63.5 (2.5)	71.8 (2.83)	0.12 (0.27)

WIRING CONNECTIONS

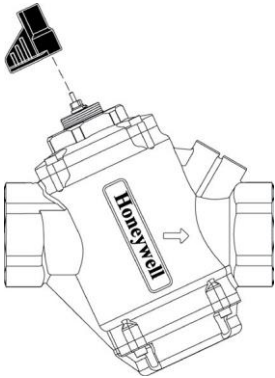


FLOW-RATE SETTINGS

MODEL NO.	VALVE DIAMETER	MAXIMUM FLOW RATE			CLOSE-OFF PRESSURE	DIFFERENTIAL PRESSURE RANGE	PN RATING	END CONNECTION
	MM	L/H	M3/H	GPM	KPA	KPAD		
VPI015TWL2	DN15	1110	1.11	4.89	800	30 - 800	PN25	Fixed female threaded ISO
VPI015TPL2	DN15	1110	1.11	4.89	800	30 - 800	PN25	Fixed female threaded ISO
VPI015TWH2	DN15	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPI015TPH2	DN15	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPI020TWL2	DN20	1110	1.11	4.89	800	30 - 800	PN25	Fixed female threaded ISO
VPI020TPL2	DN20	1110	1.11	4.89	800	30 - 800	PN25	Fixed female threaded ISO
VPI020TWH2	DN20	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPI020TPH2	DN20	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPI025TWH2	DN25	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPI025TPH2	DN25	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPI032TWH2	DN32	4630	4.6	20.4	800	16 - 800	PN25	Fixed female threaded ISO
VPI032TPH2	DN32	4630	4.6	20.4	800	16 - 800	PN25	Fixed female threaded ISO
VPI040TPH2	DN40	13647	13.6	60.1	800	16 - 600	PN25	Fixed female threaded ISO
VPI050TPL2	DN50	13647	13.6	60.1	800	16 - 600	PN25	Fixed female threaded ISO

FLOW SETTING DIAL

VPI series Pressure Independent Control Valves offers selection of wide range of flow settings. These valves are specially equipped with Scale setting dials on top of the valve body. To adjust the preferred flow settings, adjust the below shown dials (as per valve model) with a unique adjustment key.

	DN15/20 (LF) AND DN32	DN15/20/25 (HF)	DN 40/50 (THREADED)
	 For example - A micrometer setting of 3.2 (DN32 valve) on dial, corresponds to a maximum flow rate of: 3350 l/h (17.7 GPM)	 For example - A micrometer setting of 2.3 on dial, corresponds to a maximum flow rate of: 1430 l/h (6.28 GPM)	 For example - A micrometer setting of 3.7 on dial, corresponds to a maximum flow rate of: 11142 l/h (49 GPM)

FLOW SETTINGS

MODEL NUMBER	MAXIMUM FLOW RATE	WORKING DIFFERENTIAL PRESSURE
DN15/DN20 (LF)	64 l/h - 1110 l/h	30 kPaD - 800 kPaD
DN15/DN20/DN25 (HF)	620 l/h - 2650 l/h	35 kPaD - 800 kPaD
DN32	865 l/h - 4630 l/h	16 kPaD - 800 kPaD
DN40/DN50	1900 l/h - 13647 l/h	16 kPaD - 600 kPaD

MAXIMUM FLOW-RATE LIMITATION SETTINGS (DN 15 – DN 32)

DN15LF-DN20LF			DN15LF-DN20LF			DN32			DN40-DN50			SETTING
L/SEC	L/HR	GPM	L/SEC	L/HR	GPM	L/SEC	L/HR	GPM	L/SEC	L/HR	GPM	
0.0178	64	0.282	-	-	-	0.240	865	3.81	0.528	1900	8.36	1.0
0.0393	142	0.624	-	-	-	0.282	1010	4.46	0.633	2278	10.0	1.1
0.0580	209	0.920	-	-	-	0.322	1160	5.10	0.738	2655	11.7	1.2
0.0743	268	1.180	-	-	-	0.361	1300	5.72	0.843	3033	13.3	1.3
0.0887	319	1.41	-	-	-	0.399	1430	6.32	0.947	3410	15.0	1.4
0.102	366	1.61	0.172	620	2.73	0.435	1570	6.90	1.05	3787	16.7	1.5
0.113	408	1.80	0.200	720	3.17	0.471	1700	7.47	1.16	4163	18.3	1.6
0.124	446	1.96	0.228	820	3.61	0.506	1820	8.02	1.26	4537	20.0	1.7
0.134	482	2.12	0.258	930	4.10	0.540	1940	8.56	1.36	4909	21.6	1.8
0.143	516	2.27	0.294	1060	4.67	0.573	2060	9.08	1.47	5279	23.2	1.9
0.152	549	2.42	0.325	1170	5.15	0.605	2180	9.59	1.57	5646	24.8	2.0
0.161	580	2.56	0.350	1260	5.55	0.636	2290	10.1	1.67	6011	26.4	2.1
0.170	611	2.69	0.375	1350	5.95	0.667	2400	10.6	1.77	6372	28.0	2.2
0.178	641	2.82	0.396	1430	6.28	0.696	2510	11.0	1.87	6730	29.6	2.3
0.186	671	2.95	0.417	1500	6.61	0.725	2610	11.5	1.97	7083	31.2	2.4
0.194	700	3.08	0.439	1580	6.96	0.753	2710	11.9	2.06	7432	32.7	2.5
0.202	728	3.21	0.458	1650	7.27	0.780	2810	12.4	2.16	7776	34.2	2.6
0.210	756	3.33	0.481	1730	7.62	0.807	2900	12.8	2.25	8115	35.7	2.7
0.218	783	3.45	0.500	1800	7.93	0.832	3000	13.2	2.35	8449	37.2	2.8
0.225	810	3.56	0.522	1880	8.28	0.858	3090	13.6	2.44	8777	38.6	2.9
0.232	835	3.68	0.542	1950	8.59	0.882	3180	14.0	2.53	9098	40.0	3.0
0.239	860	3.79	0.550	1980	8.72	0.906	3260	14.4	2.61	9413	41.4	3.1
0.245	883	3.89	0.558	2010	8.85	0.930	3350	14.7	2.70	9721	42.8	3.2
0.252	906	3.99	0.567	2040	8.99	0.953	3430	15.1	2.78	10021	44.1	3.3
0.257	927	4.08	0.575	2070	9.12	0.975	3510	15.5	2.86	10314	45.4	3.4
0.263	946	4.17	0.583	2100	9.25	0.997	3590	15.8	2.94	10599	46.6	3.5
0.268	965	4.25	0.597	2150	9.47	1.02	3670	16.1	3.02	10875	47.8	3.6
0.273	982	4.32	0.611	2200	9.69	1.04	3740	16.5	3.10	11142	49.0	3.7
0.277	998	4.39	0.625	2250	9.91	1.06	3820	16.8	3.17	11400	50.2	3.8
0.281	1010	4.46	0.639	2300	10.1	1.08	3890	17.1	3.24	11649	51.3	3.9
0.285	1020	4.51	0.653	2350	10.4	1.10	3960	17.4	3.30	11888	52.3	4.0
0.288	1040	4.57	0.661	2380	10.5	1.12	4030	17.7	3.37	12116	53.3	4.1
0.291	1050	4.61	0.669	2410	10.6	1.14	4100	18.1	3.43	12334	54.3	4.2
0.294	1060	4.66	0.678	2440	10.7	1.16	4170	18.4	3.48	12540	55.2	4.3
0.296	1070	4.70	0.686	2470	10.9	1.18	4240	18.7	3.54	12735	56.0	4.4
0.299	1080	4.73	0.694	2500	11.0	1.20	4300	19.0	3.59	12919	56.8	4.5
0.301	1080	4.77	0.703	2530	11.1	1.21	4370	19.2	3.64	13090	57.6	4.6
0.303	1090	4.80	0.711	2560	11.3	1.23	4440	19.5	3.68	13249	58.3	4.7
0.305	1100	4.83	0.719	2590	11.4	1.25	4500	19.8	3.72	13395	58.9	4.8
0.307	1100	4.86	0.728	2620	11.5	1.27	4570	20.1	3.76	13527	59.5	4.9
0.308	1110	4.89	0.736	2650	11.7	1.29	4630	20.4	3.79	13647	60.0	5.0

