

## BioPen Platform Specifications

General PPC-1	
Dimensions	PPC-1: 258 mm (W) × 170 mm (L) × 55 mm (H) (10 in. × 7 in. × 2 in.)
Weight	PPC-1: 1.9 kg (4.19 lb)
Cooling mode	Air cooled (natural convection)
Environmental conditions	For indoor laboratory use
Operating temperature	20°C to 30°C
Storage temperature	5°C to 35°C

Computer Requirements	
Operating system	Microsoft Windows 10 (32 or 64 bit)
Hardware interface	USB 2.0 or higher
Touch screen	Optimized

Precision pressure controller (PPC-1)	
Pneumatic connections	8 (4 for positive pressure, 4 for negative pressure)
Positive pressure range	0-450 mbar
Negative pressure range	-300-0 mbar
Pressure accuracy	± 5 mbar
Electricity specification	100-240 VAC 50/60 Hz
Electronic synchronization	5V TTL Out & In

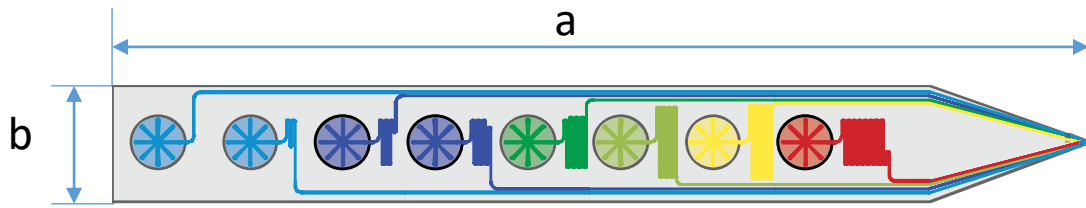
Flow setting parameters				
State	Fast	Standard	Slow	Sleep
P <sub>on</sub> (mbar)	380	190	95	0
P <sub>off</sub> (mbar)	42	21	11	11
V <sub>switch</sub> (mbar)	-240	-115	-60	-45
V <sub>recirc</sub> (mbar)	-240	-115	-60	-45

Switching speed			
State	Fast	Standard	Slow
Rise (ms)	150	200	250
Fall (ms)	70	90	130

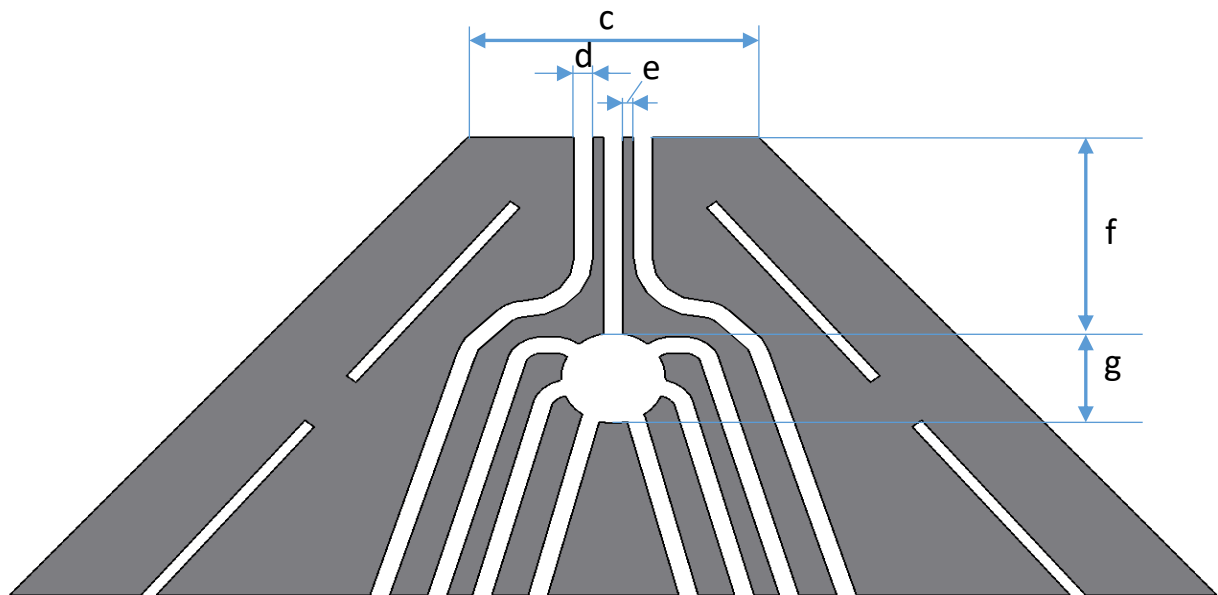
\*Measured 10-90% of max, Accuracy ± 10 ms

Tip run time					
State		Fast	Standard	Slow	Sleep
Based upon waste wells filling	Flow rate (nL/s)	25	12	7	5
	Duration (min)	45	95	180	240
Based upon solution usage	Duration in Active (min)	25	55	110	-
	Duration in Standby (min)	200	440	880	880

