

VPI SERIES

Pressure Independent Control Valves and Actuators

VPI series PICV and actuators make 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. Honeywell's 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 step-less 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.

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.

ALL-IN-ONE

It combines an externally adjustable automatic balancing valve, a differential pressure control valve and, a full authority modulating control valve in a single unit. It combines 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 analog scale with 41 Maximum flow setting through the dial on the 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.

TECHNICAL SPECIFICATIONS

VALVE SPECIFICATION

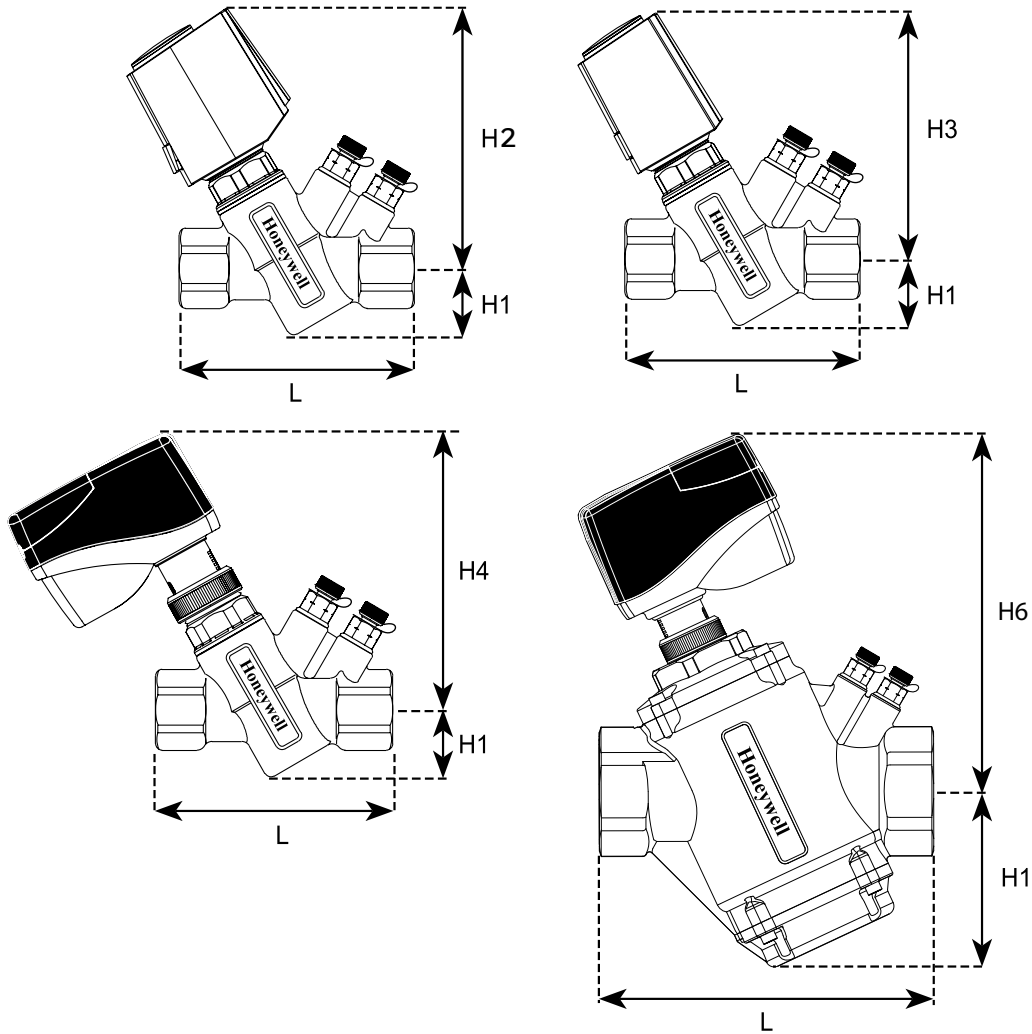
PARAMETER	SPECIFICATIONS
Valve Type:	Pressure Independent Control Valve
Body Style:	Globe / Linear
Size Range:	DN15 - DN50 (1/2" - 2")
PN Pressure Rating:	PN25
Static Pressure:	2500 kPa / 360 psi
Ambient Temperature:	+1°C to +50°C / +34°F to +122°F
Medium Temperature:	-20°C to +120°C / -4°F to +248°F
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 an 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.

