

Solid State Vacuum Switch and Sensor with Digital Display

VDS-1000



The VDS-1000 compact all-in-one output device and digital gauge reduces the number of components in your system. With two switch outputs and one analog output, it's possible to monitor the high and low limits for vacuum control and system conditions. In pick and place and robotic material handling applications use the first switch to detect part present and the second switch to signal the robot or tool that the working vacuum level has been achieved and it is safe for the tool to move.

The analog output allows software control over the entire vacuum and pressure range with the ability to track system vacuum/pressure changes in real time. The switches are highly flexible due to selectable output functions such as switching point hysteresis and window comparator.

Vacuum switch reads both vacuum and pressure, see specifications on page 306 for the operating ranges. Choose the VDS-1000-L for accurately detecting small changes in vacuum and pressure between the range of -3 PSI [-0.2 Bar] vacuum to + 3 PSI [0.2 Bar] pressure.

Switch Options:

- 3 Mounting brackets – rear mount, bottom mount, panel mount
- Electrical quick disconnects
- 3 Output types – VDS-1000 (PNP) or VDS-1000-N (NPN), VDS-1000-L

Ideal Applications:

- Robotic control
- Pick and place
- Part present detection
- Material handling
- Monitoring vacuum
- Leak testing

Features/Benefits:

- Fully Programmable – simple push button calibration – no tools required
- Operating range includes both vacuum and pressure
- Full 3 digit display – red LED
- Analog output 1-5 VDC in addition to two switch outputs
- Globally accepted display scales: "Hg, mmHg, PSI, bar, mbar, gf/cm sq, kgf/cm sq, kPa
- Dust and drip proof enclosure to IP65 IEC standards
- Solid state dependability
- 2 ports – back and bottom for easy plumbing and design flexibility
- RoHS compliant

How to Specify:

- **Sensor only:** part number, i.e., VDS-1000 (PNP), VDS-1000-N (NPN), VDS-1000-L
- **Bracket only:** part number, i.e., -RMB (rear mount bracket) -BMB (bottom mount bracket), -PMB (panel mount bracket)
- **Sensor & Bracket:** part number i.e., VDS-1000-RMB
- **Sensor with Quick Disconnect:** part number i.e., VDS-1000-QD