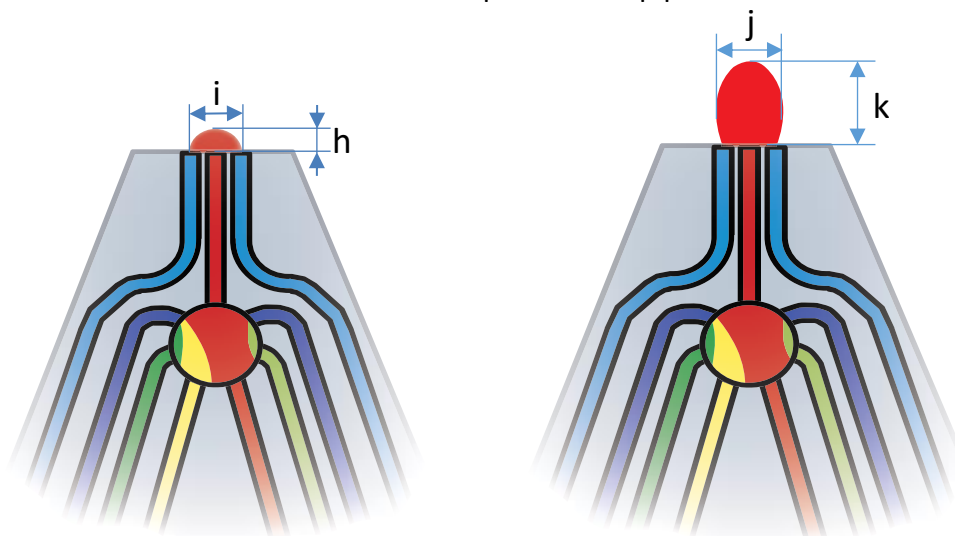
BioPen tip parameters	
Length	65 mm (a)
Width	10 mm (b)
Number of deliverable solutions	4
Reservoir volume	35 $\mu$ L
Tip width	450 $\mu$ m (c)
Channel size	30*30 $\mu$ m (d)
Channel-channel separation at the tip	15 $\mu$ m (e)
Channel-bottom separation at the tip	15 $\mu$ m
Distance from tip to switching point	350 $\mu$ m (f)
Switching point diameter	150 $\mu$ m (g)
Exposure length	20 (h)-160 (j) $\mu$ m
Exposure width	90 (i)-110 (k) $\mu$ m
Exposure volume	0.1-1 nL



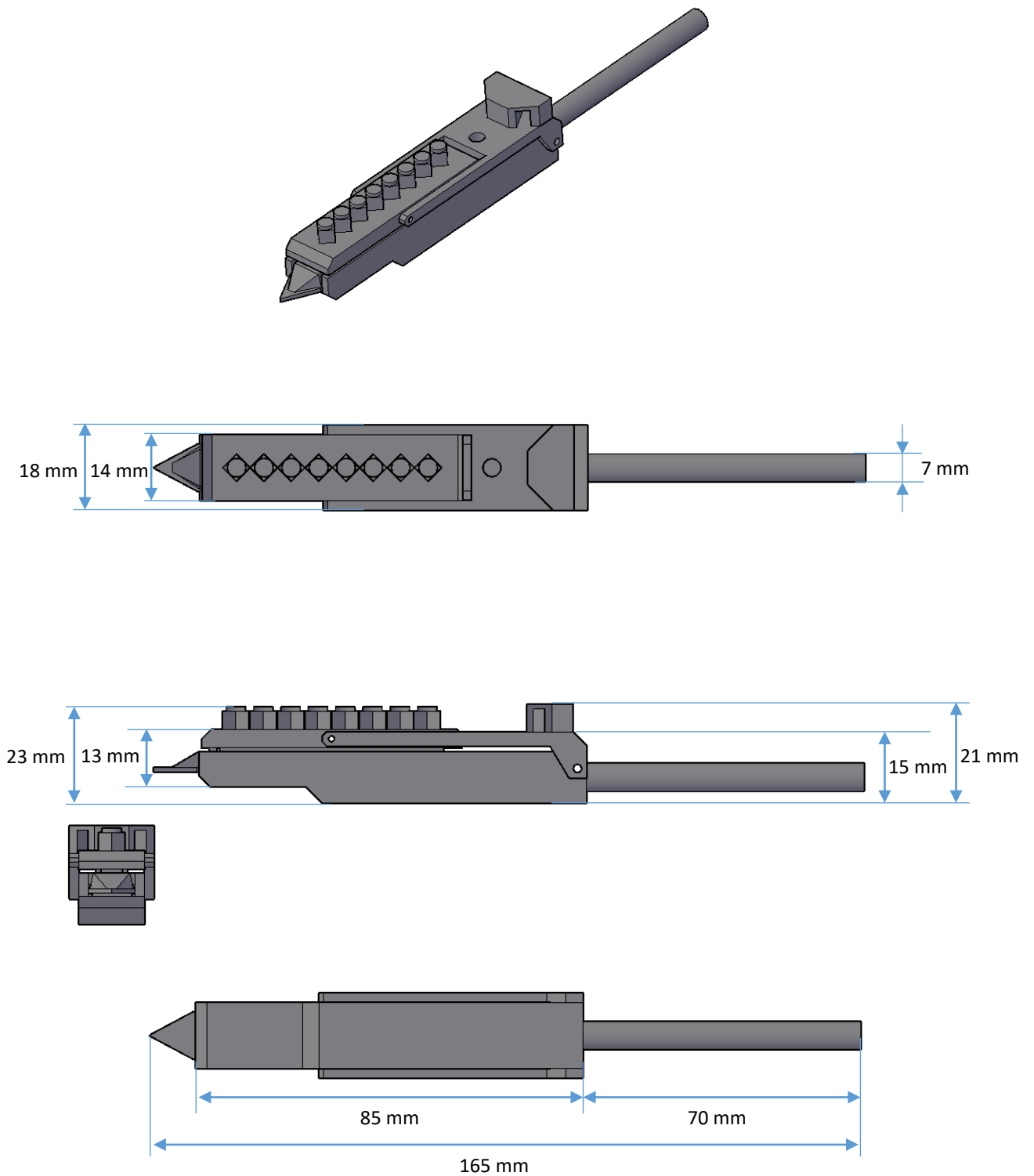
Schematics of BioPen pipette



Schematics of the tip of BioPen pipette



BioPen pipette exposure zone size



Schematics of BioPen pipette holder