

BTX-Connect

Miniature Diaphragm Pump

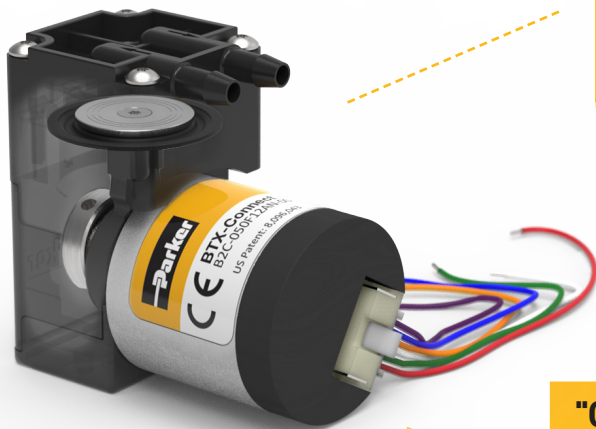


ENGINEERING YOUR SUCCESS.

BTX-Connect Miniature Diaphragm Pump

BTX-Connect: Engineered for Excellence, Designed for the Future

Highlights



Effective Integration

- Lowest weight pump in its class
- Optimized counter balance reduces noise and vibration
- Latching electrical connector for dependable operation

Reliable >15,000 Hours Life

- Advanced elastomer materials enable superior life
- Patented motor bearing design provides longevity

"Connected" Brushless DC Motor

- Configurable motor speed controls (On/Off, PWM, 0-5V, Serial)
- Fail safe shut down conditions (Temp, Volt, Current)
- Optional UART serial port for advanced control and monitoring

EZ-Mount Mounting Accessories

- Versatile vibration isolating mounting accessories
- Enables easy installation in the instrument

Maximized Outcomes

- Ensuring reliable and consistent fluidic control
- Minimize unexpected downtime
- Faster Time to Market
- Less costly instrument



BTX-Connect Miniature Diaphragm Pump

Product Specifications

Physical Properties

Operating Environment¹ :
41 to 122°F (5 to 50°C)
Storage Environment :
-4 to 212°F (-20 to 100°C)
Media:
Air, Nitrogen, Oxygen, and other non-reacting gases
Humidity:
0 - 80% Relative Humidity Non-condensing
Noise Level² :
As low as 45 dB @ 12 in (30 cm) <i>Muffler recommended for additional noise reduction (see accessories)</i>
Pump Assembly Rated Life³ :
Brushless Motor up to 15,000 Hours
Weight:
Compact BLDC Single Head 4.4 oz (125 g)
Compact BLDC Dual Head 5.8 oz (165 g)
Slotless BLDC Single Head 7.4 oz (209 g)
Slotless BLDC Dual Head 8.4 oz (240 g)
Wetted Materials
Diaphragm:
Long Life - Advanced EPDM
Valves:
EPDM, Advanced EPDM
Pump Head:
PBT

Other materials available upon request

Electrical

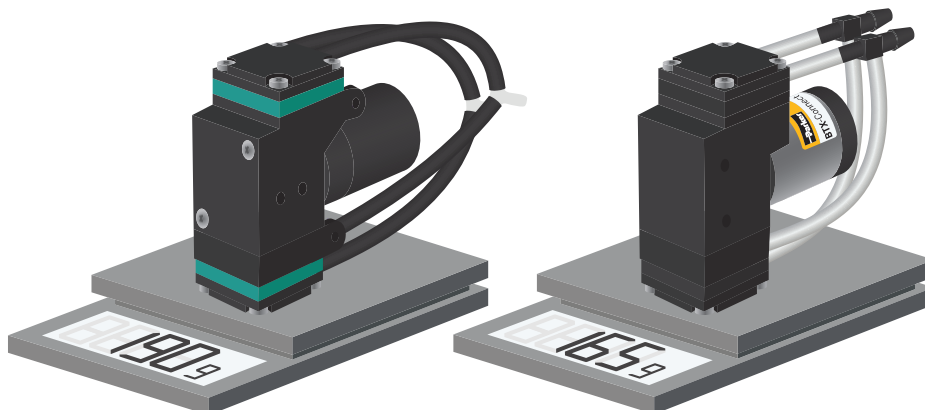
Motor Type (DC):
Brushless Slotted, Brushless Slotless
Nominal Motor Voltages⁴:
12 or 24 VDC
Electrical Termination:
Mating Connector: JST PAP-06V-S
Pin 1: Tachometer Speed (Blue)
Pin 2: PWM or 0-5V Input (White)
Pin 3: +DC Voltage Input (Red)
Pin 4: -Ground (Black)
Pin 5: Digital UART Rx (Brown)
Pin 6: Digital UART Tx (Purple)