Accuracy: Greatest of either $\pm 10\%$ of controlled flow rate or $\pm 5\%$ of maximum flow rate.

MODEL SELECTION (PART NOMENCLATURE)

VPI SERIES VALVE BODIES

VALVE TYPE	VALVE SIZE	CONNECTION TYPE	PRESSURE TEST PORTS	MAXIMUM FLOW RATE	PRESSURE CLASS
VPI - Valve Pressure Independent	015 - DN15 / 0.5 inch	T - Threaded DN Size	P - With Pressure Ports	L - Low Max Flow	2 - PN25
	020 - DN20 / 0.75 inch		W - Without Pressure Ports	H - High Max Flow	
	025 - DN25 / 1 inch				
	032 - DN32 / 1.25 inch				
	040 - DN40 / 1.5 inch				
	050 - DN50 / 2 inch				
VPI	015	T	P	H	2

Example: VPI015TPH2

- Without Pressure Test Port models are available only for DN15-DN32
- Low Flow (LF) models are available only for DN15 and DN20.

VPI SERIES ACTUATORS

ACTUATOR TYPE	FAIL-SAFE	CONTROL AND POWER VOLTAGE	ACTUATOR TECHNOLOGY	FEEDBACK	VALVE SIZE
ML - Motor Linear	P - Power Failure 'In place'	41 - On/Off 230Vac	T - Thermoelectric Actuator	A - Analog feedback	A - DN15-DN32 (Threaded)
	E - Electronic Fail-Safe	71 - Modulating (0)2-10Vdc	M - Electric Actuator	N - No feedback	B - DN40-DN50 (Threaded)
		75 - Floating / Modulating (universal)			
ML	P	71	M	N	A

Example: MLP71MNA

Note: For MLP41MNA-NU actuators, use the same model selection with extra -NU at the end for non UL listed actuators.

ACCESSORIES

List of Available Accessories

PART CODE	PART NAME
VPI-PP-TP	VPI Series Pressure Ports - Test Plugs
VPI-FSK	VPI Series Flow Setting Key

VALVE AND ACTUATOR COMPATIBILITY

DN15 – DN32 VALVE AND ACTUATOR COMPATIBILITY

PARAMETERS			ACTUATOR PART NUMBER					
			MLP71MAA	MLE71MAA	MLP71MNA	MLP41TNA	MLP71TNA	MLP41MNA-NU
Power Supply		Voltage	24 Vac/dc +/-10%, 50/60Hz	24 Vac/dc +/-10%, 50/60Hz	24 Vac/dc +/-15%, 50/60Hz	110/230 Vac +/-10%, 50/60Hz	24 Vac/dc +/-10%, 50/60Hz	110/230V AC ±10%, 50/60Hz
		Power (Peak)	4.7VA	6.8VA	4.7VA	1.2W	1.2W	8VA
Control	0-10 Vdc		•	•	•		•	
	2-10 Vdc		•	•	•			
	2-Position SPDT			•				•
	On-Off / 2-Position SPST					•		
Feedback		(0)2-10Vdc	•	•				
Actuator Force/Torque		(N/Nm)	240 N	250 N	160 N	140 N	140 N	200 N
Running Time		(sec/mm)	22 sec/mm	22 sec/mm	22 sec/mm	270 sec	210 sec	27.2
Power Fail Safe Action			Fail In Place	Electronic Fail-Safe	Fail In Place	Fail Safe	Fail Safe	Fail Safe
Electrical Connection		Cable length (meter)	1.5 m	1.5 m	1.5 m	1 m	1 m	1.5 m
Valve Size	Q _{MAX} (l/h)	Valve Model Number	Compatibility					
DN15 LF	1110	VPI015TWL2	•	•	•	•	•	•
DN15P LF	1110	VPI015TPL2	•	•	•	•	•	•
DN15 HF	2,650	VPI015TWH2	•	•	•	•	•	•
DN15P HF	2,650	VPI015TPH2	•	•	•	•	•	•
DN20 LF	1110	VPI020TWL2	•	•	•	•	•	•
DN20P LF	1110	VPI020TPL2	•	•	•	•	•	•
DN20 HF	2,650	VPI020TWH2	•	•	•	•	•	•
DN20P HF	2,650	VPI020TPH2	•	•	•	•	•	•
DN25	2,650	VPI025TWH2	•	•	•	•	•	•
DN25P	2,650	VPI025TPH2	•	•	•	•	•	•
DN32	4,630	VPI032TWH2	•	•	•	•	•	•
DN32P	4,630	VPI032TPH2	•	•	•	•	•	•

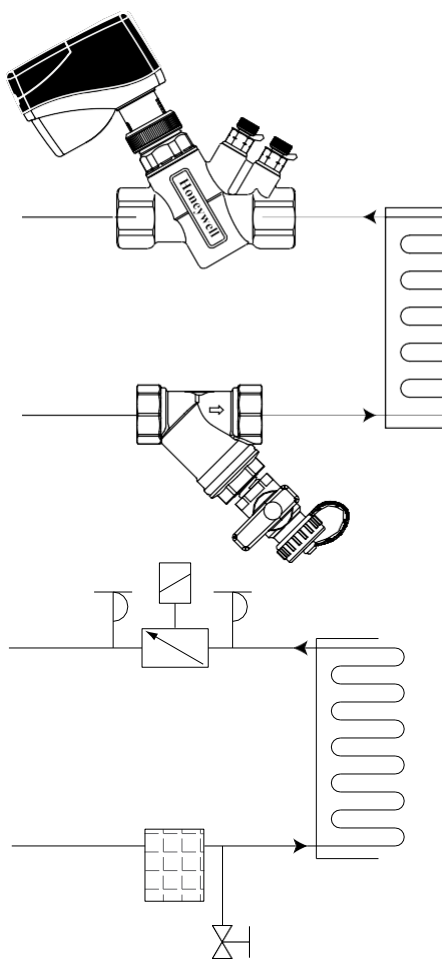
Note 7: DN32 valves when used with MLP41TNA or MLP71TNA might exceed specified leakage rate.