Honeywell offers 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

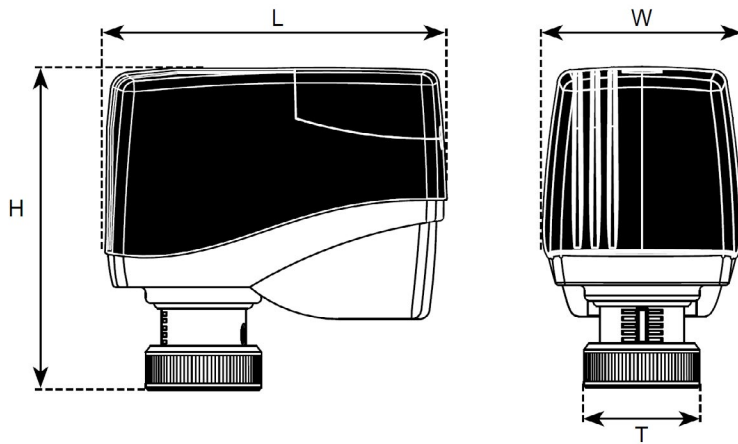
Operation: Modulating
Supply Voltage: 24V AC/DC ±10%, 50/60 Hz
Failsafe Function: No
Control Signal: Analog 0(2)-10V DC, <0.5mA
Feedback: Yes, control signal
Actuating Force: High (250N -30N/+70N)
Stroke: 5.8 mm / 0.23 in (compensated)
Operation Time: 22 sec/mm

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



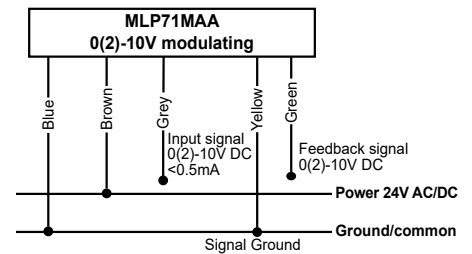
Wire Connection: Fixed, 5 wires x 0.50 mm², 1.5 meter cable
CE Conformity: EN 60730
Protection Rating: IP54 incl. upside-down, class III, indoor use only
Weight: 0.25 kg / 0.55 lb
Valve Size Compatibility: DN15 - DN32
Override: Yes, Electrical

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; OV 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)

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TECHNICAL SPECIFICATIONS

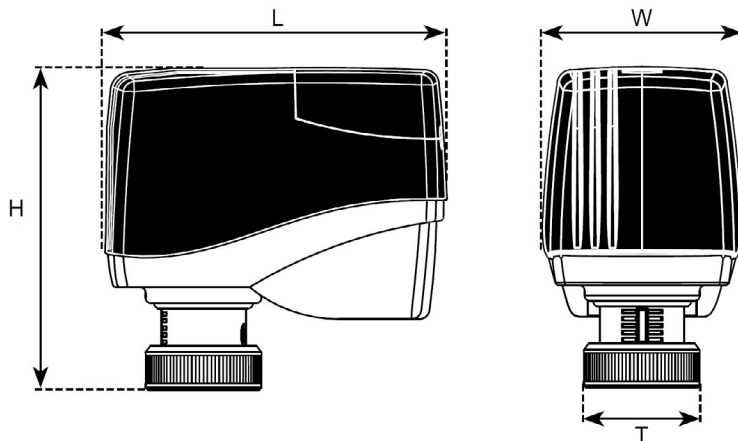
Operation: Modulating
Supply Voltage: 24V AC/DC ±15%, 50/60 Hz
Failsafe Function: No
Control Signal: Analog 0(2)-10V DC, <0.5mA
Feedback: No
Actuating Force: 160N -10N/+70N
Stroke: 5.8 mm / 0.23 in (compensated)
Operation Time: 22 sec/mm

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



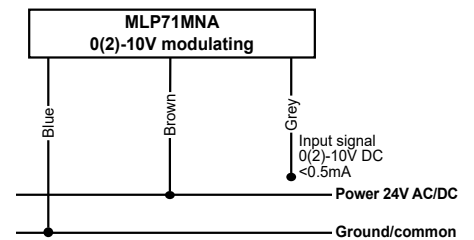
Wire Connection: Fixed, 3 wires x 0.50 mm², 1.5 meter cable
CE Conformity: EN 60730
Protection Rating: IP54 incl. upside-down, class III, indoor use only
Weight: 0.25 kg / 0.55 lb
Valve Size Compatibility: DN15 - DN32
Override: Yes, Electrical

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



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.