Pneumatic

Maximum Unrestricted Flow:
Single Head: Up to 6 LPM
Dual Head: Up to 11 LPM
Pressure Range:
Continuous Duty: Up to 15 PSIG (1 Bar)
Vacuum Range:
Continuous Duty: Up to -22 inHg (-558 mmHg)
Filtration:
40 microns - recommended

Connect Features

Speed Control Options:
On/Off Control, Factory Set Speed PWM 0-5V Analog Serial UART
<i>On/Off only, PWM input, and 0-5 VDC are factory set, see ordering table.</i> <i>Standard on/off configuration only requires DC power and Ground</i>
Current Limit Shut Down:
Compact BLDC 12V - 1 Amp Compact BLDC 24V - 0.5 Amp Slotless BLDC 12V - 2 Amp Slotless BLDC 24V - 1 Amp
Temperature Limit Shut Down:
Compact BLDC: 90°C Slotless BLDC: 90°C Time before shut down: < 1 second <i>Temp and current limits are factory adjustable</i>
UART Reported Values:
Pump Speed: 1 RPM Resolution, <60 RPM reported as 0 Motor Temperature: 1°C Resolution, Max=100°C, Accuracy= +/- 5°C Hysteresis = 5°C Motor Current: 1mA Resolution, Accuracy= +/- 50mA or 5% whichever is higher



Typical Competitor

BTX-Connect Dual Head,
with Compact BLDC Motor

BTX-Connect Miniature Diaphragm Pump

EZ Mount available



EZ Mount provides ease of installation and effective control of vibration transfer. EZ Mount was designed to mount easily to the Precision Fluidics BTX Family of diaphragm pumps.

Features

- Isolation feet on the EZ mount can be rotated in any one of three ninety-degree planes and is designed for top-down or bottom-up mounting providing simple installation
- EZ Mount was designed to minimize weight added to the pump assembly. Approximate weight is: 0.63 oz (18 g)
- Effectively absorbs vibration to minimize most vibration-induced noise and vibration transfer into an instrument
- Designed to keep height and size to a minimum
- All necessary hardware to attach to a BTX pump is included

Physical Properties

Operating Environment:

41 - 158°F (5 - 70°C)

Humidity:

0 - 95% Relative Humidity

Base Plate:

Noryl GTX830

Feet:

Silicone

Feet Insert:

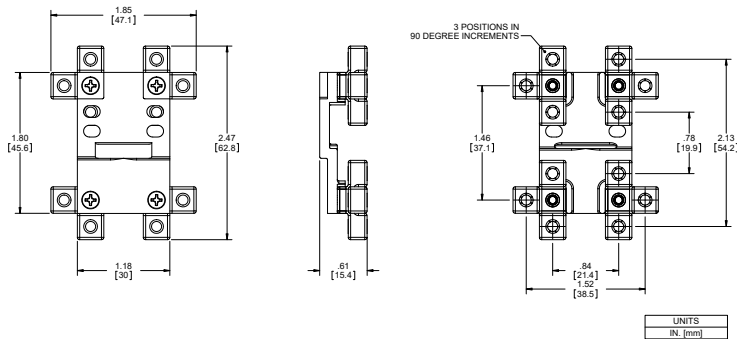
Brass

Hardware:

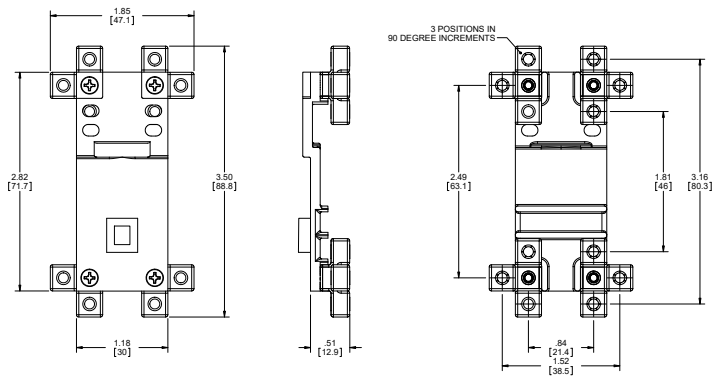
Zinc-Plated Steel

- Isolation Feet are available in either threaded or thru-hole clearance for standard #4-40 or #6-32 (M3 for clearance hole only).

Style A Dimensions



Style B Dimensions



EZ Mount for BTX with Compact Motor Single and Dual Head (B1C and B2C)

Part Number	Style	Feet Type
00328-10-A45S	A	#4-40 Threaded
00328-10-B45S	A	#4 Clearance
00328-10-D45S	A	#6-32 Threaded
00328-10-C45S	A	#6 / M3 Clearance

EZ Mount for BTX with Slotless Single Head (B1S and B1H)

Part Number	Style	Feet Type
01074-10-A45S	B	#4-40 Threaded
01074-10-B45S	B	#4 Clearance
01074-10-D45S	B	#6-32 Threaded
01074-10-C45S	B	#6 / M3 Clearance




EZ Mount for BTX with Slotless Dual Head (B2S and B2H)

Part Number	Style	Feet Type
00329-10-A45S	B	#4-40 Threaded
00329-10-B45S	B	#4 Clearance
00329-10-D45S	B	#6-32 Threaded
00329-10-C45S	B	#6 / M3 Clearance