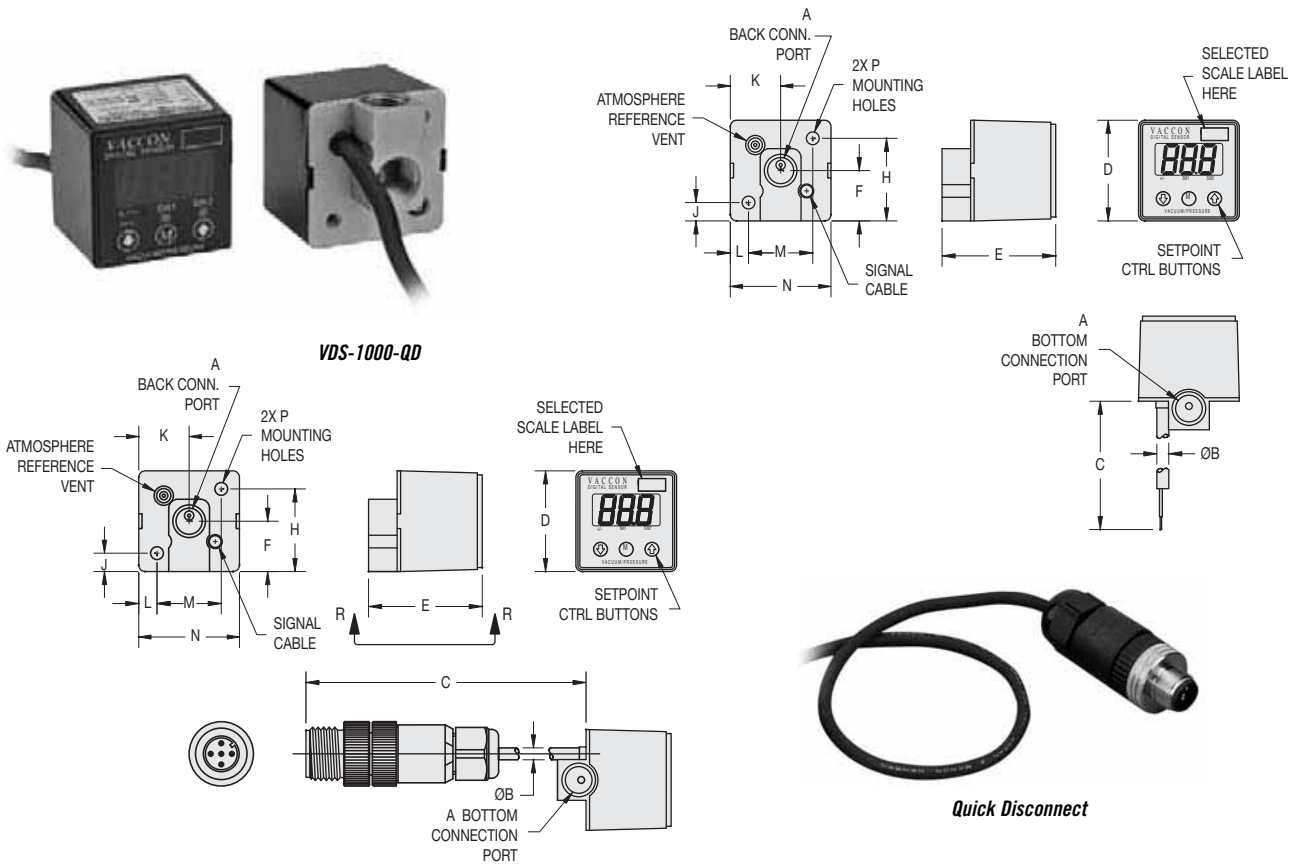


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New powerful design tool saves you time by configuring the pump you need on-line. When complete, simply download the CAD drawing in any one of 13 different CAD formats and insert it right into your design.

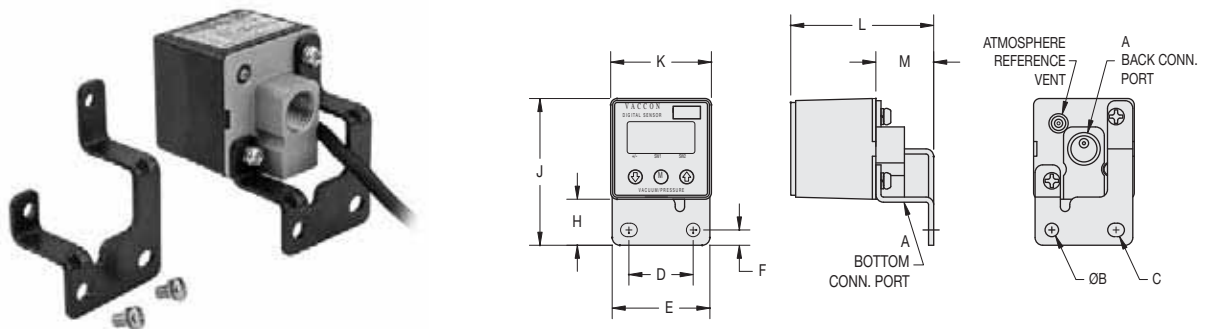
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Standard VDS-1000 Digital Switch/Sensor