Note 8: Thermal Actuators closing time is approximately double dependent on ambient temperature.

DN40 – DN50 VALVE AND ACTUATOR COMPATIBILITY

PARAMETERS			ACTUATOR PART NUMBER	
			MLP75MAB	MLE75MAB
Power Supply		Voltage	24 Vac/dc, +/-10%, 50/60Hz	24 Vac/dc, +/-10%, 50/60Hz
		Power (Peak)	9VA	9VA
Control	0-10 Vdc		•	•
	2-10 Vdc		•	•
	2-Position SPDT		•	•
Feedback		(0)2-10 Vdc	•	•
Actuator Force/Torque		(N/Nm)	600 N	600 N
Running Time		(sec/mm)	22 sec/mm	22 sec/mm
Power Fail Safe Action			Fail In Place	Electronic Fail-Safe
Electrical Connection		Cable length (meter)	1.5m	1.5m
Valve Size	Q _{MAX} (l/h)	Valve Model Number	Compatibility	
DN40	13,647	VPI040TPH2	•	•
DN50	13,647	VPI050TPL2	•	•

APPLICATION AND SCHEMATIC EXAMPLE



VPI SERIES

Pressure Independent Control Valves and Actuators

Honeywell VPI series makes it simple to achieve 100% control of the water flow in the building, while creating high comfort and energy savings at the same time. An additional benefit is that no balancing is required if further stages are added to the system, or if the dimensioned capacity is changed.



APPLICATION

Honeywell VPI series provides modulating control with full authority regardless of pressure fluctuations in the system. Honeywell flanged pressure independent control valves (PICVs) are used in heating and cooling systems such as Air Handling Units, and other central plant applications.

ALL-IN-ONE

It combines an externally adjustable automatic balancing valve, a differential pressure control valve and a full authority modulating control valve in one single unit. Automatic balancing eliminates overflows, regardless of fluctuating pressure conditions in the system. Flow balancing in valve body through diaphragm.

SEALED SETTINGS

Actuator will cover the setting and protect against tampering.

APPROVALS

Shut-off leakage as per ANSI / FCI 70-2 206 / IEC 60534-4 - Class IV/ 0.01% leakage of full open valve capacity. Tested as per BSRIA standards. UL & CE approved actuators.

EASY SETTING & FIELD ADJUSTABLE

Flow setting is stepless and can easily be set to design regulated flow in the flow range available from 113.2 to 1219.6 gpm. Setting can be done before or after installation and flow may be changed on demand without removing the valve from the installation.

COMPACT DESIGN

Compact one-unit PICV, including modulating control valve, dynamic flow limiter and differential pressure control valve in one body. High flows with minimal required differential pressure due to advanced design of the valve.

SMART ACTUATORS

Standard or failsafe actuator; always includes feedback signal - an easy solution for designers, installers and end-users.

Electrical actuators with selectable control modes, Linear or Equal percentage settings.

Electronic fail-safe actuators also available for sizes with and without Pressure test ports.

FLEXIBLE

Two-way, modulating to accept digital or analog input signals. The valves accept 0(2)-10V, 3-point floating or ON/OFF input signals.

FEATURES AND BENEFITS

DN flange sizes from DN50-250, which are also compatible with ANSI/ASME Class 150/300 flange standards.

Energy saving due to optimal control, lower flow and pump pressure. Maximized ΔT due to faster response and increased system stability.

Simple Maintenance - Internal parts can be accessed without removing the valve housing from the piping lines.

Close-off pressure range up to 800 kPa and Differential pressure operating range up to 800 kPaD.

Controls chilled or hot water in closed loop systems with up to 50% glycol.

TECHNICAL SPECIFICATIONS

VALVE SPECIFICATIONS

PARAMETER	SPECIFICATIONS
Valve Type	Pressure Independent Control Valve
Body Style	Globe / Linear
Size Range	DN50 - DN250 (1/2" - 10")
PN Pressure Rating	PN40
Static Pressure:	4000 kPa / 580 psi
Ambient Temperature:	-10°C to +50°C / +14°F to +122°F
Medium Temperature:	-20°C to +120°C / -4°F to +248°F
Maximum Close-Off Pressure:	800 kPa / 116 psi
Maximum operational ΔP:	800 kPaD / 116 psid
Flow Characteristic:	Linear, can be converted to equal percentage in the actuator
Shut-off leakage:	ANSI / FCI 70-2 206 / IEC 60534-4 - Class IV/ 0.01% leakage of full open valve capacity
Stroke:	DN50-100: 30 mm (2,160° rotation) DN125-150LF: 36 mm (2,160° rotation) DN150HF-250: 60 mm (3,600° rotation)
Control range:	1:1000 / IEC 60534
Rangeability:	>100:1
Turn down ratio:	228:1
Control range:	1:1000 / IEC 60534
Rangeability:	>100:1
Turn down ratio:	228:1

MAXIMUM FLOW RATE SETTINGS:

VALVE	FLOW RANGE	VALVE	FLOW RANGE
DN50 and DN65:	9240 to 25700 l/hr	DN125LF:	23300 to 83800 l/hr
DN80LF:	12800 to 35600 l/hr	DN125HF:	25600 to 106000 l/hr
DN80HF and DN100LF:	17000 to 51000 l/hr	DN150LF:	25600 to 106000 l/hr
DN100HF:	13300 to 72700 l/hr	DN150HF - DN250:	33100 to 277000 l/hr

FLOW-RATE SETTING

MODEL NO.	VALVE DIAMETER	MAXIMUM FLOW RATE			CLOSE-OFF PRESSURE	DIFFERENTIAL PRESSURE RANGE	PN RATING	END CONNECTION
	MM	L/H	M3/H	GPM	KPA	KPAD		
VPI050FPH4	DN50F	25700	25.7	113.2	800	30 - 800	PN40	Flanged
VPI065FPH4	DN65	25700	25.7	113.2	800	30 - 800	PN40	Flanged
VPI080FPL4	DN80	35600	35.6	156.7	800	35 - 800	PN40	Flanged
VPI080FPH4	DN80	51000	51	224.5	800	35 - 800	PN40	Flanged
VPI100FPL4	DN100	51000	51	224.5	800	35 - 800	PN40	Flanged
VPI100FPH4	DN100	72700	72.7	320.1	800	50 - 800	PN40	Flanged
VPI125FPL4	DN125	83800	83.8	369	800	30 - 800	PN40	Flanged
VPI125FPH4	DN125	106000	106	466.7	800	35 - 800	PN40	Flanged
VPI150FPL4	DN150	106000	106	466.7	800	35 - 800	PN40	Flanged
VPI150FPH4	DN150	277000	277	1219.6	800	35 - 800	PN40	Flanged
VPI200FPH4	DN200	277000	277	1219.6	800	35 - 800	PN40	Flanged
VPI250FPH4	DN250	277000	277	1219.6	800	35 - 800	PN40	Flanged

Accuracy: Greatest of either ±5% of controlled flow rate or ±2% of maximum flow rate.

