

1410 BLDC P Series

FEATURES

- > Oil-less
- > Low power consumption
- > Low sound level
- > Low vibration
- > Long lifetime
- > Compact design
- > Lightweight

TYPICAL APPLICATIONS

- > Medical devices
- > Gas monitoring and detection
- > Clinical chemistry analyzers

BASE MODEL

1410 BLDC P



Diaphragm

Diaphragm Pump 1410V BLDC Performance

FLOW 12/24 VDC	4.8/5.0 l/min
FINAL VACUUM	75%



PNEUMATIC DATA*

Max. flow 12/24VDC	4.8/5.0 l/min
Max. intermittent vacuum	75%
Max. continuous vacuum	75%
Max. restart vacuum	75%

*@ Speed control 5 VDC (Pin3)

OPERATING CONDITIONS*

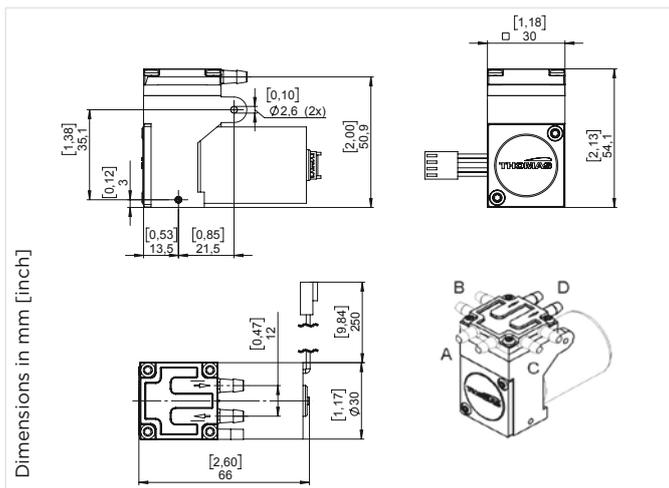
Media temperature	5 to 40 °C
Ambient temperature	5 to 40 °C
Storage temperature	-30 to 70 °C
Storage humidity	15 to 85% (no condensation)

*Standard configuration part number 14100700/14100701

PHYSICAL DATA

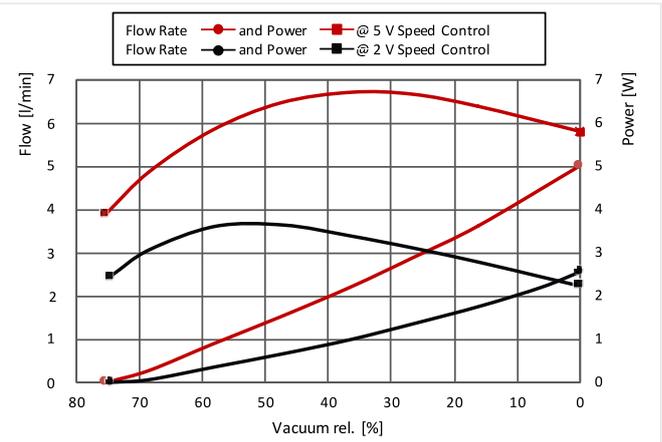
Dimensions l x w x h	66 x 30 x 54.1 mm
Weight	165 g
Mounting on side	Through hole Ø 2.6 mm

DIMENSIONAL DRAWING



The information presented in this material is based on technical data and test results of nominal units. It is believed to be accurate and reliable and is offered as an aid to help in the selection of Thomas products. It is the responsibility of the user to determine the suitability of the product for the intended use and the user assumes all risk and liability whatsoever in connection therewith. Thomas does not warrant, guarantee or assume any obligation or liability in connection with this information.

PERFORMANCE CURVE



ELECTRICAL DATA

Motor type	Brushless DC (BLDC)
Nominal voltage	12/24 VDC
Max. power consumption	6.0/6.7 W
Insulation class	A
Protection class	IP 20
Drive electronics	Integrated
Connector housing	Molex KK 22-01-3047
Connector terminal	Molex KK 08-50-0031

ELECTRICAL CONNECTION

Pin	Supply	Color	Control
Pin 1	V Supply	Red	12 VDC (max. range 9 - 14 V) 24 VDC (max. range 20 - 26 V)
Pin 2	Ground	Black	Ground for all pins
Pin 3	Speed Control	Blue	Analog 1.0 - 5.0 VDC (5.5V max.) PWM 10 - 30 kHz / 23 - 90% Threshold 1.0 VDC (23% PWM)
Pin 4	Tacho out	Green	3 pulses per revolution
	- Pulse time	12 V DC	'High'/'Low'-Time 50% speed dep.
	- Pulse time	24 V DC	'High'/'Low'-Time 50% speed dep.
	- Output level		'Low'-Range 0 V - 0.5 V
	- Output level		'High'-Range 4.5 V - 5.5 V