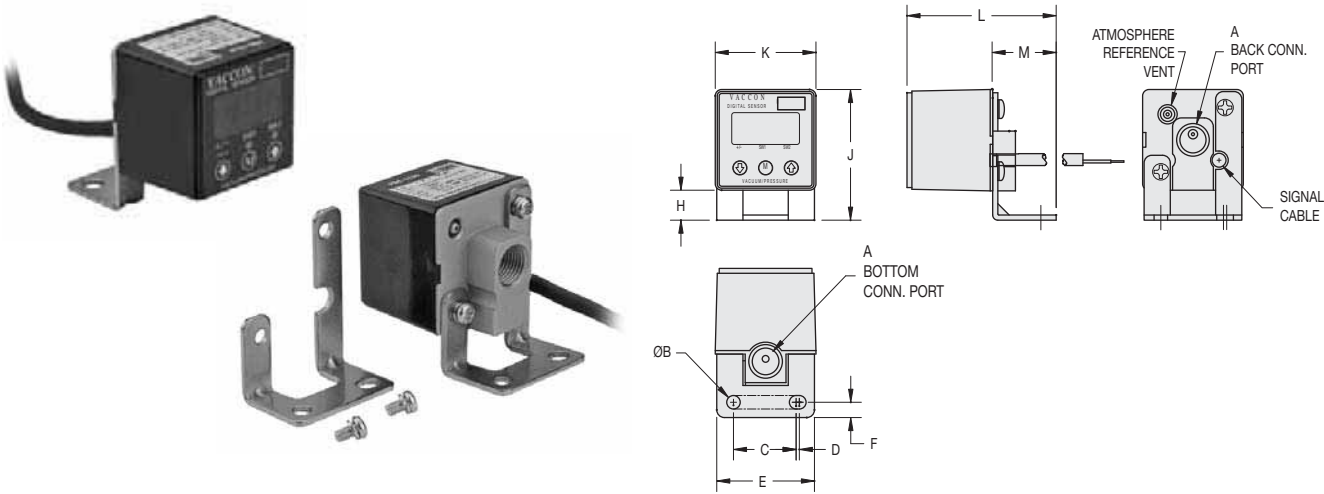
Model #	Dimensions														Weight
		A	B	C	D	E	F	H	J	K	L	M	N	P	
VDS-1000 (L) (N)	in.	1/8 NPT F	0.15	77.62	1.23	1.39	0.62	1.02	0.23	0.62	0.22	0.79	1.23	M3 x 0.5	3.2 oz
	mm	(2X)	3.8	1971.5	31.2	35.3	15.7	25.9	5.8	15.7	5.6	20.1	0.00	M3 x 0.5	91 g
VDS-1000 (L) (N) QD	in.	1/8 NPT F	0.15	75.60	1.23	1.39	0.62	1.02	0.23	0.62	0.22	0.79	1.23	M3 x 0.5	4.3 oz
	mm	(2X)	3.8	1920.5	31.2	35.3	15.7	25.9	5.8	15.7	5.6	20.1	0.00	M3 x 0.5	122 g

Optional Mounting Brackets: Rear Mount Bracket – RMB



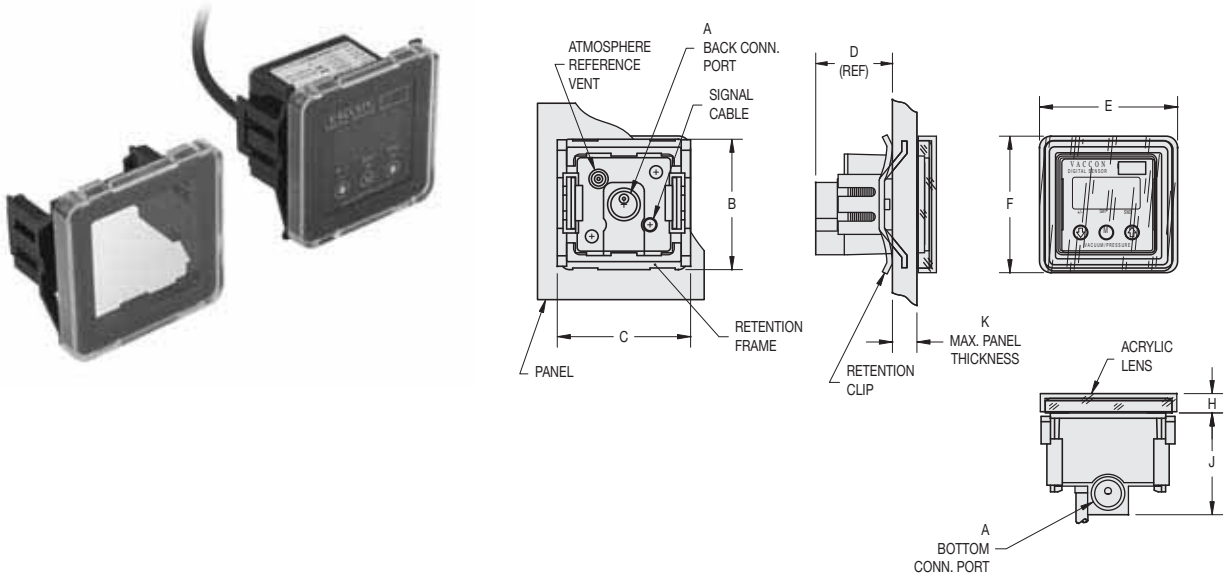
Model #	Dimensions												Weight
		A	B	C	D	E	F	H	J	K	L	M	
VDS-1000 (L) (N) - RMB	in.	1/8 NPT F	0.17	0.17 x 0.20	0.79	1.20	0.19	0.56	1.80	1.23	1.75	0.71	3.6 oz
	mm	(2X)	4.3	4.3 x 5.1	20.1	30.5	4.8	14.2	45.7	31.2	44.5	18.0	102 g

