

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%

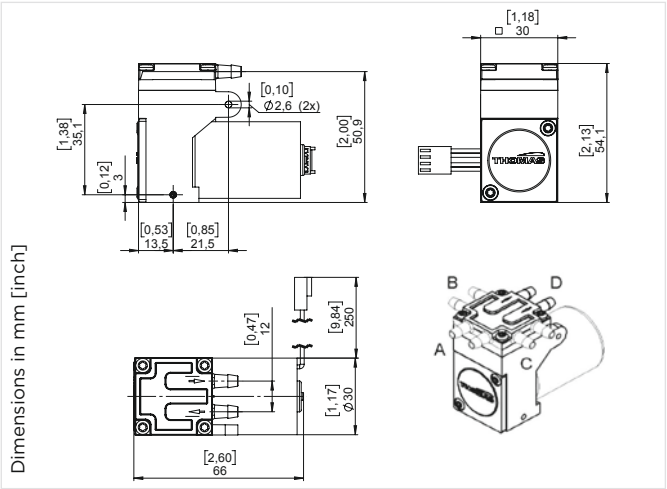
*@ Speed control 5 VDC (Pin3)

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)

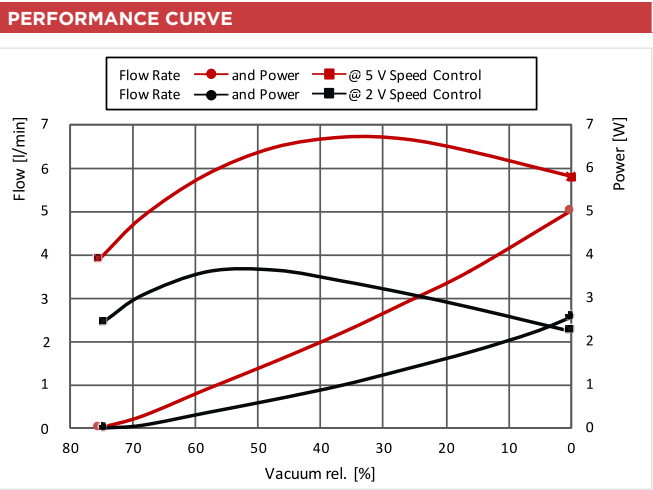
*Standard configuration part number 14100700/14100701

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



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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 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 - O - 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-O-D-12V-BLDC P-4100-22-EEE-PARA
14100701	1410-V-O-D-24V-BLDC P-4300-22-EEE-PARA
Other configurations	Upon request

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*

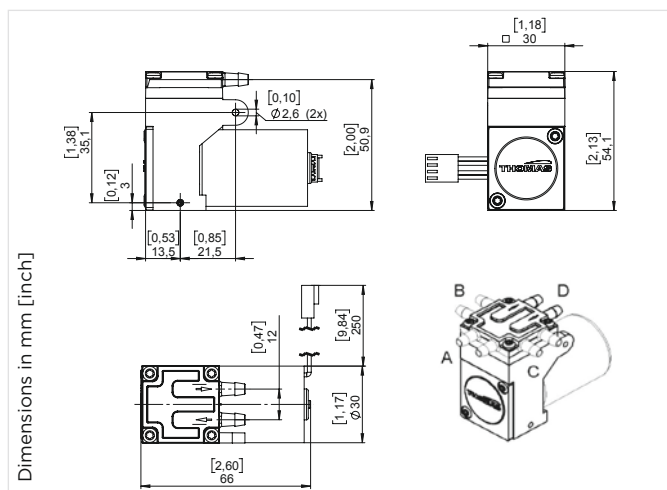
Media temperature	5 to 40 °C
Ambient temperature	5 to 40 °C
Storage temperature	-30 to 70 °C
Storage humidity	15 to 85% (no condensation)