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TECHNICAL SPECIFICATIONS

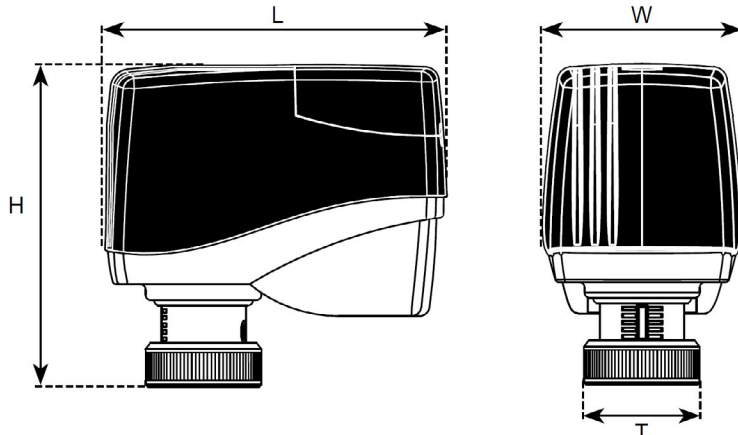
Operation: Floating / Modulating (universal)
Supply Voltage: 24V AC/DC ±10%, 50/60 Hz
Failsafe Function: No
Control Signal: Analog 0(2)-10V DC, <0.5mA or digital 3-point floating and ON/OFF
Feedback: Yes, control signal (analog) or 0-10V DC (digital ON/OFF)
Actuating Force: 600N -50N/+100N

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

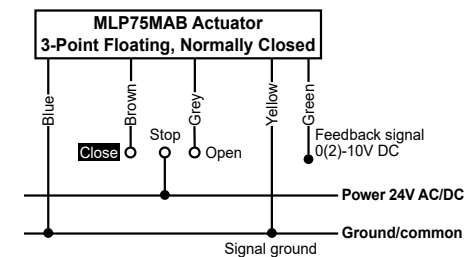
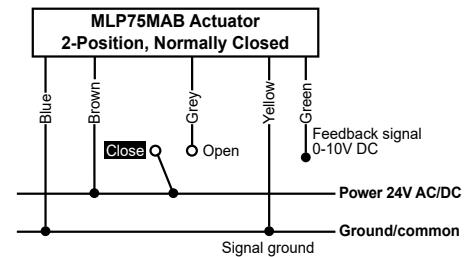
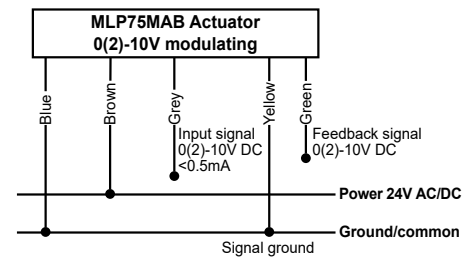


ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	T	WEIGHT KG (LB)
MLP75MAB	96.0 (3.78)	56 (2.20)	91 (3.58)	M30x1.5	0.30 (0.67)