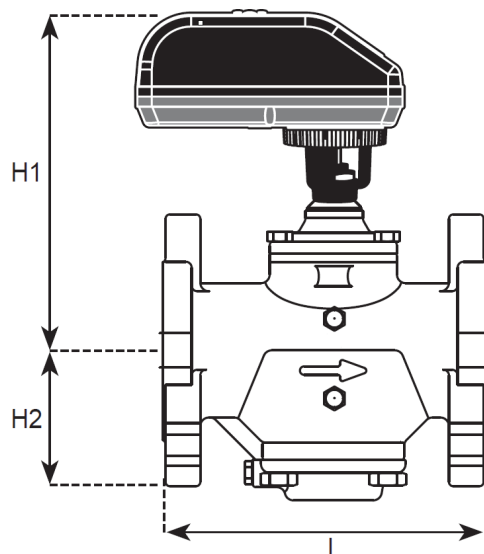
CONSTRUCTION

COMPONENT	MATERIALS
Valve Housing	Ductile Iron ASTM A395 Grade 60-40-18
Flow Regulator	Glass-reinforced PSU/POM/PPS
Metal components (internal)	Stainless steel
Diaphragm	Hydrogenated acrylonitrile-butadiene-rubber
O-rings and Seat	EPDM
Flange Connection	Universal flange connections which can be used with both ISO and ANSI flanges.
Housing Taps	1/4" ISO
Valve Housing	Ductile Iron ASTM A395 Grade 60-40-18

*Mounting kits are not supplied by Honeywell.

MEASUREMENTS AND DIMENSIONS

DN50-DN250 VALVES



PARAMETER	VALVE SIZE MM (IN)	L MM (IN)	H1 MM (IN)	H2 MM (IN)	WEIGHT1 KG (LB)
VPI050FPH4	50 (2)	224 (8.82)	252 (9.92)	95.0 (3.74)	14.0 (30.9)
VPI065FPH4	65 (2 1/2)	224 (8.82)	252 (9.92)	95.0 (3.74)	14.0 (30.9)
VPI080FPL4	80 (3)	224 (8.82)	252 (9.92)	95.0 (3.74)	14.0 (30.9)
VPI080FPH4	80 (3)	320 (12.6)	292 (11.5)	135 (5.31)	31.0 (68.3)
VPI100FPL4	100 (4)	320 (12.6)	292 (11.5)	135 (5.31)	32.0 (70.5)
VPI100FPH4	100 (4)	320 (12.6)	292 (11.5)	135 (5.31)	32.0 (70.5)
VPI125FPL4	125 (5)	422 (16.6)	343 (13.5)	180 (7.09)	61.0 (134)
VPI125FPH4	125 (5)	422 (16.6)	343 (13.5)	180 (7.09)	61.0 (134)
VPI150FPL4	150 (6)	422 (16.6)	343 (13.5)	180 (7.09)	61.0 (134)
VPI150FPH4	150 (6)	422 (16.6)	343 (13.5)	180 (7.09)	61.0 (134)
VPI200FPH4	200 (8)	725 (28.5)	472 (18.6)	292 (11.5)	248 (547)
VPI250FPH4	250 (10)	725 (28.5)	472 (18.6)	292 (11.5)	248 (547)

Note 1: Weight includes valve and actuator.

Note: DN150HF model requires flange adapter from DN200 to DN150 (available as an accessory).

FLANGE MATCH

MODEL NO.	FLANGE SIZE (INCH)	ASME B16.5		FLANGE SIZE (MM)	EN109 -1			
		CLASS 150	CLASS 300		PN10	PN16	PN25	PN40
VPI050FPH4	50 (2)			50 (2)	•	•	•	•
VPI065FPH4	65 (2 1/2)	•	•	65 (2 1/2)	•	•	•	•
VPI080FPL4	80 (3)	•	•	80 (3)	•	•	•	•
VPI080FPH4	80 (3)	•	•	80 (3)	•	•	•	•
VPI100FPL4	100 (4)	•	•	100 (4)	•	•	•	•
VPI100FPH4	100 (4)	•	•	100 (4)	•	•	•	•
VPI125FPL4	125 (5)	•	•	125 (5)	•	•	•	•
VPI125FPH4	125 (5)	•	•	125 (5)	•	•	•	•
VPI150FPL4	150 (6)	•		150 (6)	•	•	•	•
VPI150FPH4	150 (6)	•		150 (6)	•	•	•	•
VPI200FPH4	200 (8)		•	200 (8)			•	•
VPI250FPH4	250 (10)	•		250 (10)	•	•	•	•

*Mounting kits are not supplied by Honeywell.

MRP75MAC ACTUATOR (FAIL-IN-PLACE)

It is critical to select and use the best possible actuators to achieve optimum indoor climate control with PICVs. Faster and more accurate actuators respond better to the control signal, for better results and higher comfort.

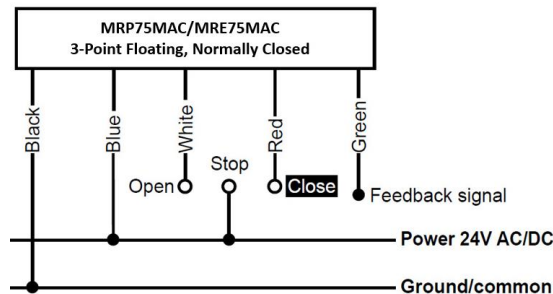
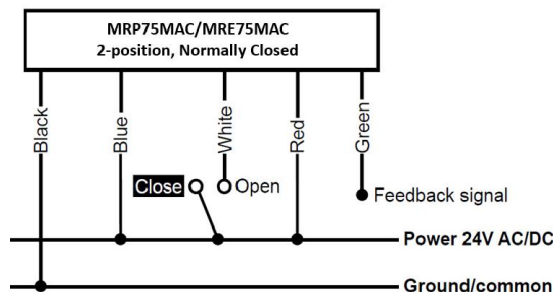
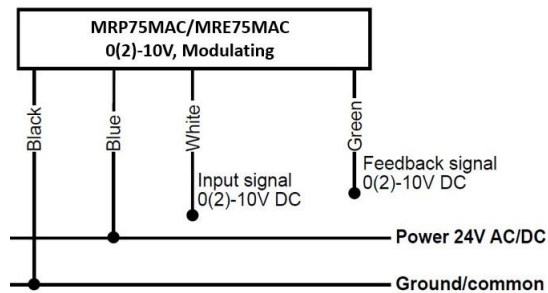
Honeywell offers the impressive MRP75 actuators, which have been designed for use with the flanged VPI PICV series. They enable a new dimension of benefits to HVAC control, offering designers, system integrators, and building owners.