*Standard configuration part number 14100702/14100703

PHYSICAL DATA

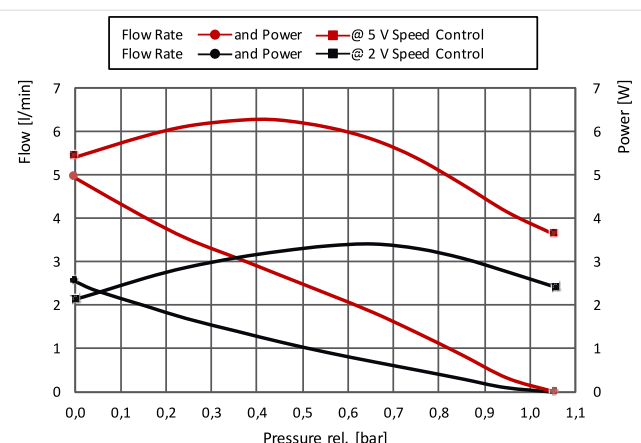
Dimensions l x w x h	66 x 30 x 54.1 mm
Weight	165 g
Mounting on side	Through hole Ø 2.6 mm

DIMENSIONAL DRAWING



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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 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

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

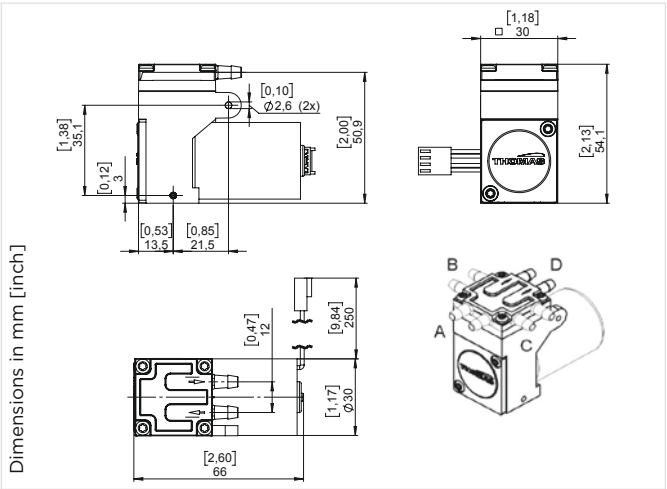
*@ Speed control 5 VDC (Pin3)

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)

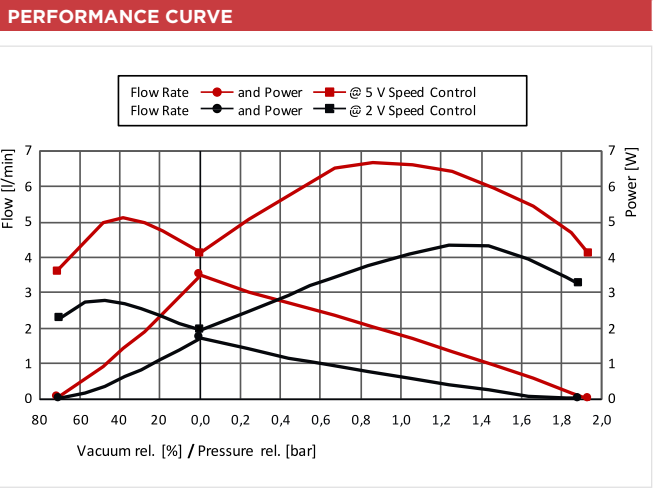
*Standard configuration part number 14100704/14100705

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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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 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