Optional Mounting Brackets: Bottom Mount Bracket – BMB



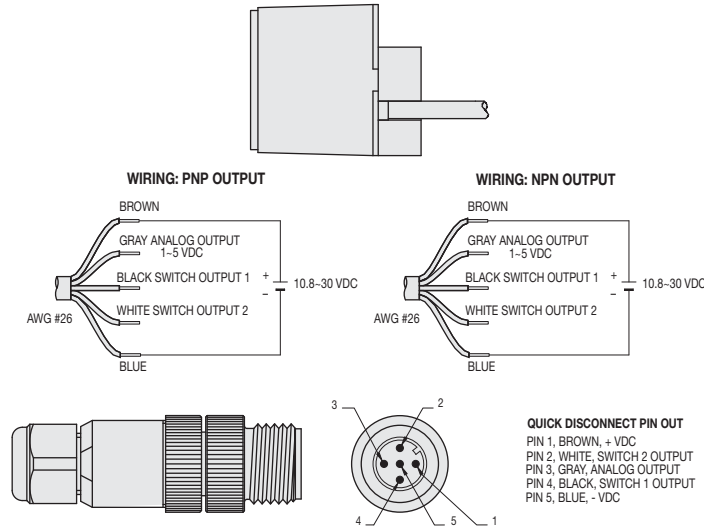
Model #	Dimensions												Weight
		A	B	C	D	E	F	H	J	K	L	M	
VDS-1000 (L) (N) - BMB	in.	1/8 NPT F	0.17	0.17 x 0.20	0.29	1.20	0.19	0.37	1.60	1.23	1.82	0.78	3.6 oz
	mm	(2X)	4.3	4.3 x 5.1	7.4	30.5	4.8	9.4	40.6	31.2	46.2	19.8	102 g

Optional Mounting Brackets: Panel Mount Bracket – PMB



Model #	Dimensions											Weight
		A	B	C	D	E	F	H	J	K		
VDS-1000 (L) (N) - PMB	in.	1/8 NPT F	1.60	1.63	1.09	1.69	1.67	0.24	1.25	0.15	3.6 oz	
	mm	(2X)	40.6	41.4	27.7	42.9	42.4	6.1	31.8	3.8	102 g	

Wiring Schematic for VDS-1000



VDS-1000 Specifications:

	VDS-1000	VDS-1000-N	VDS-1000-L
Rated Vacuum Range:	-14.5 to 14.5 PSI [-982 mbar to 1 BAR]		-1.5 to 1.5 PSI [-101.5 mbar to 0.10 BAR]
Proof Pressure:	29 PSI [2 BAR]		2.9 PSI [0.20 BAR]
Burst Pressure:	72.5 PSI [5 BAR]		7.25 PSI [0.50 BAR]
Media:	Non-Corrosive, Dry Gases		
Supply Voltage:	10.8 to 30 VDC		
Current Consumption:	70 mA Max.		
Switch Type:	Transistor Open Collector		
Sensing/Switching Material:	Single Crystal Silicon		
Output:	(2) PNP Switched, (1) 1-5 VDC Analog	(2) NPN Switched, (1) 1-5 VDC Analog	(2) PNP Switched, (1) 1-5 VDC Analog
Electrical Connection:	5 Wire - 26 AWG - 7' (2M), Optional 5 pin, M12 Quick Disconnect		
Hysteresis:	Adjustable – 0 to 300 Digit		
Repeatability:	+/- 0.2% Full Scale, 1 Digit		
Response Time:	5 ms Max.		
Circuit Protection:	Exists		
Max. Switch Voltage Load:	30 VDC		
Max. Switched Current Load:	100mA		
Thermal Error:	+/- 3% Full Scale/121°F [50°C]		
Thermal Compensation:	None		
Display:	Full 3 Digit LED (sampling rate: 4/sec)		
Switch Indication:	SW1-Green LED ON (Switched Output ON) SW2-Red LED ON (Switched Output ON)		
IP Protection:	IP65		
Operating Temperature:	15°F to 125°F [-10°C to 52°C]		
Operating Humidity:	35 to 85% RH (No Condensation)		
Construction:	ABS/Aluminum Die-Cast/Buna		
Fitting/Connection:	2-1/8" NPT Female, Back and Bottom		
Weight:	3.7 oz [105g]		
Safety and Environmental Compliance:	CE, RoHS		