MODEL KEY

1410 - V - 0 - D - 12V - BLDC P - 4100 - 22 - EEE - PARA

Pos	Options	Description
1	1410	Product Line
2	V / D / VD	Vacuum / Pressure / Vacuum-Pressure
3	P / R / O	Tubing: Parallel / series / no tubing
4	A / B / C / D	Port position: standard D over motor
5	12V / 24V	Nominal voltage
6	BLDC P	Motor: BLDC Performance
7	4100	Nominal motor speed (motor dependent)
8	12 / 15 / 19 / 22	Eccentric: e.g. 22 → 2.2 mm
9	EEE / FFF	Diaphragm, valve, seal material: EPDM / FKM
10	PARA / PPS	Pump head material: IXEF / Ryton

ORDER INFORMATION

Part Number	Model Key
14100700	1410-V-0-D-12V-BLDC P-4100-22-EEE-PARA
14100701	1410-V-0-D-24V-BLDC P-4300-22-EEE-PARA
Other configurations	Upon request
To order call	ASIA +86 510 6878 2258
To order call	EMEA +49 8141 22800
To order call	USA +1 920 457 4891
Or go online @	www.thomaspumps.com

Diaphragm Pump 1410D BLDC Performance

FLOW 12/24 VDC	4.7/4.9 l/min
FINAL PRESSURE	1.0 bar



PNEUMATIC DATA*

Max. flow 12/24VDC	4.7/4.9 l/min
Max. intermittent pressure	1.0 bar
Max. continuous pressure	1.0 bar
Max. restart pressure	1.0 bar

*@ Speed control 5 VDC (Pin3)

OPERATING CONDITIONS*

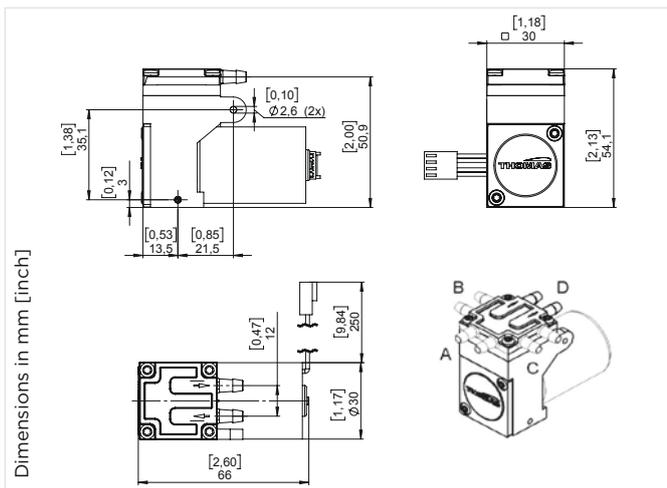
Media temperature	5 to 40 °C
Ambient temperature	5 to 40 °C
Storage temperature	-30 to 70 °C
Storage humidity	15 to 85% (no condensation)

*Standard configuration part number 14100702/14100703

PHYSICAL DATA

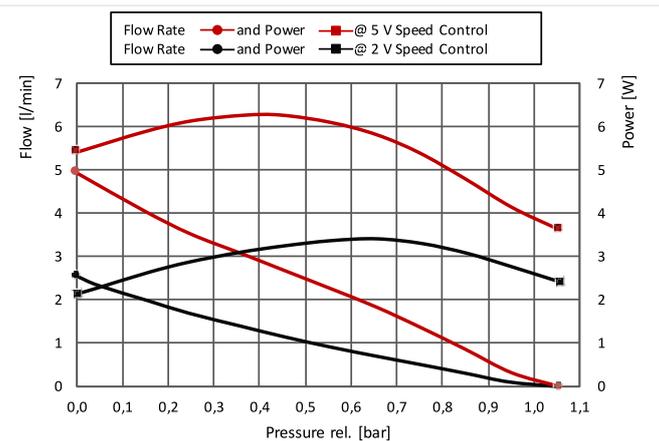
Dimensions l x w x h	66 x 30 x 54.1 mm
Weight	165 g
Mounting on side	Through hole Ø 2.6 mm

DIMENSIONAL DRAWING



The information presented in this material is based on technical data and test results of nominal units. It is believed to be accurate and reliable and is offered as an aid to help in the selection of Thomas products. It is the responsibility of the user to determine the suitability of the product for the intended use and the user assumes all risk and liability whatsoever in connection therewith. Thomas does not warrant, guarantee or assume any obligation or liability in connection with this information.