TECHNICAL SPECIFICATIONS

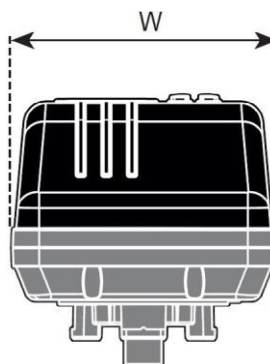
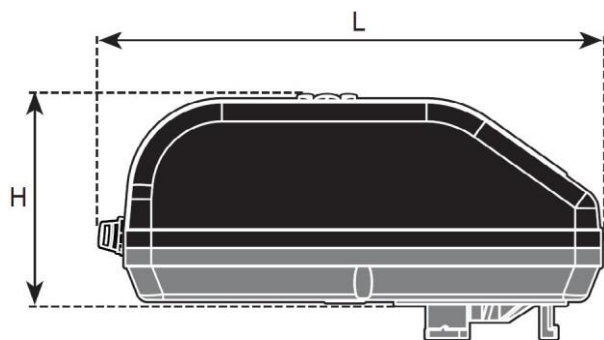
PARAMETER	SPECIFICATIONS
Actuator Technology:	Electrical, Bi-directional synchronous motor
Operation:	Floating / Modulating (universal)
Supply Voltage:	22-26V AC, 50/60 Hz or 22-26V DC
Failsafe Function:	Not Available
Control Signal:	Analog 0(2)-10V DC or 0(4)-20mA and digital 3-point-floating or 2-position
Feedback:	Linear signal Auto (equal to analog control signal), 0-10V DC, 2-10V DC or 4-20mA
Operation Time:	190 seconds (from closed to fully open valve) / 317 sec (from closed to full open valve)
Power Consumption:	12VA
Ambient Temperature:	-10°C to +50°C / +14°F to +122°F
Wire Connection:	Fixed, 5 wires x 0.80 mm ² , halogen free, 1 meter
CE Conformity:	EN 60730, class II
Protection Rating:	IP54 including upside-down mounting
Weight:	0.25 kg / 0.55 lb
Valve Size Compatibility:	DN50-DN250
Resolution:	1:1000 (0-10V analog) and 1:800 (2-10V analog)
Control mode:	Linear flow, Equal percentage, Linear rotation or Linear signal
Override:	Yes, Manual
Humidity rating:	5..95%RH, no condensation
Housing material:	UL94 V0-rated plastic
Programming:	Programming of all settings on interface with buttons and display
Calibration:	Automatic at startup
Valve-actuator coupling:	Easy snap coupling

WIRING CONNECTIONS



Note: MRE series actuators require 317 sec (from closed to full open valve).

MEASUREMENTS AND DIMENSIONS



ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	WEIGHT2 KG (LB)
MRP75MAC	194 (7.64)	102 (4.02)	81 (3.19)	0.25 (0.55)
MRE75MAC	194 (7.64)	102 (4.02)	81 (3.19)	0.30 (0.66)

MRE75MAC ACTUATOR (ELECTRONIC FAIL-SAFE)

It is critical to select and use the best possible actuators to achieve optimum indoor climate control with PICVs. Faster and more accurate actuators respond better to the control signal, for better results and higher comfort.

Honeywell offers the impressive MRE75 actuators, which have been designed for use with the flanged VPI PICV series. They enable a new dimension of benefits to HVAC control, offering designers, system integrators, and building owners.

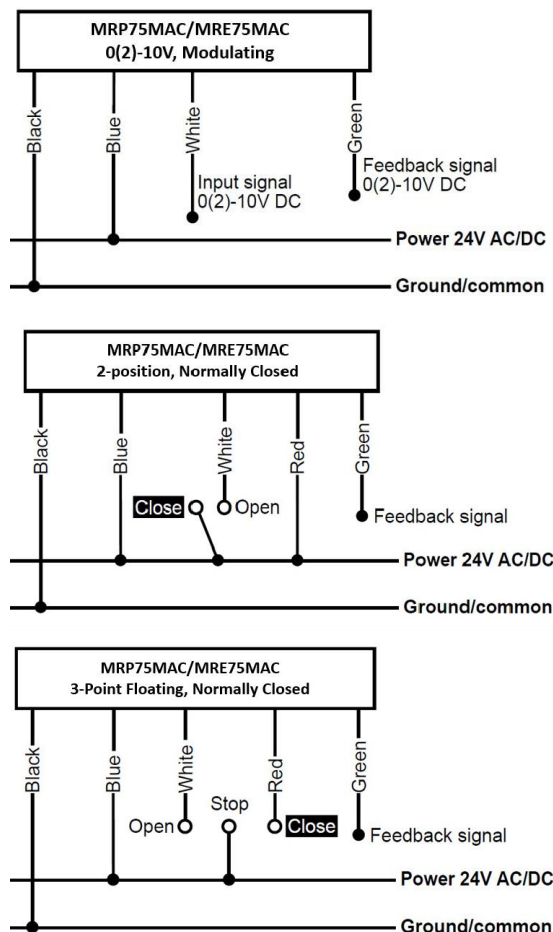


TECHNICAL SPECIFICATIONS

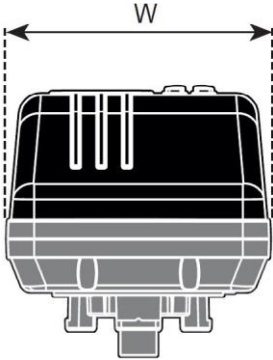
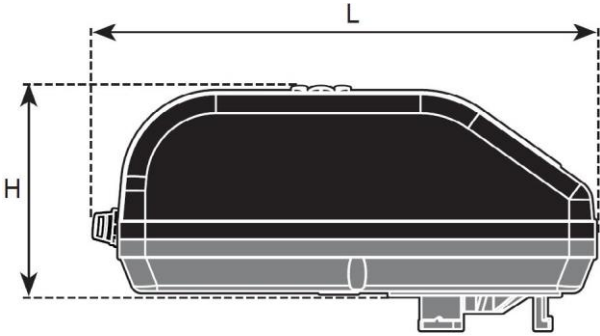
PARAMETER	SPECIFICATIONS
Actuator Technology:	Electrical, Bi-directional synchronous motor
Operation:	Floating / Modulating (universal)
Supply Voltage:	22-26V AC, 50/60 Hz or 22-26V DC
Failsafe Function:	Available
Control Signal:	Analog 0(2)-10V DC or 0(4)-20mA and digital 3-point-floating or 2-position
Feedback:	Linear signal Auto (equal to analog control signal), 0-10V DC, 2-10V DC or 4-20mA
Operation Time:	190 seconds (from closed to fully open valve)/317 sec (from closed to full open valve)
Power Consumption:	12VA (25VA maximum)
Ambient Temperature:	-10°C to +50°C / +14°F to +122°F
Wire Connection:	Fixed, 5 wires x 0.80 mm2, halogen free, 1 meter
CE Conformity:	EN 60730, class II
Protection Rating:	IP54 including upside-down mounting
Weight:	0.30 kg / 0.66 lb
Valve Size Compatibility:	DN50-DN250
Control mode:	Linear flow, Equal percentage, Linear rotation or Linear signal
Override:	Yes, Manual
Humidity rating:	5..95%RH, no condensation
Housing material:	UL94 V0-rated plastic
Programming:	Programming of all settings on interface with buttons and display
Calibration:	Automatic at startup
Valve-actuator coupling:	Easy snap coupling

Note: MRE series actuators require 317 sec (from closed to full open valve).

