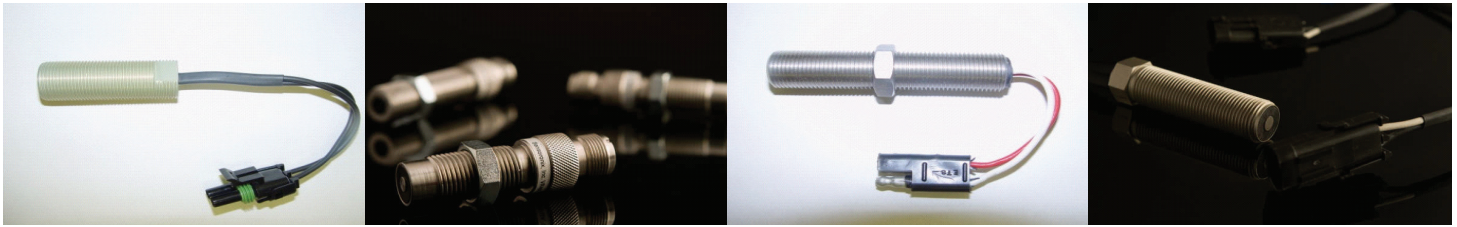
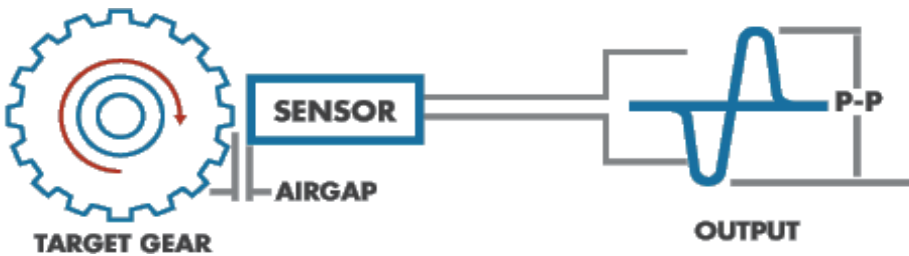


# Variable Reluctance Speed Sensor (VR)



The collapse of magnetic field due to the interruption by a ferrous gear tooth provides an analog signal output (sine wave) that does not require an outside power source. Variable reluctance sensor or Mag-pickup is suitable for speed sensing with a range from 30 to 1000 inches per second with a target gear from one tooth per revolution to 32 pitch gear.

**Common Applications:** Crank shaft engine timing, Engine control, Engine RPM, Gen-sets.



CASE TYPES	DESCRIPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5
	SMOOTH / THREAD	6
	WITH FLANGE	7

**Target:** Ferrous Material Gear Tooth with range of Min 1 tooth or slot to 32 Gear Pitch.

$$P = \frac{N + 2}{OD}$$

P = Gear Pitch  
N = Num. of Teeth  
OD = Outside Diameter

**Output Type:** Analog (Sine Wave)



$$\text{Surface Speed (IPS)} = \frac{\text{RPM} \cdot \pi \cdot D}{60}$$

0 to Peak voltage = Peak to Peak x 0.5

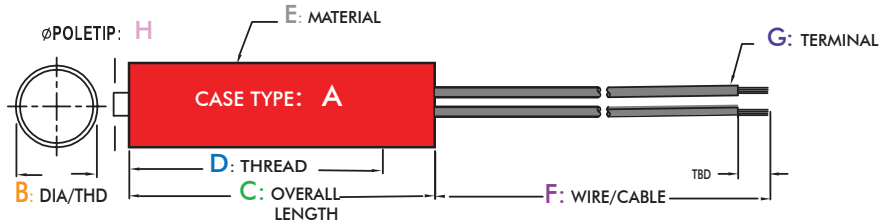
RMS = Peak to Peak x 0.35

## Part Number Nomenclature

Sensor Type	VR	X	X	X	-	X	X	Special Modifications
<b>Case Type "A"</b>								<b>Terminal "G"</b>
<b>Case Diameter "B"</b>								Connector 0
1/4" (0.250")	2X,	Others	9X					Conn. & Wire 1
3/8" (0.375")	3X,	M-12	12					Conn. & Cable 2
15/32"(0.468")	4X,	M-16	16					Lead Wires 3
1/2" (0.500")	5X,	M-18	18					Cable 4
5/8" (0.625")	6X,	M-20	20					
3/4" (0.750")	7X,	M-22	22					
7/8" (0.875")	8X							

# Standard (VR) Products Available

Please contact Sensoronix for more detailed information on the standard sensors listed below. All Sensoronix products are custom designed to meet your exact specification requirements.