BTX-Connect Miniature Diaphragm Pump

Ordering Information

Configuration	Voltage	Motor Control	Part Number	-16 inHg -406 mmHg	-12 inHg -305 mmHg	-8 inHg -203 mmHg	-4 inHg -102 mmHg	0 Free Flow	4 PSIg 276 mbar	8 PSIg 552 mbar	12 PSIg 827 mbar	16 PSIg 1103 mbar
B1C BTX-Connect Single Head with Compact BLDC 	12	On/Off	B1C-050F12AN-00	0.4	1.1	1.8	2.5	3.3	2.7	2.1	1.6	1.1
	12	PWM	B1C-050F12AN-03	0.4	1.1	1.8	2.5	3.3	2.7	2.1	1.6	1.1
	12	On/Off	B1C-070P12AN-00	-	-	-	-	4.5	3.5	2.7	2	1.2
	12	0-5 VDC	B1C-070P12AN-02	-	-	-	-	4.5	3.5	2.7	2	1.2
	12	On/Off	B1C-090P12AN-00	-	-	-	-	5.5	4.5	3.5	2.8	2.2
	12	PWM	B1C-090P12AN-03	-	-	-	-	5.5	4.5	3.5	2.8	2.2
	12	On/Off	B1C-090V12AN-00	1.5	2.5	3.5	4.7	5.8	-	-	-	-
	12	0-5 VDC	B1C-090V12AN-02	1.2	2	3	4.1	5.2	-	-	-	-
	12	PWM	B1C-090V12AN-03	1.5	2.5	3.5	4.7	5.8	-	-	-	-
	12	UART	B1C-090V12AN-01	1.5	2.5	3.5	4.7	5.8	-	-	-	-
	24	On/Off	B1C-050F24AN-00	0.4	1.1	1.8	2.5	3.3	2.7	2.1	1.6	1.1
	24	0-5 VDC	B1C-050F24AN-02	0.4	1.1	1.8	2.5	3.3	2.7	2.1	1.6	1.1
	24	PWM	B1C-050F24AN-03	0.4	1.1	1.8	2.5	3.3	2.7	2.1	1.6	1.1
	24	On/Off	B1C-090P24AN-00	-	-	-	-	5.5	4.5	3.5	2.8	2.2
	24	0-5 VDC	B1C-090P24AN-02	-	-	-	-	6.1	4.9	4	3.2	2.5
	24	PWM	B1C-090P24AN-03	-	-	-	-	6.1	4.9	4	3.2	2.5
	24	On/Off	B1C-090V24AN-00	1.5	2.5	3.5	4.7	5.8	-	-	-	-
	24	PWM	B1C-090V24AN-03	1.5	2.5	3.5	4.7	5.8	-	-	-	-
B1S BTX-Connect Single Head with Slotless BLDC 	12	On/Off	B1S-090P12AN-00	-	-	-	-	4.8	3.9	3.1	2.5	2.0
	24	On/Off	B1S-090P24AN-00	-	-	-	-	4.8	3.9	3.1	2.5	2.0
B2C BTX-Connect Dual Head with Compact BLDC 	12	On/Off	B2C-050F12AN-00	0.4	1.7	2.6	3.8	5.1	4	3.2	2.3	1.1
	12	PWM	B2C-050F12AN-03	0.4	1.7	2.6	3.8	5.1	4	3.2	2.3	1.1
	12	On/Off	B2C-070P12AN-00	-	-	-	-	8.2	6	4.4	3	2
	12	On/Off	B2C-090V12AN-00	2.2	3.5	5.4	7.5	9.5	-	-	-	-
	12	PWM	B2C-090V12AN-03	2.2	3.5	5.4	7.5	9.5	-	-	-	-
	12	0-5 VDC	B2C-090V12AN-02	2.2	3.5	5.4	7.5	9.5	-	-	-	-
	24	On/Off	B2C-050F24AN-00	0.4	1.7	2.6	3.8	5.1	4	3.2	2.3	1.1
	24	PWM	B2C-050F24AN-03	0.4	1.7	2.6	3.8	5.1	4	3.2	2.3	1.1

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Configuration	Voltage	Motor Control	Part Number	-16 inHg -406 mmHg	-12 inHg -305 mmHg	-8 inHg -203 mmHg	-4 inHg -102 mmHg	0 Free Flow	4 PSIG 276 mbar	8 PSIG 552 mbar	12 PSIG 827 mbar	16 PSIG 1103 mbar
B2S	12	On/Off	B2S-050F12AN-00	0.8	1.9	2.9	4.1	5.3	4.3	3.5	2.7	2
BTX-Connect Dual Head with Slotless BLDC	12	On/Off	B2S-090P12AN-00	-	-	-	-	9	7.2	5.7	4.5	3.3
	12	PWM	B2S-090P12AN-03	-	-	-	-	9	7.2	5.7	4.5	3.3
	12	On/Off	B2S-090V12AN-00	2.2	3.8	5.7	7.6	9.3	-	-	-	-
	12	PWM	B2S-090V12AN-03	2.2	3.8	5.7	7.6	9.3	-	-	-	-
	24	On/Off	B2S-050F24AN-00	0.8	1.9	2.9	4.1	5.3	4.3	3.5	2.7	2
	24	On/Off	B2S-090P24AN-00	-	-	-	-	9	7.2	5.7	4.5	3.3
	24	On/Off	B2S-090V24AN-00	2.2	3.8	5.6	7.5	9.1	-	-	-	-
	24	PWM	B2S-090V24AN-02	2.2	3.8	5.6	7.5	9.1	-	-	-	-
B2H	12	0-5 VDC	B2H-050F12AN-02	0.9	2.4	3.7	5.1	6.7	5.4	4.3	3.2	2.3
BTX-Connect Dual Head with HP Slotless BLDC	12	On/Off	B2H-050A12AN-00	1.6	2.9	4.2	5.7	7.2	5.8	4.8	3.9	3
	12	On/Off	B2H-090R12AN-00	-	-	-	-	10.7	8.9	7.3	5.8	4.4
	12	On/Off	B2H-090V12AN-00	2.8	4.6	6.6	8.7	10.5	-	-	-	-