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

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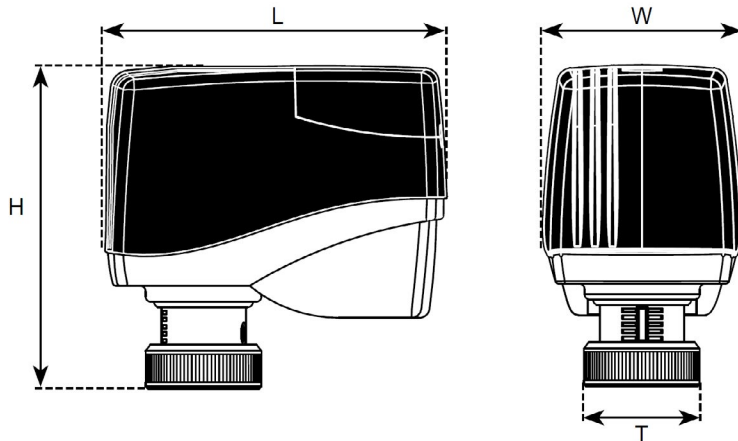
TECHNICAL SPECIFICATIONS

Operation: Modulating
Supply Voltage: 24V AC/DC ±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

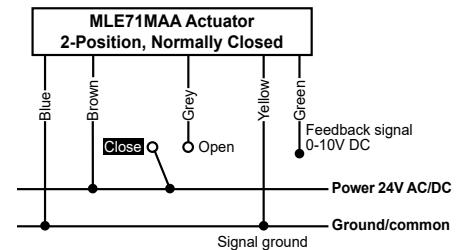
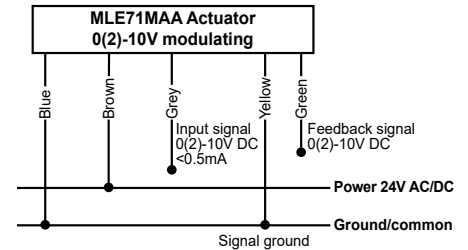
Wire Connection: Fixed, 5 wires x 0.50 mm², 1.5 meter cable
CE Conformity: EN 60730
Protection Rating: IP54 incl. upside-down, class III, indoor use only
Weight: 0.27 kg / 0.60 lb
Valve Size Compatibility: DN15 - DN32
Override: Yes, Electrical

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 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



Actuator Switch Function

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

MLE75MAB ACTUATORS

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TECHNICAL SPECIFICATIONS

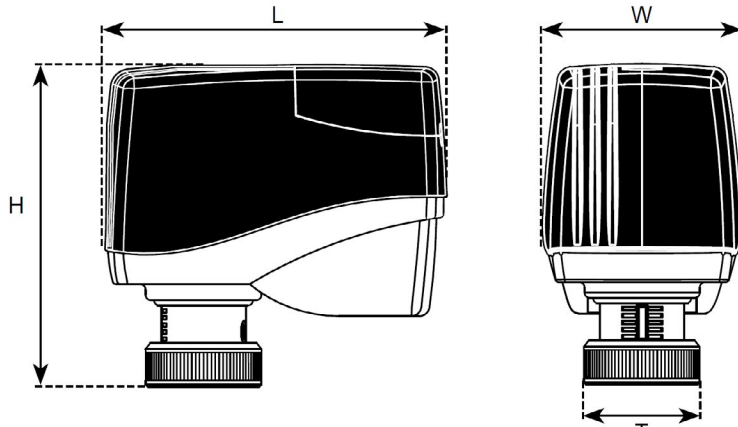
Operation: Floating / Modulating (universal)
Supply Voltage: 24V AC/DC ±10%, 50/60 Hz
Failsafe Function: Yes, optional open or close
Control Signal: Analog 0(2)-10V DC or digital 2-position with constant power supply
Feedback: Yes, control signal (analog) or 0-10V DC (digital)

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

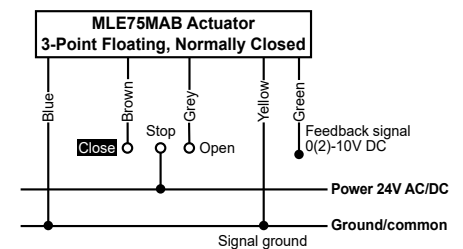
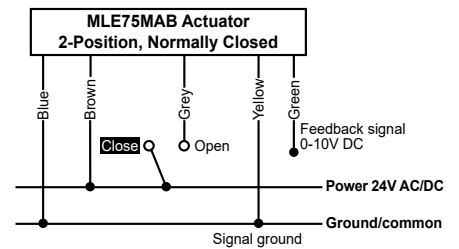
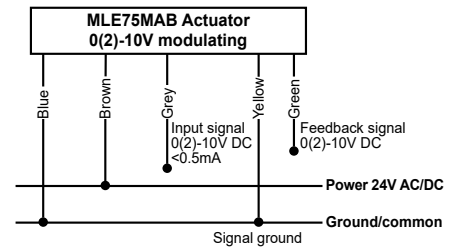


ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	T	WEIGHT KG (LB)
MLE75MAB	96.0 (3.78)	56 (2.20)	91 (3.58)	M30x1.5	0.34 (0.75)

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.