PERFORMANCE CURVE



ELECTRICAL DATA

Motor type	Brushless DC (BLDC)
Nominal voltage	12/24 VDC
Max. power consumption	5.7/6.3 W
Insulation class	A
Protection class	IP 20
Drive electronics	Integrated
Connector housing	Molex KK 22-01-3047
Connector terminal	Molex KK 08-50-0031

ELECTRICAL CONNECTION

Pin	Supply	Color	Details
Pin 1	V Supply	Red	12 VDC (max. range 9 - 14 V) 24 VDC (max. range 20 - 26 V)
Pin 2	Ground	Black	Ground for all pins
Pin 3	Speed Control	Blue	Analog 1.0 - 5.0 VDC (5.5V max.) PWM 10 - 30 kHz / 23 - 90% Threshold 1.0 VDC (23% PWM)
Pin 4	Tacho out	Green	3 pulses per revolution
	- Pulse time	12 V DC	'High'/'Low'-Time 50% speed dep.
	- Pulse time	24 V DC	'High'/'Low'-Time 50% speed dep.
	- Output level		'Low'-Range 0 V - 0.5 V
	- Output level		'High'-Range 4.5 V - 5.5 V

MODEL KEY

1410 - D - 0 - D - 12V - BLDC P - 4100 - 22 - EEE - PARA

Pos	Options	Description
1	1410	Product Line
2	V / D / VD	Vacuum / Pressure / Vacuum-Pressure
3	P / R / O	Tubing: Parallel / series / no tubing
4	A / B / C / D	Port position: standard D over motor
5	12V / 24V	Nominal voltage
6	BLDC P	Motor: BLDC Performance
7	4100	Nominal motor speed (motor dependent)
8	12 / 15 / 19 / 22	Eccentric: e.g. 22 → 2.2 mm
9	EEE / FFF	Diaphragm, valve, seal material: EPDM / FKM
10	PARA / PPS	Pump head material: IXEF / Ryton

ORDER INFORMATION

Part Number	Model Key
14100702	1410-D-0-D-12V-BLDC P-4100-22-EEE-PARA
14100703	1410-D-0-D-24V-BLDC P-4300-22-EEE-PARA
Other configurations	Upon request
To order call	ASIA +86 510 6878 2258
To order call	EMEA +49 8141 22800
To order call	USA +1 920 457 4891
Or go online @	www.thomaspumps.com

Diaphragm Pump 1410VD BLDC Performance

FLOW 12/24 VDC	3.5/3.6 l/min
FINAL VACUUM	75%
FINAL PRESSURE	1.9 bar



PNEUMATIC DATA*

Max. flow 12/24VDC	3.5/3.6 l/min
Max. intermittent vacuum	75%
Max. continuous vacuum	75%
Max. restart vacuum	75%
Max. intermittent pressure	1.9 bar
Max. continuous pressure	0.7 bar
Max. restart pressure	1.9 bar

*@ Speed control 5 VDC (Pin3)

OPERATING CONDITIONS*

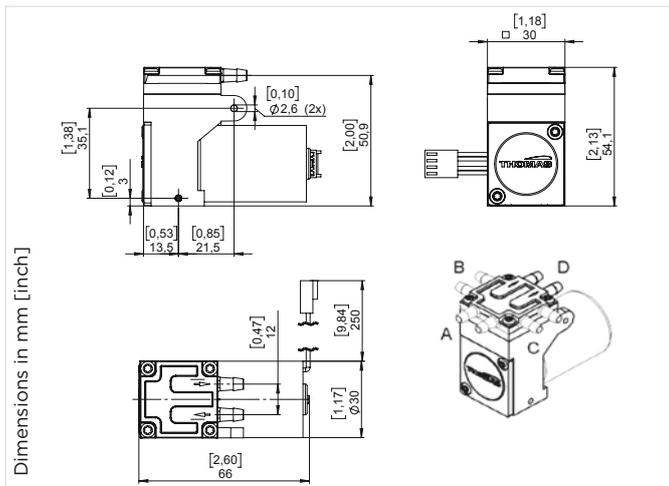
Media temperature	5 to 40 °C
Ambient temperature	5 to 40 °C
Storage temperature	-30 to 70 °C
Storage humidity	15 to 85% (no condensation)