WIRING CONNECTIONS



MEASUREMENTS AND DIMENSIONS



ACTUATOR	L	W	H	WEIGHT2
	MM (IN)	MM (IN)	MM (IN)	KG (LB)
MRP75MAC	194 (7.64)	102 (4.02)	81 (3.19)	0.25 (0.55)
MRE75MAC	194 (7.64)	102 (4.02)	81 (3.19)	0.30 (0.66)

MAXIMUM FLOW-RATE LIMITATION²

DN50-DN65			DN80LF			DN80HF - DN100LF			DN100HF		
L/SEC	L/HR	GPM	L/SEC	L/HR	GPM	L/SEC	L/HR	GPM	L/SEC	L/HR	GPM
2.57	9240	40.7	3.55	12800	56.3	4.73	17000	75.0	3.68	13300	58.3
2.81	10100	44.6	3.85	13900	61.0	5.29	19000	83.8	4.42	15900	70.0
3.05	11000	48.3	4.13	14900	65.5	5.82	21000	92.3	5.13	18500	81.3
3.27	11800	51.9	4.41	15900	69.9	6.33	22800	100	5.82	21000	92.3
3.49	12500	55.2	4.67	16800	74.0	6.82	24500	108	6.50	23400	103
3.69	13300	58.4	4.92	17700	78.0	7.28	26200	115	7.15	25700	113
3.88	14000	61.5	5.16	18600	81.7	7.72	27800	122	7.78	28000	123
4.06	14600	64.3	5.38	19400	85.3	8.14	29300	129	8.40	30200	133
4.23	15200	67.0	5.60	20200	88.8	8.54	30700	135	8.99	32400	142
4.39	15800	69.6	5.81	20900	92.1	8.91	32100	141	9.57	34400	152
4.54	16300	72.0	6.01	21600	95.2	9.27	33400	147	10.1	36400	160
4.68	16900	74.2	6.19	22300	98.2	9.61	34600	152	10.7	38400	169
4.82	17300	76.4	6.37	22900	101	9.93	35700	157	11.2	40200	177
4.94	17800	78.4	6.54	23600	104	10.2	36800	162	11.7	42100	185
5.06	18200	80.2	6.71	24100	106	10.5	37800	167	12.2	43800	193
5.17	18600	82.0	6.86	24700	109	10.8	38800	171	12.6	45500	200
5.28	19000	83.7	7.00	25200	111	11.0	39700	175	13.1	47100	207
5.38	19400	85.2	7.14	25700	113	11.3	40500	178	13.5	48700	214
5.47	19700	86.6	7.28	26200	115	11.5	41300	182	13.9	50200	221
5.55	20000	88.0	7.40	26600	117	11.7	42000	185	14.3	51600	227
5.63	20300	89.2	7.52	27100	119	11.9	42700	188	14.7	53000	233
5.70	20500	90.4	7.63	27500	121	12.0	43400	191	15.1	54300	239
5.77	20800	91.5	7.74	27900	123	12.2	43900	194	15.4	55600	245
5.84	21000	92.5	7.84	28200	124	12.4	44500	196	15.8	56800	250
5.90	21200	93.5	7.94	28600	126	12.5	45000	198	16.1	58000	255
5.96	21400	94.4	8.03	28900	127	12.6	45500	200	16.4	59100	260
6.01	21600	95.2	8.12	29200	129	12.7	45900	202	16.7	60200	265
6.06	21800	96.0	8.20	29500	130	12.9	46300	204	17.0	61200	269
6.10	22000	96.8	8.28	29800	131	13.0	46700	205	17.3	62100	274
6.15	22100	97.5	8.36	30100	133	13.1	47000	207	17.5	63000	278
6.19	22300	98.2	8.44	30400	134	13.1	47300	208	17.8	63900	281
6.23	22400	98.8	8.51	30600	135	13.2	47600	209	18.0	64700	285
6.27	22600	99.4	8.58	30900	136	13.3	47800	210	18.2	65500	288
6.31	22700	101	8.65	31100	137	13.4	48100	212	18.4	66200	292
6.35	22900	101	8.72	31400	138	13.4	48300	213	18.6	66900	295
6.39	23000	101	8.78	31600	139	13.5	48500	214	18.8	67600	297
6.42	23100	102	8.85	31900	140	13.5	48700	214	18.9	68200	300
6.46	23300	102	8.91	32100	141	13.6	48800	215	19.1	68700	303
6.50	23400	103	8.98	32300	142	13.6	49000	216	19.2	69200	305
6.54	23500	104	9.04	32600	143	13.7	49200	217	19.4	69700	307
6.58	23700	104	9.11	32800	144	13.7	49300	217	19.5	70200	309
6.62	23800	105	9.18	33000	145	13.7	49500	218	19.6	70600	311
6.67	24000	106	9.25	33300	147	13.8	49600	218	19.7	70900	312
6.72	24200	106	9.32	33500	148	13.8	49800	219	19.8	71300	314
6.77	24400	107	9.39	33800	149	13.9	49900	220	19.9	71600	315
6.82	24600	108	9.46	34100	150	13.9	50100	220	20.0	71900	316
6.88	24800	109	9.54	34300	151	14.0	50200	221	20.0	72100	317
6.94	25000	110	9.62	34600	153	14.0	50400	222	20.1	72300	318
7.01	25200	111	9.71	34900	154	14.1	50600	223	20.1	72500	319
7.08	25500	112	9.79	35300	155	14.1	50800	224	20.2	72600	320
7.15	25700	113	9.89	35600	157	14.2	51000	225	20.2	72700	320

Note 2: Above indicates selectable maximum flow rates defining the flow through the valve at maximum control signal, normally 10V. Each valve includes up to 1000 positions between the selected maximum flow and closed valve with control signal selected to 0-10V.