MLP41MNA-NU ACTUATORS

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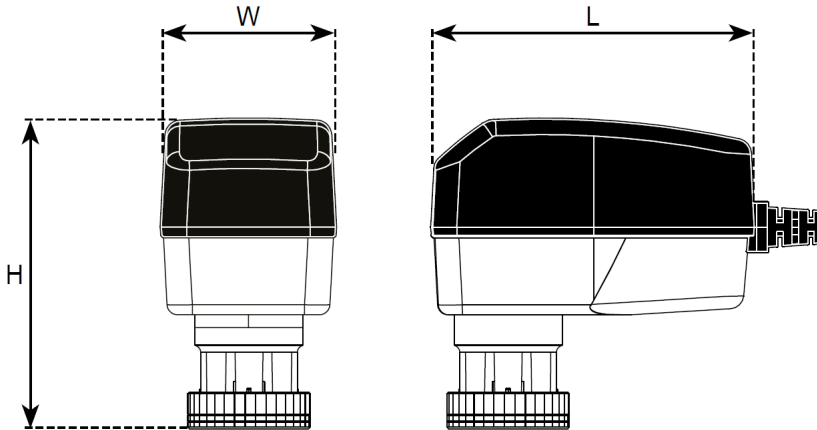
TECHNICAL SPECIFICATIONS

Operation: On/Off or Floating
Supply Voltage: 110/230V AC ±10%, 50/60 Hz
Type: Bi-directional step motor
Power Consumption: 8VA
Control Signal: Digital (2-position / 3-point floating)
Feedback: No
Failsafe Function: No
Manual Override: Yes (5 mm Allen key)

Position Indicator: Yes
Operation Time: 27.2 sec/mm
Actuating Force: 200N
Stroke: 1 to 8.5 mm / 0.04 to 0.33 in (auto adjusting)
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 to 85% RH, no condensation

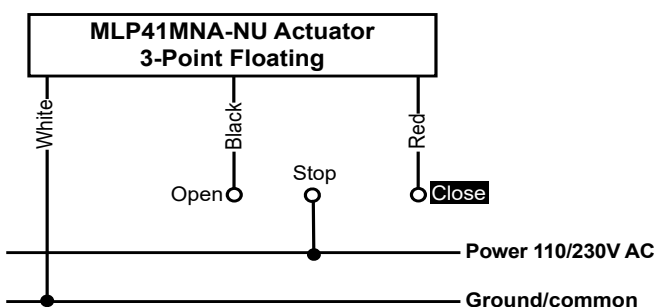
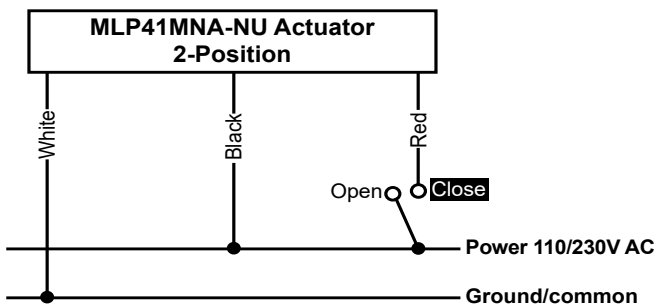
Protection Rating: IP54, class II
CE Conformity: EN 60730
Wire Connection: Fixed, 3 wires x 0.80 mm², 1.5 meter cable
Closing point adjustment: During operation the actuator will self-adjust according to the closing point and stroke length of the valve.
Weight: 0.23 kg / 0.51 lb
Valve Size Compatibility: DN15 - DN32

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



MLP71MNA-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.