*Standard configuration part number 14100704/14100705

PHYSICAL DATA

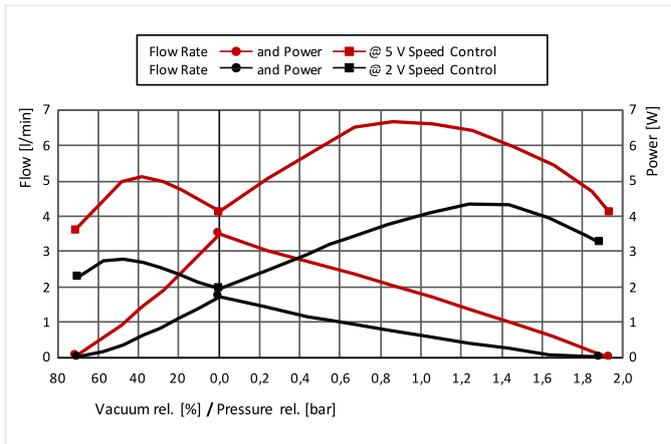
Dimensions l x w x h	66 x 30 x 54.1 mm
Weight	165 g
Mounting on side	Through hole Ø 2.6 mm

DIMENSIONAL DRAWING



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PERFORMANCE CURVE



ELECTRICAL DATA

Motor type	Brushless DC (BLDC)
Nominal voltage	12/24 VDC
Max. power consumption	6.2/6.7 W
Insulation class	A
Protection class	IP 20
Drive electronics	Integrated
Connector housing	Molex KK 22-01-3047
Connector terminal	Molex KK 08-50-0031

ELECTRICAL CONNECTION

Pin	Supply	Color	Function
Pin 1	V Supply	Red	12 VDC (max. range 9 - 14 V) 24 VDC (max. range 20 - 26 V)
Pin 2	Ground	Black	Ground for all pins
Pin 3	Speed Control	Blue	Analog 1.0 - 5.0 VDC (5.5V max.) PWM 10 - 30 kHz / 23 - 90% Threshold 1.0 VDC (23% PWM)
Pin 4	Tacho out	Green	3 pulses per revolution
	- Pulse time	12 V DC	'High'/'Low'-Time 50% speed dep.
	- Pulse time	24 V DC	'High'/'Low'-Time 50% speed dep.
	- Output level		'Low'-Range 0 V - 0.5 V
	- Output level		'High'-Range 4.5 V - 5.5 V

MODEL KEY

1410 - VD - 0 - D - 12V - BLDC P - 4100 - 15 - EEE - PARA

Pos	Options	Description
1	1410	Product Line
2	V / D / VD	Vacuum / Pressure / Vacuum-Pressure
3	P / R / O	Tubing: Parallel / series / no tubing
4	A / B / C / D	Port position: standard D over motor
5	12V / 24V	Nominal voltage
6	BLDC P	Motor: BLDC Performance
7	4100	Nominal motor speed (motor dependent)
8	12 / 15 / 19 / 22	Eccentric: e.g. 15 → 1.5 mm
9	EEE / FFF	Diaphragm, valve, seal material: EPDM / FKM
10	PARA / PPS	Pump head material: IXEF / Ryton