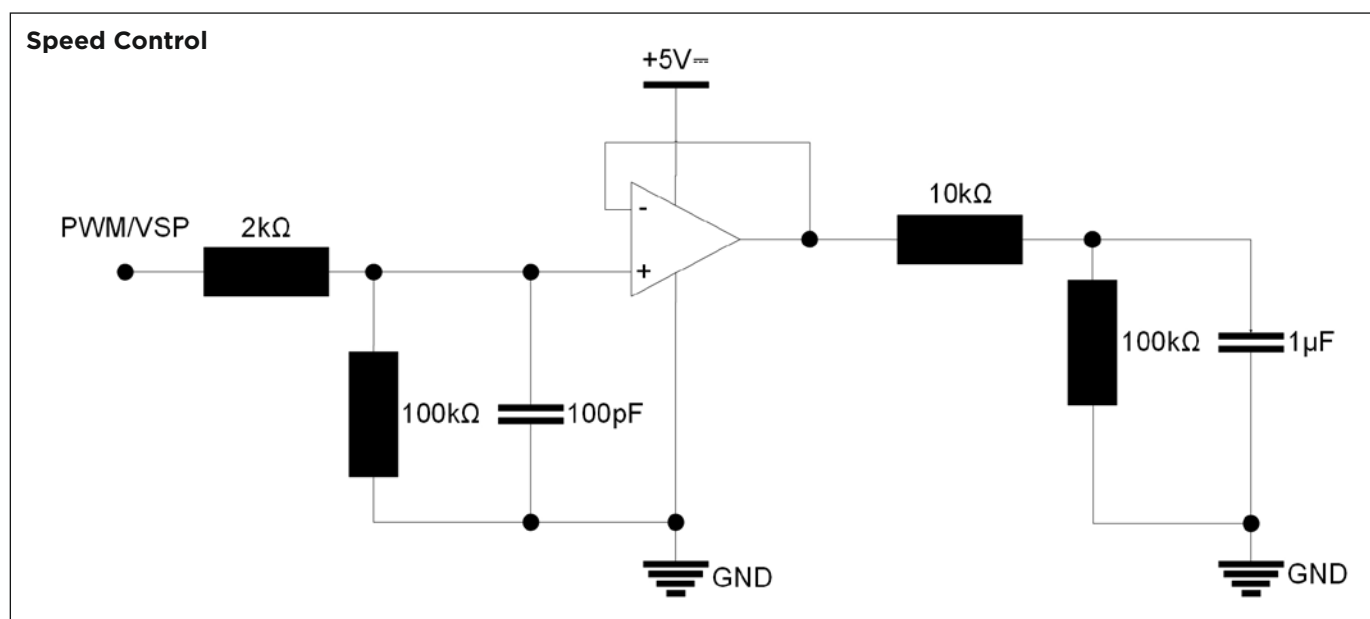
ORDER INFORMATION

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

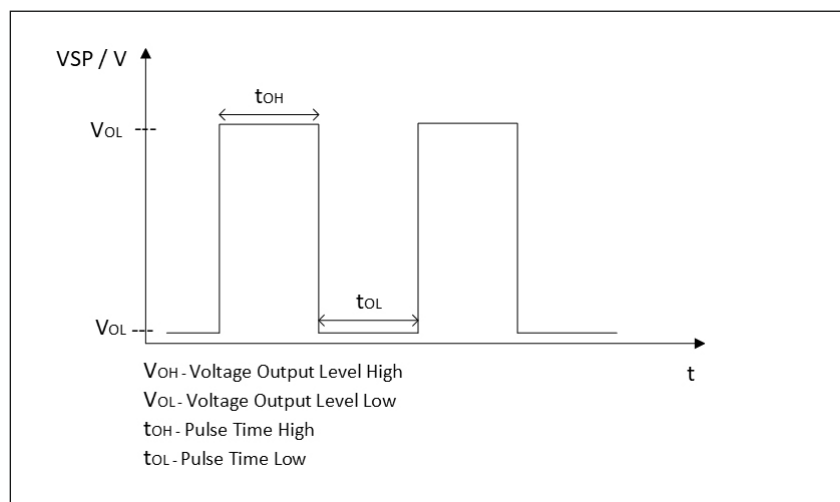
Wiring diagram (BLDC High Performance)

	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 12 VDC 24 VDC	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

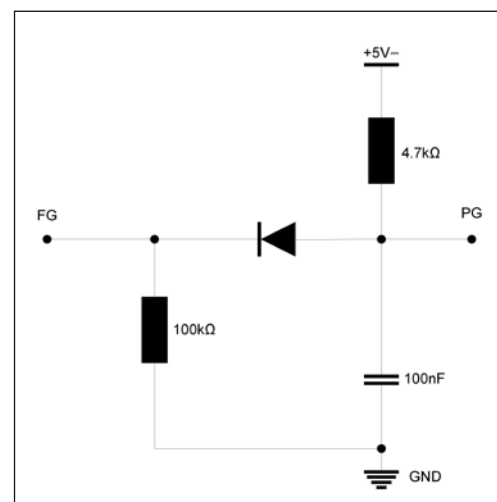
Speed Input



Speed Output Signal



Speed Output (Tacho Out)



PUMP AND COMPRESSOR SOLUTIONS FOR OEMS WORLDWIDE



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Models presented in this catalog are representative of the product family. Photos of products pictured in this catalog do not necessarily represent a specific model number. To obtain further information for custom options, contact your local Thomas office.

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