Accessories Ordering Table

Part No.	Description	Comments
HRN-2-NN20	2 Pin Wire Harness 20" (508mm) Long	2 Pin wire harness for on/off control only
HRN-4-PT20	4 Pin Wire Harness 20" (508mm) Long	4 Pin wire harness for speed control and tachometer output (Pin 2: White)
HRN-4-AT20	4 Pin Wire Harness 20" (508mm) Long	4 Pin wire harness for speed control and tachometer output (Pin 2: Yellow)
HRN-6-UT20	6 Pin Wire Harness 20" (508mm) Long	6 Pin wire harness required for UART
00492-15	Filter-Muffler	Filter to 10 microns. Not included with pump
01881-KT	Tubing Assembly	As needed for parallel flow. Not included with pump



BTX-Connect Miniature Diaphragm Pump

BTX Part Number Description (see Appendix A comment 9)

<u>B</u>	<u>1</u>	<u>C</u>	- <u>090</u>	<u>P</u>	<u>12</u>	<u>A</u>	<u>N</u>	- <u>00</u>
Model	Pump Heads	Motor Type	Pump Offset	Diaphragm Configuration	Voltage	Material	Tubing	Special
B - BTX	1 - Single Head	C - Compact	050 - 0.050" Offset	F - Universal Pressure & Vacuum	12 - 12 Vdc	A - 80D AEPDM Diaphragm & low noise Valves	N - None	00 - Factory set speed HRN-2-NN20 (Included)
	2 - Dual Head	S - Slotless	070 - 0.070" Offset	P - Pressure Only	24 - 24 Vdc	B - 80D AEPDM Diaphragm & 80D Valves	P - Parallel (dual head only)	01 - Digital UART speed control HRN-6-UT20 (Included)
		H - High Performance Slotless	090 - 0.090" Offset	V - Vacuum Only			S - Series (dual head only)	02 - Analog 0-5 Vdc HRN-4-AT20 (Included)
				A - Universal Pressure & Vacuum (High Compression Chamber)				03 - PWM speed control HRN-4-PT20 (included)
			R - Pressure Only (High Compression Chamber)					
				Y - Vacuum Only (High Compression Chamber)				

Appendix A

All performance data is typical based on standard conditions: 70°F and 14.7 psia (21°C and 1 bar).

1. Duty Dependent. For operation above 122°F (50°C) consult factory
2. Noise is dependent on the configuration and operation of the pump in the application. Parker has the ability to tailor the pump configuration when noise is a critical criterion in the effort to meet the performance requirements of the application. Noise level is tested to Parker protocol P-105.
3. Life rating can vary depending on application and operating conditions.
4. Custom motor options available. Custom motors may require a significant application potential. The standard motors can be configured with a special winding to meet a particular operation point at a specified voltage
5. Current range is dependent on motor type, voltage, pressure/vacuum and flow requirement. Lower levels possible depending on application.
6. Inductance is an indicator of induced voltage with change in current and it is a key parameter to enable customers' low energy intrinsic safety systems
7. Maximum intermittent pressure/vacuum data is a pump capability guideline for applications that go beyond the maximum continuous levels for short periods of time. Please consult customer specific requirements with the factory or Applications Engineering.
8. Pump efficiency is a measure of the flow rate generated per unit of power consumed. Efficiency may change dependent on application and operating condition at free flow.
9. Part number description for reference only, not all configurations are available or configurable. Contact our Applications Engineering team for other performance options.



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Scan for more detailed information:



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Our team of experienced engineers and technical support staff is dedicated to helping our customers find the right solutions for their specific needs. We work closely with our customers to understand their unique requirements and provide tailored solutions that meet their exact specifications.