Honeywell offers 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 ±15%, 50/60 Hz

Type: Electrical bi-directional step motor

Power Consumption:

24V AC: 6VA

24V DC: 4W

Inrush Current: 1.8A (peak)

Control Signal: Analog 0-10V DC

Resolution: 1:100

Feedback: No

Control Mode: Linear

Failsafe Function: No

Manual Override: Yes, 4 mm (~5/72") Allen Key

Position Indicator: Yes

Operation Time: 5.5 sec/mm

Actuating Force: 200N (-30N/+70N)

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

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 to 85% RH, no condensation

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

CE Conformity: EN 60730

Wire Connection:

Fixed, 3 wires x 0.22 mm², 1.5 meter cable

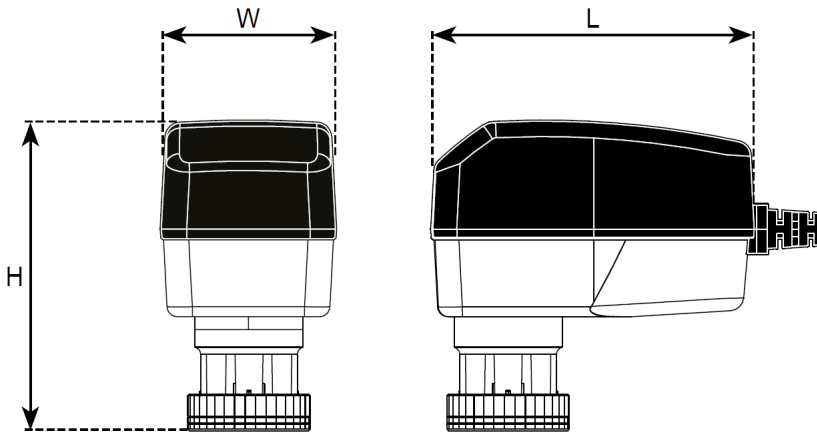
Fixed, 3 wires x AWG24, 4.9 ft

Closing point adjustment: During operation the actuator will self-adjust according to the closing point and stroke length of the valve.

Weight: 0.23 kg / 0.51 lb

Valve Size Compatibility: DN15 - DN32

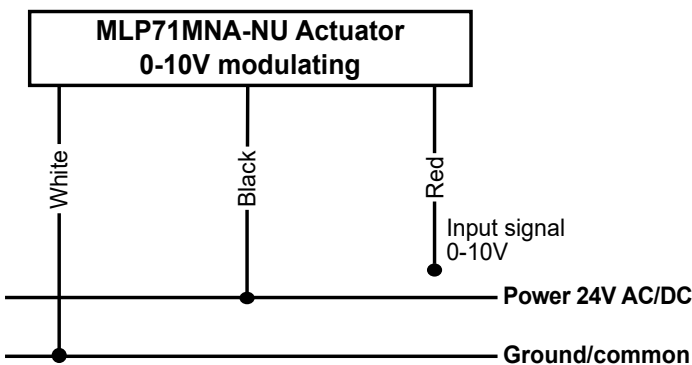
MEASUREMENTS & DIMENSIONS



ACTUATOR	L MM (IN)	W MM (IN)	H MM (IN)	T	WEIGHT KG (LB)
MLP71MNA-NU	93.0 (3.66)	50 (1.97)	88 (3.46)	M30x1.5	0.23 (0.51)

WIRING CONNECTIONS

WIRING CONNECTIONS



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.

Honeywell offers 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 ±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: approx 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

