

DESCRIPTION

The PVC4000 evaluation kit provides a platform for quick and easy assessment of the PVC4000, Posifa's digital MEMS pirani vacuum transducer for high-volume OEMs.

The evaluation kit consists of a PVC4001 PCBA packaged in a brass main housing that can be paired with different fittings. Two standard fittings are available off-the-shelf: ¼ SAE Male Flare, and KF16. Other standard fittings are available via custom order. The fittings are equipped with a removable and cleanable filter that protects the sensing element from contamination.

The PVC4001 included in the evaluation kit is calibrated for the vacuum range between 1 micron and 760,000 microns. Through the PVC4001's digital I²C interface, the user can access the sensor's raw output as well as the calibrated vacuum reading. The user can also examine the calibration data stored in the sensor.

Posifa's I²C Evaluation Kit can be used for programming-free access to the sensor's I²C data. The third-party I²C-USB adapter can be purchased [here](#), while the free Sensor Diagnostic PC software can be downloaded [here](#). The evaluation kit includes a custom wire harness that connects the sensor and the adapter board, allowing the user to read sensor data from a PC in minutes.



FEATURES

- Range: 1 micron to 760,000 microns (0.13 Pa to 101 KPa)
- Fast response time of < 1.5 s
- Low power consumption for battery-powered instruments
- Calibrated, temperature-compensated, digital output
- High accuracy
- Pulsed sensor excitation to prevent signal drift in high vacuums
- Protection from contamination
- Removable, washable, and replaceable filter

ABSOLUTE MAXIMUM RATINGS

- Operating temperature: -25 °C to 85 °C
- Storage temperature: -40 °C to 90 °C
- Shock: 100 g peak (5 drops, 3 axis)
- Overpressure: 450 psi

SPECIFICATIONS

Test Conditions: $V_{in} = 3.3 \pm 0.01$ VDC, $T_a = 25$ °C. Relative Humidity: $40\% < RH < 60\%$

SPECIFICATIONS	MIN	TYP	MAX	UNIT	CONDITIONS
Range	1		760,000	micron	
Resolution	1			micron	1 micron - 10,000 microns
	100			micron	10,000 microns - 760,000 microns
Accuracy		± 10		micron	1 micron - 100 microns
		$\pm 10\%$		reading	100 microns - 10,000 microns
Digital Output	1		65535	count	
Supply Voltage	2.7		5	VDC	
Operating Current		5.3		mA	
Operating Temperature	-25		85	°C	
Proof Pressure		450		psi	
Storage Temperature	-40		90	°C	

OUTPUT DESCRIPTION

IF count \leq 10,000

Micron reading = count

IF count $>$ 10,000

Micron reading = $13.5 * (\text{count} - 10,000) + 10,000$

*Contact Posifa for I²C Communication app note.

SENSOR DIAGNOSTIC SOFTWARE

Main Window

Raw
Packets: 0x1E 0x4B 0x7B 0xFF 0x97 0x86

Calibrated
Packets: 0x44 0xFF 0x4B 0x73 0x00

Version
Sensor: PVC
Firmware: 2-1-FN

Raw Data:
Raw: 19320 | **ATM & Temp Comp Raw: 19323** | Temp Comp Raw: 19315
Max: 19342 Min: 19320 | Max: 19345 Min: 19322 | Max: 19337 Min: 19315

Calibrated Data:
Comp Calibrated: 65535 | Temperature: 38790
Max: 65535 Min: 65535 | Max: 38790 Min: 38785

Calibrated Vacuum Reading:
Micron: 760000 | Pa: 101325.00 | **mbar: 1013.25**
Max: 760000 Min: 760000 | Max: 101325.00 Min: 101325.00 | Max: 1013.25 Min: 1013.25

Graph: Shows pressure over time with four data series: Raw (cyan), Comp Raw (magenta), Comp Calibrated (orange), and Temperature (blue). The Y-axis ranges from 10000 to 60000. The X-axis shows time from 35:18 to 35:26.