Products P/N	MECHANICAL SPECIFICATIONS								ELEC. SPEC. COIL RESISTANCE (Ohm)	ENVIRONMENT TEMPERATURE RANGE ° C
	A	B	C	D	E	F	G	H		
<b>3/8" Diameter Series</b>										
VR130-300	1	3/8 - 24	1.25	1.25	303 S.S.	34 ± .25	18 AWG XLP LEAD WIRES	.040	670 ± 20%	-40 To 125
VR130-400	1	3/8 - 24	1.25	1.25	303 S.S.	25 ± 1	22 AWG SHIELDED CABLE	.093	650 ± 15%	-40 To 125
VR330-400	3	3/8 - 24	2.70	2.27	303 S.S.	6 ± .5	22 AWG SHIELDED CABLE	.093	670 ± 20%	-40 To 105
VR530-400	5	3/8 - 24	4.00	3.55	303 S.S.	73 ± 3	22 AWG SHIELDED CABLE	.093	800 ± 20%	-40 To 105
VR530-410	5	3/8 - 24	2.70	2.25	303 S.S.	73 ± 3	22 AWG SHIELDED CABLE	.093	800 ± 20%	-40 To 105
VR530-420	5	3/8 - 24	1.70	1.25	303 S.S.	73 ± 3	22 AWG SHIELDED CABLE	.093	800 ± 20%	-40 To 105
<b>1/2" Diameter Series</b>										
VR050-000	0	1/2	1.69	-	Plastic	-	2 PINS (D.062", L. .480")	.106	1200 ± 20%	-54 To 107
VR150-300	1	1/2 - 20	1.25	1.25	Alum.	8 ± .25	18 AWG LEAD WIRES	.040	650 ± 20%	-40 To 107
VR450-000	4	1/2 - 20	5.00	3.50	303 S.S.	-	MS3106 CONNECTOR	.125	650 ± 20%	-40 To 105
<b>5/8" Diameter Series</b>										
VR160-200	1	5/8 - 18	3.125	3.125	303 S.S.	2.25 ± .25	LEAD WIRES/CONN.	.187	180 ± 20%	-40 To 105
VR160-220	1	5/8 - 18	1.75	1.75	303 S.S.	19.25 ± 1	CABLE/CONNECTOR	.188	180 ± 20%	-40 To 105
VR160-300	1	5/8 - 18	3.125	3.125	303 S.S.	7 ± .5	20 AWG TEF. LEAD WIRES	.187	180 ± 20%	-40 To 107
VR160-310	1	5/8 - 18	3.125	3.125	303 S.S.	12 ± .5	20 AWG TEF. LEAD WIRES	.106	2000 ± 20%	-54 To 107
VR160-320	1	5/8 - 18	3.125	3.125	303 S.S.	12 ± .25	20 AWG TEF. LEAD WIRES	.187	180 ± 20%	-65 To 107
VR160-330	1	5/8 - 18	5.00	5.00	303 S.S.	12 ± .25	20 AWG TEF. LEAD WIRES	.188	180 ± 20%	-40 To 105
VR160-340	1	5/8 - 18	2.37	2.37	Alum.	12 ± .25	16 AWG LEAD WIRES	.188	180 ± 20%	-40 To 105
VR460-000	4	5/8 - 18	4.25	3.12	303 S.S.	-	MS3106 CONNECTOR	.187	180 ± 20%	-54 To 107
VR460-010	4	5/8 - 18	2.62	1.48	303 S.S.	-	MS3106 CONNECTOR	.187	144 - 198	-54 To 107
VR460-020	4	5/8 - 18	2.62	1.48	303 S.S.	-	MS3106 CONNECTOR	.106	40 - 85	-54 To 107
VR460-030	4	5/8 - 18	2.62	1.48	303 S.S.	-	MS3106 CONNECTOR	.106	1200 ± 10%	-54 To 107
VR460-040	4	5/8 - 18	5.13	4.00	303 S.S.	-	MS3106 CONNECTOR	.106	1200 ± 10%	-54 To 107
VR460-050	4	5/8 - 18	6.125	5.00	303 S.S.	-	MS3106 CONNECTOR	.187	180 ± 20%	-40 To 105
VR460-060	4	5/8 - 18	4.25	3.12	303 S.S.	-	MS3106 CONNECTOR	.187	913 ± 20%	-40 To 105
VR460-080	4	5/8 - 18	2.25	1.13	303 S.S.	-	MS3106 CONNECTOR	.106	1500	-100 To 150
VR560-110	5	5/8 - 18	3.25	2.75	303 S.S.	-	16 AWG LEAD WIRES W/ DEUTCH CONN.	.188	1000	-100 To 150
VR560-120	5	5/8 - 18	3.25	2.75	303 S.S.	-	16 AWG LEAD WIRES W/ DEUTCH CONN.	.188	180	-100 To 150