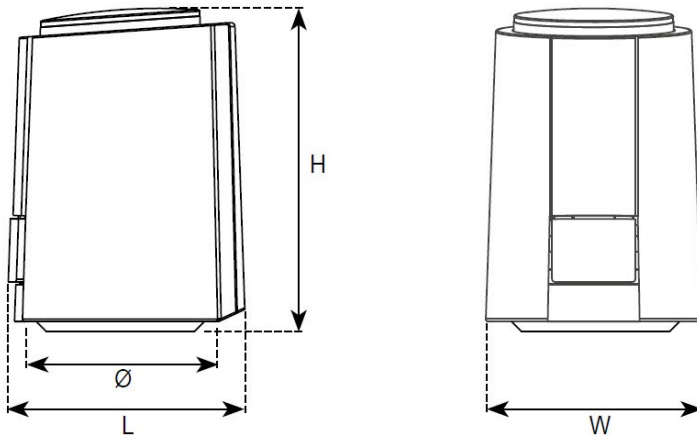
Weight: 0.11 kg / 0.24 lb

Valve Size Compatibility: DN15-DN32

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

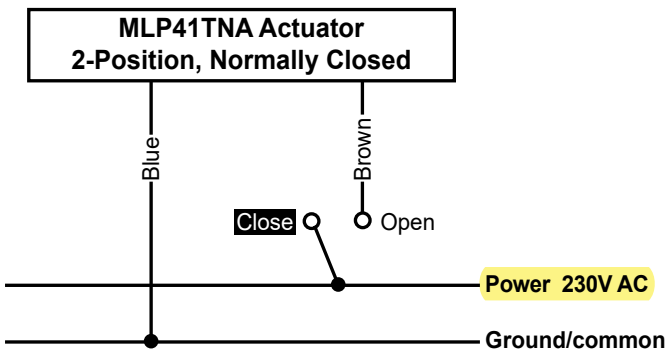
Note 4: Closing time is approximately double dependent on ambient temperature.

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.

Honeywell offers 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: 24 V AC -10%...+20%, 50/60 Hz

Failsafe Function: Yes, normally closed⁵

Control Signal: Analog 0-10 V, normally closed

Actuating Force: 125 N ± 5%

Stroke: 6.5 mm / 0.256 in

Operation Time: approx 4.5 minutes⁶

Power Consumption: 1.2 W

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

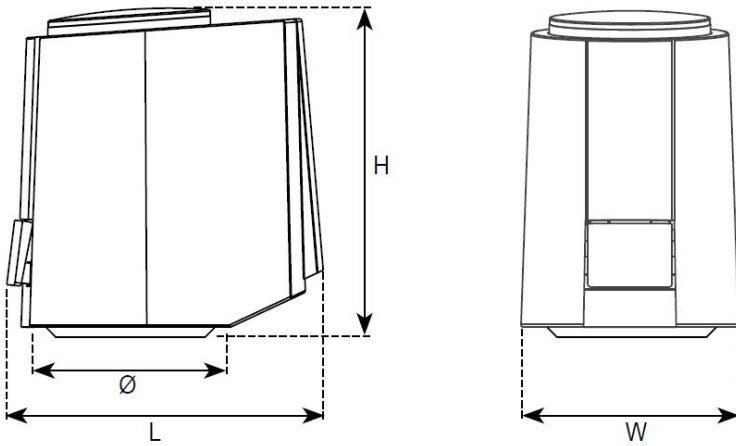
Weight: 0.12 kg / 0.27 lb

Valve Size Compatibility: DN15-DN32

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

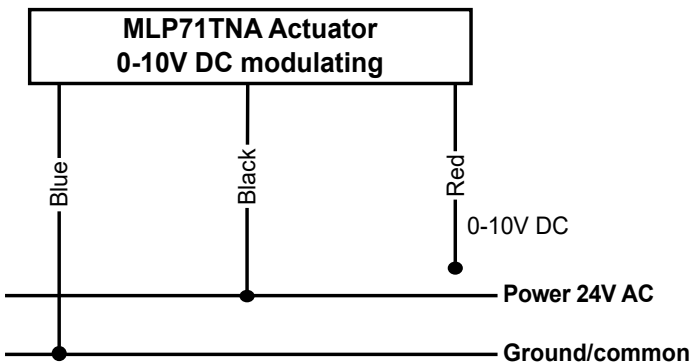
Note 6: Closing time is approximately double dependent on ambient temperature.