MAXIMUM FLOW-RATE LIMITATION²

DN125LF			DN125HF			DN150LF			DN150HF-DN250					
L/SEC	L/HR	GPM	L/SEC	L/HR	GPM	L/SEC	L/HR	GPM	L/SEC	L/HR	GPM	L/SEC	L/HR	GPM
6.48	23300	103	7.10	25600	113	7.10	25600	113	9.21	33100	146	57.5	207000	911
7.24	26100	115	8.06	29000	128	8.06	29000	128	9.69	34900	154	58.3	210000	924
7.98	28700	126	8.98	32300	142	8.98	32300	142	10.2	36800	162	59.1	213000	936
8.70	31300	138	9.87	35500	157	9.87	35500	157	10.8	38900	171	59.8	215000	948
9.39	33800	149	10.7	38600	170	10.7	38600	170	11.5	41200	182	60.6	218000	960
10.1	36200	160	11.6	41600	183	11.6	41600	183	12.1	43700	192	61.3	221000	972
10.7	38600	170	12.4	44500	196	12.4	44500	196	12.9	46300	204	62.0	223000	983
11.4	40900	180	13.1	47300	208	13.1	47300	208	13.6	49100	216	62.7	226000	994
12.0	43100	190	13.9	50000	220	13.9	50000	220	14.5	52000	229	63.4	228000	1000
12.6	45200	199	14.6	52600	232	14.6	52600	232	15.3	55100	242	64.0	230000	1010
13.1	47300	208	15.3	55100	243	15.3	55100	243	16.2	58200	256	64.6	233000	1020
13.7	49300	217	16.0	57500	253	16.0	57500	253	17.1	61500	271	65.2	235000	1030
14.2	51200	226	16.6	59800	264	16.6	59800	264	18.0	64900	286	65.8	237000	1040
14.8	53100	234	17.2	62100	273	17.2	62100	273	19.0	68400	301	66.4	239000	1050
15.3	54900	242	17.8	64200	283	17.8	64200	283	20.0	71900	317	66.9	241000	1060
15.7	56600	249	18.4	66300	292	18.4	66300	292	21.0	75600	333	67.4	243000	1070
16.2	58300	257	19.0	68300	301	19.0	68300	301	22.0	79300	349	68.0	245000	1080
16.6	59900	264	19.5	70200	309	19.5	70200	309	23.1	83100	366	68.4	246000	1080
17.1	61500	271	20.0	72100	317	20.0	72100	317	24.1	86900	383	68.9	248000	1090
17.5	63000	277	20.5	73800	325	20.5	73800	325	25.2	90800	400	69.4	250000	1100
17.9	64400	284	21.0	75500	333	21.0	75500	333	26.3	94700	417	69.8	251000	1110
18.3	65800	290	21.4	77200	340	21.4	77200	340	27.4	98700	435	70.2	253000	1110
18.6	67100	295	21.9	78700	347	21.9	78700	347	28.5	103000	452	70.6	254000	1120
19.0	68300	301	22.3	80200	353	22.3	80200	353	29.6	107000	470	71.0	256000	1130
19.3	69500	306	22.7	81700	360	22.7	81700	360	30.8	111000	488	71.4	257000	1130
19.6	70700	311	23.1	83100	366	23.1	83100	366	31.9	115000	506	71.8	258000	1140
19.9	71700	316	23.4	84400	372	23.4	84400	372	33.0	119000	523	72.1	260000	1140
20.2	72800	320	23.8	85700	377	23.8	85700	377	34.2	123000	541	72.5	261000	1150
20.5	73800	325	24.1	86900	383	24.1	86900	383	35.3	127000	559	72.8	262000	1150
20.7	74700	329	24.5	88100	388	24.5	88100	388	36.4	131000	577	73.2	263000	1160
21.0	75600	333	24.8	89200	393	24.8	89200	393	37.5	135000	595	73.5	265000	1170
21.2	76400	336	25.1	90300	398	25.1	90300	398	38.6	139000	613	73.8	266000	1170
21.4	77200	340	25.4	91400	402	25.4	91400	402	39.8	143000	630	74.2	267000	1180
21.6	77900	343	25.7	92400	407	25.7	92400	407	40.9	147000	648	74.5	268000	1180
21.8	78600	346	25.9	93400	411	25.9	93400	411	41.9	151000	665	74.8	269000	1190
22.0	79200	349	26.2	94300	415	26.2	94300	415	43.0	155000	682	75.1	270000	1190
22.2	79800	351	26.5	95200	419	26.5	95200	419	44.1	159000	699	75.5	272000	1200
22.3	80300	354	26.7	96100	423	26.7	96100	423	45.2	163000	716	75.8	273000	1200
22.5	80800	356	26.9	97000	427	26.9	97000	427	46.2	166000	732	76.1	274000	1210
22.6	81300	358	27.2	97800	431	27.2	97800	431	47.2	170000	749	76.5	275000	1210
22.7	81700	360	27.4	98600	434	27.4	98600	434	48.3	174000	765	76.8	277000	1220
22.8	82100	361	27.6	99400	438	27.6	99400	438	49.3	177000	781			
22.9	82400	363	27.8	100000	441	27.8	100000	441	50.2	181000	796			
23.0	82700	364	28.1	101000	445	28.1	101000	445	51.2	184000	812			
23.0	83000	365	28.3	102000	448	28.3	102000	448	52.2	188000	827			
23.1	83200	366	28.5	102000	451	28.5	102000	451	53.1	191000	842			
23.2	83400	367	28.7	103000	455	28.7	103000	455	54.0	194000	856			
23.2	83500	368	28.9	104000	458	28.9	104000	458	54.9	198000	870			
23.2	83600	368	29.1	105000	461	29.1	105000	461	55.8	201000	884			
23.3	83700	369	29.3	105000	464	29.3	105000	464	56.6	204000	898			
23.3	83800	369	29.5	106000	468	29.5	106000	468	57.5	207000	911			

Accuracy: Greatest of either $\pm 5\%$ of controlled flow rate or $\pm 2\%$ of maximum flow rate. Honeywell recommends that VPI series PICV valves are selected to ensure that the set maximum flow rate is minimum 50% of the rated valve maximum capacity.

Note 2: Above indicates selectable maximum flow rates defining the flow through the valve at maximum control signal, normally 10V. Each valve includes up to 1000 positions between the selected maximum flow and closed valve with control signal selected to 0-10V. .

PARAMETER SETTINGS THROUGH ACTUATOR

MRP75MAC and MRE75MAC actuators allows to select different parameters like:

NUMBER	SETTINGS	OPTIONS
1	Password Setting	
2	Valve model selection onto which actuator is installed ¹	
3	Unit Scale of Flow selection	l/sec (Default) or l/hr or GPM
4	Flush Mode activation on startup	
5	Type of Control Signal selection	0(2)-10VDC (default) or 4-20mA or digital
6	Minimum Control value selection	
7	Maximum Control value selection	
8	Feedback Signal Selection	0(2)-10VDC (default) or 4-20mA or digital
9	Max flow selection	
10	Actuator Mode Selection	Linear (Default) or equal percentage
11	Select direction of rotation when Fail-Safe	Normally Close (Default) or Normally Open