Settings:
Filter: Unfiltered
Generic Display (radio), **Sensor Specific Display (radio)**
Sampling Period in Second: **0.5**
Auto Save: Every 1 hour
On Demand save: Save Data
Stop button

Annotations:
- Access to Settings parameters (points to Settings button)
- Access to calibration Table (points to Calibrate button)
- Set default to 2 seconds (points to Sampling Period field)
- Click on Get Data/Stop button to start data collection (points to Stop button)

Settings Parameter Window

Settings

ATMPtempCoeff: [] [Get] [Set]

Room Temp REF: [] [Get] [Set]

Annotations:
- Sensor internal parameters. Do NOT modify (points to ATMPtempCoeff field)
- Reference temperature (usually the temperature at which calibration is conducted) (points to Room Temp REF field)

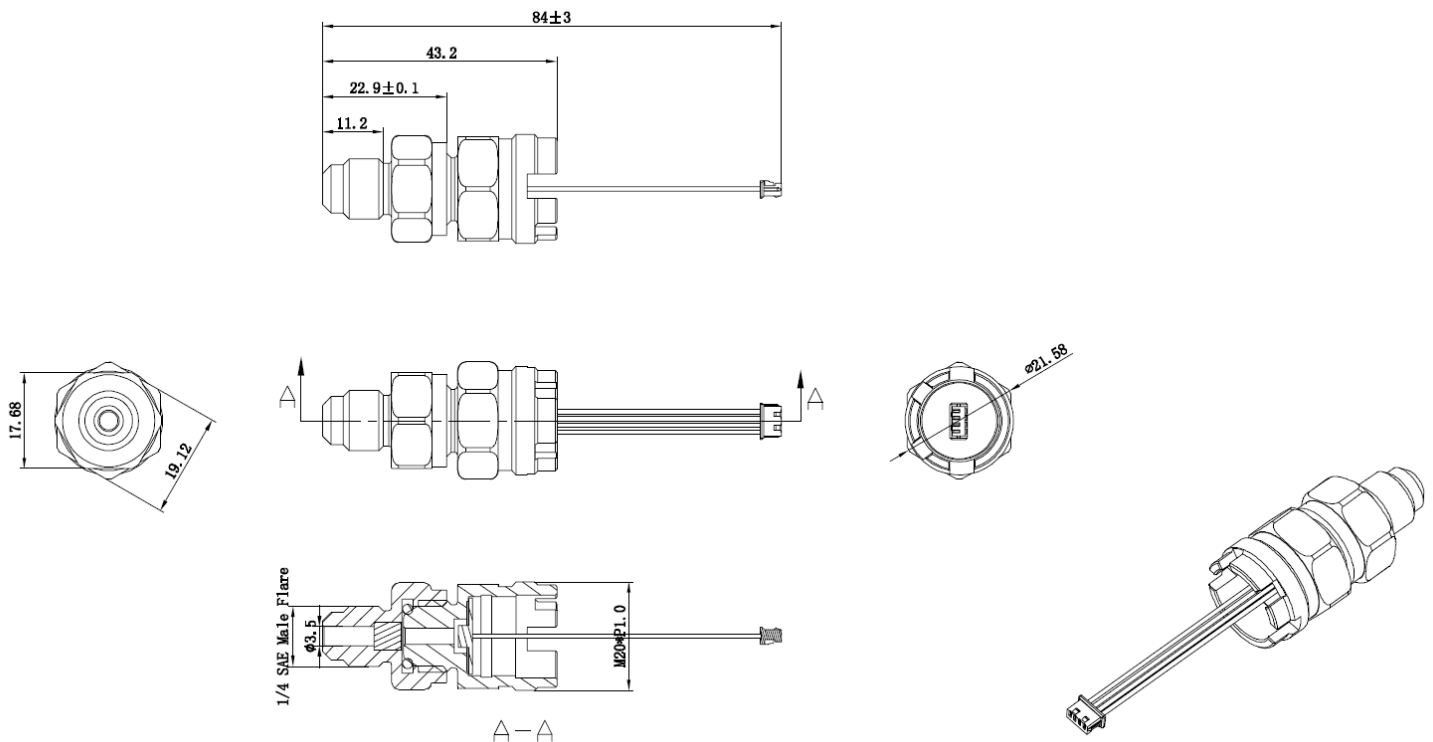
Calibration Window

Index	Raw(x)	Calibrated(y)	Note
0	19784	65535	
1	23348	19011	
2	28498	4961	
3	32284	1014	
4	35884	1087	
5	38270	195	
6	37685	499	
7	40218	197	
8	41439	99	
9	43333	142	
10	42978	11	
11	5111	1000	(11) = Cooling Time (ms)
12	18	15	Temp. Comp Constant
13	15	15	Temp. Comp Constant
14	7541	7432	Temp. Comp Constant

