

## DESCRIPTION

Posifa designed the PLF2000 series of liquid flow sensors to replace mechanical turbine flow sensors. With a MEMS thermal flow die at its core, PLF2000 is far more accurate and repeatable, even when flow is pulsatile and provides a linear digital output. Because it has no moving parts, PLF2000 does not get stuck nor suffer mechanical breakdown. Cleaning does not require disassembly. Also, because it does not introduce an obstruction (i.e. turbine) in the flow path, it presents minimal flow resistance, making it possible to circulate liquid via gravity, a boiler, or a low-power pump.

PLF2000 features Posifa's third-generation thermal flow die, benefiting from the latest innovations in microfabrication. The sensor die uses a pair of thermopiles to detect changes in temperature gradient caused by mass flow, delivering excellent signal-to-noise, and repeatability. The "solid state" thermal isolation structure eliminates the need for the surface cavity or fragile membrane used in competing technologies. The sensor die, with its silicon carbide protective film, is capable of direct contact with liquid, allowing the highest level of sensitivity and minimizing the cost of packaging.

PLF2000 complies with NSF/ANSI 61: Drinking Water System Components – Health Effects and can be used safely in water and beverage appliances.

PLF2000 provides both analog (voltage) and digital I2C output.



## APPLICATIONS

- Coffee and espresso machines
- Water dispensers
- Water purifiers and filtration systems
- Beverage vending machines
- Detergent vending machines
- Cleaning chemical mixing systems
- Liquid cooling systems

## FEATURES

- No moving parts
- Extremely fast response time (< 5 ms)
- Can be used with pulsatile flow systems
- Does not obstruct flow (low pressure drop)
- Disassembly not required for maintenance

## MAXIMUM RATINGS

- Operating Temperature: 5 °C to 75 °C
- Storage Temperature: 5 °C to 80 °C
- Operating Pressure: 50 psi

## SPECIFICATIONS

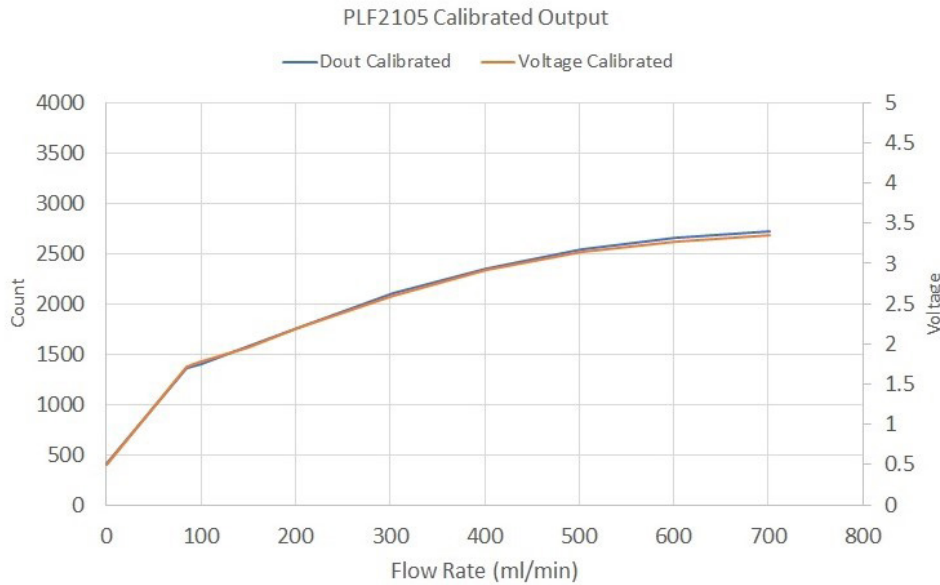
Test Conditions: $V_{in}=5\pm 0.01VDC$ , $T_a=22^{\circ}C$ .					
SPECIFICATIONS	MIN	TYP	MAX	UNIT	CONDITIONS
PLF2105	50		700	ml/min	
PLF2135	100		10000	ml/min	
Output Count (calibrated)	409 to 3686			count	
Null Count (calibrated)	380		440	count	
Output Count (raw)	30000 to 45000			count	
Output (calibrated)	0.5 to 4.5			VDC	
Flow Repeatability		0.5		% F.S.	
Flow Response Time <sup>1</sup>		5		ms	
Warm Up Time			5	sec	
Operating Pressure			50	psi	
Operating Temperature	5		75	$^{\circ}C$	
Storage Temperature	5		80	$^{\circ}C$	
Supply Voltage		5	5.5	VDC	
Supply Current		15		mA	at 5 VDC supply
Wetted Materials	NSF/ANSI 61 compliant nylon, silicone and food grade conformal coating				

Notes:

1. 10% to 90% rise time of the flow sensor to electrically respond to any mass flow change. May be affected by the pneumatic interface.