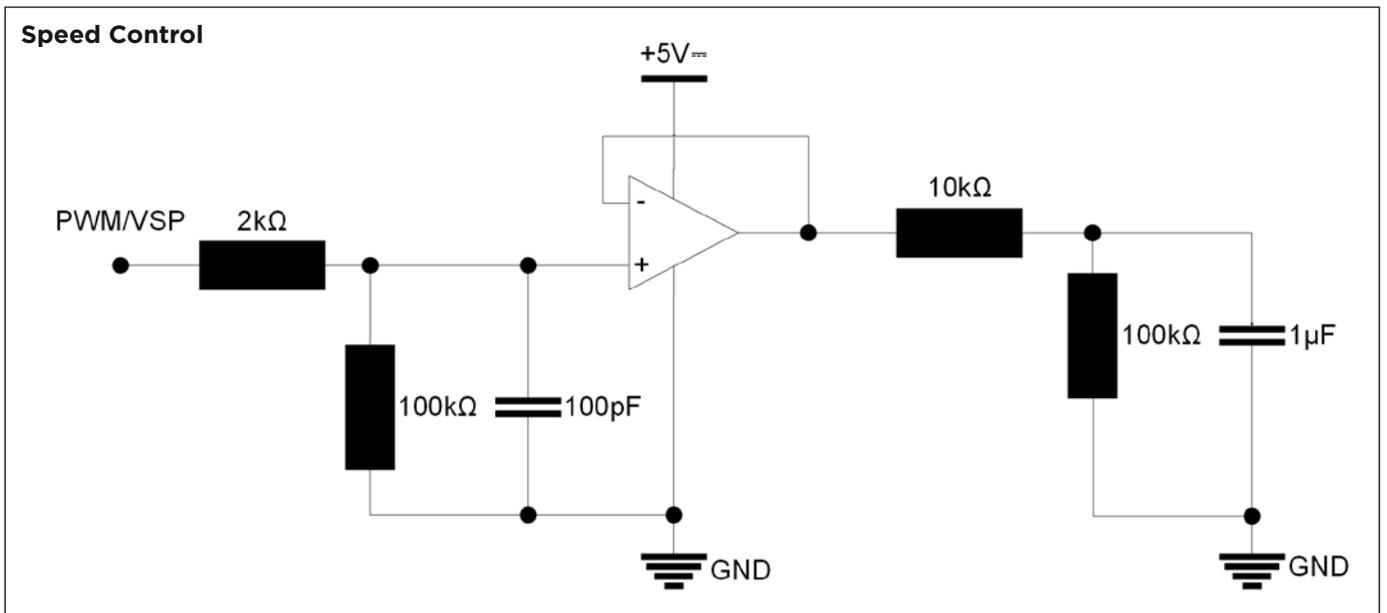
ORDER INFORMATION

Part Number	Model Key
14100704	1410-VD-0-D-12V-BLDC P-4100-15-EEE-PARA
14100705	1410-VD-0-D-24V-BLDC P-4300-15-EEE-PARA
Other configurations	Upon request
To order call	ASIA +86 510 6878 2258
To order call	EMEA +49 8141 22800
To order call	USA +1 920 457 4891
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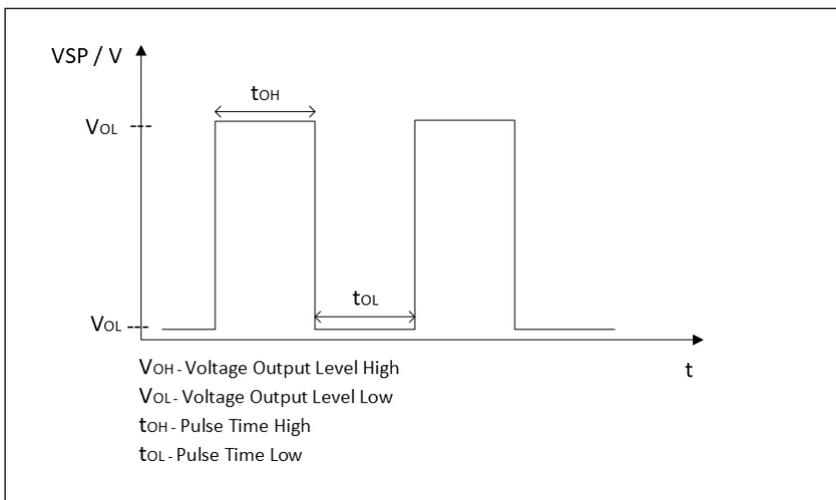
Wiring diagram (BLDC High Performance)

	Function	Colour	Control
Pin 1	V Supply	Red	12 VDC (max. range 9 - 14 VDC) 24 VDC (max. range 20 - 26 VDC)
Pin 2	Ground	Black	Ground for all pins
Pin 3	Speed Control	Blue	Analog 1.0 - 5.0 VDC (5.5 VDC max.) PWM 10 - 30 kHz / 23 - 90 % Threshold 1.0 VDC (23% PWM)
Pin 4	Tacho out - Pulse time - Pulse time - Output level - Output level	Green	3 pulses per revolution 'High'/'Low'-Time 50% speed dependent 'High'/'Low'-Time 50% speed dependent 'Low'-Range 0 VDC - 0.5 VDC 'High'-Range 4.5 VDC - 5.5 VDC

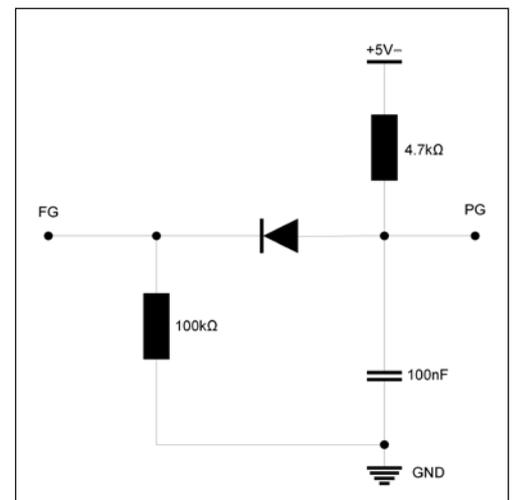
Speed Input



Speed Output Signal



Speed Output (Tacho Out)



PUMP AND COMPRESSOR SOLUTIONS FOR OEMS WORLDWIDE

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