Annotations:
- Calibration data: X column contains the raw sensor output and Y column the corresponding micron reading (points to the table)
- Sensor internal parameters. Do NOT modify (points to the bottom of the window)

PACKAGE DIMENSIONS

PVC4000EVK WITH 1/4 SAE MALE MALE FLARE FITTING



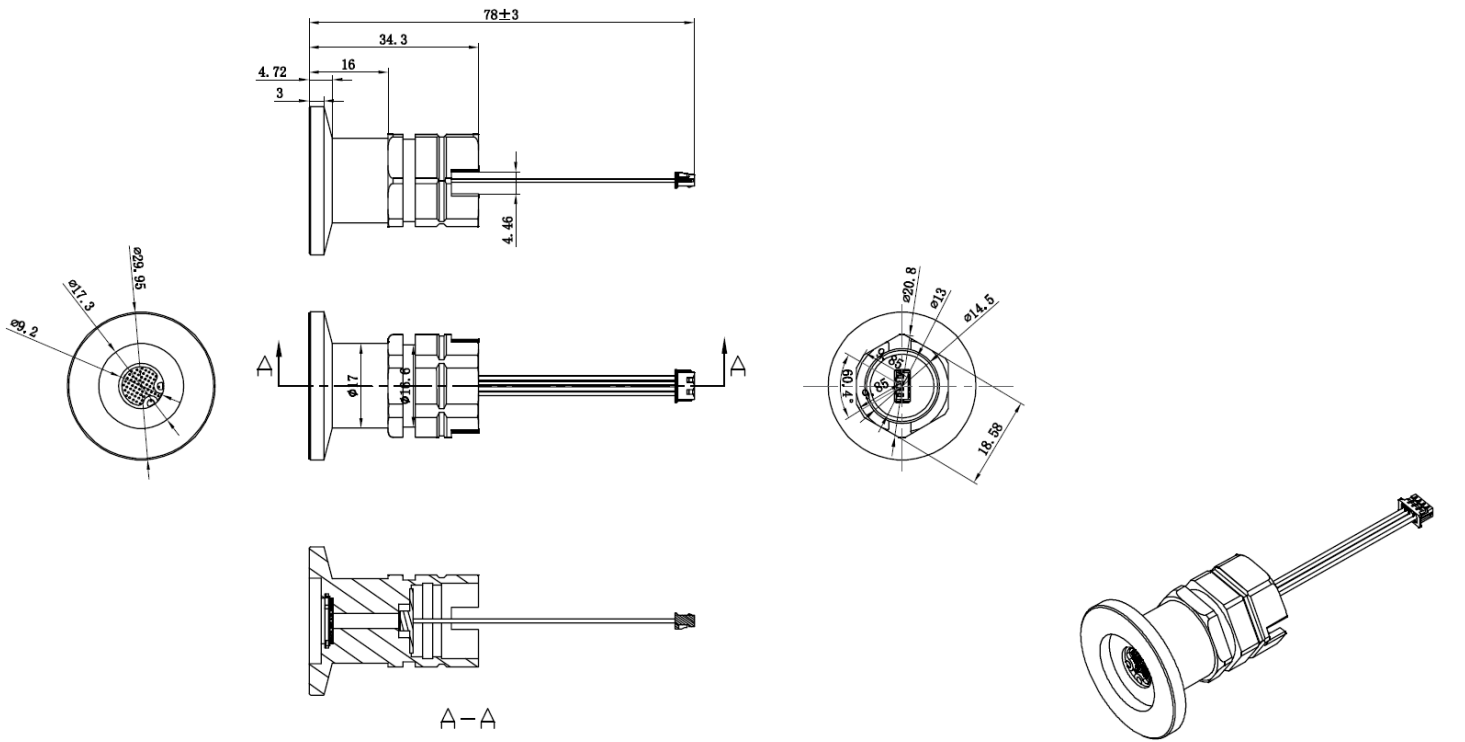
Unit: mm

Pin#	Description
1	Vdd (Red)
2	GND (Black)
3	SDA (Yellow)
4	SCL (Green)
5	N/C
6	N/C

The wire harness is terminated with a Molex connector P/N51021-0600.

PACKAGE DIMENSIONS

PVC4000EVK WITH KF16 FITTING



ORDERING INFORMATION

PART NUMBER	SPECIFICATIONS
PVC4000EVK-SAE	1/4 SAE Male Flare Fitting
PVC4000EVK-KF16	KF16 Fitting

Please contact Posifa or your local distributor to place an order.