## OUTPUT DESCRIPTION

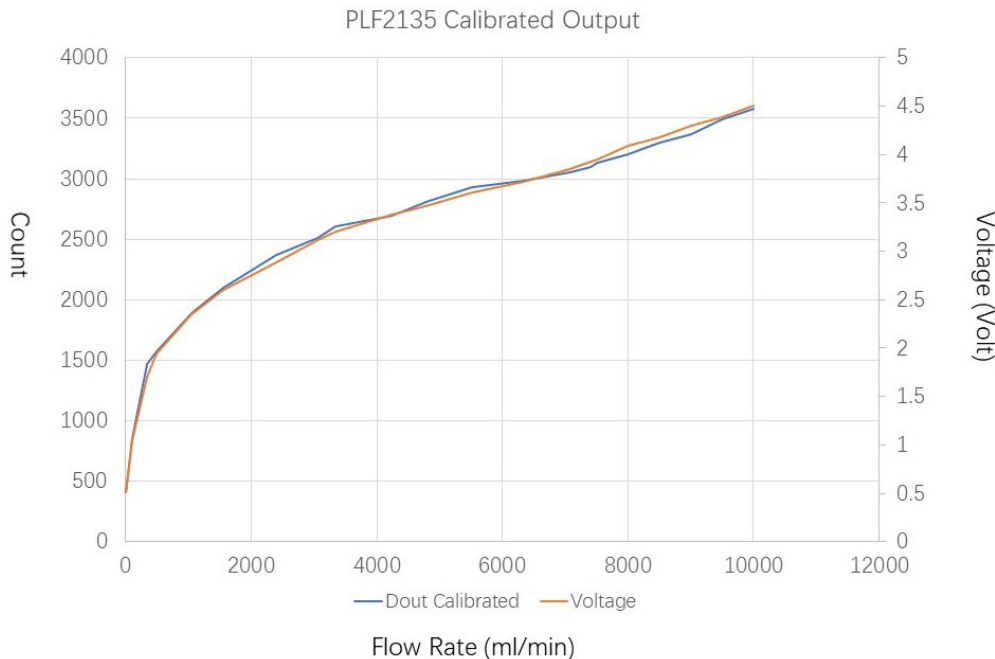
### For **PLF2105**



Flow (ml/min)	Output (volt)	Count
0	0.5	409
85	1.71	1362
100	1.78	1403
150	1.96	1572
202	2.20	1761
303	2.60	2103
402	2.92	2353
503	3.15	2535
602	3.27	2650
702	3.35	2715

Calibration Conditions: 20 °C, supply = 5V, flow is driven from a centrifugal pump.

### For **PLF2135**

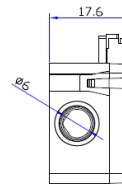
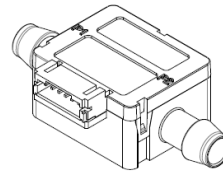
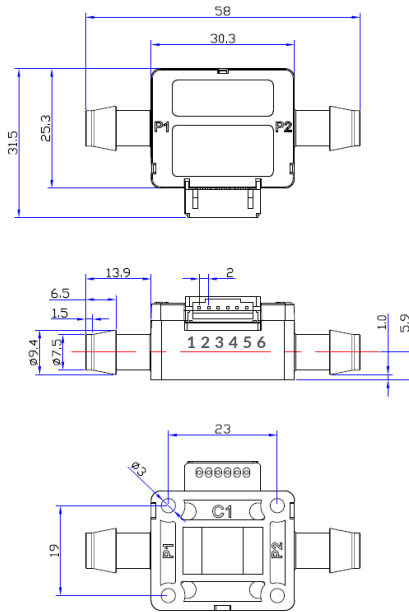


Flow (ml/min)	Output (volt)	Count
0	0.51	412
100	1.05	853
1050	2.35	1890
2390	2.89	2370
3060	3.12	2510
4240	3.38	2695
5520	3.61	2930
7060	3.75	3050
9000	4.32	3370
10000	4.52	3580

Calibration Conditions: 20 °C, supply = 5V, flow is driven from a pressurized tank.

## PACKAGE DIMENSIONS

### PLF2105

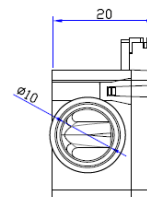
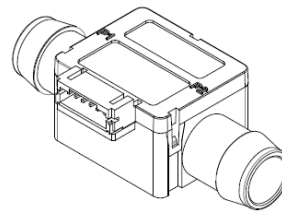
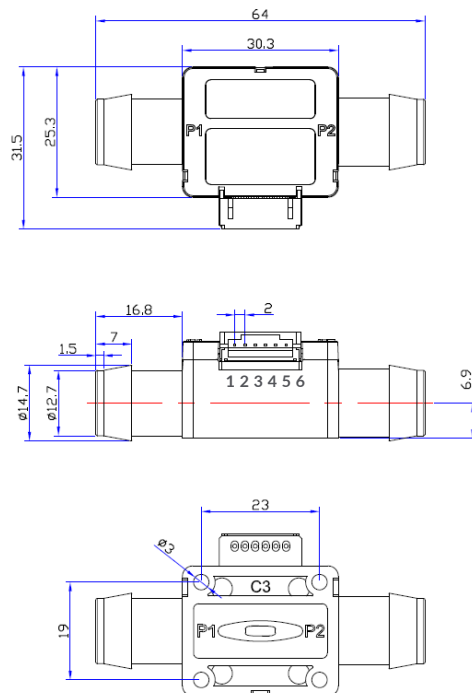


Pin#	Description
1	VDD
2	GND
3	Out
4	SDA
5	SCL
6	N/C

Mating connector: JST S6B-PH-SM4-TB or Equivalent

Contact Posifa for sensor CAD model.

### PLF2135



## ORDERING INFORMATION

PART NUMBER	SPECIFICATIONS
PLF2105	50 to 700 ml/min, voltage and digital I2C output
PLF2135	100 to 10000 ml/min, voltage and digital I2C output

Please contact Posifa to place an order.

## CUSTOMIZATION OPTIONS

If the standard product described in this data sheet does not completely meet your needs, please contact Posifa Technologies to discuss other options. Help us understand your application and sensor requirements and we can work together to find the best overall solution.

### EUROPEAN DISTRIBUTOR

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