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

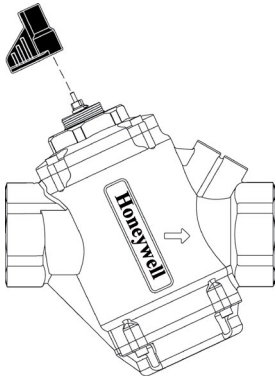





FLOW-RATE SETTINGS

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		
VPIO15TWL2	DN15	1110	1.11	4.89	800	30 - 800	PN25	Fixed female threaded ISO
VPIO15TPL2	DN15	1110	1.11	4.89	800	30 - 800	PN25	Fixed female threaded ISO
VPIO15TWH2	DN15	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPIO15TPH2	DN15	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPIO20TWL2	DN20	1110	1.11	4.89	800	30 - 800	PN25	Fixed female threaded ISO
VPIO20TPL2	DN20	1110	1.11	4.89	800	30 - 800	PN25	Fixed female threaded ISO
VPIO20TWH2	DN20	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPIO20TPH2	DN20	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPIO25TWH2	DN25	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPIO25TPH2	DN25	2650	2.7	11.7	800	35 - 800	PN25	Fixed female threaded ISO
VPIO32TWH2	DN32	4630	4.6	20.4	800	16 - 800	PN25	Fixed female threaded ISO
VPIO32TPH2	DN32	4630	4.6	20.4	800	16 - 800	PN25	Fixed female threaded ISO
VPIO40TPH2	DN40	13647	13.6	60.1	800	16 - 600	PN25	Fixed female threaded ISO
VPIO50TPL2	DN50	13647	13.6	60.1	800	16 - 600	PN25	Fixed female threaded ISO

FLOW SETTING DIAL

Honeywell's 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)
	 <p>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)</p>	 <p>For example - A micrometer setting of 2.3 on dial, corresponds to a maximum flow rate of: 1430 l/h (6.28 GPM)</p>	 <p>For example - A micrometer setting of 3.7 on dial, corresponds to a maximum flow rate of: 11142 l/h (49 GPM)</p>

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

DN15LF-DN20LF			DN15HF-DN20HF			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 ±10% of controlled flow rate or ±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	MLP41 MNA-NU	MLP71 MNA-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	24 Vac/dc +/-10%, 50/60Hz
		Power (Peak)	4.7VA	6.8VA	4.7VA	1.2W	1.2W	8VA	6VA / 4W
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	125 N	200 N	200 N
Running Time		(sec/mm)	22 sec/mm	22 sec/mm	22 sec/mm	270 sec	210 sec	27.2	5.5 sec/mm
Power Fail Safe Action			Fail In Place	Electronic Fail-Safe	Fail In Place	Fail Safe	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	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.

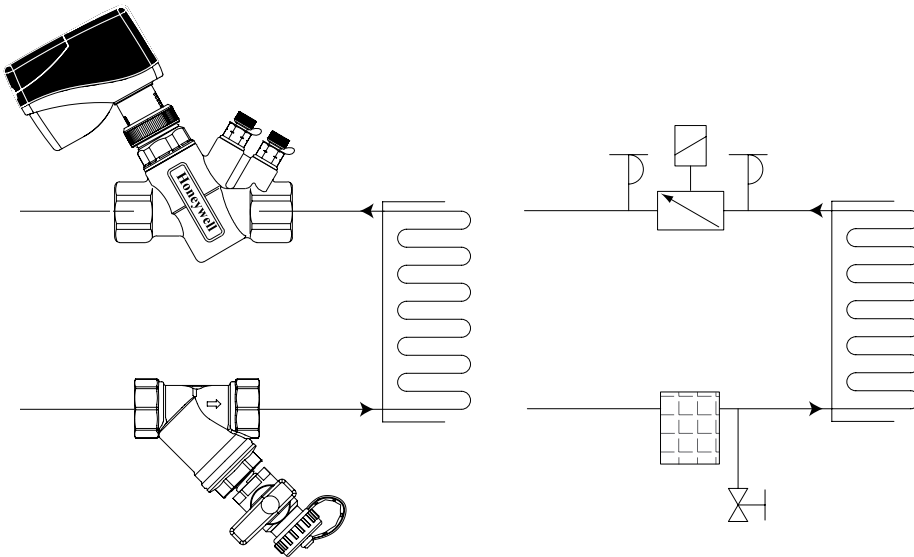
Note 8: Thermal Actuators closing time is approximately double dependent on ambient temperature.

VALVE AND ACTUATOR COMPATIBILITY

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



For more and ordering Information

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