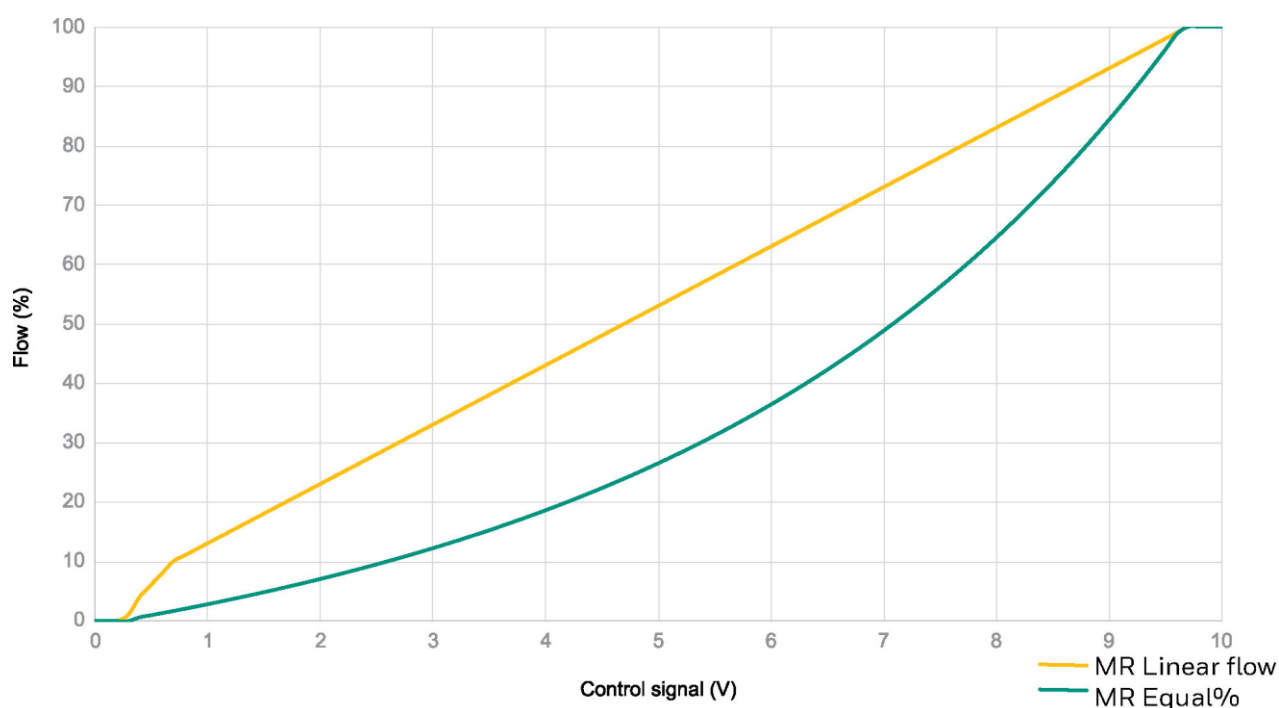


Note 1: For more details, see Installation Instructions (31-00383).

FLOW SETTINGS.

SIZES	FLOW RANGE	WORKING DIFFERENTIAL PRESSURE
DN50	9240 LPH - 25700 LPH	30 kPaD - 800 kPaD
DN65	9240 LPH - 25700 LPH	30 kPaD - 800 kPaD
DN80LF	12800 LPH - 35600 LPH	35 kPaD - 800 kPaD
DN80HF	17000 LPH - 51000 LPH	35 kPaD - 800 kPaD
DN100LF	17000 LPH - 51000 LPH	35 kPaD - 800 kPaD
DN100HF	13300 LPH - 72700 LPH	50 kPaD - 800 kPaD
DN125LF	23300 LPH - 83800 LPH	30 kPaD - 800 kPaD
DN125HF	25600 LPH - 106000 LPH	35 kPaD - 800 kPaD
DN150LF	25600 LPH - 106000 LPH	35 kPaD - 800 kPaD
DN150HF	33100 LPH - 277000 LPH	35 kPaD - 800 kPaD
DN 200	33100 LPH - 277000 LPH	35 kPaD - 800 kPaD
DN 250	33100 LPH - 277000 LPH	35 kPaD - 800 kPaD

CONTROL CURVE OF FLOW



MODEL SELECTION (NOMENCLATURE)

VPI SERIES VALVE BODIES.

VALVE TYPE	VALVE SIZE	CONNECTION TYPE	PRESSURE TEST PORTS	MAXIMUM FLOW RATE	PRESSURE CLASS
VPI - Valve Pressure Independent	050 - DN50 / 2 inch	F - Flanged DN Size	P - With Pressure Ports	L - Low Maximum Flow	4 - PN40
	065 - DN65 / 2.5 inch			H - High Maximum Flow	
	080 - DN80 / 3 inch				
	100 - DN100 / 4 inch				
	125 - DN125 / 5 inch				
	150 - DN150 / 6 inch				
	200 - DN200 / 8 inch				
	250 - DN250 / 10 inch				
VPI	050	F	P	H	4

Example: VPI050FPH4

- LF models available only for DN80-DN150
- DN150HF model requires flange adapter from DN200 to DN150 (available as an accessory).

VPI SERIES ACTUATORS.

ACTUATOR TYPE	FAIL-SAFE	CONTROL AND POWER VOLTAGE	ACTUATOR TECHNOLOGY	FEEDBACK	VALVE SIZE
MR - Motor Rotary	P - Power Failure 'In place'	75 - Floating / Modulating (universal)	M - Electric Actuator	A - Analog feedback	C - DN50-DN250 (Flanged)
	E - Electronic Fail-Safe				
MR	P	75	M	A	C

Example: MRP75MAC

VALVE AND ACTUATOR COMPATIBILITY

PARAMETERS			ACTUATOR PART NUMBER	
			MRP75MAC	MRE75MAC
Power Supply	Voltage		24 Vac/dc, +/-10%, 50/60Hz	24 Vac/dc, +/-10%, 50/60Hz
	Power Consumption (Peak)		12VA	12VA-25VA
Control	0-10 Vdc		•	•
	2-10 Vdc		•	•
	0-20mA / 4-20mA		•	•
	2-Position SPDT		•	•
Feedback			(0)2-10Vdc / 4-20mA	0)2-10Vdc / 4-20mA
Running Time	(seconds)		190sec/317sec	190sec/317sec
Power Fail Safe Action			Fail In Place	Electronic Fail-Safe
Electrical Connection	Cable length		1m	1m
VALVE SIZE	Q _{MAX} (L/H)	VALVE MODEL NUMBER	COMPATIBILITY	
DN50 F	25,700	VPI050FPH4	•	•
DN65	25,700	VPI065FPH4	•	•
DN80 LF	35,600	VPI080FPL4	•	•
DN80 HF	51,000	VPI080FPH4	•	•
DN100 LF	51,000	VPI100FPL4	•	•
DN100 HF	72,700	VPI100FPH4	•	•
DN125 LF	83,800	VPI125FPL4	•	•
DN125 HF	106,000	VPI125FPH4	•	•
DN150 LF	106,000	VPI150FPL4	•	•
DN150 HF	277,000	VPI150FPH4	•	•
DN200	277,000	VPI200FPH4	•	•
DN250	277,000	VPI250FPH4	•	•

APPLICATION AND SCHEMATIC EXAMPLE