VR560-300	5	5/8 - 18	3.86	3.86	Alum.	12 ± .25	16 AWG LEAD WIRES	.188	180 ± 20%	-40 To 105
<b>3/4" Diameter Series</b>										
VR170-300	1	3/4 - 16	3.00	3.00	Alum.	14 ± .5	20 AWG TEF. LEAD WIRES	.106	2500 ± 10%	-54 To 107
VR270-100	2	3/4 - 16	3.00	2.57	Alum.	3.5 ± .5	16 AWG / PACKARD CONN.	.187	565 ± 20%	-54 To 121
VR270-110	2	3/4 - 16	4.06	3.63	Alum.	2.25 ± .25	18 AWG SXL LEAD WIRE/CONN.	.188	180 ± 20%	-65 To 121
VR270-300	2	3/4 - 16	2.30	1.87	Alum.	12 ± 1	18 AWG SXL LEAD WIRES	.187	450 ± 20%	-54 To 107
VR270-310	2	3/4 - 16	4.06	3.63	Alum.	4.25 ± .25	20 AWG TEF. LEAD WIRES	.188	180 ± 20%	-40 To 105
VR570-300	5	3/4 - 16	1.47	1.17	303 S.S.	6 ± .5	18 AWG SXL LEAD WIRES	.188	1000 ± 20%	-40 To 105
<b>M12 Diameter Series</b>										
VR112-300	1	M12 x 1	3.00	3.00	303 S.S.	6 ± 1	18 AWG LEAD WIRES	.125	650 ± 13%	-40 To 125
VR312-300	3	M12 x 1	4.06	3.00	303 S.S.	6 ± 1	18 AWG LEAD WIRES	.125	650 ± 20%	-40 To 125
* VR312-310	3	M12 x 1	3.06	2.00	303 S.S.	59 ± 1	18 AWG TEF. LEAD WIRES	.125	850 ± 13%	-40 To 150
* VR312-320	3	M12 x 1	4.06	3.00	303 S.S.	59 ± 1	18 AWG TEF. LEAD WIRES	.125	850 ± 13%	-40 To 150
* VR312-330	3	M12 x 1	5.06	4.00	303 S.S.	59 ± 1	18 AWG TEF. LEAD WIRES	.125	850 ± 13%	-40 To 150
VR312-340	3	M12 x 1.25	5.50	5.00	303 S.S.	79 ± 1	18 AWG TEF. LEAD WIRES	.125	850 ± 13%	-40 To 150
VR312-400	3	M12 x 1	2.56	1.80	303 S.S.	18 ± .5	22 AWG CABLE	.125	650 ± 20%	-40 To 105
VR412-000	4	M12 x 1.25	3.88	2.50	304 S.S.	-	MS3106 CONNECTOR	.093	1600 ± 20%	-28 To 121
<b>M16 Diameter Series</b>										
VR116-200	1	M16 x 1.5	3.125	3.125	303 S.S.	2.25 ± .25	LEAD WIRES AND CONN.	.188	180 ± 20%	-40 To 105
VR116-300	1	M16 x 1.5	4.00	4.00	303 S.S.	8.25 ± .25	18 AWG SXL LEAD WIRES	.106	210 ± 20%	-54 To 107
VR116-310	1	M16 x 1.5	3.125	3.125	303 S.S.	8 ± .25	18 AWG LEAD WIRES	.188	180 ± 20%	-40 To 125
VR216-400	2	M16 x 1.5	3.00	2.69	Alum.	6 ± .25	22 AWG CABLE	.093	1600 ± 20%	-28 To 121
VR416-000	4	M16 x 1.5	4.25	3.12	303 S.S.	-	MS3106 CONNECTOR	.188	180 ± 20%	-40 To 105
VR416-010	4	M16 x 1.5	4.25	3.12	303 S.S.	-	MS3106 CONNECTOR	.106	52 ± 20%	-40 To 105
<b>M18 Diameter Series</b>										
VR118-100	1	M18 x 1.5	2.00	2.00	303 S.S.	2.25 ± .25	18 AWG SXL LEAD WIRES/CONN.	.188	180 ± 20%	-40 To 125
VR118-300	1	M18 x 1.5	3.125	3.125	303 S.S.	8.25 ± .25	18 AWG PVC LEAD WIRES	.188	180 ± 20%	-40 To 125
<b>M20 Diameter Series</b>										
VR120-100	1	M20 x 1.5	2.00	2.00	303 S.S.	2.25 ± .25	18 AWG SXL LEAD WIRES/CONN.	.188	180 ± 20%	-40 To 125
<b>M22 Diameter Series</b>										
VR122-100	1	M22 x 1.5	3.13	3.13	303 S.S.	812 ± .25	18 AWG LEAD WIRES W/ METRIPACK CONN.	.188	180	-65 To 107

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED  
\* SEALED FRONT